Los Angeles International Airport (LAX)
Runway 6R-24L Runway Safety Area (RSA) Improvements Project

Proposed Mitigated Negative Declaration
and Initial Study

Volume 3: Appendices B - F

City of Los Angeles
Los Angeles World Airports

March 2015

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Appendix B

Human Health Risk Assessment

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1. Introduction

The human health risk assessment (HHRA) presented in this appendix estimates cancer, chronic non-cancer, and acute health risks associated with exposure to toxic air contaminants that would be emitted from on-airport construction and operational activities associated with the Los Angeles International Airport (LAX) Runway 6R-24L Runway Safety Area Improvements Project (proposed Project).

1.1 Purpose

The objective of the HHRA is to assess incremental changes to health impacts for people exposed to toxic air contaminants (TAC) resulting from construction and operations associated with the proposed Project. The results of the HHRA identify whether the proposed Project would increase health risks for people living, working, recreating, or attending school near LAX.

The proposed Project will not alter the fleet composition nor operational levels of aircraft serving LAX. However, the proposed Project would slightly change the long-term operational conditions at LAX by shifting Runway 24L approximately 800 feet to the east. Additionally, during construction of the proposed Project, various taxiways and portions of the runway would need to be intermittently closed. During this time, some aircraft operations would be shifted to other runways due to a temporary decrease in available runway departure length. The resulting increase in taxi times for both construction and operations may increase TAC concentrations. As such, the emissions evaluated in the HHRA include those from construction sources (e.g., construction equipment and aircraft operations during the runway usage shift), and form long-term operational changes. Human health risks associated with construction and operational activities associated with the proposed Project are evaluated in this HHRA. These emissions form the basis for estimating impacts from TAC; baseline concentrations for the proposed Project are based on the 2016 Without Project scenario.

Possible human health risks associated with the proposed Project were estimated using modeled TAC concentrations in air and standard methods developed by the California Environmental Protection Agency (CalEPA) and U.S. Environmental Protection Agency (USEPA). Health impacts were evaluated for cancer risks and chronic and acute non-cancer health hazards. An impact was considered significant if cancer or non-cancer health hazards exceeded regulatory thresholds.

1.2 General Approach

This HHRA focuses on analysis of incremental human health risks and hazards associated with airborne releases of TAC during construction and operations of the proposed Project. Cancer risks as well as chronic and acute non-cancer health hazard assessments all depend on estimating TAC concentrations in air in two steps: (1) estimation of emissions of TAC associated with construction and subsequent modeling of dispersion of those TAC to downwind receptor locations; and (2) estimation of health risks associated with inhalation of TAC. Estimated emission rates were used, along with meteorological and geographic information, as inputs to an air dispersion model. The dispersion model predicted possible concentrations of TAC released during airport construction within the study area around the airport. Modeled concentrations were used to estimate human health risks and hazards, which serve as the basis of the significance determinations for the proposed Project.

Potential impacts to human health were estimated using modeled TAC concentrations in air and methods developed by the CalEPA and the USEPA, as described below. Results of the analysis were then interpreted by comparing incremental cancer risks and chronic non-cancer health hazards to regulatory thresholds. For purposes of assessing the significance of any health impacts, these comparisons were made for maximally exposed individuals (MEI) at locations where maximum concentrations of TAC were predicted by air dispersion modeling. An impact was considered significant if cancer risks and/or chronic non-cancer health hazards for MEI exceeded regulatory thresholds. In addition, the range of possible risks and hazards was addressed by evaluating risks for all modeled locations within the defined study area.

Methods for conducting this HHRA are presented in Section 2; TAC emission calculation approach and results and a discussion of the dispersion analysis are presented in Section 3; associated health risks are presented in Section 4; and uncertainties are discussed in Section 5.

2. Methodology

The HHRA was conducted in four steps as defined in South Coast Air Quality Management District (SCAQMD), California Environmental Protection Agency (CalEPA) and U.S. Environmental Protection Agency (EPA) guidance, consisting of:

- Identification of TACs that may be released in sufficient quantities to present a public health risk (Hazard Identification);
- Analysis of ways in which people might be exposed to TACs (Exposure Assessment);
- Evaluation of the toxicity of TACs that may present public health risks (Toxicity Assessment); and
- Characterization of the magnitude and location of potential health risks for the exposed community (Risk Characterization)

Specifically, this HHRA addresses the following issues:

- Quantitative assessment of potential cancer risks and chronic non-cancer health hazards due to the release of TACs associated with the proposed Project construction and operations activities.
- Quantitative evaluation of possible acute non-cancer health hazards due to the release of TACs associated with the proposed Project construction and operations activities.

Protective methods that are likely to overestimate rather than underestimate possible health risks were used to estimate cancer risks and chronic non-cancer health hazards. For example, incremental risks and hazards associated with the proposed Project were calculated for individuals assumed to live, work, recreate, or attend school at locations where TAC concentrations are predicted to be highest. Further, these individuals were assumed to be exposed to TAC for almost all days of the year and for many years to maximize estimates of possible exposure. These "maximally exposed individuals" or MEI are hypothetical individuals used to help ensure that the HHRA is protective.

Risk estimates for MEI are, therefore, upper-bound predictions that could be experienced by people working or living near LAX who breathe TAC released during construction activities associated with the proposed Project. If hypothetical individuals that receive the highest exposures are protected, actual members of the population near LAX will also be protected.

The HHRA for the proposed Project also evaluates the potential for short-term (1-hour) exposures to cause immediate, or acute, non-cancer health impacts. These estimates are also intentionally conservative; they use,

for example, the highest 1-hour concentrations for assessing acute impacts regardless of whether individuals might have access to locations where maximum concentrations occur. This approach helps ensure that actual exposure concentrations in off-airport areas are not underestimated.

2.1 Selection of TACs of Concern

In general, TAC of concern used in the HHRA are based on TAC identified under California Assembly Bill AB2588 and for which the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) has developed cancer slope factors, chronic reference levels, and/or acute reference levels.

The list of TAC of concern used in this HHRA was developed using regulatory lists, emissions estimates, human toxicity information, results of the LAX Master Plan HHRA, and a review of health risk assessments for construction activities included in the LAX South Airfield Improvement Project (SAIP) Final EIR,[1] LAX Crossfield Taxiway Project (CFTP) Final EIR,[2] LAX Bradley West Project Final EIR,[3] LAX Master Plan Final EIR,[4] LAX Runway 7L/25R Runway Safety Area and Associated Improvements Project Final EIR,[5] LAX West Aircraft Maintenance Area Project Final EIR,[6] and LAX Midfield Satellite Concourse (MSC) Final EIR.[7] The resulting list of TAC of concern evaluated in this HHRA is provided in **Table 1**.

1 City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Los Angeles International Airport (LAX) South Airfield Improvement Project, August 2005.

2 City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Los Angeles International Airport (LAX) Crossfield Taxiway Project, January 2009.

3 City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Los Angeles International Airport (LAX) Bradley West Project, September 2009.

4 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

5 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project, January 2014.

6 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) West Aircraft Maintenance Area Project, February 2014.

7 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Midfield Satellite Concourse, July 2014.

Table 1: Toxic Air Contaminants (TAC) of Concern for the Proposed Project

TOXIC AIR CONTAMINANT	TYPE
Acetaldehyde	VOC
Acrolein	VOC
Benzene	VOC
1,3-Butadiene	VOC
Ethylbenzene	VOC
Formaldehyde	VOC
n-Hexane	VOC
Methyl alcohol	VOC
Methyl ethyl ketone	VOC
Propylene	VOC
Styrene	VOC
Toluene	VOC
Xylene (total)	VOC
Naphthalene	PAH
Arsenic	PM-Metal
Cadmium	PM-Metal
Chromium VI	PM-Metal
Copper	PM-Metal
Lead	PM-Metal
Manganese	PM-Metal
Mercury	PM-Metal
Nickel	PM-Metal
Selenium	PM-Metal
Vanadium	PM-Metal
Diesel PM	Diesel Exhaust
Chlorine	PM-Inorganics
Silicon	PM-Inorganics
Sulfates	PM-Inorganics

NOTES:

PAH = Polycyclic aromatic hydrocarbons

PM = Particulate matter

VOC = Volatile organic compounds

SOURCE: Ricondo & Associates, Inc., September 2014.
PREPARED BY: Ricondo & Associates, Inc., September 2014.

2.2 Exposure Assessment

2.2.1 EXPOSURE POPULATIONS

For analysis of the proposed Project, the HHRA selected the following receptors for quantitative evaluation: on-airport/off-site workers, on-airport/on-site workers, off-airport workers, off-airport adult residents, off-airport child residents, and off-airport school children. Each receptor represents a unique population and set of exposure conditions. As a whole, they cover a range of exposure scenarios for people who may be affected by LAX emissions to the greatest extent. Receptors for which exposure scenarios are prepared were selected to provide protective risks and hazards estimates for MEI and to demonstrate the range of risks and hazards in the vicinity of the airport. As previously noted, by providing estimates for the most exposed individuals for determination of significance, the general population is protected.

2.2.2 EXPOSURE PATHWAYS

Different receptors (e.g., off-site workers, school children) could be exposed to TAC in several ways, deemed exposure pathways. An exposure scenario is developed for each receptor that considers various pathways by which they might be exposed to TAC.

An exposure pathway consists of four parts:

- A TAC source (e.g., diesel/gasoline engines)
- A release mechanism (e.g., diesel/gasoline engine exhaust)
- A means of transport from point of release to point of exposure (e.g., local winds)
- A route of exposure (e.g., inhalation)

If any of these elements of an exposure pathway is absent, no exposure can take place, and, the pathway is considered incomplete. Incomplete pathways were not evaluated in this HHRA. In addition, some exposure pathways may be complete, but may result in little or negligible exposure. Thus, numerous possibly complete exposure pathways exist for receptors at or near LAX, but most are anticipated to make minimal to negligible contribution to total risks and hazards. For this HHRA, the inhalation pathway is the most important complete exposure pathway, contributing the majority of risk associated with the proposed Project, and was therefore quantitatively evaluated for all receptors.

Other exposure pathways -- including deposition of TAC onto soils and subsequent exposure via incidental ingestion of this soil, uptake from soil into homegrown vegetables, and other indirect pathways -- were addressed quantitatively in the programmatic HHRA developed for the LAX Master Plan EIR (see LAX Master Plan Final EIR Technical Report 14a and Technical Report S-9a). No pathway other than inhalation was found to be an important contributor to exposure and thus to risk/hazard. Based on this previous analysis, pathways other than inhalation were not assessed in this HHRA.

2.2.3 EXPOSURE CONCENTRATIONS

Analyses of cancer risk and non-cancer health hazards, both chronic and acute, were included in the exposure assessment for the receptors identified in Section 2.2.1. Chronic and acute exposure to TAC from Project-specific construction activities were estimated by:

- Estimation of construction and operational source emissions for annual (for chronic exposure) and for peak daily (for acute exposure).
- Dispersion modeling of construction and operational emissions over an area that consists of the airport property and urban areas to the north, east, and south.

Modeled concentrations of TAC at locations where highest concentrations are anticipated were used to estimate incremental human health risks and hazards. These estimates serve as the basis for significance determinations for the proposed Project. To estimate cancer risks and the potential for adverse non-cancer health hazards, TAC intakes via inhalation for each receptor were estimated.

In 2009, the EPA released the Risk Assessment Guidance for Superfund (RAGS), Part F (hereafter referred to as RAGS Part F). This guidance recommends that inhalation dosimetry methodology be used to calculate inhalation exposures. In this approach, the concentration of the chemical in air is the exposure metric (e.g., milligrams per cubic meter, mg/m^3), and risks are estimated using a unit risk that predicts cancer risk for each mg/m^3. Inhalation rate and body weight are no longer used in the calculations. RAGS Part F methodology is currently used exclusively by USEPA for calculating risks and hazards for the inhalation pathway and has become universally applied within the United States.

RAGS Part F recommends that the concentration of the chemical in air be used as the exposure metric resulting in **Equation 1** for an exposure concentration.

Averaging time for estimation of cancer risk is 70 years or 25,550 days. Cancer risk is evaluated as the lifetime average daily dose (LADD) according to CalEPA and USEPA guidance. Averaging time for estimation of non-cancer health hazards is the duration of exposure, expressed in days. Non-cancer health hazards are evaluated as average daily dose (ADD) over the period of exposure, again, following CalEPA and USEPA guidance.

Cancer risks and the non-cancer health hazards are then calculated using the **Equation 2**.

Assessment of potential chronic human health impacts due to release of TAC associated with the proposed Project assumes that exposure concentrations of TAC are constant over a 70-year period for residential receptors. For this analysis, chemical concentrations, C, from construction, were assumed to occur during one year. For the remaining 69 years of a 70-year lifetime, construction emissions were assumed to be zero. Risk estimates using these predicted TAC concentrations were based locations where construction impacts were likely to be maximal. Such risk estimates overestimate risks for most people living, working or attending school near LAX. This conservatism (protection) is built into the risk assessment developed for the proposed Project to help counter any future changes in the proposed Project construction that cannot now be anticipated quantitatively.

Equation 1: RAGS Part F Chronic Exposures

$$EC = (CA \times ET \times EF \times ED) / AT$$

Where:

EC = exposure concentration ($\mu g/m^3$)
CA = chemical concentration in air ($\mu g/m^3$)
ET = exposure time (hours/day)
EF = exposure frequency (days/year)
ED = exposure duration (years)
AT = average time; e.g., the period over which exposure is averaged, ED in years x 365 days/year x 24 hours/day (hours)

SOURCE: U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Risk Assessment Guidance for Superfund, Vol. I, Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment), Final, EPA-540-R-070-002, OSWER 9285.7-82, January 2009.
PREPARED BY: Ricondo & Associates, Inc., September 2014.

Equation 2: RAGS Part F Cancer Risks Characterized by an Inhalation Unit Risk and Hazard Quotients

$$Risk = IUR \times EC$$

$$HQ = EC / (RfC \times 1000\ \mu g/mg)$$

Where:

IUR = inhalation unit risk $(\mu g/m^3)^{-1}$
EC = exposure concentration ($\mu g/m^3$)
HQ = hazard quotient
RfC = reference concentration (mg/m^3)

SOURCE: U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Risk Assessment Guidance for Superfund, Vol. I, Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment), Final, EPA-540-R-070-002, OSWER 9285.7-82, January 2009.
PREPARED BY: Ricondo & Associates, Inc., September 2014.

Exposure parameters used to calculate LADD and ADD for all receptors for the inhalation pathway are summarized in **Table 2**. Exposure parameters are based on CalEPA Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities,[8] USEPA Exposure Factors

[8] California Environmental Protection Agency, Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities, 1993.

Handbook,[9] and CalEPA Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.[10]

Although USEPA has recently released another version of the Exposure Factors Handbook[11] that updates some of the recommended exposure parameters, the exposure parameters in Table 2 were selected to maintain consistency with the health risk analyses conducted for the LAX Master Plan Final EIR, the SAIP EIR, the CFTP EIR, the Bradley West Project EIR, the SPAS EIR, the Runway 7L/25R RSA EIR, the WAMA EIR, and the MSC EIR.

The equation for the RAGS Part F methodology requires exposure time, an exposure parameter that was not previously defined for the LAX Master Plan EIS/EIR and other tiered LAX EIRs (SAIP EIR, CFTP EIR, and Bradley West Project EIR) because it was not required for the Risk Assessment Guidance for Superfund (RAGS), Part A methodology (hereafter referred to as RAGS Part A). For exposure time, assumptions adopted for the SPAS EIR were used. Residents were assumed to be exposed 24 hours a day. A school child was assumed to be exposed eight hours per day to account for six hours of school instruction and two hours of after-school activities. An adult worker was assumed to be exposed 10 hours per day.

Table 2: Parameters Used to Estimate Exposures to TACs of Concern

	OFF-SITE RESIDENT				
EXPOSURE PATHWAY INHALATION OF PARTICULATES AND GASES	**ADULT (70 YEARS)**	**ADULT (30 YEARS)**	**CHILD**	**OFF-SITE SCHOOL CHILD**	**OFF-SITE WORKER**
Daily Breathing Rate (m^3/day)	20[2/]	20[2/]	15[2/]	6[2/]	10[2/]
Exposure Frequency (days/yr)	350[1/,3/]	350[1/,3/]	350[1/,3/]	200[4/]	245[1/]
Exposure Duration (years)	70[1/,5/]	30[1/,5/]	6[2/]	6[4/]	40[1/]
Body Weight (kg)	70[1/,6/]	70[1/,6/]	15[2/]	40	70[1,6/]
Averaging Time - Non-cancer (days)	25,550[1/,6/]	10,929	2,190[6/]	2,190[6/]	14,600[6/]
Averaging Time - Cancer (days)	25,550[1/,6/]	25,550	25,550[1/,6/]	25,550[1/,6/]	25,550[1/,6/]

NOTES:

1/ Cal/EPA, Air Toxic Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003.

2/ USEPA, Exposure Factors Handbook, USEPA/600/P-95/002Fa, 1997.

3/ USEPA, Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors, Office of Solid Waste and Emergency Response, Washington D.C., August, 1991.

4/ Site-specific.

5/ 70 year exposure duration will be used as basis for determining significance.

6/ USEPA, Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual, Part A, USEPA/540/1-89/002, Office of Emergency and Remedial Response, Washington D.C., 1989.

SOURCE: Ricondo & Associates, Inc., October 2014.

PREPARED BY: Ricondo & Associates, Inc., October 2014.

[9] U.S. Environmental Protection Agency, Exposure Factors Handbook, USEPA/600/P-95/002Fa, 1997.

[10] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003.

[11] U.S. Environmental Protection Agency, *Exposure Factors Handbook*, EPA/600/R-090/052F, September 2011.

The CalEPA Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments recommends a range of exposure parameters be evaluated. Additional analyses are presented in the uncertainties analysis to verify how sensitivity of risk estimates to changes in exposure duration and exposure time might affect conclusions concerning impacts of the proposed Project.

2.3 Toxicity Assessment

Risks from exposure to TAC are calculated by combining estimates of potential exposure with chemical-specific toxicity criteria developed by CalEPA, USEPA, or both. The toxicity assessment initially examined quantitative toxicity criteria for TAC selected from regulatory lists.

A toxicity assessment for TAC of concern was conducted for the LAX Master Plan Final EIR, as described in Technical Report 14a of that EIR. Conclusions of that assessment have not changed materially. Both the CalEPA OEHHA and USEPA continually update toxicity values as new studies are completed, and all toxicity information provided in Technical Report 14a was reviewed and updated as appropriate by researching recent information available from USEPA, CalEPA OEHHA, World Health Organization (WHO), and Agency for Toxic Substance and Disease Registry (ATSDR).

Acute RELs developed by the State of California were used in the characterization of potential acute non-cancer health hazards associated with the proposed Project. Other sources of acute toxicity criteria (e.g., Agency for Toxic Substances and Disease Registry (ATSDR)) were also evaluated as a source of acute criteria as part of this re-assessment of toxicity information.

Cancer unit risk factors, cancer slope factors, and chronic RELs developed by the State of California were used to characterize cancer risks and chronic non-cancer health hazards associated with longer term inhalation of emissions from construction activities. Both types of toxicity criteria are based on studies of chronic exposure in animals or, in some cases, to people. Inhalation unit risk (for RAGS Part F calculations) and cancer slope factors are presented in **Table 3**. Chronic RELs and reference concentrations (RfCs) are presented in **Table 4**.

Acute RELs developed by the State of California were used in characterization of potential hazards associated with short-term exposure (usually from exposures on the order of 1-hour). RELs are based on the most sensitive, relevant, adverse health effect reported in the medical and toxicological literature. Since margins of safety are incorporated to address data gaps and uncertainties, exceeding an REL does not automatically indicate an adverse health impact. Acute RELs are applicable to all receptors, children and adults, and hazards are the ratio of estimated or measured concentrations and the REL. Acute RELs for the TAC of concern included in this analysis are provided in **Table 5**.

Table 3: Toxicity Criteria for Systemic Toxicants

TAC OF CONCERN	USEPA CANCER INHALATION RFC[1/ 2/] (µg/m^3)[3/]	CAL/EPA CHRONIC INHALATION REL[4/] (µg/m^3)	TARGET ORGAN	CANCER CLASSIFICATION [4/]
VOC				
Acetaldehyde	0.01	0.0000027	Nasal, Larynx	B2
Acrolein	N/A [5/]	N/A	N/A	C
Benzene	0.1	0.000029	Blood	A
1,3-Butadiene	0.6	0.00017	Reproductive System, Blood, Lung, GI	A
Ethylbenzene	0.0087	0.0000025	Kidney	D
Formaldehyde	0.021	0.000006	Respiratory System	B1
PAH				
Naphthalene	0.12	0.000034	Respiratory System	C
Diesel Exhaust				
Diesel Particulates	1.1	0.0003	Lung	D
PM-Metal				
Arsenic	12	0.0033	Skin	A
Cadmium	15	0.0042	Lung, trachea, bronchus cancer deaths	B1
Chromium VI	510	0.15	Lung	A
Lead	0.042	0.000012	N/A	B2
Nickel	0.91	0.00026	N/A	A
Vanadium pentoxide [6/]	29 [7/]	0.0083 [7/]	N/A	N/A

NOTES:

1/ California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Toxicity Criteria Online Database, Available: http://www.oehha.ca.gov/tcdb/index.asp, 2013.

2/ mg/kg/day - milligram per kilogram per day

3/ µg/m^3 = microgram per cubic meter

4/ USEPA, EPA Weight of Evidence (EPA 1986, EPA 1996):

- A Human carcinogen
- B1 Probable human carcinogen – indicates limited evidence in humans
- B2 Probable human carcinogen – indicates sufficient evidence in animals and inadequate or no evidence in humans.
- C Possible human carcinogen
- D Not classifiable as human carcinogen

5/ N/A = Not available

6/ Inhalation unit risk value for vanadium pentoxide was used for vanadium in the risk calculations.

7/ USEPA Regional Screening Level (RSL) table, May 2013.

SOURCE: Ricondo & Associates, Inc., October 2014.
PREPARED BY: Ricondo & Associates, Inc., October 2014.

Table 4: Cancer Slope and Unit Risk Factors

TAC OF CONCERN	CAL/EPA[1/] INHALATION CANCER SLOPE FACTOR [(mg/kg/day)$^{-1}$][2/]	CAL/EPA[1/] INHALATION UNIT RISK FACTOR [(µg/m^3)$^{-1}$][3/]	TUMOR SITE/INHALATION	USEPA	CAL/EPA
VOC					
Acetaldehyde	9	140	Respiratory System	1,000	300
Acrolein	0.02	0.35	Respiratory System, Eye	1,000	200
Benzene	30	60	Hematopoietic System, Development, Nervous System, Immune System	300	10
1,3 Butadiene	2	20	Reproductive System	1,000	30
Ethylbenzene	1,000	2,000	Developmental, Liver, Kidney, Endocrine System	300	30
Formaldehyde	9.8 [6/]	9	Respiratory System, Eye	N/A [8/]	10
n-Hexane	700	7,000	Nervous System	300	30
Methyl alcohol	40,006	4,000	Developmental	N/A	30
Methyl ethyl ketone	5,000	N/A	Developmental(skeletal variations)	300	N/A
Propylene	3,000 [6/]	3,000	Respiratory System	N/A	100
Styrene	1,000	900	CNS [9/]	30	3
Toluene	5,000	300	CNS, Respiratory System, Development	10	100
Xylenes	100	700	CNS, Respiratory System	300	30
PAH					
Naphthalene	3	9	Respiratory System	3,000	1,000
Diesel Exhaust					
Diesel Particulates	5	5	Respiratory System	30	30
PM Metal					
Arsenic	0.0156	0.015	Development, Cardiovascular System, Nervous System	N/A	30
Cadmium	0.01	0.02	Kidney; respiratory system	N/A	30
Chromium (VI)	0.16	0.2	Respiratory System	300	100
Copper	N/A	N/A	N/A	N/A	N/A
Lead	N/A	N/A	N/A	N/A	N/A
Manganese	0.05	0.09	Nervous System	1,000	300
Mercury	0.3	0.03	Nervous System	30	300
Nickel	0.09 [6/ 7/]	0.014	Respiratory System, Immune System	N/A	30
Selenium	20 [6/]	20	Alimentary system; nervous system cardiovascular system	N/A	3
Vanadium	0.1 [6/]	N/A	N/A	N/A	N/A
PM Inorganics					
Chlorine	0.15 [6/]	0.2	Respiratory System	N/A	30
Silicon	3	3	Respiratory system	N/A	10
Sulfates	N/A	N/A	N/A	N/A	N/A

NOTES:

1/ Values obtained from the USEPA Integrated Risk Information System (IRIS), 2013.

2/ RfC = Reference Concentration

3/ µg/m^3 = microgram per cubic meter

4/ REL = Reference Exposure Level (obtained from OEHHA Online Toxicity Criteria database, 2013. RELs are concentrations in air that would not result in toxic effects even if exposure continued for a lifetime.)

5/ VOC = volatile organic compounds

6/ Values obtained from the USEPA Regional Screening Level (RSL) table, May 2013.

7/ RfC for nickel soluble salts was used for nickel.

8/ N/A = Not available or not applicable.

9/ CNS = Central Nervous System

SOURCE: Ricondo & Associates, Inc., October 2014.

PREPARED BY: Ricondo & Associates, Inc., October 2014.

Table 5: Acute RELs for TAC of Concern

TAC	ACUTE REL[1/] (µG/M³)
Acrolein	2.5
Benzene	1,300
Formaldehyde	55
Methyl alcohol	28,000
Methyl ethyl ketone	13,000
Styrene	21,000
Toluene	37,000
Xylenes Total	22,000
Arsenic	0.2
Chlorine	210
Copper	100
Manganese	0.17 [2/]
Mercury	0.6
Nickel	0.2
Vanadium pentoxide [3/]	30
Sulfates	120

NOTES:

1/ Values obtained from OEHHA Online Toxicity Criteria database, accessed June 2014.

2/ 8-hour value.

3/ Acute value for vanadium pentoxide was used for vanadium in the risk calculations.

SOURCE: Ricondo & Associates, Inc., October 2014.
PREPARED BY: Ricondo & Associates, Inc., October 2014.

2.4 Risk Characterization

2.4.1 METHODOLOGY FOR EVALUATING CANCER RISKS AND NON-CANCER HEALTH HAZARDS

Concentrations of TAC of concern in air, locations of potentially exposed populations, including locations for MEI exposure scenarios (worker, resident, student), and toxicity criteria were used to calculate incremental human health risks associated with the proposed Project.

Cancer risks were estimated by multiplying exposure estimates for carcinogenic chemicals by corresponding cancer slope factors. Results were risk estimates expressed as the odds of developing cancer. Commonly,

risks (or odds) of developing cancer of one to ten in one million (1×10^{-6} to 10×10^{-6}) or less are considered *de minimis*.[12] Higher risks may be deemed significant in some instances. Cancer risks were based on an exposure duration of 70 years.

Chronic non-cancer health hazard estimates were calculated by dividing exposure estimates by reference doses. Reference doses are estimates of highest exposure levels that would not cause adverse health effects even if exposures continue over a lifetime. The ratio of exposure concentration to reference concentration is termed the hazard quotient (HQ). A HQ greater than one indicates an exposure concentration greater than that considered safe. A ratio that is less than one indicates that Project-related (incremental) exposure was less than the highest exposure level that would not cause an adverse health effect and, hence, no impact to human health would be expected. Risks or odds of adverse effects cannot be estimated using reference doses. However, because reference concentrations are developed in a conservative fashion, HQs only slightly higher than one are generally accepted as being associated with low risks (or even no risk) of adverse effects, and that potential for adverse effects increases as the HQ gets larger.

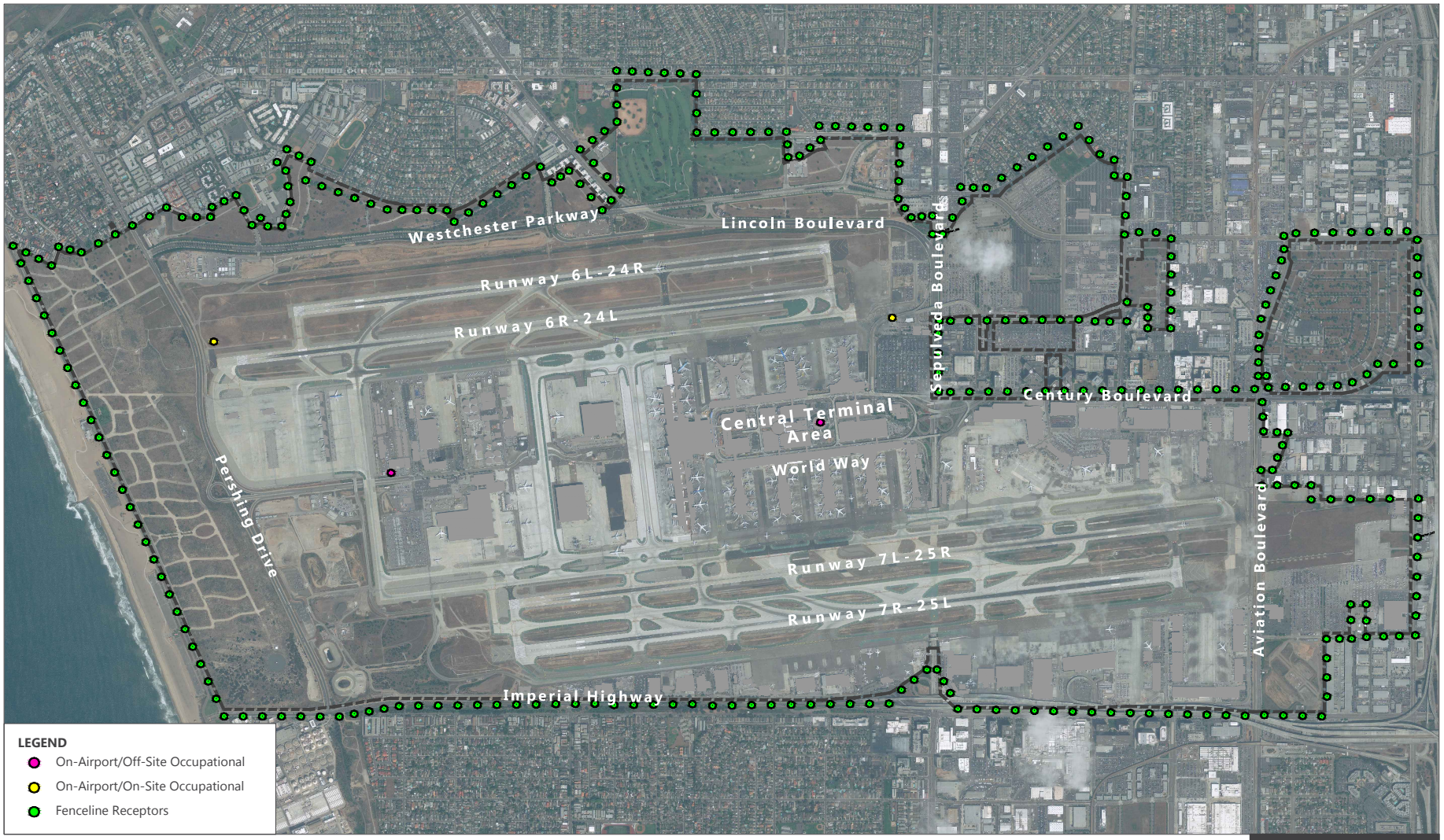
Impacts of exposure to multiple chemicals were accounted for by adding cancer risk estimates for exposure to all carcinogenic chemicals, and by adding estimated HQs for non-carcinogenic chemicals that affect the same target organ or tissue in the body. Addition of HQs for TAC that produce effects in similar organs and tissues results in a Hazard Index (HI) that reflects possible total hazards. Several TAC have effects on the respiratory system including acetaldehyde, acrolein, formaldehyde, xylenes, and diesel particulates. Non-cancer health hazards for the proposed Project were calculated for the respiratory system which accounted for essentially all potential non-cancer health hazards.

To determine whether releases of TAC for the proposed Project would be significant, incremental human health risks for the proposed Project were compared to appropriate thresholds of significance identified in SCAQMD or CalEPA guidance or policy. These comparisons will focus on specific risk thresholds such as ten in one million cancer risk or a hazard index of 1. Differences in incremental human health impacts provide a quantitative assessment of the relative impacts.

2.4.2 MAXIMALLY EXPOSED INDIVIDUALS (MEI)

For the proposed Project, grid points were analyzed along the airport fence-line and within the study area, as shown in **Figure 1**. These locations are anticipated to represent MEI, based on previous dispersion modeling for LAX. Concentrations of each TAC at these nodes were used in calculating cancer risk, and chronic and acute non-cancer health hazard estimates. These calculations were used to identify locations with maximum cancer risks and maximum non-cancer health hazards and serve as the basis for significance determinations.

[12] Clay, Don R., U.S. Environmental Protection Agency, "Memorandum to OSWER, Subject: Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions", April 22, 1991.



SOURCE: Landrum & Brown, *Los Angeles International Airport, Airport Layout Plan,* 2005; Los Angeles World Airports, April 2013 (aerial photography).
PREPARED BY: Ricondo & Associates, Inc., March 2015.

FIGURE 1

NORTH 0 2,500 ft.

Receptor Locations

Drawing: Z:\LAWA\LAX North RSA Environmental\CAD\LAX N RSA Exhibits_6R-24L_CEQA_20150219.dwg Layout: Appendix B Figure 1 Plotted: Feb 25, 2015, 03:50PM

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MEI estimates were partially land use specific. On-airport locations were used to identify on-worker locations. For off-airport locations, all land uses and associated receptors (commercial, residential, etc.) were evaluated for all fence-line grid points under the assumption that such land use could be present now or in the future. Risk and hazard calculations were based on receptors appropriate for land use designations. For example, at each grid node, exposure parameters appropriate for adult commercial workers, for both adult and child residential receptors and for school children were used to estimate exposures, cancer risks, and non-cancer health hazards at that grid point location.

Fence-line concentrations of TAC represent the highest or near-highest concentrations that could be considered "off-airport." Concentrations in areas where people actually work, live, or attend school are predicted to be lower. Thus, impacts for residents, workers, and school children are likely to provide protective estimates for risks and hazards that may occur as a result of implementing the proposed Project.

2.4.3 METHODOLOGY FOR EVALUATING ACUTE IMPACTS

Acute non-cancer risk estimates were calculated by dividing estimated maximum 1-hour TAC concentrations in air by acute RELs. An acute REL is a concentration in air below which adverse effects are unlikely for people, including sensitive subgroups, exposed for a short time on an intermittent basis. In most cases, RELs are estimated on the basis of an 1-hour exposure duration. RELs do not distinguish between adults and children, but are established at levels that are considered protective of sensitive populations. Since margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact.

Toxicity criteria (i.e., RELs) for acute non-cancer health hazards do not distinguish between adults and children, but are established at levels that are considered protective of sensitive populations. An acute REL is a concentration in air below which adverse effects are unlikely, including in sensitive subgroups. In most cases, RELs were estimated on the basis of an 1-hour exposure duration. CalEPA's OEHHA has developed acute RELs for several of the TAC of concern identified in emissions from the airport.

Short-term concentrations for TAC were estimated using the same air dispersion model (AERMOD) used to estimate annual average concentrations, but with the model option for 1-hour maximum concentrations selected. These concentrations represent the highest predicted concentrations of TAC. Acute non-cancer health hazards were then estimated at each grid point by dividing estimated maximum 1-hour TAC concentrations in air by acute RELs. A hazard index equal to or greater than 1, the threshold of significance for acute non-cancer health impacts, indicates some potential for adverse acute non-cancer health impacts. A hazard index less than 1 suggests that adverse acute non-cancer health impacts are not expected.

3. TAC Emissions and Dispersion

3.1 TAC Emissions

Both organic and particulate-bound TACs were analyzed in this HHRA. TACs exist in air as either reactive organic gases or particulate matter. For purposes of the Initial Study, organic emissions are represented by volatile organic compounds (VOC). Emission rates of organic TACs were developed from VOC emission inventories for the same construction and operational sources analyzed in Section 2.III of the Initial Study.; details of these emissions estimates are discussed in Appendix A. TACs associated with small particles, or those particles less than 10 microns in diameter (PM_{10}), are the focus for particulate emissions, because this size fraction can deposit in the lung and is therefore primarily responsible for inhalation exposure. Emission rates of particulate-bound TACs were developed from the PM_{10} emission inventories also included in Section 2.III of the Initial Study. Speciation profiles[13] for VOC and PM_{10} emissions from individual source types, primarily developed by the California Air Resources Board (CARB), were used to calculate TAC emissions.[14] These emissions form the basis for modeling concentrations of TACs in air on and around LAX.

3.1.1 CONSTRUCTION ACTIVITIES EMISSIONS

Construction of the proposed Project would result in temporary emissions of various air pollutants from construction equipment, vehicles used by workers commuting to the job site, trucks used for haul/delivery trips, and demolition (material crushing and grading). Methods for estimating source emissions are detailed in Appendix A, Air Quality and Greenhouse Gas Emissions. For emissions estimating, the period of construction for the proposed Project was anticipated to be entirely within 2016.

Emissions of DPM (assumed to be equal to the engine exhaust component of particulates less than 10 microns in diameter) are expected to contribute the majority to total incremental cancer risks for construction sources. Based on previous evaluations of construction impacts at LAX, other TACs have minimal contributions. DPM is classified as a carcinogenic TAC by the California Office of Environmental Health Hazard

[13] Speciation profiles provide estimates of the chemical composition of emissions, and are used in the emission inventory and air quality models. CARB maintains and updates estimates of the chemical composition and size fractions of PM_{10} and the chemical composition and reactive fractions of ROG for a variety of emission source categories. Speciation profiles are used to provide estimates of TAC emissions.

[14] California Air Resources Board, Available at: http://www.arb.ca.gov/ei/speciate/dnldoptvv10001.php, Accessed: December 2, 2013.

Assessment (OEHHA). However, the evaluation of cancer risks and chronic health hazards evaluated the release of DPM as well as other associated TACs from construction equipment.

TAC inventories for construction equipment VOC emissions were developed from Organic Profile No. 818 for diesel-fueled equipment, and Organic Profile No. 2110 for gasoline vehicles. TAC emission inventories for construction equipment PM emissions were developed from Profile No. 425 for diesel-fueled equipment, and Profile No. 420 for construction dust.

3.1.2 AIRCRAFT OPERATIONS DURING CONSTRUCTION EMISSIONS

Construction of the proposed Project would require construction activities within the Runway 6R-24L RSA on both ends of the runway, and a temporary reduction in runway length during each phase of construction. Construction would be conducted in two distinct phases, estimated at 6 months each, covering the entire 2016 calendar year. The first phase of construction would focus on the RSA improvements to the Runway 24L end; once those improvements are completed, construction of the RSA improvements to the Runway 6R end would commence. While closure of the runway is not anticipated during construction, the Proposed Action Alternative would require connecting taxiways to be intermittently closed. As Runway 6R-24L is the primary departures runway on the north airfield, normal aircraft operations on this runway would need to be shifted to other runways during construction based on the available runway length for departures; this would result in a slight increase in taxi times. The incremental differences in taxi/idle times were used for the analysis of aircraft TAC emissions associated with the shift in aircraft operations during the construction period as compared to the normal operations scenario. This difference was used to determine the incremental impact; evaluation of potential impacts to human health associated with the proposed Project-specific operational sources during construction (e.g., the shift in aircraft operations) was assessed in this HHRA.

TAC inventories for aircraft VOC emissions were developed from EPA Profile No. 5565 for aircraft engine exhaust.

3.1.3 OPERATIONAL EMISSIONS

The proposed Project would slightly change the long-term operational conditions at LAX by shifting Runway 24L approximately 800 feet to the east. This would result in all "heavy" aircraft departing an additional approximately 800 feet to the east; all other aircraft operations would perform intersection departures from Taxiway E8. As the existing Runway 24L arrivals threshold would remain in its current location, arrivals on Runway 24L, although infrequent, would remain unchanged under the proposed Project. However, this displaced threshold would require the implementation of declared distances. Taxi times for heavy aircraft departing on Runway 24L would thereby be required to travel an additional 800 feet prior to takeoff. This incremental difference in taxi/idle times were used for the analysis of aircraft TAC emissions associated with the shift in aircraft operations as compared to the normal operations scenario.

3.2 Exposure Concentrations (Dispersion)

Air dispersion modeling was used to estimate TAC concentrations for the proposed Project. TAC concentrations were estimated in two steps; first, dispersion modeling was used to estimate total VOC and PM_{10} concentrations, and then individual organic or particulate TAC concentrations were calculated using emissions profiles to speciate total VOC and PM_{10} estimates. For example, if total VOC at a given location was 0.1 microgram per cubic meter ($\mu g/m^3$) and a given volatile TAC was expected to make up 1 percent of this total, the concentration of that TAC at that location would be 0.001 $\mu g/m^3$.

Project-related concentrations for TAC from construction sources were estimated using the air dispersion model (AERMOD, Version 14134) with model options for 1-hour maximum, annual, and period average concentrations selected.

3.2.1 SOURCE AREAS

Construction DPM sources were modeled as engine exhaust emissions elevated 5 meters. Construction dust emissions were modeled at ground level. Operational sources were located at their respective on-airport locations; aircraft emissions were located on the appropriate taxiways and runways, as well as the approach and departure paths. Release heights for aircraft are respective to each phase of the landing-takeoff (LTO) cycle.

3.2.2 RECEPTORS

Receptors were modeled along the airport fence-line at approximately 100 m intervals. In addition, an on-airport grid point located at the proposed Project construction site was modeled. A receptor was also located at the LAX Theme Building. The modeled receptors are shown on Figure 1.

3.2.3 METEOROLOGY

The meteorological data from the NWS LAX site was used in the analysis. The meteorological data were obtained from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center (NCDC) website. This data was preprocessed along with Automated Surface Observing System (ASOS) 1-minute wind data using AERMET. AERMET is a meteorological preprocessor for organizing available meteorological data into a format suitable for use in the AERMOD air quality dispersion model. The dataset used consisted of the most current year (2013) of hourly surface data collected at LAX; the data included ambient temperature, wind speed, wind direction, and atmospheric stability parameters, as well as mixing height parameters from the appropriate upper air station. The meteorological data were loaded into AERMOD to determine the maximum concentrations for each pollutant and averaging period combination. The highest hourly average results at each grid point were used to quantify acute hazards; the highest annual concentration was used to develop the 70-year exposure concentration that was used for calculations of chronic non-cancer hazards and cancer risk.

4. Human Health Risk Assessment

This HHRA assesses incremental changes to health impacts for people exposed to TAC resulting from construction and operations associated with the proposed Project. Cancer risk and chronic non-cancer health hazard estimates for impacts of the proposed Project are based on estimated project emissions and air dispersion modeling as discussed above and in the following sections. Acute health hazard estimates were also addressed using emission estimates and dispersion modeling. Risk calculations indicate that estimates of cancer risks and acute and chronic health hazards would be below the regulatory thresholds of significance. Since assessment of health risks included locations where concentrations of TAC were predicted to be highest, this finding applies to all areas on and around LAX.

The following subsections discuss the incremental cancer risk and chronic non-cancer health hazard estimates for impacts of the proposed Project by receptor.

4.1 Cancer Risks and Non-Cancer Hazards Associated with the Proposed Project

Cancer risk estimates from exposure to construction and operation sources are presented below for adult workers, residents, and school children. Acute and chronic non-cancer health hazards are also discussed. Although construction emissions are only projected to last for one year, for convenience in cancer risk calculations, construction emissions during the construction period were amortized over the entire 70-year exposure period. This approach allowed use of a single exposure concentration in the calculations.

4.1.1 COMPARISON OF ON-SITE AIR CONCENTRATIONS WITH OSHA LIMITS FOR ON-SITE WORKERS

Impacts to on-site workers were evaluated by comparing estimated maximum 1-hour air concentrations of TAC to the California Occupational Safety and Health Administration (CalOSHA) 8-hour Time-Weighted Average Permissible Exposure Levels (PEL-TWAs).[15] Estimated on-site air concentrations and PEL-TWAs for TAC of concern for construction and operations of the proposed Project are presented in **Table 6**. Operational concentrations compare the incremental difference between the 2016 future With Project and the 2019 future Without Project scenario.

[15] California Occupational Safety and Health Administration, Permissible Exposure Limits for Chemical Contaminants, Table AC 1, Available at: http://www.dire.ca.gov/title8/5155.html.

Table 6: Comparison of CalOSHA Permissible Exposure Limits to Maximum 8-Hour On-Site Air Concentrations

TOXIC AIR CONTAMINANT [1/]	PROJECT CONSTRUCTION CONCENTRATIONS (mg/m^3) [2/]	PROJECT OPERATION CONCENTRATIONS (mg/m^3) [2/]	CALOSHA PEL TWA (mg/m^3) [3/]
Acetaldehyde	0.0020479	0.0013326	45
Acrolein	0.0003043	0.0007639	0.25
Benzene	0.0006161	0.0005244	0.32 [4/]
1,3-Butadiene	0.0002316	0.0005262	2.2
Ethylbenzene	0.0000846	0.0000543	435
Formaldehyde	0.0045244	0.0038399	0.37 [4/]
Hexane, n-	0.0000334	0.0000000	180
Methanol	0.0002110	0.0005630	260
Methyl ethyl ketone	0.0005187	0.0005630	590
Naphthalene	0.0000794	0.0001688	50
Propylene	0.0010662	0.0014143	N/A
Styrene	0.0000474	0.0000964	215
Toluene	0.0003860	0.0002003	37
Xylene (total)	0.0002722	0.0001397	435
Diesel PM	0.0021536	0.000000	N/A
Arsenic	0.0000010	0.000000	0.01
Cadmium	0.0000017	0.000000	0.005
Chlorine	0.0001746	0.000000	1.5
Chromium (VI)	0.0000005	0.000000	0.005
Copper	0.0000057	0.000000	1
Lead	0.0000288	0.000000	0.05
Manganese	0.0000471	0.000000	0.2
Mercury	0.0000009	0.000000	0.025
Nickel	0.0000032	0.000000	0.5
Selenium	0.0000001	0.000000	0.2
Silicon	0.0099896	0.000000	6
Sulfates	0.0002788	0.000000	N/A
Vanadium	0.0000136	0.000000	0.05

NOTES: N/A = Not Available

1/ All TACs for which PEL-TWAs are available are listed. PEL-TWAs are not available for diesel exhaust, propylene, and sulfates.

2/ Maximum 1-hour concentrations at on-airport location converted to 8-hour averages by multiplying by a factor of 0.7.

3/ California Occupational Safety and Health Administration. Permissible Exposure Limits for Chemical Contaminants, Table AC-1, 2008, http://www.dir.ca.gov/title8/5155table_ac1.html.

4/ CalOSHA does not have a value; value is from American Conference of Governmental Industrial Hygienists (ACGIH), Documentation of the Threshold Limit Values and Biological Exposure Indices, 8th ed., Cincinnati, Ohio, 1998.

SOURCE: Ricondo & Associates, Inc., February 2015.
PREPARED BY: Ricondo & Associates, Inc., February 2015.

Estimated maximum 1-hour air concentrations at the on-site locations under the proposed Project were converted to an 8-hour average by multiplying by a factor of 0.7.[16] The resulting 8-hour average is a few to several orders of magnitude below PELs for all TAC. This result suggests that air concentrations from airport emissions with implementation of the proposed Project would not exceed those concentrations considered "acceptable" by CalOSHA standards.

4.1.2 CANCER RISKS AND CHRONIC NON-CANCER HEALTH HAZARDS FOR MAXIMALLY EXPOSED INDIVIDUALS (MEI) – RESIDENTS AND SCHOOL CHILDREN

For cancer risks and chronic non-cancer hazards for the proposed Project, 326 grid points were analyzed along the airport fence-line. The concentrations at the 326 fence-line locations represent maximum concentrations of TAC predicted by the air dispersion modeling, can be used to evaluate exposure to a MEI, and thus provide a ceiling for risks and hazards for off-airport residential, commercial, and student receptors. In essence, these calculations assumed that people live, work, and go to school at the LAX fence-line. Although this assumption is incorrect, it is conservative.

Air concentrations for TAC from construction and operations sources were developed using emissions estimates and dispersion modeling as described above. Using these emission estimates, exposure parameters for potential receptors and current toxicity values, cancer risks and chronic non-cancer health hazards were calculated for adult residents, resident children ages 0 to 6 years, and for elementary-aged school children at fence-line locations. Offsite worker risks and hazards were estimated at the fence-line. Peak cancer risks and chronic non-cancer health hazards for MEI for construction and operations of the proposed Project are summarized in **Table 7.** Calculations for construction and operations cancer risks and non-cancer health hazards are included in **Attachments B.1** and **B.2**, respectively.

4.1.2.1 Residents (Adults and Young Children)

The estimated peak incremental cancer risks for adult residents and child residents for construction of the proposed Project range from 0.001 in one million to 0.085 in one million. Cancer risks for operational sources were also evaluated. When compared against the 2016 future Without Project scenario, the estimated peak incremental cancer risks for adult residents and child residents for the proposed Project range from 0.001 in one million to 0.03 in one million. Estimated incremental cancer risks are higher for adults than for children, because exposure duration is longer. Exposure to DPM released during construction contributed 94 percent of the peak cancer risks for adults and children. Cancer risks from operational sources are due primarily to exposure of 1,3-butadiene, which contributes to about 64 percent of the risk estimate.

[16] California Air Resources Board. 2003. HARP User Guide: Appendix H Recommendations for Estimating Concentrations of Longer Averaging Periods from the Maximum One-Hour Concentration for Screening Purposes. December. Available at: http://www.arb.ca.gov/toxics/harp/harpug.htm.

Table 7: Incremental Cancer Risks and Chronic Non-Cancer Human Health Hazards for Maximally Exposed Individuals from the Proposed Project

RECEPTOR TYPE	PROJECT CONSTRUCTION	PROJECT OPERATIONS	SIGNIFICANCE THRESHOLD	SIGNIFICANT?
Incremental Cancer Risks [1/] (per million people)				
Child Resident	0.007	0.001	10	No
School Child	0.001	0.0002	10	No
Adult Resident	0.085	0.009	10	No
Adult Worker	0.193	0.031	10	No
Incremental Non-Cancer Chronic Hazards [2/]				
Child Resident	0.0064	0.0125	1	No
School Child	0.0012	0.0024	1	No
Adult Resident	0.0064	0.0125	1	No
Adult Worker	0.1224	0.0720	1	No

NOTES:

1/ Values provided are changes in the number of cancer cases per million people exposed as compared to baseline conditions. All estimates are rounded to one significant figure.

2/ Hazard indices are totals for all TACs that may affect the respiratory system. This incremental hazard index is essentially equal to the total for all TACs.

SOURCE: Ricondo & Associates, Inc., February 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Project-related chronic non-cancer hazard indices for construction impacts associated with the proposed Project for adult residents and child residents living at the peak TAC concentration location were estimated to be 0.0064. At the peak hazard index location, hazard indices are primarily attributable to acrolein (57 percent), silicon (16 percent), and formaldehyde (13 percent). Chronic non-cancer hazard indices for operational impacts associated with the proposed Project for adult residents and child residents living at the peak TAC concentration location were estimated to be 0.013. At the peak hazard index location, hazard indices are primarily attributable to 1,3-butadiene (64 percent) and formaldehyde (16 percent).

4.1.2.2 School Children

School children were evaluated at all 326 fence-line grid nodes. Incremental cancer risk from construction of the proposed Project for children attending schools at the peak location within the study area is estimated to be 0.001 in one million. Exposure to DPM released during construction contributed 94 percent of the peak cancer risks. When compared against the 2016 future Without Project scenario, the estimated peak incremental cancer risk for school children is 0.0002 in one million. Cancer risks from operational sources are due primarily to exposure of 1,3-butadiene, which contributes to about 64 percent of the risk estimate. Risks below 1 in one million are typically considered negligible by regulatory agencies in California.

4.1.2.3 Adult Workers

Adult workers were evaluated at all 326 off-airport grid nodes. Cancer risks for adult workers during construction at the peak location are estimated to be 0.193 in one million. Exposure to DPM released during construction contributed 76 percent of the peak cancer risks. When compared against the 2016 future Without Project scenario, the estimated peak incremental cancer risk for adult workers is 0.03 in one million. Cancer risks from operational sources are due primarily to exposure of 1,3-butadiene, which contributes to about 64 percent of the risk estimate.

Overall, project-related cancer risks for the proposed Project for adult workers are predicted to be below the threshold of significance.

4.1.3 ACUTE NON-CANCER HAZARDS RISK

As with cancer risks and chronic non-cancer health hazards, acute health hazards were analyzed at 330 grid points within the study area (326 fence-line receptors and four on-airport receptors). Short-term concentrations of TAC for the proposed Project sources were estimated using AERMOD with the model option for 1-hour maximum concentrations selected. Acute health hazards were estimated at each grid point by comparison of the modeled TAC concentration at each grid point with the acute REL. All TAC identified in Project construction emissions, and for which CalEPA has developed acute RELs, were evaluated for potential acute health hazards. All acute health hazard estimates are specific for airport emissions and are independent of county-wide estimates developed by USEPA.

Land use distinctions and different exposure scenarios are not relevant for assessment of acute health hazards. For example, someone visiting a commercial establishment would potentially be subject to the same acute health hazards as someone working at the establishment. Fence-line concentrations of TAC are likely to represent the highest concentrations and therefore the greatest impacts for residents, school children, or off-airport workers. Two on-airport grid points were assumed to be commercial receptors (workers).

Acrolein, formaldehyde, and manganese are the only TAC of concern in construction and operational emissions from the proposed Project that might be present at concentrations approaching the thresholds for acute health hazards. Acute health hazards for other TAC are orders of magnitude below their respective acute RELs and thus would not contribute substantially to health hazards. The primary source of acrolein is aircraft emissions; the primary source of formaldehyde is from diesel-powered construction equipment; the primary source of manganese is fugitive dust. Maximum acute health hazards associated with exposure to these three chemicals from the proposed Project construction, and two chemicals from operations, are summarized in **Table 8**. Calculations for construction and operations acute health hazards are provided in **Attachments B.3** and **B.4**, respectively.

Table 8: Maximum Incremental Acute Non-Cancer Hazard Indices from Construction and Operations

	CONSTRUCTION			OPERATIONS	
POLLUTANT	**ACROLEIN**	**FORMALDEHYDE**	**MANGANESE**	**ACROLEIN**	**FORMALDEHYDE**
Residential					
Maximum HI [1/]	0.16	0.04	0.04	0.05	0.01
Minimum HI	-0.66	-0.15	0.00	-0.31	-0.07
Average HI	0.05	0.01	0.01	-0.02	0.00
School					
Maximum HI	0.14	0.03	0.03	0.00	0.00
Minimum HI	-0.07	-0.01	0.01	-0.01	0.00
Average HI	0.08	0.02	0.02	0.00	0.00
Offsite Worker					
Maximum HI	0.48	0.11	0.13	0.11	0.02
Minimum HI	-0.17	-0.04	0.00	-0.28	-0.07
Average HI	0.07	0.02	0.02	-0.01	0.00
Recreational					
Maximum HI	0.18	0.04	0.02	0.00	0.00
Minimum HI	0.02	0.01	0.01	-0.03	-0.01
Average HI	0.11	0.03	0.01	-0.01	0.00
Overall Off-Airport					
Maximum HI	0.48	0.11	0.13	0.11	0.00
On-Site Occupational					
Maximum HI	0.24	0.12	0.40	0.00	0.00

NOTES:

1/ HI = Hazard Index

SOURCE: Ricondo & Associates, Inc., February 2015.
PREPARED BY: Ricondo & Associates, Inc., February 2015.

As shown, construction-related incremental maximum acute hazard quotients for acrolein for construction of the proposed Project are estimated to be 0.16 for residents living at the peak hazard location, 0.14 for school children, 0.18 for recreational users, and 0.48 for off-site adult workers. A hazard index equal to or greater than 1 would indicate the potential for acute adverse health effects. As shown in Table 8, construction- and operations-related maximum acute hazard quotients for all chemicals are all below the significance threshold of 1.

4.2 Cumulative Risks and Non-Cancer Health Hazards Associated with the Proposed Project

Unlike air quality, for which standards have been established that determine acceptable levels of pollutant concentrations, no standards exist that establish acceptable levels of human health risks or that identify a threshold of significance for cumulative health risk impacts. Therefore, the discussion below addresses cumulative health risk impacts, and Project-related contributions to those impacts; however, no determination is made regarding the significance of cumulative impacts. Since these results are not used for significance determination, a general discussion of the cumulative impacts for the proposed Project is provided. Based on information available from the South Coast Air Quality Management District (SCAQMD) and U.S. Environmental Protection Agency (USEPA), relative to regional cancer risk estimates and toxic air contaminant (TAC) predictions, the geographic areas considered in the cumulative health risk impacts analysis include the South Coast Air Basin for cancer risk and the LAX area for non-cancer health hazards, as further described below.

4.2.1 CUMULATIVE CANCER RISKS

The SCAQMD has conducted multiple urban air toxics monitoring and evaluation studies for the South Coast Air Basin over the last few decades. Most recently, SCAQMD has released a draft report called Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-IV). MATES-IV is a follow up to MATES-III, which updates the monitoring and evaluation study performed from 2004 to 2006. According to MATES-IV, cancer risks in the South Coast Air Basin range from 320 in one million to 480 in one million, with an average of 418 in one million. These cancer risk estimates are relatively high (although substantially lower than those found in MATES-III) and indicate that current impacts associated with ongoing releases of TAC (e.g., from vehicle exhaust) and from sources of TAC from past and present projects in the region are substantial. The MATES-IV study is an appropriate estimate of present cumulative impacts of TAC emissions in the South Coast Air Basin. It does not, however, have sufficient resolution to determine the fractional contribution of current LAX operations to TAC in the airshed. Only possible incremental contributions to cumulative impacts can be assessed.

Meaningful quantification of future cumulative health risk exposure in the entire South Coast Air Basin is not possible. Moreover, the threshold of significance used to determine cancer risk impacts associated with the proposed Project is based on the cancer risks associated with individual projects; this threshold is not appropriately applied to conclusions regarding cumulative cancer risk in the South Coast Air Basin.

However, based on the relatively high cancer risk level associated with TAC in air in the South Coast Air Basin (i.e., an additional 418 cancer cases per million according to MATES-IV), the proposed Project (with a maximum estimated incremental cancer risk of 0.2 cancer cases per million) would not add substantially (less than 0.05 percent) to the already high cumulative cancer risk in the South Coast Air Basin. This small increase estimated for the proposed Project would not be measurable against urban background conditions in the South Coast Air Basin.

The above comparisons do not account for possible positive changes in air quality in the South Coast Air Basin in the future. SCAQMD and other agencies are consistently working to reduce air pollution. In particular, reductions in emissions of diesel particulates are being considered and implemented. Since diesel particulate matter is the major contributor to estimated cancer risks, substantial reductions in diesel emissions would result in substantial reductions in cumulative cancer risks. These, and other such regulations intended to reduce TAC emissions within the South Coast Air Basin, would reduce cumulative impacts overall. While continued, if not increased, regulation by the SCAQMD of point sources as well as more stringent emission controls on mobile sources would reduce TAC emissions, whether such measures would alter incremental contributions of TAC releases to cumulative impacts under the proposed Project cannot be ascertained.

4.2.2 CUMULATIVE CHRONIC NON-CANCER HEALTH HAZARDS

Acrolein is the TAC of concern that is responsible for the majority of all predicted chronic non-cancer health hazards associated with LAX operations. In 2011, USEPA published an independent study of possible annual average air concentrations within the South Coast Air Basin associated with a variety of TAC, including acrolein.[17] These estimates provide a means for assessing cumulative chronic non-cancer health hazard impacts of airport operations in much the same manner as cumulative cancer risks were assessed using the MATES-IV results.

Within Los Angeles County, USEPA prediction for annual average concentrations yield acrolein hazard indices ranging from 0.3 to 15, with an average of 4; DPM hazard indices ranging from 0.0007 to 1.2, with an average of 0.3. Incremental hazard indices for the proposed Project (Table 7) were estimated to range from 0.02 to 0.48 for construction, and between 0.002 and 0.11 for operations, orders of magnitude below the threshold of significance of one. Given the relatively small hazard indices associated with proposed Project emissions, the Project is not expected to add significantly to cumulative chronic non-cancer health hazards.

Because of the substantial uncertainties associated with the USEPA estimates,[18] the cumulative analysis for chronic non-cancer health hazard impacts is semi-quantitative and based on a range of possible contributions. This cumulative analysis does not address the issue of potential interactions among acrolein and criteria pollutants. Such interactions cannot, at this time, be addressed in a quantitative fashion. A qualitative discussion of the issue is presented in the LAX Master Plan Final EIR[19] Technical Report S-9a, Section 7.

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17 U.S. Environmental Protection Agency, 2005 National-Scale Air Toxics Assessment, 2011, Available: www.epa.gov/ttn/atw/nata2005/tables.html.

18 U.S. Environmental Protection Agency, 2005 National-Scale Air Toxics Assessment, 2011, Available: www.epa.gov/ttn/atw/nata2005/tables.html.

19 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

4.2.3 CUMULATIVE ACUTE NON-CANCER HEALTH HAZARDS

Acrolein, formaldehyde, and manganese are the primary TAC of concern in the proposed Project emissions that might be present at concentrations approaching the threshold for acute health hazards. Predicted concentrations of TAC released during the construction and operations of the proposed Project estimate that acute non-cancer health hazards would be below the significance threshold of one for acrolein. The assessment of cumulative acute non-cancer health hazards follows the methods used to evaluate cumulative acute non-cancer health hazards presented in the LAX Master Plan Final EIR[20] (Section 4.24.1.7 and Technical Report S-9a, Section 6.3), incorporating updated National Scale Air Toxics Assessment (NATA) tables from 2005. USEPA-modeled emission estimates by census tract were used to estimate annual average ambient air concentrations. These census tract emission estimates are subject to high uncertainty, and USEPA warns against using them to predict local concentrations. Thus, for the analysis of cumulative acute non-cancer health hazards, estimates for each census tract within Los Angeles County were identified, and the range of concentrations was used as an estimate of the possible range of annual average concentrations in the general vicinity of the airport. This range of concentrations was used to estimate a range of acute non-cancer hazard indices using the same methods as described in the LAX Master Plan Final EIR[21] (Section 4.24.1.7 and Technical Report S-9a, Section 6.1). The methodology entails converting the USEPA annual average estimates to maximum 1-hour average concentrations by dividing annual average estimates by 0.08. Then the maximum 1-hour average concentrations were divided by the acute REL to calculate acute hazard indices. The range of hazard indices was then used as a basis for comparison with estimated maximum acute non-cancer health hazards for the proposed Project. The relative magnitude of acute non-cancer health hazards calculated on the basis of the USEPA estimates and maximum hazards estimated for the proposed Project were taken as a general measure of relative cumulative impacts. Emphasis must be placed on the relative nature of these estimates. Uncertainties in the analysis preclude estimation of absolute impacts.

When USEPA annual average estimates are converted to possible maximum 1-hour average concentrations, acrolein acute hazard indices are estimated to range from 0.03 to 1.5, with an average of 0.4; formaldehyde acute hazard indices are estimated to range from 0.1 to 2.2, with an average of 1; and manganese acute hazard indices are estimated to range from 0.03 to 0.5, with an average of 0.13 for locations within the HHRA study area. Predicted overall maximum incremental acute non-cancer health hazards for the proposed Project associated with acrolein ranged from 0.18 to 0.48; those associated with formaldehyde ranged from 0.11 to 0.12; and those associated with manganese ranged from 0.13 to 0.40. Results suggest that the proposed Project would not add to total 1-hour maximum acrolein concentrations in the HHRA study area and, therefore, would not contribute to cumulative acute non-cancer health hazards associated with exposure to acrolein.

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[20] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

[21] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.

4.2.4 CONCLUSIONS

Although no defined thresholds for cumulative health risk impacts are available, it is the policy of the SCAQMD to use the same significance thresholds for cumulative impacts as for the Project-specific impacts analyzed in the Initial Study. If cumulative health risks are evaluated following this SCAQMD policy, the Project's contribution to the cumulative cancer risk would not be cumulatively considerable since the incremental cancer risk impacts of the proposed Project are all below the individual cancer risk significance thresholds of 10 in one million.

In contrast to cancer risk, the SCAQMD policy does have different significance thresholds for project-specific and cumulative impacts for hazard indices for TAC emissions. A project-specific significance threshold is one (1.0) while the cumulative threshold is 3.0. Based on this SCAQMD policy, the relatively small chronic and acute non-cancer hazard indices associated with emissions under the proposed Project would not be cumulatively considerable.

5. Uncertainties

Uncertainties are present in all facets of human health risk assessment. Potential important uncertainties associated with the HHRA for the LAX Master Plan are discussed in detail in Technical Report 14a and Technical Report S-9a of the LAX Master Plan Final EIR. These same uncertainty considerations apply to the analyses presented in the proposed Project EIR. These uncertainties are briefly summarized below.

5.1 Uncertainties Associated with Emission Estimates and Dispersion Modeling

Risk estimates were based on chemical concentration estimates obtained through emissions and dispersion modeling. Emissions estimates are sensitive to the values used to represent the numerous emission source variables (e.g., future aircraft operation assumptions) and to the air toxic emission factor values used for each source. Consequently, estimated emissions values are subject to uncertainties. Different assumptions and values of variables would result in different emissions estimates. The HHRA used well-accepted methods and best available emission factor data to develop estimates of emissions, and estimates and assumptions are reasonable and appropriate. Actual emissions are unlikely to be meaningfully greater than those used in the analyses.

In accordance with the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments,[22] a simplification was made in the emissions modeling to model DPM and not the speciated emissions from diesel-fueled engines for the emission concentrations used in the evaluation of cancer risk or chronic non-cancer health impacts. According to the guidance, the inhalation cancer potency factor and chronic REL for DPM already account for inhalation impacts from speciated emissions from diesel-fueled engines. Therefore, this omission in the modeling is not expected to impact the results of the analysis.

Another simplification was made in the estimate of construction emissions. Construction emission sources were limited to diesel engine exhaust, gasoline engine exhaust, and construction dust. Previous studies indicated that these sources account for a substantial majority of all TAC emissions and thus for risks and hazards associated with construction activities come from these sources. Further, methods used assumed that all PM from engine exhaust came from diesel engines and all of the engine exhaust TOG came from gasoline

[22] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, Appendix D, August 2003.

engines. Given the high toxicity of diesel PM and the greater emissions of toxic organic chemicals in gasoline engine exhaust, these assumptions compensate for ignoring expected minor contributions from paving and striping emissions.

In addition, recent studies suggest that predicted concentrations of acrolein in air associated with LAX construction and operations may be over-estimated. Acrolein is unlikely to be transported over long distances because of its high reactivity and estimated short half-life in air. A study at Chicago O'Hare International Airport used empirical measurements of acrolein in ambient air to determine that acrolein was not a significant TAC associated with airport operations. The Illinois EPA measured airborne levels of various air contaminants in the vicinity of the O'Hare International Airport as well as at other locations in the Chicago area over a seven-month period in 2000. An objective of the air toxics monitoring program was to determine if emissions associated with O'Hare International Airport had a measurable impact on air quality in areas adjacent to the airport. Acrolein was not reported at measurable levels in air at locations near the airport during the air toxic monitoring program.

5.2 Evaluation of Sensitive Receptor Populations

Certain subpopulations may be more sensitive or susceptible to negative health impacts caused by environmental contaminants than the population at large. Risk estimates presented in the HHRA represent a wide range of potential exposures including the highest that can be reasonably expected. Thus, even though risk estimates are not provided for all potentially sensitive receptors in the area, populations not specifically evaluated are still expected to be represented. For example, quantitatively evaluated populations include those with the highest expected exposure durations and exposure frequencies (e.g., residents). Exposures are therefore expected to be less for other populations, even those with higher chemical sensitivities.

5.3 Uncertainties Associated with Exposure Parameter Assumptions

Evaluating human exposure requires many assumptions about how people actually contact chemicals in the environment. Key issues associated with exposure assessment are discussed below.

5.3.1 UNCERTAINTIES IN EXPOSURE DURATION FOR CANCER RISKS

An exposure duration of 70 years was used to estimate possible cancer risks associated with the proposed Project. A 70-year exposure duration is generally used by the SCAQMD in risk assessments performed for permitting purposes. This exposure duration combined with other exposure parameters used in this HHRA assumes that an individual exists who resides where maximum impacts occur in a location near construction similar to construction anticipated for LAX, and that the individual is sedentary, spending essentially all of his/her time at home. Further, this exposure duration assumes that construction emissions continue for a lifetime (6 years for a child and 70 years for an adult). In essence, SCAQMD assumes that person would constantly be exposed to emissions at the point of greatest impact for their entire lives. This combination of

factors never occurs, and any estimates of cancer risk based on such a combination will greatly overestimate possible cancer risks for everyone in the study area.

In the Air Toxics Hot Spots Guidance,[23] OEHHA recommends using a stochastic approach to evaluating cancer risks for residential receptors (it does not recommend this approach for workers or for chronic non-cancer health hazards). It suggests consideration of a range of exposure durations, e.g., 9-year, 30-year, and 70-year exposure durations. Varying exposure duration for residents evaluated for the proposed Project would not materially affect conclusions about the cancer risk impact of the proposed Project because all of the incremental cancer risks estimated for residential receptors are below the threshold of significance. The conclusions regarding potential cancer risk impacts of the proposed Project would remain the same.

5.3.2 UNCERTAINTIES ASSOCIATED WITH THE EVALUATION OF THE CONSTRUCTION EMISSIONS

For the evaluation of construction impacts, construction emissions from the proposed Project were estimated to produce a one-year average for the construction period and then amortize over the 70-year exposure period to estimate the annualized 70-year average emissions. While this approach may be appropriate for the estimate of cancer risks for the adult resident who has an exposure duration of 70 years, it may underestimate risks for receptors whose exposure durations are less than 70 years, such as the child resident and school child with 6-year exposure durations. To check the sensitivity of the conclusions to this amortization, annual average emissions were recalculated for the peak locations by amortizing the construction emissions for a one-year construction period (instead of the 70-year period). Then, cancer risks and non-cancer health hazards were recalculated for exposure to these revised exposure concentrations assuming an exposure duration of one year for all receptors. The averaging time for the cancer risks remained at 70 years, but non-cancer averaging times were modified to be one year. These results are presented in **Table 9**. Calculations for this analysis are provided in **Attachment B.5**.

Although the incremental cancer risks and hazards are higher for the one-year modified construction emissions analysis, the risks and hazards are still below the significance thresholds and conclusions regarding potential impacts of the proposed Project would remain the same.

[23] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003.

Table 9: Incremental Cancer Risks and Chronic Non-Cancer Human Health Hazards for Maximally Exposed Individuals from the Construction of the Proposed Project (Adjusted 1-Year Emissions)

RECEPTOR TYPE	PROJECT CONSTRUCTION	SIGNIFICANCE THRESHOLD	SIGNIFICANT?
Incremental Cancer Risks [1/] (per million people)			
Child Resident	0.085	10	No
School Child	0.016	10	No
Adult Resident	0.085	10	No
Adult Worker	0.338	10	No
Incremental Non-Cancer Chronic Hazards [2/]			
Child Resident	0.026	1	No
School Child	0.005	1	No
Adult Resident	0.026	1	No
Adult Worker	0.138	1	No

NOTES:

1/ Values provided are changes in the number of cancer cases per million people exposed as compared to baseline conditions. All estimates are rounded to one significant figure.

2/ Hazard indices are totals for all TACs that may affect the respiratory system. This incremental hazard index is essentially equal to the total for all TACs.

SOURCE: Ricondo & Associates, Inc., March 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

5.4 Uncertainties Associated with Toxicity Assessment

Quantitative evaluation of chemical toxicity requires assumptions to extrapolate toxicity information in the literature to possible impacts on people exposure to chemicals in the environment. Key assumptions are discussed briefly below.

5.4.1 UNCERTAINTIES ASSOCIATED WITH TOXICITY CRITERIA

A potentially large source of uncertainty is inherent in the derivation of the CalEPA toxicity criteria (cancer slope factors and RELs). In many cases, data used to develop toxicity criteria must be extrapolated from animals to sensitive humans. For example, the application of uncertainty factors to estimated no-observable-adverse-effects-levels (NOAELs) or lowest-observed-adverse-effects-levels (LOAELs) are typically used to develop RELs. While designed to be protective, in many cases toxicity criteria are likely to overestimate the magnitude of differences that may exist between humans and animals, and among humans.

In some cases, however, toxicity criteria may be based on studies that did not detect the most sensitive adverse effects. For example, many past studies have not measured possible toxic effects on the immune

system. Moreover, some chemicals may cause subtle effects not easily recognized in animal studies. Overall, toxicity criteria are likely to be protective for most or all exposed populations. These criteria are constantly being reconsidered in light of new research and are subject to occasional change during this process. The nature and direction of these changes cannot be predicted and currently available criteria are the best source of toxicity information for use in health risk assessments.

5.4.2 UNCERTAINTIES ASSOCIATED WITH UNAVAILABLE TOXICITY VALUES

1,3-Butadiene, ethylbenzene, naphthalene, n-hexane, propylene, silicon, antimony, cadmium, hexavalent chromium, lead, selenium, and DPM do not have acute RELs that have been developed by OEHHA. However, 1,3-butadiene and ethylbenzene have acute toxicity screening levels from the Agency for Toxic Substances and Disease Registry (ATSDR) in the form of published acute minimal risk levels (MRLs) for hazardous substances. MRLs were established to provide a screening tool for public health professionals to use to identify if potential human health hazards exist from contamination at hazardous waste sites. MRLs are often based on animal studies because relevant human studies are lacking. ATSDR assumes that humans are more sensitive than animals to the effects of hazardous substances and that certain persons may be particularly sensitive. Thus, ATSDR recommendations for MRLs may be as much as a hundred-fold below levels shown to be non-toxic in laboratory animals. This approach is conservative (i.e., protective) for public health. Acute inhalation MRLs for 1,3-butadiene and ethylbenzene are 0.1 parts per million (ppm) and 5 ppm, respectively. These MRLs are relatively high (compared to acrolein which has an acute MRL of 0.003 ppm), reflecting the low acute toxicity of these chemicals. It's unlikely that acute non-cancer health hazards associated with these organic chemicals would rival acrolein, the risk driver for potential acute non-cancer health hazards from aircraft emissions. Lack of inclusion of these chemicals in the quantitative risk assessment is not expected to change the conclusions of the acute non-cancer health hazard evaluation.

Although DPM does not have an acute REL, several components of DPM (such as arsenic, chlorine, mercury, nickel, vanadium, and sulfates) were evaluated in the acute non-cancer health hazard analysis. As noted in Section 5.1, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*[24] indicates that toxicity values for DPM were developed for whole diesel exhaust (gas and particulate matter). As such, DPM should be the only TAC considered in the calculation of cancer risks and chronic non-cancer health hazards for diesel engine emissions; speciated diesel exhaust components (e.g., PAHs, metals) should not be evaluated along with DPM. Studies used to support the DPM toxicity value also indicate that "potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multipathway cancer risk from the speciated components." DPM does not, however, have an acute REL. Therefore, in order to account for potential acute impacts from DPM, the speciated components of DPM (arsenic, chlorine, mercury, nickel, vanadium, and sulfates) were evaluated in the acute non-cancer health hazard analysis.

[24] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, Appendix D, August 2003.

Naphthalene, n-hexane, propylene, silicon, antimony, cadmium, hexavalent chromium, lead, and selenium do not have acute toxicity values. Therefore, their potential impact on the conclusions of the acute risk evaluation is unknown.

5.5 Uncertainties in Risk Characterization

Combining estimates of exposure and toxicity to estimate risks and hazards to human health require the use of methods that simplify actual exposure. For the inhalation pathway, important issues for risk characterization are discussed below.

5.5.1 UNCERTAINTIES ASSOCIATED WITH ELIMINATION OF POTENTIALLY COMPLETE EXPOSURE PATHWAYS

The proposed Project HHRA evaluates the potential complete exposure pathway of direct inhalation of TAC released during construction of the proposed Project. However, other exposure pathways, such as exposure to TAC deposited onto soils, could also be important. For example, children might ingest TAC that deposited onto soil through hand-to-mouth activity during outdoor play, or residents who have gardens could ingest TAC taken up from soil into plants. For the proposed Project HHRA, based on the multi-pathway screening analysis in the LAX Master Plan Final EIR and other airport HHRAs, inhalation of TAC was identified as the primary exposure pathway, and exposures and risks from inhalation of TAC were quantified.

Other potential exposure pathways were analyzed in a two-step screening process described in Technical Report 14a Attachment B, Section 2.5.3 of the LAX Master Plan Final EIR. In the first step, air dispersion modeling was used to determine potential TAC concentrations in air on or near LAX, and these concentrations were used to estimate deposition of TAC onto soils over time. In the second screening step, concentrations of TAC estimated in soil were compared to the range of background concentrations of these chemicals to determine the relative impacts of deposition from air. This analysis indicated that impacts to soils from deposition of TAC from airports would be negligible and that the estimated contribution from LAX emissions would result in no measurable difference in expected background concentrations of metals. Therefore, secondary pathways involving TAC in soil were not further evaluated.

5.6 Interactions among Acrolein and Criteria Pollutants

TAC that act in similar ways to produce toxicity may cause additive, or even greater than additive, impacts to human health. Acrolein and criteria pollutants, such as oxides of nitrogen and ozone, all act as irritants to the upper respiratory system. Thus, interactions among these chemicals are possible.

Whether such interactions actually occur, and are important for emissions from LAX construction, cannot be ascertained with available information. Many uncertainties exist, including:

- Reliability of acrolein concentration estimates (see Section 5.1).
- Lack of information on specific mechanisms of toxicity for the chemicals in question, which will affect the potential for and degree of any interactions.
- Lack of information on thresholds at which interactions may occur.

Without extensive additional research, the potential for impacts related to interactions among acrolein and criteria pollutants cannot be further assessed.

6. Summary

The HHRA addressed possible incremental health impacts associated with construction and operations of the proposed Project. The evaluation assessed cancer risks, chronic non-cancer health hazards, and acute health hazards. The text below summarizes the conclusions regarding significant human health impacts based on modeling estimates.

- Incremental cancer risks associated with construction and operations of the proposed Project are anticipated to be below the threshold of significance of 10 in one million for all receptor types (i.e., child resident, school child, adult resident, and adult worker) within the study area. Incremental cancer risk estimates indicate that impacts would be less than significant.
- Incremental chronic non-cancer hazard indices associated with construction and operations of the proposed Project are anticipated to be below the threshold of significance for all receptor types (i.e., child resident, school child, adult resident, and adult worker). Incremental chronic non-cancer hazard indices indicate that impacts would be less than significant.
- Incremental acute hazard indices for construction and operations of the proposed Project are anticipated to be below the threshold of significance for all receptor types within the study area. Incremental acute hazard indices indicate that impacts would be less than significant.
- Exposure concentrations used for the risk calculations assumed that the one-year of construction emissions were amortized over a 70-year exposure period to estimate the annualized 70-year average emissions. Because this approach could underestimate risks for receptors whose exposure durations are less than 70 years, cancer risks and hazards were recalculated using construction emissions for the one-year construction period (instead of the 70-year period) and assuming an exposure duration of 1 year for all receptors. Although this recalculation showed that the incremental cancer risks and hazards are higher for the 1-year modified construction emissions analysis, the risks and hazards are still below significance thresholds and conclusions regarding potential impacts of the proposed Project would remain the same.
- Estimated maximum air concentrations for all TAC evaluated on the proposed Project site would not exceed PEL-TWA for construction workers. Therefore, health impacts to on-airport workers would be less than significant.
- From a cumulative standpoint, cancer risks, chronic non-cancer hazards, and acute hazards from the proposed Project construction would likely contribute negligibly to the risks and hazards from emissions for anticipated concurrent construction projects at LAX.
- Estimated cumulative risks and hazards from emissions for concurrent construction projects at LAX would not be measurable against urban background conditions in the South Coast Air Basin.

Runway 6R-24L Runway Safety Area Improvements Project Initial Study

Appendix B

Human Health Risk Assessment Calculations

Human Health Risk Assessment Files

Provided by Ricondo & Associates

March 2015

B.1 Construction Cancer Risk and Chronic Non-Cancer Health Hazard Calculations (RAGS Part F)

B.2 Operations Cancer Risk and Chronic Non-Cancer Health Hazard Calculations (RAGS Part F)

B.3 Construction Acute Health Hazard Calculations

B.4 Operations Acute Health Hazard Calculations

B.5 Cancer Risk and Chronic Non-Cancer Health Hazard Calculations for Adjusted Construction Emissions (RAGS Part F)

Attachment B.1

Construction – Cancer Risk and Chronic Non-Cancer Health Hazard Calculations (RAGS Part F)

Table B.1-1: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – Lifetime Exposure (Based on Peak Location of Residential Cancer Risks)

EXPOSURE PARAMETERS	RESIDENTIAL CHILD	SCHOOL CHILD	RESIDENTIAL ADULT
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	6 (years)	6 (years)	70 (years)
Averaging Time (non-carcinogenic)	52560 (hrs)	52560 (hrs)	613200 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F INHALATION EQUATIONS
EC= (CA x ET xED)/(AT)
Risk=IURxEC
Hazard Quotient=EC/Rfc Where: EC = Exposure Concentration CA = Concentration in Air ET = Exposure Time EF = Exposure Frequency

		TOXICITY CRITERIA				CANCER RISKS			HAZARD QUOTIENTS		
TAC	LOCATION WITH MAX RISK (µg/m^3)	EPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	CalEPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	EPA CHRONIC INHALATION (µg/m^3)	CalEPA CHRONIC INHALATION RFC (µg/m^3)	CANCER RISK TO CHILD RESIDENT	CANCER RISK TO SCHOOL CHILD	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT CHILD RESIDENT	HAZARD QUOTIENT SCHOOL CHILD	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	5.86E-05	2.20E-06	2.70E-06	9.00E+00	1.40E+02	1.30E-11	2.48E-12	1.52E-10	4.01E-07	7.64E-08	4.01E-07
Acrolein	-2.57E-05	N/A	N/A	2.00E-02	3.50E-01	NC	NC	NC	-7.04E-05	-1.34E-05	-7.04E-05
Benzene	1.01E-05	7.80E-06	2.90E-05	3.00E+01	6.00E+01	2.41E-11	4.59E-12	2.81E-10	1.62E-07	3.08E-08	1.62E-07
1,3-Butadiene	-1.62E-05	3.00E-05	1.70E-04	2.00E+00	2.00E+01	-2.27E-10	-4.31E-11	-2.64E-09	-7.77E-07	-1.48E-07	-7.77E-07
Ethylbenzene	2.47E-06	2.50E-06	2.50E-06	1.00E+03	2.00E+03	5.07E-13	9.65E-14	5.91E-12	1.18E-09	2.25E-10	1.18E-09
Formaldehyde	7.50E-05	1.30E-05	6.00E-06	9.80E+00	9.00E+00	3.70E-11	7.04E-12	4.31E-10	7.99E-06	1.52E-06	7.99E-06
Hexane, n-	2.28E-06	N/A	N/A	7.00E+02	7.00E+03	NC	NC	NC	3.12E-10	5.94E-11	3.12E-10
Methanol	-1.99E-05	N/A	N/A	4.00E+03	4.00E+03	NC	NC	NC	-4.76E-09	-9.07E-10	-4.76E-09
Methyl ethyl ketone	2.14E-05	N/A	N/A	5.00E+03	N/A	NC	NC	NC	NC	NC	NC
Naphthalene	-4.85E-06	N/A	3.40E-05	3.00E+00	9.00E+00	-1.36E-11	-2.58E-12	-1.58E-10	-5.17E-07	-9.84E-08	-5.17E-07
Propylene	-1.33E-05	N/A	N/A	3.00E+03	3.00E+03	NC	NC	NC	-4.26E-09	-8.11E-10	-4.26E-09
Styrene	-2.63E-06	N/A	N/A	1.00E+03	9.00E+02	NC	NC	NC	-2.81E-09	-5.34E-10	-2.81E-09
Toluene	1.41E-05	N/A	N/A	5.00E+03	3.00E+02	NC	NC	NC	4.52E-08	8.61E-09	4.52E-08
Xylene (total)	1.51E-05	N/A	N/A	1.00E+02	7.00E+02	NC	NC	NC	2.07E-08	3.94E-09	2.07E-08
Diesel PM	2.80E-04	N/A	3.00E-04	5.00E+00	5.00E+00	6.90E-09	1.32E-09	8.05E-08	5.37E-05	1.02E-05	5.37E-05
Arsenic	7.63E-08	4.30E-03	3.30E-03	1.50E-02	1.50E-02	2.07E-11	3.94E-12	2.41E-10	4.88E-06	9.29E-07	4.88E-06
Cadmium	1.33E-07	1.80E-03	4.20E-03	1.00E-02	2.00E-02	4.59E-11	8.74E-12	5.35E-10	6.37E-06	1.21E-06	6.37E-06
Chlorine	1.34E-05	N/A	N/A	1.50E-01	2.00E-01	NC	NC	NC	6.40E-05	1.22E-05	6.40E-05
Chromium (VI)	4.09E-08	1.20E-02	1.50E-01	1.00E-01	2.00E-01	5.05E-10	9.61E-11	5.89E-09	1.96E-07	3.74E-08	1.96E-07
Copper	4.37E-07	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Lead	2.20E-06	N/A	1.20E-05	N/A	N/A	2.17E-12	4.13E-13	2.53E-11	NC	NC	NC
Manganese	3.60E-06	N/A	N/A	5.00E-02	9.00E-02	NC	NC	NC	3.83E-05	7.30E-06	3.83E-05
Mercury	7.08E-08	N/A	N/A	3.00E-01	3.00E-02	NC	NC	NC	2.26E-06	4.31E-07	2.26E-06
Nickel	2.42E-07	N/A	2.60E-04	9.00E-02	1.40E-02	5.18E-12	9.87E-13	6.04E-11	1.66E-05	3.16E-06	1.66E-05
Selenium	1.22E-08	N/A	N/A	2.00E+01	2.00E+01	NC	NC	NC	5.83E-10	1.11E-10	5.83E-10
Silicon	7.62E-04	N/A	N/A	3.00E+00	3.00E+00	NC	NC	NC	2.44E-04	4.64E-05	2.44E-04
Sulfates	2.33E-05	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Vanadium	1.04E-06	8.30E-03	N/A	1.00E-01	N/A	NC	NC	NC	NC	NC	NC
					TOTAL:	7.32E-09	1.39E-09	8.54E-08	0.0004	0.0001	0.0004

NOTES: Residential Maximum Grid No. Receptor 130; N/A - Not Available; NC = Not Calculated; µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., February 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.1-2: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – Lifetime Exposure (Based on Peak Location of Residential Hazards)

EXPOSURE PARAMETERS	RESIDENTIAL CHILD	SCHOOL CHILD	RESIDENTIAL ADULT
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	6 (years)	6 (years)	70 (years)
Averaging Time (non-carcinogenic)	52560 (hrs)	52560 (hrs)	613200 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F INHALATION EQUATIONS
EC= (CA x ET xED)/(AT)
Risk=IURxEC
Hazard Quotient=EC/Rfc Where: EC = Exposure Concentration CA = Concentration in Air ET = Exposure Time EF = Exposure Frequency

	TOXICITY CRITERIA					CANCER RISKS			HAZARD QUOTIENTS		
TAC	LOCATION WITH MAX RISK (µg/m^3)	EPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	CalEPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	EPA CHRONIC INHALATION (µg/m^3)	CalEPA CHRONIC INHALATION RFC (µg/m^3)	CANCER RISK TO CHILD RESIDENT	CANCER RISK TO SCHOOL CHILD	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT CHILD RESIDENT	HAZARD QUOTIENT SCHOOL CHILD	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	2.95E-03	2.20E-06	2.70E-06	9.00E+00	1.40E+02	6.54E-10	1.25E-10	7.63E-09	2.02E-05	3.85E-06	2.02E-05
Acrolein	1.34E-03	N/A	N/A	2.00E-02	3.50E-01	NC	NC	NC	3.67E-03	6.99E-04	3.67E-03
Benzene	1.08E-03	7.80E-06	2.90E-05	3.00E+01	6.00E+01	2.58E-09	4.92E-10	3.01E-08	1.73E-05	3.30E-06	1.73E-05
1,3-Butadiene	9.31E-04	3.00E-05	1.70E-04	2.00E+00	2.00E+01	1.30E-08	2.48E-09	1.52E-07	4.47E-05	8.51E-06	4.47E-05
Ethylbenzene	1.21E-04	2.50E-06	2.50E-06	1.00E+03	2.00E+03	2.48E-11	4.72E-12	2.89E-10	5.78E-08	1.10E-08	5.78E-08
Formaldehyde	7.94E-03	1.30E-05	6.00E-06	9.80E+00	9.00E+00	3.92E-09	7.46E-10	4.57E-08	8.46E-04	1.61E-04	8.46E-04
Hexane, n-	1.35E-05	N/A	N/A	7.00E+02	7.00E+03	NC	NC	NC	1.85E-09	3.52E-10	1.85E-09
Methanol	9.82E-04	N/A	N/A	4.00E+03	4.00E+03	NC	NC	NC	2.35E-07	4.48E-08	2.35E-07
Methyl ethyl ketone	1.27E-04	N/A	N/A	5.00E+03	N/A	NC	NC	NC	NC	NC	NC
Naphthalene	3.01E-04	N/A	3.40E-05	3.00E+00	9.00E+00	8.40E-10	1.60E-10	9.80E-09	3.20E-05	6.10E-06	3.20E-05
Propylene	2.68E-03	N/A	N/A	3.00E+03	3.00E+03	NC	NC	NC	8.57E-07	1.63E-07	8.57E-07
Styrene	1.73E-04	N/A	N/A	1.00E+03	9.00E+02	NC	NC	NC	1.84E-07	3.50E-08	1.84E-07
Toluene	4.75E-04	N/A	N/A	5.00E+03	3.00E+02	NC	NC	NC	1.52E-06	2.89E-07	1.52E-06
Xylene (total)	8.94E-05	N/A	N/A	1.00E+02	7.00E+02	NC	NC	NC	1.22E-07	2.33E-08	1.22E-07
Diesel PM	9.30E-04	N/A	3.00E-04	5.00E+00	5.00E+00	2.29E-08	4.37E-09	2.68E-07	1.78E-04	3.40E-05	1.78E-04
Arsenic	3.24E-07	4.30E-03	3.30E-03	1.50E-02	1.50E-02	8.78E-11	1.67E-11	1.02E-09	2.07E-05	3.94E-06	2.07E-05
Cadmium	5.56E-07	1.80E-03	4.20E-03	1.00E-02	2.00E-02	1.92E-10	3.65E-11	2.24E-09	2.66E-05	5.07E-06	2.66E-05
Chlorine	5.68E-05	N/A	N/A	1.50E-01	2.00E-01	NC	NC	NC	2.72E-04	5.19E-05	2.72E-04
Chromium (VI)	3.31E-07	1.20E-02	1.50E-01	1.00E-01	2.00E-01	4.09E-09	7.78E-10	4.77E-08	1.59E-06	3.03E-07	1.59E-06
Copper	2.46E-06	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Lead	1.07E-05	N/A	1.20E-05	N/A	N/A	1.05E-11	2.01E-12	1.23E-10	NC	NC	NC
Manganese	1.60E-05	N/A	N/A	5.00E-02	9.00E-02	NC	NC	NC	1.71E-04	3.26E-05	1.71E-04
Mercury	2.94E-07	N/A	N/A	3.00E-01	3.00E-02	NC	NC	NC	9.39E-06	1.79E-06	9.39E-06
Nickel	1.03E-06	N/A	2.60E-04	9.00E-02	1.40E-02	2.20E-11	4.18E-12	2.56E-10	7.04E-05	1.34E-05	7.04E-05
Selenium	4.92E-08	N/A	N/A	2.00E+01	2.00E+01	NC	NC	NC	2.36E-09	4.49E-10	2.36E-09
Silicon	3.25E-03	N/A	N/A	3.00E+00	3.00E+00	NC	NC	NC	1.04E-03	1.98E-04	1.04E-03
Sulfates	9.46E-05	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Vanadium	4.43E-06	8.30E-03	N/A	1.00E-01	N/A	NC	NC	NC	NC	NC	NC
					TOTAL:	4.84E-08	9.21E-09	5.64E-07	0.0064	0.0012	0.0064

NOTES: Residential Maximum Grid No. Receptor 155; N/A - Not Available; NC = Not Calculated; µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., February 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.1-3: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – Lifetime Exposure (Based on Peak Location of Commercial Cancer Risks)

EXPOSURE PARAMETERS	RESIDENTIAL CHILD	SCHOOL CHILD	RESIDENTIAL ADULT
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	6 (years)	6 (years)	70 (years)
Averaging Time (non-carcinogenic)	52560 (hrs)	52560 (hrs)	613200 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F INHALATION EQUATIONS

EC= (CA x ET xED)/(AT)

Risk=IURxEC

Hazard Quotient=EC/Rfc
Where:
EC = Exposure Concentration
CA = Concentration in Air
ET = Exposure Time
EF = Exposure Frequency

	TOXICITY CRITERIA					CANCER RISKS	HAZARD QUOTIENTS
TAC	LOCATION WITH MAX RISK (µg/m^3)	EPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	CalEPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	EPA CHRONIC INHALATION RFC (µg/m^3)	CalEPA CHRONIC INHALATION RFC (µg/m^3)	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	6.30E-04	2.20E-06	2.70E-06	9.00E+00	1.40E+02	9.32E-10	4.31E-06
Acrolein	1.68E-04	N/A	N/A	2.00E-02	3.50E-01	NC	4.61E-04
Benzene	2.06E-04	7.80E-06	2.90E-05	3.00E+01	6.00E+01	3.27E-09	3.29E-06
1,3-Butadiene	1.21E-04	3.00E-05	1.70E-04	2.00E+00	2.00E+01	1.13E-08	5.79E-06
Ethylbenzene	2.59E-05	2.50E-06	2.50E-06	1.00E+03	2.00E+03	3.55E-11	1.24E-08
Formaldehyde	1.51E-03	1.30E-05	6.00E-06	9.80E+00	9.00E+00	4.96E-09	1.61E-04
Hexane, n-	7.39E-06	N/A	N/A	7.00E+02	7.00E+03	NC	1.01E-09
Methanol	1.21E-04	N/A	N/A	4.00E+03	4.00E+03	NC	2.90E-08
Methyl ethyl ketone	6.96E-05	N/A	N/A	5.00E+03	N/A	NC	NC
Naphthalene	3.99E-05	N/A	3.40E-05	3.00E+00	9.00E+00	7.43E-10	4.25E-06
Propylene	4.23E-04	N/A	N/A	3.00E+03	3.00E+03	NC	1.35E-07
Styrene	2.32E-05	N/A	N/A	1.00E+03	9.00E+02	NC	2.47E-08
Toluene	1.12E-04	N/A	N/A	5.00E+03	3.00E+02	NC	3.58E-07
Xylene (total)	4.90E-05	N/A	N/A	1.00E+02	7.00E+02	NC	6.72E-08
Diesel PM	9.70E-04	N/A	3.00E-04	5.00E+00	5.00E+00	1.59E-07	1.86E-04
Arsenic	2.32E-07	4.30E-03	3.30E-03	1.50E-02	1.50E-02	4.19E-10	1.48E-05
Cadmium	4.08E-07	1.80E-03	4.20E-03	1.00E-02	2.00E-02	9.38E-10	1.95E-05
Chlorine	4.05E-05	N/A	N/A	1.50E-01	2.00E-01	NC	1.94E-04
Chromium (VI)	1.33E-07	1.20E-02	1.50E-01	1.00E-01	2.00E-01	1.10E-08	6.40E-07
Copper	1.36E-06	N/A	N/A	N/A	N/A	NC	NC
Lead	6.75E-06	N/A	1.20E-05	N/A	N/A	4.44E-11	NC
Manganese	1.10E-05	N/A	N/A	5.00E-02	9.00E-02	NC	1.17E-04
Mercury	2.18E-07	N/A	N/A	3.00E-01	3.00E-02	NC	6.98E-06
Nickel	7.37E-07	N/A	2.60E-04	9.00E-02	1.40E-02	1.05E-10	5.05E-05
Selenium	3.81E-08	N/A	N/A	2.00E+01	2.00E+01	NC	1.83E-09
Silicon	2.31E-03	N/A	N/A	3.00E+00	3.00E+00	NC	7.39E-04
Sulfates	7.27E-05	N/A	N/A	N/A	N/A	NC	NC
Vanadium	3.16E-06	8.30E-03	N/A	1.00E-01	N/A	NC	NC
					TOTAL:	1.93E-07	0.0020

NOTES: Residential Maximum Grid No. Receptor 169; N/A - Not Available; NC = Not Calculated; µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., February 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.1-4: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – Lifetime Exposure (Based on Peak Location of Commercial Hazards)

EXPOSURE PARAMETERS	RESIDENTIAL CHILD	SCHOOL CHILD	RESIDENTIAL ADULT
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	6 (years)	6 (years)	70 (years)
Averaging Time (non-carcinogenic)	52560 (hrs)	52560 (hrs)	613200 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F INHALATION EQUATIONS
EC= (CA x ET xED)/(AT)
Risk=IURxEC
Hazard Quotient=EC/Rfc Where: EC = Exposure Concentration CA = Concentration in Air ET = Exposure Time EF = Exposure Frequency

	TOXICITY CRITERIA					CANCER RISKS	HAZARD QUOTIENTS
TAC	LOCATION WITH MAX RISK (µg/m^3)	EPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	CalEPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	EPA CHRONIC INHALATION RFC (µg/m^3)	CalEPA CHRONIC INHALATION RFC (µg/m^3)	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	6.33E-02	2.20E-06	2.70E-06	9.00E+00	1.40E+02	9.37E-08	4.34E-04
Acrolein	3.62E-02	N/A	N/A	2.00E-02	3.50E-01	NC	9.93E-02
Benzene	2.49E-02	7.80E-06	2.90E-05	3.00E+01	6.00E+01	3.96E-07	3.98E-04
1,3-Butadiene	2.50E-02	3.00E-05	1.70E-04	2.00E+00	2.00E+01	2.32E-06	1.20E-03
Ethylbenzene	2.58E-03	2.50E-06	2.50E-06	1.00E+03	2.00E+03	3.53E-09	1.24E-06
Formaldehyde	1.82E-01	1.30E-05	6.00E-06	9.80E+00	9.00E+00	6.00E-07	1.94E-02
Hexane, n-	3.19E-06	N/A	N/A	7.00E+02	7.00E+03	NC	4.37E-10
Methanol	2.67E-02	N/A	N/A	4.00E+03	4.00E+03	NC	6.40E-06
Methyl ethyl ketone	3.00E-05	N/A	N/A	5.00E+03	N/A	NC	NC
Naphthalene	8.00E-03	N/A	3.40E-05	3.00E+00	9.00E+00	1.49E-07	8.53E-04
Propylene	6.71E-02	N/A	N/A	3.00E+03	3.00E+03	NC	2.15E-05
Styrene	4.57E-03	N/A	N/A	1.00E+03	9.00E+02	NC	4.87E-06
Toluene	9.53E-03	N/A	N/A	5.00E+03	3.00E+02	NC	3.05E-05
Xylene (total)	2.11E-05	N/A	N/A	1.00E+02	7.00E+02	NC	2.89E-08
Diesel PM	2.80E-04	N/A	3.00E-04	5.00E+00	5.00E+00	4.60E-08	5.37E-05
Arsenic	1.37E-07	4.30E-03	3.30E-03	1.50E-02	1.50E-02	2.48E-10	8.76E-06
Cadmium	2.32E-07	1.80E-03	4.20E-03	1.00E-02	2.00E-02	5.33E-10	1.11E-05
Chlorine	2.41E-05	N/A	N/A	1.50E-01	2.00E-01	NC	1.16E-04
Chromium (VI)	8.57E-07	1.20E-02	1.50E-01	1.00E-01	2.00E-01	7.05E-08	4.11E-06
Copper	3.80E-06	N/A	N/A	N/A	N/A	NC	NC
Lead	1.06E-05	N/A	1.20E-05	N/A	N/A	6.97E-11	NC
Manganese	1.01E-05	N/A	N/A	5.00E-02	9.00E-02	NC	1.08E-04
Mercury	1.21E-07	N/A	N/A	3.00E-01	3.00E-02	NC	3.88E-06
Nickel	4.35E-07	N/A	2.60E-04	9.00E-02	1.40E-02	6.19E-11	2.98E-05
Selenium	1.98E-08	N/A	N/A	2.00E+01	2.00E+01	NC	9.47E-10
Silicon	1.38E-03	N/A	N/A	3.00E+00	3.00E+00	NC	4.41E-04
Sulfates	3.82E-05	N/A	N/A	N/A	N/A	NC	NC
Vanadium	1.88E-06	8.30E-03	N/A	1.00E-01	N/A	NC	NC
					TOTAL:	3.68E-06	0.1224

NOTES: Residential Maximum Grid No. Receptor 236; N/A - Not Available; NC = Not Calculated; µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., February 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Attachment B.2

Operations– Cancer Risk and Chronic Non-Cancer Health Hazard Calculations (RAGS Part F)

Table B.2-1: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – Lifetime Exposure (Based on Peak Location of Residential Cancer Risks)

EXPOSURE PARAMETERS	RESIDENTIAL CHILD	SCHOOL CHILD	RESIDENTIAL ADULT
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	6 (years)	6 (years)	70 (years)
Averaging Time (non-carcinogenic)	52560 (hrs)	52560 (hrs)	613200 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F INHALATION EQUATIONS
EC= (CA x ET xED)/(AT)
Risk=IURxEC
Hazard Quotient=EC/Rfc Where: EC = Exposure Concentration CA = Concentration in Air ET = Exposure Time EF = Exposure Frequency

	TOXICITY CRITERIA					CANCER RISKS			HAZARD QUOTIENTS		
TAC	LOCATION WITH MAX RISK (µg/m^3)	EPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	CalEPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	EPA CHRONIC INHALATION (µg/m^3)	CalEPA CHRONIC INHALATION RFC (µg/m^3)	CANCER RISK TO CHILD RESIDENT	CANCER RISK TO SCHOOL CHILD	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT CHILD RESIDENT	HAZARD QUOTIENT SCHOOL CHILD	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	9.31E-05	2.20E-06	2.70E-06	9.00E+00	1.40E+02	2.07E-11	3.93E-12	2.41E-10	6.38E-07	1.21E-07	6.38E-07
Acrolein	5.34E-05	N/A	N/A	2.00E-02	3.50E-01	NC	NC	NC	1.46E-04	2.78E-05	1.46E-04
Benzene	3.66E-05	7.80E-06	2.90E-05	3.00E+01	6.00E+01	8.73E-11	1.66E-11	1.02E-09	5.85E-07	1.11E-07	5.85E-07
1,3-Butadiene	3.68E-05	3.00E-05	1.70E-04	2.00E+00	2.00E+01	5.14E-10	9.78E-11	5.99E-09	1.76E-06	3.36E-07	1.76E-06
Ethylbenzene	3.79E-06	2.50E-06	2.50E-06	1.00E+03	2.00E+03	7.79E-13	1.48E-13	9.09E-12	1.82E-09	3.46E-10	1.82E-09
Formaldehyde	2.68E-04	1.30E-05	6.00E-06	9.80E+00	9.00E+00	1.32E-10	2.52E-11	1.54E-09	2.86E-05	5.44E-06	2.86E-05
Hexane, n-	0.00E+00	N/A	N/A	7.00E+02	7.00E+03	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Methanol	3.93E-05	N/A	N/A	4.00E+03	4.00E+03	NC	NC	NC	9.43E-09	1.80E-09	9.43E-09
Methyl ethyl ketone	0.00E+00	N/A	N/A	5.00E+03	N/A	NC	NC	NC	NC	NC	NC
Naphthalene	1.18E-05	N/A	3.40E-05	3.00E+00	9.00E+00	3.29E-11	6.27E-12	3.84E-10	1.26E-06	2.39E-07	1.26E-06
Propylene	9.88E-05	N/A	N/A	3.00E+03	3.00E+03	NC	NC	NC	3.16E-08	6.01E-09	3.16E-08
Styrene	6.73E-06	N/A	N/A	1.00E+03	9.00E+02	NC	NC	NC	7.17E-09	1.37E-09	7.17E-09
Toluene	1.40E-05	N/A	N/A	5.00E+03	3.00E+02	NC	NC	NC	4.47E-08	8.52E-09	4.47E-08
Xylene (total)	0.00E+00	N/A	N/A	1.00E+02	7.00E+02	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Diesel PM	0.00E+00	N/A	3.00E-04	5.00E+00	5.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	4.30E-03	3.30E-03	1.50E-02	1.50E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium	0.00E+00	1.80E-03	4.20E-03	1.00E-02	2.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorine	0.00E+00	N/A	N/A	1.50E-01	2.00E-01	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Chromium (VI)	1.71E-09	1.20E-02	1.50E-01	1.00E-01	2.00E-01	2.11E-11	4.02E-12	2.46E-10	8.22E-09	1.56E-09	8.22E-09
Copper	6.59E-09	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Lead	1.45E-08	N/A	1.20E-05	N/A	N/A	1.43E-14	2.72E-15	1.67E-13	NC	NC	NC
Manganese	7.91E-09	N/A	N/A	5.00E-02	9.00E-02	NC	NC	NC	8.43E-08	1.60E-08	8.43E-08
Mercury	0.00E+00	N/A	N/A	3.00E-01	3.00E-02	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Nickel	0.00E+00	N/A	2.60E-04	9.00E-02	1.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	0.00E+00	N/A	N/A	2.00E+01	2.00E+01	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Silicon	0.00E+00	N/A	N/A	3.00E+00	3.00E+00	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Sulfates	0.00E+00	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Vanadium	0.00E+00	8.30E-03	N/A	1.00E-01	N/A	NC	NC	NC	NC	NC	NC
					TOTAL:	8.09E-10	1.54E-10	9.43E-09	0.0002	0.0000	0.0002

NOTES: Residential Maximum Grid No. Receptor 130; N/A - Not Available; NC = Not Calculated; µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., December 2014.
PREPARED BY: Ricondo & Associates, Inc., December 2014.

Table B.2-2: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – Lifetime Exposure (Based on Peak Location of Residential Hazards)

EXPOSURE PARAMETERS	RESIDENTIAL CHILD	SCHOOL CHILD	RESIDENTIAL ADULT
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	6 (years)	6 (years)	70 (years)
Averaging Time (non-carcinogenic)	52560 (hrs)	52560 (hrs)	613200 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F INHALATION EQUATIONS
EC= (CA x ET xED)/(AT)
Risk=IURxEC
Hazard Quotient=EC/Rfc Where: EC = Exposure Concentration CA = Concentration in Air ET = Exposure Time EF = Exposure Frequency

	TOXICITY CRITERIA					CANCER RISKS			HAZARD QUOTIENTS		
TAC	LOCATION WITH MAX RISK ($\mu g/m^3$)	EPA INHALATION UNIT RISK $(\mu g/m^3)^{-1}$	CalEPA INHALATION UNIT RISK $(\mu g/m^3)^{-1}$	EPA CHRONIC INHALATION ($\mu g/m^3$)	CalEPA CHRONIC INHALATION RFC ($\mu g/m^3$)	CANCER RISK TO CHILD RESIDENT	CANCER RISK TO SCHOOL CHILD	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT CHILD RESIDENT	HAZARD QUOTIENT SCHOOL CHILD	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	6.52E-03	2.20E-06	2.70E-06	9.00E+00	1.40E+02	1.45E-09	2.75E-10	1.69E-08	4.46E-05	8.50E-06	4.46E-05
Acrolein	3.74E-03	N/A	N/A	2.00E-02	3.50E-01	NC	NC	NC	1.02E-02	1.95E-03	1.02E-02
Benzene	2.56E-03	7.80E-06	2.90E-05	3.00E+01	6.00E+01	6.11E-09	1.16E-09	7.13E-08	4.10E-05	7.80E-06	4.10E-05
1,3-Butadiene	2.57E-03	3.00E-05	1.70E-04	2.00E+00	2.00E+01	3.60E-08	6.85E-09	4.19E-07	1.23E-04	2.35E-05	1.23E-04
Ethylbenzene	2.65E-04	2.50E-06	2.50E-06	1.00E+03	2.00E+03	5.45E-11	1.04E-11	6.36E-10	1.27E-07	2.42E-08	1.27E-07
Formaldehyde	1.88E-02	1.30E-05	6.00E-06	9.80E+00	9.00E+00	9.26E-09	1.76E-09	1.08E-07	2.00E-03	3.81E-04	2.00E-03
Hexane, n-	0.00E+00	N/A	N/A	7.00E+02	7.00E+03	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Methanol	2.75E-03	N/A	N/A	4.00E+03	4.00E+03	NC	NC	NC	6.60E-07	1.26E-07	6.60E-07
Methyl ethyl ketone	0.00E+00	N/A	N/A	5.00E+03	N/A	NC	NC	NC	NC	NC	NC
Naphthalene	8.25E-04	N/A	3.40E-05	3.00E+00	9.00E+00	2.31E-09	4.39E-10	2.69E-08	8.79E-05	1.67E-05	8.79E-05
Propylene	6.92E-03	N/A	N/A	3.00E+03	3.00E+03	NC	NC	NC	2.21E-06	4.21E-07	2.21E-06
Styrene	4.71E-04	N/A	N/A	1.00E+03	9.00E+02	NC	NC	NC	5.02E-07	9.56E-08	5.02E-07
Toluene	9.79E-04	N/A	N/A	5.00E+03	3.00E+02	NC	NC	NC	3.13E-06	5.96E-07	3.13E-06
Xylene (total)	0.00E+00	N/A	N/A	1.00E+02	7.00E+02	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Diesel PM	0.00E+00	N/A	3.00E-04	5.00E+00	5.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	4.30E-03	3.30E-03	1.50E-02	1.50E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium	0.00E+00	1.80E-03	4.20E-03	1.00E-02	2.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorine	0.00E+00	N/A	N/A	1.50E-01	2.00E-01	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Chromium (VI)	1.20E-07	1.20E-02	1.50E-01	1.00E-01	2.00E-01	1.48E-09	2.82E-10	1.73E-08	5.75E-07	1.10E-07	5.75E-07
Copper	4.61E-07	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Lead	1.01E-06	N/A	1.20E-05	N/A	N/A	1.00E-12	1.91E-13	1.17E-11	NC	NC	NC
Manganese	5.54E-07	N/A	N/A	5.00E-02	9.00E-02	NC	NC	NC	5.90E-06	1.12E-06	5.90E-06
Mercury	0.00E+00	N/A	N/A	3.00E-01	3.00E-02	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Nickel	0.00E+00	N/A	2.60E-04	9.00E-02	1.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Selenium	0.00E+00	N/A	N/A	2.00E+01	2.00E+01	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Silicon	0.00E+00	N/A	N/A	3.00E+00	3.00E+00	NC	NC	NC	0.00E+00	0.00E+00	0.00E+00
Sulfates	0.00E+00	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Vanadium	0.00E+00	8.30E-03	N/A	1.00E-01	N/A	NC	NC	NC	NC	NC	NC
					TOTAL:	5.66E-08	1.08E-08	6.60E-07	0.0125	0.0024	0.0125

NOTES: Residential Maximum Grid No. Receptor 130; N/A - Not Available; NC = Not Calculated; $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., December 2014.
PREPARED BY: Ricondo & Associates, Inc., December 2014.

Table B.2-3: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – Lifetime Exposure (Based on Peak Location of Commercial Cancer Risks)

EXPOSURE PARAMETERS	ADULT WORKER
Exposure Time	24 (hrs/day)
Exposure Frequency	350 (days/year)
Exposure Duration	1 (years)
Averaging Time (non-carcinogenic)	8760 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)

RAGS F INHALATION EQUATIONS

EC= (CA x ET xED)/(AT)

Risk=IURxEC

Hazard Quotient=EC/Rfc
Where:
EC = Exposure Concentration
CA = Concentration in Air
ET = Exposure Time
EF = Exposure Frequency

	TOXICITY CRITERIA					CANCER RISKS	HAZARD QUOTIENTS
TAC	LOCATION WITH MAX RISK (µg/m^3)	EPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	CalEPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	EPA CHRONIC INHALATION RFC (µg/m^3)	CalEPA CHRONIC INHALATION RFC (µg/m^3)	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	5.34E-04	2.20E-06	2.70E-06	9.00E+00	1.40E+02	7.90E-10	3.66E-06
Acrolein	3.06E-04	N/A	N/A	2.00E-02	3.50E-01	NC	8.39E-04
Benzene	2.10E-04	7.80E-06	2.90E-05	3.00E+01	6.00E+01	3.34E-09	3.36E-06
1,3-Butadiene	2.11E-04	3.00E-05	1.70E-04	2.00E+00	2.00E+01	1.97E-08	1.01E-05
Ethylbenzene	2.18E-05	2.50E-06	2.50E-06	1.00E+03	2.00E+03	2.98E-11	1.04E-08
Formaldehyde	1.54E-03	1.30E-05	6.00E-06	9.80E+00	9.00E+00	5.06E-09	1.64E-04
Hexane, n-	0.00E+00	N/A	N/A	7.00E+02	7.00E+03	NC	0.00E+00
Methanol	2.26E-04	N/A	N/A	4.00E+03	4.00E+03	NC	5.41E-08
Methyl ethyl ketone	0.00E+00	N/A	N/A	5.00E+03	N/A	NC	NC
Naphthalene	6.77E-05	N/A	3.40E-05	3.00E+00	9.00E+00	1.26E-09	7.21E-06
Propylene	5.67E-04	N/A	N/A	3.00E+03	3.00E+03	NC	1.81E-07
Styrene	3.86E-05	N/A	N/A	1.00E+03	9.00E+02	NC	4.12E-08
Toluene	8.03E-05	N/A	N/A	5.00E+03	3.00E+02	NC	2.57E-07
Xylene (total)	0.00E+00	N/A	N/A	1.00E+02	7.00E+02	NC	0.00E+00
Diesel PM	0.00E+00	N/A	3.00E-04	5.00E+00	5.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	4.30E-03	3.30E-03	1.50E-02	1.50E-02	0.00E+00	0.00E+00
Cadmium	0.00E+00	1.80E-03	4.20E-03	1.00E-02	2.00E-02	0.00E+00	0.00E+00
Chlorine	0.00E+00	N/A	N/A	1.50E-01	2.00E-01	NC	0.00E+00
Chromium (VI)	7.13E-09	1.20E-02	1.50E-01	1.00E-01	2.00E-01	5.86E-10	3.42E-08
Copper	2.74E-08	N/A	N/A	N/A	N/A	NC	NC
Lead	6.04E-08	N/A	1.20E-05	N/A	N/A	3.97E-13	NC
Manganese	3.29E-08	N/A	N/A	5.00E-02	9.00E-02	NC	3.51E-07
Mercury	0.00E+00	N/A	N/A	3.00E-01	3.00E-02	NC	0.00E+00
Nickel	0.00E+00	N/A	2.60E-04	9.00E-02	1.40E-02	0.00E+00	0.00E+00
Selenium	0.00E+00	N/A	N/A	2.00E+01	2.00E+01	NC	0.00E+00
Silicon	0.00E+00	N/A	N/A	3.00E+00	3.00E+00	NC	0.00E+00
Sulfates	0.00E+00	N/A	N/A	N/A	N/A	NC	NC
Vanadium	0.00E+00	8.30E-03	N/A	1.00E-01	N/A	NC	NC
					TOTAL:	3.07E-08	0.0010

NOTES: Residential Maximum Grid No. Receptor 169; N/A - Not Available; NC = Not Calculated; µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., December 2014.
PREPARED BY: Ricondo & Associates, Inc., December 2014.

Table B.2-4: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – Lifetime Exposure (Based on Peak Location of Commercial Hazards)

EXPOSURE PARAMETERS	ADULT WORKER
Exposure Time	24 (hrs/day)
Exposure Frequency	350 (days/year)
Exposure Duration	1 (years)
Averaging Time (non-carcinogenic)	8760 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)

RAGS F INHALATION EQUATIONS

EC= (CA x ET xED)/(AT)

Risk=IURxEC

Hazard Quotient=EC/Rfc
Where:
EC = Exposure Concentration
CA = Concentration in Air
ET = Exposure Time
EF = Exposure Frequency

	TOXICITY CRITERIA					CANCER RISKS	HAZARD QUOTIENTS
TAC	LOCATION WITH MAX RISK (µg/m^3)	EPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	CalEPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	EPA CHRONIC INHALATION RFC (µg/m^3)	CalEPA CHRONIC INHALATION RFC (µg/m^3)	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	3.74E-02	2.20E-06	2.70E-06	9.00E+00	1.40E+02	5.53E-08	2.56E-04
Acrolein	2.14E-02	N/A	N/A	2.00E-02	3.50E-01	NC	5.87E-02
Benzene	1.47E-02	7.80E-06	2.90E-05	3.00E+01	6.00E+01	2.34E-07	2.35E-04
1,3-Butadiene	1.48E-02	3.00E-05	1.70E-04	2.00E+00	2.00E+01	1.38E-06	7.08E-04
Ethylbenzene	1.52E-03	2.50E-06	2.50E-06	1.00E+03	2.00E+03	2.09E-09	7.30E-07
Formaldehyde	1.08E-01	1.30E-05	6.00E-06	9.80E+00	9.00E+00	3.54E-07	1.15E-02
Hexane, n-	0.00E+00	N/A	N/A	7.00E+02	7.00E+03	NC	0.00E+00
Methanol	1.58E-02	N/A	N/A	4.00E+03	4.00E+03	NC	3.79E-06
Methyl ethyl ketone	0.00E+00	N/A	N/A	5.00E+03	N/A	NC	NC
Naphthalene	4.74E-03	N/A	3.40E-05	3.00E+00	9.00E+00	8.82E-08	5.05E-04
Propylene	3.97E-02	N/A	N/A	3.00E+03	3.00E+03	NC	1.27E-05
Styrene	2.71E-03	N/A	N/A	1.00E+03	9.00E+02	NC	2.88E-06
Toluene	5.62E-03	N/A	N/A	5.00E+03	3.00E+02	NC	1.80E-05
Xylene (total)	0.00E+00	N/A	N/A	1.00E+02	7.00E+02	NC	0.00E+00
Diesel PM	0.00E+00	N/A	3.00E-04	5.00E+00	5.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	4.30E-03	3.30E-03	1.50E-02	1.50E-02	0.00E+00	0.00E+00
Cadmium	0.00E+00	1.80E-03	4.20E-03	1.00E-02	2.00E-02	0.00E+00	0.00E+00
Chlorine	0.00E+00	N/A	N/A	1.50E-01	2.00E-01	NC	0.00E+00
Chromium (VI)	4.99E-07	1.20E-02	1.50E-01	1.00E-01	2.00E-01	4.10E-08	2.39E-06
Copper	1.92E-06	N/A	N/A	N/A	N/A	NC	NC
Lead	4.23E-06	N/A	1.20E-05	N/A	N/A	2.78E-11	NC
Manganese	2.31E-06	N/A	N/A	5.00E-02	9.00E-02	NC	2.46E-05
Mercury	0.00E+00	N/A	N/A	3.00E-01	3.00E-02	NC	0.00E+00
Nickel	0.00E+00	N/A	2.60E-04	9.00E-02	1.40E-02	0.00E+00	0.00E+00
Selenium	0.00E+00	N/A	N/A	2.00E+01	2.00E+01	NC	0.00E+00
Silicon	0.00E+00	N/A	N/A	3.00E+00	3.00E+00	NC	0.00E+00
Sulfates	0.00E+00	N/A	N/A	N/A	N/A	NC	NC
Vanadium	0.00E+00	8.30E-03	N/A	1.00E-01	N/A	NC	NC
					TOTAL:	2.15E-06	0.0720

NOTES: Residential Maximum Grid No. Receptor 169; N/A - Not Available; NC = Not Calculated; µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., December 2014.
PREPARED BY: Ricondo & Associates, Inc., December 2014.

Attachment B.3

Construction – Acute Health Hazard Calculations

Table B.3-1: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR LOCATION	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE, TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
Commercial - Onsite																	
Maximum Onsite Concentration	2.93E+00	6.12E-01	8.80E-01	6.46E+00	4.50E-01	4.49E-01	7.78E-02	5.51E-01	2.08E-01	1.42E-03	2.49E-01	8.14E-03	6.73E-02	1.26E-03	4.50E-03	1.94E-02	3.98E-01
Commercial - Offsite																	
Maximum Offsite Concentration	2.12E+00	1.21E+00	8.34E-01	6.11E+00	8.92E-01	3.94E-02	1.53E-01	3.20E-01	7.07E-02	4.48E-04	7.88E-02	2.60E-03	2.13E-02	3.97E-04	1.42E-03	6.14E-03	1.25E-01
Minimum Offsite Concentration	-6.76E-01	-4.29E-01	-2.75E-01	-2.01E+00	-3.17E-01	1.35E-03	-5.37E-02	-9.89E-02	-2.07E-02	1.23E-05	2.17E-03	8.80E-05	6.11E-04	1.09E-05	3.91E-05	1.69E-04	3.42E-03
Average Offsite Concentration	3.44E-01	1.77E-01	1.31E-01	9.60E-01	1.30E-01	7.44E-03	2.25E-02	5.36E-02	1.32E-02	6.65E-05	1.17E-02	3.94E-04	3.18E-03	5.85E-05	2.11E-04	9.13E-04	1.83E-02
Recreational																	
Maximum Offsite Concentration	8.70E-01	4.45E-01	3.30E-01	2.42E+00	3.27E-01	2.85E-02	5.67E-02	1.36E-01	3.44E-02	8.48E-05	1.49E-02	4.92E-04	4.03E-03	7.53E-05	2.69E-04	1.16E-03	2.37E-02
Minimum Offsite Concentration	1.86E-01	5.06E-02	6.10E-02	4.48E-01	3.64E-02	4.66E-03	6.97E-03	3.30E-02	1.04E-02	2.03E-05	3.58E-03	1.30E-04	9.81E-04	1.80E-05	6.45E-05	2.79E-04	5.67E-03
Average Offsite Concentration	5.57E-01	2.77E-01	2.10E-01	1.54E+00	2.04E-01	1.52E-02	3.54E-02	8.75E-02	2.22E-02	4.97E-05	8.74E-03	2.94E-04	2.37E-03	4.41E-05	1.58E-04	6.81E-04	1.39E-02
Residential																	
Maximum Offsite Concentration	7.15E-01	3.92E-01	2.78E-01	2.03E+00	2.89E-01	2.67E-02	4.97E-02	1.09E-01	2.66E-02	1.35E-04	2.37E-02	7.79E-04	6.41E-03	1.20E-04	4.28E-04	1.85E-03	3.76E-02
Minimum Offsite Concentration	-2.86E+00	-1.65E+00	-1.13E+00	-8.26E+00	-1.22E+00	2.44E-03	-2.08E-01	-4.30E-01	-9.39E-02	1.44E-05	2.53E-03	1.03E-04	7.07E-04	1.27E-05	4.56E-05	1.97E-04	4.00E-03
Average Offsite Concentration	2.57E-01	1.19E-01	9.49E-02	6.95E-01	8.69E-02	1.04E-02	1.53E-02	4.12E-02	1.11E-02	4.91E-05	8.64E-03	2.92E-04	2.34E-03	4.35E-05	1.56E-04	6.73E-04	1.37E-02
School																	
Maximum Offsite Concentration	6.24E-01	3.38E-01	2.36E-01	1.73E+00	2.49E-01	2.92E-02	4.28E-02	9.91E-02	2.59E-02	1.15E-04	2.02E-02	6.60E-04	5.45E-03	1.01E-04	3.63E-04	1.57E-03	3.18E-02
Minimum Offsite Concentration	-2.81E-01	-1.69E-01	-1.12E-01	-8.22E-01	-1.25E-01	3.06E-03	-2.13E-02	-4.14E-02	-8.50E-03	1.92E-05	3.38E-03	1.26E-04	9.33E-04	1.70E-05	6.10E-05	2.64E-04	5.34E-03
Average Offsite Concentration	4.36E-01	2.02E-01	1.61E-01	1.18E+00	1.48E-01	1.74E-02	2.60E-02	6.99E-02	1.87E-02	7.05E-05	1.24E-02	4.12E-04	3.36E-03	6.24E-05	2.24E-04	9.66E-04	1.96E-02
CalEPA Acute REL	470	2.5	1300	55	28000	13000	21000	37000	22000	0.2	210	100	0.17	0.6	6	30	120
Commercial - Onsite																	
Maximum Onsite Acute Hazard	6.22E-03	2.45E-01	6.77E-04	1.18E-01	1.61E-05	3.45E-05	3.71E-06	1.49E-05	9.48E-06	7.09E-03	1.19E-03	8.14E-05	3.96E-01	2.10E-03	7.50E-04	6.48E-04	3.32E-03
Commercial - Offsite																	
Maximum Offsite Acute Hazard	4.52E-03	4.84E-01	6.42E-04	1.11E-01	3.19E-05	3.03E-06	7.28E-06	8.64E-06	3.21E-06	2.24E-03	3.75E-04	2.60E-05	1.25E-01	6.62E-04	2.37E-04	2.05E-04	1.04E-03
Minimum Offsite Acute Hazard	-1.44E-03	-1.72E-01	-2.12E-04	-3.66E-02	-1.13E-05	1.04E-07	-2.56E-06	-2.67E-06	-9.43E-07	6.15E-05	1.03E-05	8.80E-07	3.60E-03	1.82E-05	6.51E-06	5.63E-06	2.85E-05
Average Offsite Acute Hazard	7.33E-04	7.07E-02	1.01E-04	1.75E-02	4.64E-06	5.73E-07	1.07E-06	1.45E-06	6.01E-07	3.33E-04	5.58E-05	3.94E-06	1.87E-02	9.75E-05	3.52E-05	3.04E-05	1.52E-04
Recreational																	
Maximum Offsite Acute Hazard	1.85E-03	1.78E-01	2.54E-04	4.40E-02	1.17E-05	2.19E-06	2.70E-06	3.68E-06	1.56E-06	4.24E-04	7.10E-05	4.92E-06	2.37E-02	1.25E-04	4.48E-05	3.87E-05	1.98E-04
Minimum Offsite Acute Hazard	3.96E-04	2.02E-02	4.70E-05	8.14E-03	1.30E-06	3.58E-07	3.32E-07	8.93E-07	4.72E-07	1.02E-04	1.70E-05	1.30E-06	5.77E-03	3.00E-05	1.07E-05	9.29E-06	4.72E-05
Average Offsite Acute Hazard	1.19E-03	1.11E-01	1.62E-04	2.80E-02	7.28E-06	1.17E-06	1.69E-06	2.37E-06	1.01E-06	2.48E-04	4.16E-05	2.94E-06	1.39E-02	7.35E-05	2.63E-05	2.27E-05	1.16E-04
Residential																	
Maximum Offsite Acute Hazard	1.52E-03	1.57E-01	2.13E-04	3.70E-02	1.03E-05	2.05E-06	2.37E-06	2.95E-06	1.21E-06	6.74E-04	1.13E-04	7.79E-06	3.77E-02	1.99E-04	7.13E-05	6.16E-05	3.14E-04
Minimum Offsite Acute Hazard	-6.09E-03	-6.60E-01	-8.68E-04	-1.50E-01	-4.34E-05	1.88E-07	-9.90E-06	-1.16E-05	-4.27E-06	7.19E-05	1.20E-05	1.03E-06	4.16E-03	2.12E-05	7.60E-06	6.57E-06	3.33E-05
Average Offsite Acute Hazard	5.47E-04	4.74E-02	7.30E-05	1.26E-02	3.10E-06	8.02E-07	7.26E-07	1.11E-06	5.04E-07	2.45E-04	4.11E-05	2.92E-06	1.38E-02	7.24E-05	2.60E-05	2.24E-05	1.14E-04
School																	
Maximum Offsite Acute Hazard	1.33E-03	1.35E-01	1.82E-04	3.15E-02	8.90E-06	2.24E-06	2.04E-06	2.68E-06	1.18E-06	5.73E-04	9.60E-05	6.60E-06	3.20E-02	1.69E-04	6.06E-05	5.23E-05	2.65E-04
Minimum Offsite Acute Hazard	-5.97E-04	-6.78E-02	-8.64E-05	-1.50E-02	-4.46E-06	2.36E-07	-1.01E-06	-1.12E-06	-3.86E-07	9.62E-05	1.61E-05	1.26E-06	5.49E-03	2.84E-05	1.02E-05	8.79E-06	4.45E-05
Average Offsite Acute Hazard	9.28E-04	8.07E-02	1.24E-04	2.15E-02	5.28E-06	1.34E-06	1.24E-06	1.89E-06	8.52E-07	3.52E-04	5.91E-05	4.12E-06	1.98E-02	1.04E-04	3.73E-05	3.22E-05	1.64E-04

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., December 2014.
PREPARED BY: Ricondo & Associates, Inc., December 2014.

Table B.3-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE, TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
1	367379	755396	Recreational	2.95E-01	1.50E-01	1.12E-01	8.20E-01	1.10E-01	6.96E-03	4.42E-02	1.91E-02	4.61E-02	1.15E-02	1.17E-02	9.04E-03	2.03E-05	3.58E-03	1.30E-04	1.80E-05	6.45E-05
2	367340	755485	Recreational	2.57E-01	1.26E-01	9.66E-02	7.08E-01	9.29E-02	7.58E-03	3.73E-02	1.62E-02	4.05E-02	1.04E-02	1.02E-02	7.73E-03	2.21E-05	3.89E-03	1.40E-04	1.96E-05	7.02E-05
3	367301	755573	Recreational	5.76E-01	3.08E-01	2.22E-01	1.62E+00	2.26E-01	8.27E-03	9.10E-02	3.90E-02	8.87E-02	2.11E-02	2.27E-02	1.82E-02	2.42E-05	4.25E-03	1.53E-04	2.14E-05	7.67E-05
4	367263	755661	Recreational	5.91E-01	3.14E-01	2.27E-01	1.66E+00	2.31E-01	9.05E-03	9.28E-02	3.98E-02	9.11E-02	2.18E-02	2.33E-02	1.86E-02	2.65E-05	4.66E-03	1.67E-04	2.35E-05	8.40E-05
5	367224	755749	Recreational	5.71E-01	3.00E-01	2.19E-01	1.60E+00	2.21E-01	9.94E-03	8.87E-02	3.81E-02	8.84E-02	2.13E-02	2.25E-02	1.79E-02	2.91E-05	5.12E-03	1.82E-04	2.58E-05	9.23E-05
6	367186	755838	Recreational	5.10E-01	2.62E-01	1.94E-01	1.42E+00	1.93E-01	1.10E-02	7.74E-02	3.34E-02	7.94E-02	1.96E-02	2.02E-02	1.57E-02	3.21E-05	5.65E-03	1.99E-04	2.85E-05	1.02E-04
7	367147	755926	Recreational	4.15E-01	2.04E-01	1.56E-01	1.14E+00	1.50E-01	1.21E-02	6.03E-02	2.61E-02	6.54E-02	1.67E-02	1.65E-02	1.25E-02	3.55E-05	6.25E-03	2.17E-04	3.15E-05	1.13E-04
8	367109	756014	Recreational	3.05E-01	1.37E-01	1.12E-01	8.19E-01	1.01E-01	1.34E-02	4.04E-02	1.77E-02	4.91E-02	1.34E-02	1.23E-02	8.71E-03	3.94E-05	6.93E-03	2.38E-04	3.49E-05	1.25E-04
9	367070	756103	Recreational	2.11E-01	7.93E-02	7.38E-02	5.41E-01	5.78E-02	1.49E-02	2.31E-02	1.04E-02	3.54E-02	1.07E-02	8.68E-03	5.46E-03	4.38E-05	7.71E-03	2.62E-04	3.89E-05	1.39E-04
10	367032	756191	Recreational	8.46E-01	4.39E-01	3.23E-01	2.37E+00	3.23E-01	1.66E-02	1.30E-01	5.59E-02	1.31E-01	3.21E-02	3.34E-02	2.63E-02	4.88E-05	8.59E-03	2.88E-04	4.33E-05	1.55E-04
11	366993	756279	Recreational	8.66E-01	4.45E-01	3.30E-01	2.41E+00	3.27E-01	1.84E-02	1.32E-01	5.67E-02	1.35E-01	3.32E-02	3.43E-02	2.67E-02	5.43E-05	9.55E-03	3.28E-04	4.81E-05	1.72E-04
12	366954	756367	Recreational	8.70E-01	4.42E-01	3.30E-01	2.42E+00	3.25E-01	2.04E-02	1.31E-01	5.64E-02	1.36E-01	3.38E-02	3.45E-02	2.67E-02	6.01E-05	1.06E-02	3.62E-04	5.33E-05	1.91E-04
13	366916	756456	Recreational	8.68E-01	4.35E-01	3.28E-01	2.40E+00	3.20E-01	2.25E-02	1.28E-01	5.55E-02	1.36E-01	3.42E-02	3.45E-02	2.64E-02	6.64E-05	1.17E-02	3.98E-04	5.89E-05	2.11E-04
14	366877	756544	Recreational	8.58E-01	4.24E-01	3.23E-01	2.36E+00	3.11E-01	2.45E-02	1.25E-01	5.42E-02	1.35E-01	3.44E-02	3.42E-02	2.59E-02	7.25E-05	1.27E-02	4.32E-04	6.43E-05	2.30E-04
15	366839	756632	Recreational	8.40E-01	4.09E-01	3.15E-01	2.31E+00	3.00E-01	2.63E-02	1.20E-01	5.23E-02	1.33E-01	3.43E-02	3.35E-02	2.51E-02	7.80E-05	1.37E-02	4.63E-04	6.92E-05	2.47E-04
16	366800	756720	Recreational	8.17E-01	3.92E-01	3.05E-01	2.23E+00	2.87E-01	2.77E-02	1.15E-01	5.02E-02	1.30E-01	3.39E-02	3.27E-02	2.42E-02	8.22E-05	1.45E-02	4.86E-04	7.29E-05	2.61E-04
17	366762	756809	Recreational	7.82E-01	3.70E-01	2.91E-01	2.13E+00	2.71E-01	2.85E-02	1.09E-01	4.74E-02	1.25E-01	3.29E-02	3.14E-02	2.30E-02	8.47E-05	1.49E-02	4.92E-04	7.52E-05	2.69E-04
18	366723	756897	Recreational	7.54E-01	3.53E-01	2.79E-01	2.05E+00	2.59E-01	2.85E-02	1.04E-01	4.54E-02	1.20E-01	3.20E-02	3.02E-02	2.20E-02	8.48E-05	1.49E-02	4.80E-04	7.53E-05	2.69E-04
19	366685	756985	Recreational	7.12E-01	3.31E-01	2.63E-01	1.93E+00	2.43E-01	2.78E-02	9.75E-02	4.26E-02	1.14E-01	3.04E-02	2.86E-02	2.07E-02	8.26E-05	1.45E-02	4.60E-04	7.34E-05	2.62E-04
20	366646	757074	Recreational	6.67E-01	3.10E-01	2.47E-01	1.81E+00	2.27E-01	2.63E-02	9.11E-02	3.98E-02	1.07E-01	2.86E-02	2.68E-02	1.94E-02	7.84E-05	1.38E-02	4.33E-04	6.96E-05	2.49E-04
21	366607	757162	Recreational	6.20E-01	2.88E-01	2.29E-01	1.68E+00	2.11E-01	2.45E-02	8.46E-02	3.70E-02	9.92E-02	2.66E-02	2.49E-02	1.80E-02	7.27E-05	1.28E-02	4.10E-04	6.46E-05	2.31E-04
22	366569	757250	Recreational	4.83E-01	2.15E-01	1.76E-01	1.29E+00	1.57E-01	2.24E-02	6.31E-02	2.77E-02	7.81E-02	2.15E-02	1.95E-02	1.37E-02	6.66E-05	1.17E-02	3.86E-04	5.91E-05	2.11E-04
23	366530	757338	Recreational	1.86E-01	5.06E-02	6.10E-02	4.48E-01	3.64E-02	2.03E-02	1.45E-02	6.97E-03	3.30E-02	1.12E-02	7.91E-03	4.12E-03	6.02E-05	1.06E-02	3.48E-04	5.35E-05	1.91E-04
24	366492	757427	Recreational	4.37E-01	2.00E-01	1.61E-01	1.18E+00	1.47E-01	1.83E-02	5.89E-02	2.58E-02	7.03E-02	1.90E-02	1.76E-02	1.26E-02	5.42E-05	9.53E-03	3.13E-04	4.81E-05	1.72E-04
25	366453	757515	Recreational	5.27E-01	2.57E-01	1.98E-01	1.45E+00	1.89E-01	1.64E-02	7.58E-02	3.29E-02	8.33E-02	2.15E-02	2.10E-02	1.58E-02	4.85E-05	8.54E-03	2.80E-04	4.31E-05	1.54E-04
26	366415	757603	Recreational	5.12E-01	2.53E-01	1.93E-01	1.41E+00	1.86E-01	1.47E-02	7.46E-02	3.23E-02	8.06E-02	2.06E-02	2.04E-02	1.54E-02	4.36E-05	7.67E-03	2.50E-04	3.87E-05	1.38E-04
27	366376	757692	Recreational	4.95E-01	2.47E-01	1.87E-01	1.37E+00	1.82E-01	1.32E-02	7.30E-02	3.16E-02	7.77E-02	1.96E-02	1.97E-02	1.50E-02	3.91E-05	6.87E-03	2.30E-04	3.47E-05	1.24E-04
28	366338	757780	Residential	4.78E-01	2.41E-01	1.81E-01	1.32E+00	1.77E-01	1.19E-02	7.11E-02	3.07E-02	7.47E-02	1.87E-02	1.90E-02	1.46E-02	3.52E-05	6.19E-03	2.11E-04	3.12E-05	1.12E-04
29	366402	757746	Residential	4.95E-01	2.47E-01	1.87E-01	1.37E+00	1.82E-01	1.32E-02	7.30E-02	3.16E-02	7.77E-02	1.96E-02	1.97E-02	1.50E-02	3.89E-05	6.84E-03	2.32E-04	3.45E-05	1.23E-04
30	366467	757713	Residential	5.14E-01	2.54E-01	1.94E-01	1.42E+00	1.87E-01	1.46E-02	7.51E-02	3.25E-02	8.10E-02	2.06E-02	2.05E-02	1.55E-02	4.32E-05	7.61E-03	2.58E-04	3.84E-05	1.37E-04
31	366531	757679	Residential	5.36E-01	2.62E-01	2.01E-01	1.47E+00	1.92E-01	1.64E-02	7.73E-02	3.35E-02	8.46E-02	2.18E-02	2.14E-02	1.61E-02	4.84E-05	8.52E-03	2.87E-04	4.30E-05	1.54E-04
32	366567	757773	Residential	5.29E-01	2.59E-01	1.98E-01	1.45E+00	1.90E-01	1.58E-02	7.64E-02	3.32E-02	8.34E-02	2.14E-02	2.11E-02	1.59E-02	4.67E-05	8.22E-03	2.79E-04	4.15E-05	1.48E-04
33	366625	757758	Residential	5.46E-01	2.65E-01	2.04E-01	1.50E+00	1.95E-01	1.73E-02	7.82E-02	3.40E-02	8.64E-02	2.23E-02	2.18E-02	1.63E-02	5.12E-05	9.00E-03	3.04E-04	4.54E-05	1.62E-04
34	366682	757744	Residential	5.65E-01	2.71E-01	2.11E-01	1.54E+00	1.99E-01	1.89E-02	7.99E-02	3.48E-02	8.96E-02	2.34E-02	2.26E-02	1.67E-02	5.61E-05	9.87E-03	3.33E-04	4.98E-05	1.78E-04
35	366768	757788	Residential	5.75E-01	2.74E-01	2.14E-01	1.57E+00	2.01E-01	2.02E-02	8.07E-02	3.51E-02	9.15E-02	2.40E-02	2.30E-02	1.70E-02	5.97E-05	1.05E-02	3.54E-04	5.30E-05	1.89E-04
36	366854	757833	Residential	5.80E-01	2.74E-01	2.16E-01	1.58E+00	2.01E-01	2.11E-02	8.08E-02	3.52E-02	9.25E-02	2.44E-02	2.33E-02	1.70E-02	6.25E-05	1.10E-02	3.70E-04	5.55E-05	1.98E-04
37	366941	757877	Residential	5.81E-01	2.73E-01	2.16E-01	1.58E+00	2.00E-01	2.18E-02	8.04E-02	3.51E-02	9.28E-02	2.46E-02	2.33E-02	1.70E-02	6.44E-05	1.13E-02	3.81E-04	5.72E-05	2.04E-04
38	367027	757922	Residential	5.74E-01	2.69E-01	2.13E-01	1.56E+00	1.97E-01	2.20E-02	7.91E-02	3.45E-02	9.18E-02	2.44E-02	2.31E-02	1.68E-02	6.49E-05	1.14E-02	3.84E-04	5.76E-05	2.06E-04
39	367113	757966	Residential	5.61E-01	2.62E-01	2.08E-01	1.52E+00	1.92E-01	2.17E-02	7.70E-02	3.36E-02	8.97E-02	2.39E-02	2.25E-02	1.63E-02	6.41E-05	1.13E-02	3.81E-04	5.69E-05	2.04E-04
40	367192	757916	Residential	6.02E-01	2.75E-01	2.22E-01	1.62E+00	2.02E-01	2.51E-02	8.10E-02	3.55E-02	9.66E-02	2.61E-02	2.42E-02	1.73E-02	7.41E-05	1.30E-02	4.39E-04	6.57E-05	2.35E-04
41	367264	757916	Residential	6.09E-01	2.77E-01	2.24E-01	1.64E+00	2.03E-01	2.60E-02	8.15E-02	3.57E-02	9.80E-02	2.66E-02	2.45E-02	1.75E-02	7.68E-05	1.35E-02	4.54E-04	6.82E-05	2.44E-04
42	367335	757916	Residential	5.14E-01	2.21E-01	1.86E-01	1.36E+00	1.61E-01	2.67E-02	6.47E-02	2.86E-02	8.38E-02	2.36E-02	2.08E-02	1.43E-02	7.86E-05	1.38E-02	4.63E-04	6.98E-05	2.50E-04

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE. TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
43	367343	757966	Residential	4.80E-01	2.09E-01	1.74E-01	1.28E+00	1.53E-01	2.41E-02	6.12E-02	2.70E-02	7.82E-02	2.19E-02	1.95E-02	1.34E-02	7.10E-05	1.25E-02	4.15E-04	6.30E-05	2.25E-04
44	367404	757995	Residential	4.60E-01	2.00E-01	1.67E-01	1.22E+00	1.46E-01	2.30E-02	5.87E-02	2.59E-02	7.48E-02	2.09E-02	1.86E-02	1.29E-02	6.75E-05	1.19E-02	3.92E-04	5.99E-05	2.14E-04
45	367465	758024	Residential	4.33E-01	1.88E-01	1.57E-01	1.15E+00	1.38E-01	2.17E-02	5.52E-02	2.44E-02	7.05E-02	1.97E-02	1.76E-02	1.21E-02	6.38E-05	1.12E-02	3.69E-04	5.66E-05	2.02E-04
46	367504	757948	School	4.88E-01	2.10E-01	1.77E-01	1.29E+00	1.54E-01	2.51E-02	6.16E-02	2.72E-02	7.95E-02	2.24E-02	1.98E-02	1.36E-02	7.37E-05	1.30E-02	4.28E-04	6.53E-05	2.34E-04
47	367544	757873	School	5.50E-01	2.35E-01	1.99E-01	1.46E+00	1.72E-01	2.92E-02	6.89E-02	3.05E-02	9.00E-02	2.54E-02	2.24E-02	1.52E-02	8.56E-05	1.51E-02	5.01E-04	7.59E-05	2.72E-04
48	367587	757909	School	5.09E-01	2.18E-01	1.84E-01	1.35E+00	1.60E-01	2.66E-02	6.41E-02	2.83E-02	8.32E-02	2.34E-02	2.07E-02	1.42E-02	7.78E-05	1.37E-02	4.52E-04	6.90E-05	2.47E-04
49	367623	757866	School	5.45E-01	2.33E-01	1.97E-01	1.45E+00	1.71E-01	2.86E-02	6.84E-02	3.03E-02	8.91E-02	2.51E-02	2.21E-02	1.51E-02	8.38E-05	1.47E-02	4.89E-04	7.42E-05	2.66E-04
50	367694	757866	School	5.26E-01	2.26E-01	1.90E-01	1.39E+00	1.65E-01	2.74E-02	6.62E-02	2.92E-02	8.58E-02	2.42E-02	2.13E-02	1.46E-02	8.00E-05	1.41E-02	4.65E-04	7.09E-05	2.54E-04
51	367716	757927	School	4.52E-01	1.93E-01	1.63E-01	1.20E+00	1.41E-01	2.39E-02	5.65E-02	2.50E-02	7.39E-02	2.09E-02	1.84E-02	1.25E-02	6.99E-05	1.23E-02	4.03E-04	6.19E-05	2.22E-04
52	367737	757988	School	6.24E-01	2.99E-01	2.33E-01	1.71E+00	2.20E-01	2.12E-02	8.82E-02	3.84E-02	9.91E-02	2.59E-02	2.50E-02	1.85E-02	6.17E-05	1.09E-02	3.55E-04	5.47E-05	1.96E-04
53	367727	758067	School	5.89E-01	2.86E-01	2.20E-01	1.62E+00	2.10E-01	1.86E-02	8.43E-02	3.66E-02	9.31E-02	2.41E-02	2.35E-02	1.76E-02	5.43E-05	9.56E-03	3.21E-04	4.82E-05	1.72E-04
54	367716	758146	School	5.58E-01	2.74E-01	2.10E-01	1.54E+00	2.01E-01	1.65E-02	8.09E-02	3.51E-02	8.80E-02	2.25E-02	2.22E-02	1.68E-02	4.82E-05	8.48E-03	2.94E-04	4.27E-05	1.53E-04
55	367673	758189	Residential	5.39E-01	2.66E-01	2.03E-01	1.48E+00	1.95E-01	1.57E-02	7.83E-02	3.40E-02	8.49E-02	2.17E-02	2.15E-02	1.62E-02	4.59E-05	8.08E-03	2.80E-04	4.07E-05	1.46E-04
56	367723	758254	School	5.24E-01	2.62E-01	1.98E-01	1.45E+00	1.92E-01	1.40E-02	7.72E-02	3.34E-02	8.23E-02	2.08E-02	2.08E-02	1.59E-02	4.10E-05	7.21E-03	2.52E-04	3.63E-05	1.30E-04
57	367784	758221	School	5.38E-01	2.69E-01	2.03E-01	1.49E+00	1.97E-01	1.43E-02	7.93E-02	3.43E-02	8.44E-02	2.13E-02	2.14E-02	1.63E-02	4.19E-05	7.37E-03	2.58E-04	3.71E-05	1.33E-04
58	367845	758189	School	5.51E-01	2.75E-01	2.08E-01	1.52E+00	2.02E-01	1.46E-02	8.13E-02	3.52E-02	8.64E-02	2.18E-02	2.19E-02	1.67E-02	4.25E-05	7.47E-03	2.62E-04	3.76E-05	1.35E-04
59	367816	758096	Residential	5.85E-01	2.88E-01	2.20E-01	1.61E+00	2.12E-01	1.69E-02	8.50E-02	3.69E-02	9.21E-02	2.35E-02	2.33E-02	1.76E-02	4.94E-05	8.69E-03	3.02E-04	4.38E-05	1.57E-04
60	367898	758066	Residential	5.99E-01	2.97E-01	2.26E-01	1.65E+00	2.18E-01	1.68E-02	8.76E-02	3.79E-02	9.42E-02	2.40E-02	2.38E-02	1.81E-02	4.89E-05	8.60E-03	3.01E-04	4.33E-05	1.55E-04
61	367980	758035	Residential	6.09E-01	3.03E-01	2.30E-01	1.68E+00	2.23E-01	1.65E-02	8.95E-02	3.88E-02	9.56E-02	2.42E-02	2.42E-02	1.84E-02	4.79E-05	8.43E-03	2.96E-04	4.25E-05	1.52E-04
62	368062	758005	Residential	6.15E-01	3.08E-01	2.32E-01	1.70E+00	2.27E-01	1.60E-02	9.10E-02	3.94E-02	9.64E-02	2.43E-02	2.44E-02	1.87E-02	4.64E-05	8.17E-03	2.88E-04	4.11E-05	1.47E-04
63	368144	757975	Residential	6.18E-01	3.12E-01	2.34E-01	1.71E+00	2.29E-01	1.53E-02	9.20E-02	3.97E-02	9.66E-02	2.42E-02	2.45E-02	1.88E-02	4.45E-05	7.84E-03	2.78E-04	3.95E-05	1.41E-04
64	368226	757945	Residential	6.19E-01	3.14E-01	2.35E-01	1.72E+00	2.31E-01	1.46E-02	9.28E-02	4.01E-02	9.66E-02	2.41E-02	2.45E-02	1.90E-02	4.24E-05	7.46E-03	2.67E-04	3.76E-05	1.35E-04
65	368301	757943	Residential	6.13E-01	3.14E-01	2.33E-01	1.71E+00	2.31E-01	1.36E-02	9.28E-02	4.00E-02	9.55E-02	2.36E-02	2.43E-02	1.89E-02	3.93E-05	6.92E-03	2.49E-04	3.48E-05	1.25E-04
66	368376	757941	Residential	6.14E-01	3.17E-01	2.34E-01	1.71E+00	2.33E-01	1.26E-02	9.37E-02	4.04E-02	9.54E-02	2.34E-02	2.43E-02	1.90E-02	3.70E-05	6.52E-03	2.37E-04	3.28E-05	1.18E-04
67	368452	757940	Residential	6.22E-01	3.24E-01	2.38E-01	1.74E+00	2.38E-01	1.16E-02	9.58E-02	4.12E-02	9.64E-02	2.34E-02	2.46E-02	1.94E-02	3.73E-05	6.57E-03	2.38E-04	3.29E-05	1.18E-04
68	368527	757938	Residential	6.32E-01	3.32E-01	2.42E-01	1.77E+00	2.44E-01	1.08E-02	9.82E-02	4.22E-02	9.76E-02	2.35E-02	2.49E-02	1.98E-02	3.77E-05	6.64E-03	2.41E-04	3.31E-05	1.20E-04
69	368563	757880	Residential	6.64E-01	3.51E-01	2.55E-01	1.87E+00	2.58E-01	1.09E-02	1.04E-01	4.45E-02	1.02E-01	2.46E-02	2.62E-02	2.08E-02	5.17E-05	9.12E-03	3.23E-04	4.48E-05	1.64E-04
70	368636	757926	Residential	6.48E-01	3.45E-01	2.49E-01	1.83E+00	2.54E-01	9.79E-03	1.02E-01	4.38E-02	9.99E-02	2.38E-02	2.55E-02	2.04E-02	4.02E-05	7.08E-03	2.55E-04	3.50E-05	1.27E-04
71	368709	757971	Residential	6.31E-01	3.37E-01	2.43E-01	1.78E+00	2.48E-01	8.88E-03	9.97E-02	4.28E-02	9.70E-02	2.30E-02	2.48E-02	1.99E-02	3.25E-05	5.73E-03	2.10E-04	2.85E-05	1.03E-04
72	368782	758017	Residential	6.18E-01	3.32E-01	2.38E-01	1.74E+00	2.44E-01	8.10E-03	9.81E-02	4.21E-02	9.48E-02	2.24E-02	2.43E-02	1.96E-02	2.64E-05	4.66E-03	1.73E-04	2.33E-05	8.39E-05
73	368855	758062	Residential	6.13E-01	3.31E-01	2.37E-01	1.73E+00	2.43E-01	7.42E-03	9.78E-02	4.19E-02	9.39E-02	2.21E-02	2.41E-02	1.95E-02	2.65E-05	4.67E-03	1.72E-04	2.35E-05	8.42E-05
74	368928	758108	Residential	6.16E-01	3.34E-01	2.38E-01	1.74E+00	2.46E-01	6.82E-03	9.88E-02	4.23E-02	9.42E-02	2.20E-02	2.41E-02	1.96E-02	2.79E-05	4.90E-03	1.78E-04	2.46E-05	8.84E-05
75	369001	758153	Residential	6.33E-01	3.46E-01	2.45E-01	1.80E+00	2.54E-01	6.31E-03	1.02E-01	4.38E-02	9.68E-02	2.25E-02	2.48E-02	2.03E-02	2.92E-05	5.15E-03	1.84E-04	2.59E-05	9.28E-05
76	369058	758074	Residential	7.15E-01	3.92E-01	2.78E-01	2.03E+00	2.89E-01	6.27E-03	1.16E-01	4.97E-02	1.09E-01	2.52E-02	2.80E-02	2.30E-02	3.16E-05	5.56E-03	1.98E-04	2.80E-05	1.00E-04
77	369102	758103	Residential	6.78E-01	3.72E-01	2.63E-01	1.93E+00	2.74E-01	5.98E-03	1.10E-01	4.71E-02	1.03E-01	2.39E-02	2.65E-02	2.18E-02	3.26E-05	5.74E-03	2.04E-04	2.88E-05	1.03E-04
78	369145	758132	Residential	6.40E-01	3.51E-01	2.48E-01	1.82E+00	2.58E-01	5.72E-03	1.04E-01	4.45E-02	9.76E-02	2.25E-02	2.51E-02	2.05E-02	3.36E-05	5.91E-03	2.09E-04	2.97E-05	1.06E-04
79	369200	758065	Residential	6.41E-01	3.52E-01	2.49E-01	1.82E+00	2.59E-01	5.65E-03	1.04E-01	4.46E-02	9.78E-02	2.26E-02	2.51E-02	2.06E-02	3.63E-05	6.39E-03	2.25E-04	3.21E-05	1.15E-04
80	369255	757998	Residential	6.35E-01	3.47E-01	2.46E-01	1.80E+00	2.55E-01	6.09E-03	1.03E-01	4.39E-02	9.69E-02	2.25E-02	2.49E-02	2.03E-02	3.94E-05	6.94E-03	2.44E-04	3.49E-05	1.25E-04
81	369310	757931	Residential	6.36E-01	3.46E-01	2.46E-01	1.80E+00	2.55E-01	6.68E-03	1.02E-01	4.38E-02	9.72E-02	2.26E-02	2.49E-02	2.03E-02	4.29E-05	7.56E-03	2.65E-04	3.80E-05	1.36E-04
82	369356	757981	Residential	5.42E-01	2.92E-01	2.09E-01	1.53E+00	2.15E-01	6.73E-03		3.70E-02	8.31E-02	1.96E-02	2.13E-02	1.72E-02	4.43E-05	7.80E-03	2.72E-04	3.92E-05	1.41E-04
83	369403	758031	Residential	4.66E-01	2.49E-01	1.79E-01	1.31E+00	1.83E-01	6.51E-03	7.37E-02	3.16E-02	7.17E-02	1.70E-02	1.83E-02	1.47E-02	4.57E-05	8.04E-03	2.78E-04	4.04E-05	1.45E-04
84	369336	758100	Recreational	5.09E-01	2.76E-01	1.97E-01	1.44E+00	2.04E-01	5.58E-03	8.18E-02	3.50E-02	7.79E-02	1.82E-02	2.00E-02	1.63E-02	4.11E-05	7.23E-03	2.51E-04	3.63E-05	1.30E-04

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE, TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
85	369269	758170	Recreational	5.38E-01	2.94E-01	2.09E-01	1.53E+00	2.17E-01	5.16E-03	8.71E-02	3.73E-02	8.22E-02	1.91E-02	2.11E-02	1.73E-02	3.71E-05	6.54E-03	2.28E-04	3.29E-05	1.18E-04
86	369202	758239	Recreational	5.55E-01	3.04E-01	2.15E-01	1.58E+00	2.24E-01	5.25E-03	8.99E-02	3.85E-02	8.48E-02	1.96E-02	2.18E-02	1.78E-02	3.38E-05	5.94E-03	2.08E-04	2.99E-05	1.07E-04
87	369264	758285	Recreational	4.97E-01	2.71E-01	1.93E-01	1.41E+00	2.00E-01	4.94E-03	8.03E-02	3.44E-02	7.59E-02	1.76E-02	1.95E-02	1.59E-02	3.49E-05	6.15E-03	2.14E-04	3.09E-05	1.11E-04
88	369326	758330	Recreational	4.37E-01	2.38E-01	1.69E-01	1.24E+00	1.75E-01	4.66E-03	7.04E-02	3.01E-02	6.69E-02	1.56E-02	1.72E-02	1.40E-02	3.60E-05	6.34E-03	2.20E-04	3.19E-05	1.14E-04
89	369389	758376	Recreational	3.79E-01	2.03E-01	1.46E-01	1.07E+00	1.49E-01	5.13E-03	6.01E-02	2.58E-02	5.83E-02	1.38E-02	1.49E-02	1.20E-02	3.71E-05	6.53E-03	2.20E-04	3.28E-05	1.18E-04
90	369389	758462	Recreational	3.62E-01	1.93E-01	1.39E-01	1.02E+00	1.42E-01	5.39E-03	5.70E-02	2.45E-02	5.58E-02	1.33E-02	1.43E-02	1.14E-02	3.51E-05	6.19E-03	2.08E-04	3.11E-05	1.12E-04
91	369389	758548	Recreational	3.47E-01	1.84E-01	1.33E-01	9.75E-01	1.35E-01	5.47E-03	5.43E-02	2.33E-02	5.35E-02	1.28E-02	1.37E-02	1.09E-02	3.33E-05	5.86E-03	1.97E-04	2.94E-05	1.06E-04
92	369389	758634	Residential	3.30E-01	1.74E-01	1.27E-01	9.27E-01	1.28E-01	5.38E-03	5.15E-02	2.21E-02	5.09E-02	1.22E-02	1.30E-02	1.04E-02	3.15E-05	5.54E-03	1.87E-04	2.78E-05	9.98E-05
93	369469	758630	Residential	2.78E-01	1.44E-01	1.06E-01	7.75E-01	1.06E-01	5.60E-03	4.24E-02	1.83E-02	4.31E-02	1.06E-02	1.10E-02	8.60E-03	3.34E-05	5.89E-03	1.97E-04	2.96E-05	1.06E-04
94	369549	758625	Residential	2.20E-01	1.10E-01	8.32E-02	6.09E-01	8.11E-02	5.73E-03	3.26E-02	1.41E-02	3.45E-02	8.70E-03	8.75E-03	6.69E-03	3.56E-05	6.26E-03	2.09E-04	3.15E-05	1.13E-04
95	369630	758621	Residential	1.59E-01	7.49E-02	5.90E-02	4.33E-01	5.49E-02	5.89E-03	2.21E-02	9.62E-03	2.54E-02	6.72E-03	6.38E-03	4.66E-03	3.79E-05	6.67E-03	2.21E-04	3.35E-05	1.20E-04
96	369710	758617	Residential	1.01E-01	4.15E-02	3.62E-02	2.65E-01	3.03E-02	5.98E-03	1.21E-02	5.40E-03	1.67E-02	4.83E-03	4.13E-03	2.74E-03	4.03E-05	7.10E-03	2.34E-04	3.57E-05	1.28E-04
97	369791	758613	Residential	5.17E-02	1.24E-02	1.66E-02	1.22E-01	8.88E-03	6.22E-03	3.52E-03	1.74E-03	9.32E-03	3.26E-03	2.22E-03	1.08E-03	4.29E-05	7.56E-03	2.48E-04	3.80E-05	1.36E-04
98	369791	758514	Residential	3.74E-02	3.44E-03	1.08E-02	7.93E-02	2.26E-03	6.50E-03	8.57E-04	6.20E-04	7.24E-03	2.86E-03	1.67E-03	5.85E-04	4.71E-05	8.29E-03	2.72E-04	4.17E-05	1.49E-04
99	369791	758416	Residential	2.43E-02	-6.12E-03	5.19E-03	3.83E-02	-4.82E-03	7.25E-03	-2.00E-03	-5.65E-04	5.46E-03	2.61E-03	1.19E-03	7.83E-05	5.17E-05	9.10E-03	2.98E-04	4.57E-05	1.64E-04
100	369791	758318	Residential	-7.65E-03	-2.65E-02	-7.84E-03	-5.71E-02	-1.99E-02	7.99E-03	-8.06E-03	-3.12E-03	8.42E-04	1.74E-03	-3.04E-05	-1.05E-03	5.68E-05	1.00E-02	3.27E-04	5.03E-05	1.80E-04
101	369881	758318	Residential	-4.85E-02	-5.11E-02	-2.42E-02	-1.77E-01	-3.80E-02	8.43E-03	-1.54E-02	-6.21E-03	-5.18E-03	5.04E-04	-1.60E-03	-2.44E-03	6.22E-05	1.09E-02	3.57E-04	5.50E-05	1.97E-04
102	369972	758318	Residential	-7.09E-02	-6.43E-02	-3.31E-02	-2.42E-01	-4.78E-02	8.55E-03	-1.93E-02	-7.87E-03	-8.53E-03	-2.10E-04	-2.47E-03	-3.19E-03	6.81E-05	1.20E-02	3.88E-04	6.03E-05	2.16E-04
103	370062	758318	Residential	-5.08E-02	-5.65E-02	-2.60E-02	-1.90E-01	-4.20E-02	9.88E-03	-1.70E-02	-6.84E-03	-5.18E-03	7.85E-04	-1.64E-03	-2.66E-03	7.44E-05	1.31E-02	4.23E-04	6.58E-05	2.36E-04
104	370153	758318	Residential	1.67E-01	6.52E-02	5.90E-02	4.33E-01	4.76E-02	1.10E-02	1.91E-02	8.54E-03	2.78E-02	8.25E-03	6.85E-03	4.41E-03	8.10E-05	1.43E-02	4.70E-04	7.16E-05	2.57E-04
105	370243	758318	Residential	2.15E-01	9.18E-02	7.77E-02	5.70E-01	6.72E-02	1.13E-02	2.69E-02	1.19E-02	3.51E-02	9.92E-03	8.73E-03	5.96E-03	8.75E-05	1.54E-02	5.08E-04	7.74E-05	2.78E-04
106	370247	758254	School	2.48E-01	1.07E-01	9.00E-02	6.59E-01	7.83E-02	1.28E-02	3.14E-02	1.39E-02	4.05E-02	1.14E-02	1.01E-02	6.92E-03	9.76E-05	1.72E-02	5.67E-04	8.63E-05	3.10E-04
107	370250	758189	School	2.87E-01	1.25E-01	1.04E-01	7.65E-01	9.16E-02	1.43E-02	3.67E-02	1.62E-02	4.67E-02	1.31E-02	1.16E-02	8.05E-03	1.09E-04	1.93E-02	6.37E-04	9.68E-05	3.47E-04
108	370308	758196	School	3.25E-01	1.46E-01	1.19E-01	8.73E-01	1.07E-01	1.44E-02	4.31E-02	1.89E-02	5.24E-02	1.43E-02	1.31E-02	9.29E-03	1.15E-04	2.02E-02	6.60E-04	1.01E-04	3.63E-04
109	370361	758236	School	3.26E-01	1.52E-01	1.21E-01	8.84E-01	1.11E-01	1.28E-02	4.46E-02	1.95E-02	5.22E-02	1.40E-02	1.31E-02	9.49E-03	1.11E-04	1.96E-02	6.32E-04	9.83E-05	3.53E-04
110	370415	758275	School	3.22E-01	1.55E-01	1.20E-01	8.80E-01	1.14E-01	1.07E-02	4.56E-02	1.98E-02	5.10E-02	1.33E-02	1.29E-02	9.55E-03	1.07E-04	1.89E-02	5.98E-04	9.48E-05	3.40E-04
111	370408	758347	Residential	2.88E-01	1.41E-01	1.08E-01	7.92E-01	1.03E-01	8.88E-03	4.15E-02	1.80E-02	4.55E-02	1.17E-02	1.15E-02	8.62E-03	9.34E-05	1.64E-02	5.23E-04	8.26E-05	2.96E-04
112	370490	758344	Residential	3.13E-01	1.57E-01	1.18E-01	8.66E-01	1.15E-01	8.28E-03	4.62E-02	2.00E-02	4.91E-02	1.24E-02	1.24E-02	9.51E-03	9.77E-05	1.72E-02	5.32E-04	8.65E-05	3.10E-04
113	370572	758341	Residential	2.95E-01	1.43E-01	1.10E-01	8.08E-01	1.05E-01	9.43E-03	4.21E-02	1.83E-02	4.66E-02	1.21E-02	1.18E-02	8.79E-03	1.01E-04	1.78E-02	5.37E-04	8.94E-05	3.20E-04
114	370654	758338	Residential	2.83E-01	1.35E-01	1.05E-01	7.71E-01	9.88E-02	9.92E-03	3.97E-02	1.73E-02	4.50E-02	1.18E-02	1.13E-02	8.34E-03	1.03E-04	1.81E-02	5.40E-04	9.11E-05	3.27E-04
115	370735	758335	Residential	1.15E-01	3.91E-02	3.93E-02	2.88E-01	2.84E-02	9.65E-03	1.13E-02	5.20E-03	1.96E-02	6.19E-03	4.78E-03	2.82E-03	1.03E-04	1.82E-02	5.43E-04	9.15E-05	3.28E-04
116	370817	758333	Residential	1.19E-01	4.38E-02	4.15E-02	3.04E-01	3.19E-02	8.85E-03	1.28E-02	5.78E-03	2.01E-02	6.14E-03	4.92E-03	3.05E-03	1.02E-04	1.80E-02	5.47E-04	9.04E-05	3.24E-04
117	370814	758243	Offsite Worker	1.27E-01	4.39E-02	4.37E-02	3.20E-01	3.19E-02	1.04E-02	1.27E-02	5.83E-03	2.17E-02	6.80E-03	5.28E-03	3.15E-03	1.23E-04	2.17E-02	6.62E-04	1.09E-04	3.91E-04
118	370810	758153	Offsite Worker	8.10E-02	1.14E-02	2.42E-02	1.78E-01	7.85E-03	1.27E-02	3.05E-03	1.80E-03	1.53E-02	5.83E-03	3.57E-03	1.41E-03	1.52E-04	2.68E-02	8.25E-04	1.35E-04	4.83E-04
119	370807	758063	Offsite Worker	-9.79E-02	-1.01E-01	-4.83E-02	-3.53E-01	-7.51E-02	1.62E-02	-3.03E-02	-1.23E-02	-1.07E-02	8.04E-04	-3.26E-03	-4.85E-03	1.94E-04	3.42E-02	1.07E-03	1.72E-04	6.16E-04
120	370803	757974	Offsite Worker	-7.33E-02	-1.02E-01	-4.18E-02	-3.06E-01	-7.58E-02	2.15E-02	-3.07E-02	-1.22E-02	-5.66E-03	2.94E-03	-2.13E-03	-4.57E-03	2.58E-04	4.53E-02	1.45E-03	2.28E-04	8.18E-04
121	370835	757927	Offsite Worker	2.75E-01	8.80E-02	9.29E-02	6.82E-01	6.38E-02	2.51E-02	2.55E-02	1.18E-02	4.75E-02	1.53E-02	1.15E-02	6.56E-03	2.99E-04	5.26E-02	1.71E-03	2.65E-04	9.48E-04
122	370868	757880	Offsite Worker	4.64E-01	1.82E-01	1.64E-01	1.20E+00	1.33E-01	3.03E-02	5.32E-02	2.38E-02	7.72E-02	2.29E-02	1.90E-02	1.23E-02	3.50E-04	6.16E-02	2.00E-03	3.11E-04	1.11E-03
123	370921	757884	Offsite Worker	4.68E-01	1.87E-01	1.66E-01	1.22E+00	1.36E-01	2.94E-02	5.46E-02	2.44E-02	7.77E-02	2.28E-02	1.92E-02	1.25E-02	3.17E-04	5.58E-02	1.81E-03	2.82E-04	1.01E-03
124	370975	757887	Offsite Worker	4.47E-01	1.80E-01	1.59E-01	1.17E+00	1.31E-01	2.76E-02	5.27E-02	2.35E-02	7.41E-02	2.17E-02	1.83E-02	1.20E-02	2.82E-04	4.95E-02	1.61E-03	2.50E-04	8.93E-04
125	370975	757794	Offsite Worker	5.03E-01	1.89E-01	1.76E-01	1.29E+00	1.38E-01	3.57E-02	5.52E-02	2.49E-02	8.44E-02	2.55E-02	2.07E-02	1.30E-02	4.06E-04	7.15E-02	2.30E-03	3.62E-04	1.29E-03
126	371026	757794	Offsite Worker	3.07E-01	8.42E-02	1.01E-01	7.39E-01	6.07E-02	3.31E-02	2.41E-02	1.16E-02	5.43E-02	1.84E-02	1.30E-02	6.81E-03	3.35E-04	5.89E-02	1.88E-03	2.98E-04	1.06E-03

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE. TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
127	371076	757877	Offsite Worker	5.87E-01	2.68E-01	2.16E-01	1.58E+00	1.96E-01	2.47E-02	7.87E-02	3.45E-02	9.43E-02	2.55E-02	2.36E-02	1.69E-02	2.29E-04	4.02E-02	1.29E-03	2.03E-04	7.26E-04
128	371126	757959	Offsite Worker	5.14E-01	2.41E-01	1.90E-01	1.39E+00	1.77E-01	1.94E-02	7.09E-02	3.09E-02	8.20E-02	2.18E-02	2.06E-02	1.50E-02	1.70E-04	2.99E-02	9.80E-04	1.51E-04	5.40E-04
129	371119	758031	Offsite Worker	2.72E-01	1.07E-01	9.63E-02	7.06E-01	7.81E-02	1.76E-02	3.13E-02	1.40E-02	4.53E-02	1.34E-02	1.12E-02	7.21E-03	1.48E-04	2.61E-02	8.51E-04	1.32E-04	4.71E-04
130	371183	758027	Residential	4.34E-01	2.04E-01	1.61E-01	1.18E+00	1.50E-01	1.61E-02	6.01E-02	2.62E-02	6.92E-02	1.83E-02	1.74E-02	1.27E-02	1.35E-04	2.37E-02	7.79E-04	1.20E-04	4.28E-04
131	371248	758024	Residential	4.53E-01	2.18E-01	1.69E-01	1.24E+00	1.60E-01	1.50E-02	6.43E-02	2.80E-02	7.18E-02	1.87E-02	1.81E-02	1.35E-02	1.22E-04	2.14E-02	7.09E-04	1.08E-04	3.87E-04
132	371326	758075	Residential	4.17E-01	2.04E-01	1.56E-01	1.14E+00	1.50E-01	1.26E-02	6.01E-02	2.61E-02	6.57E-02	1.69E-02	1.66E-02	1.25E-02	1.00E-04	1.76E-02	5.87E-04	8.88E-05	3.18E-04
133	371404	758127	Residential	3.87E-01	1.92E-01	1.46E-01	1.07E+00	1.41E-01	1.09E-02	5.67E-02	2.45E-02	6.09E-02	1.55E-02	1.54E-02	1.17E-02	8.40E-05	1.48E-02	4.96E-04	7.44E-05	2.67E-04
134	371481	758178	Residential	3.64E-01	1.83E-01	1.38E-01	1.01E+00	1.34E-01	9.52E-03	5.39E-02	2.33E-02	5.71E-02	1.44E-02	1.45E-02	1.11E-02	7.18E-05	1.26E-02	4.28E-04	6.36E-05	2.28E-04
135	371559	758230	Residential	3.46E-01	1.75E-01	1.31E-01	9.59E-01	1.28E-01	8.50E-03	5.15E-02	2.23E-02	5.41E-02	1.35E-02	1.37E-02	1.06E-02	6.21E-05	1.09E-02	3.74E-04	5.50E-05	1.97E-04
136	371637	758281	Residential	3.31E-01	1.68E-01	1.25E-01	9.19E-01	1.24E-01	7.76E-03	4.96E-02	2.14E-02	5.16E-02	1.28E-02	1.31E-02	1.01E-02	5.44E-05	9.58E-03	3.29E-04	4.82E-05	1.73E-04
137	371715	758333	Residential	3.18E-01	1.62E-01	1.21E-01	8.83E-01	1.19E-01	7.21E-03	4.79E-02	2.07E-02	4.95E-02	1.23E-02	1.26E-02	9.76E-03	4.81E-05	8.47E-03	2.91E-04	4.26E-05	1.53E-04
138	371769	758261	Residential	3.94E-01	2.06E-01	1.50E-01	1.10E+00	1.51E-01	7.22E-03	6.08E-02	2.61E-02	6.09E-02	1.48E-02	1.55E-02	1.23E-02	4.81E-05	8.47E-03	2.90E-04	4.26E-05	1.53E-04
139	371822	758189	Residential	3.95E-01	2.05E-01	1.51E-01	1.10E+00	1.51E-01	7.56E-03	6.07E-02	2.61E-02	6.12E-02	1.49E-02	1.56E-02	1.23E-02	4.78E-05	8.42E-03	2.76E-04	4.24E-05	1.52E-04
140	371894	758160	Residential	3.81E-01	1.97E-01	1.45E-01	1.06E+00	1.45E-01	7.52E-03	5.83E-02	2.51E-02	5.91E-02	1.44E-02	1.50E-02	1.18E-02	4.51E-05	7.93E-03	2.46E-04	3.99E-05	1.43E-04
141	371894	758081	Residential	3.05E-01	1.53E-01	1.15E-01	8.44E-01	1.13E-01	7.72E-03	4.53E-02	1.96E-02	4.77E-02	1.20E-02	1.21E-02	9.28E-03	4.71E-05	8.29E-03	2.59E-04	4.17E-05	1.49E-04
142	371959	758074	Residential	2.42E-01	1.18E-01	9.07E-02	6.64E-01	8.69E-02	7.28E-03	3.49E-02	1.51E-02	3.81E-02	9.79E-03	9.63E-03	7.25E-03	4.40E-05	7.74E-03	2.42E-04	3.89E-05	1.39E-04
143	371953	757977	Offsite Worker	2.75E-01	1.37E-01	1.04E-01	7.59E-01	1.00E-01	7.59E-03	4.03E-02	1.75E-02	4.32E-02	1.10E-02	1.09E-02	8.32E-03	4.63E-05	8.15E-03	2.59E-04	4.10E-05	1.47E-04
144	371948	757880	Offsite Worker	3.14E-01	1.58E-01	1.19E-01	8.70E-01	1.16E-01	7.74E-03	4.68E-02	2.02E-02	4.91E-02	1.23E-02	1.24E-02	9.58E-03	4.84E-05	8.52E-03	2.76E-04	4.29E-05	1.54E-04
145	371943	757783	Offsite Worker	3.52E-01	1.81E-01	1.34E-01	9.83E-01	1.33E-01	7.48E-03	5.36E-02	2.31E-02	5.48E-02	1.35E-02	1.39E-02	1.09E-02	5.03E-05	8.84E-03	2.91E-04	4.45E-05	1.59E-04
146	372016	757794	Offsite Worker	3.58E-01	1.86E-01	1.37E-01	1.00E+00	1.37E-01	7.01E-03	5.49E-02	2.36E-02	5.55E-02	1.36E-02	1.41E-02	1.11E-02	4.58E-05	8.06E-03	2.64E-04	4.05E-05	1.45E-04
147	372102	757791	Offsite Worker	3.72E-01	1.95E-01	1.42E-01	1.04E+00	1.43E-01	6.65E-03	5.76E-02	2.48E-02	5.76E-02	1.39E-02	1.47E-02	1.16E-02	4.14E-05	7.29E-03	2.39E-04	3.67E-05	1.31E-04
148	372178	757760	Offsite Worker	3.97E-01	2.10E-01	1.52E-01	1.12E+00	1.55E-01	6.33E-03	6.21E-02	2.67E-02	6.12E-02	1.47E-02	1.56E-02	1.25E-02	3.83E-05	6.74E-03	2.21E-04	3.39E-05	1.22E-04
149	372177	757670	Offsite Worker	2.61E-01	1.32E-01	9.89E-02	7.24E-01	9.73E-02	6.14E-03	3.91E-02	1.69E-02	4.07E-02	1.01E-02	1.03E-02	7.99E-03	3.89E-05	6.84E-03	2.26E-04	3.44E-05	1.23E-04
150	372176	757579	Offsite Worker	3.84E-01	2.04E-01	1.48E-01	1.08E+00	1.50E-01	5.96E-03	6.03E-02	2.59E-02	5.92E-02	1.42E-02	1.51E-02	1.21E-02	3.92E-05	6.91E-03	2.28E-04	3.48E-05	1.25E-04
151	372174	757489	Offsite Worker	2.78E-01	1.43E-01	1.06E-01	7.75E-01	1.05E-01	6.07E-03	4.22E-02	1.82E-02	4.33E-02	1.07E-02	1.10E-02	8.58E-03	3.94E-05	6.93E-03	2.39E-04	3.49E-05	1.25E-04
152	372173	757398	Offsite Worker	4.10E-01	2.19E-01	1.58E-01	1.16E+00	1.61E-01	5.97E-03	6.47E-02	2.78E-02	6.31E-02	1.50E-02	1.61E-02	1.29E-02	3.93E-05	6.91E-03	2.39E-04	3.48E-05	1.25E-04
153	372171	757308	Offsite Worker	7.07E-01	3.88E-01	2.74E-01	2.01E+00	2.86E-01	6.23E-03	1.15E-01	4.91E-02	1.08E-01	2.49E-02	2.77E-02	2.27E-02	3.90E-05	6.86E-03	2.38E-04	3.45E-05	1.24E-04
154	372055	757309	Offsite Worker	3.71E-01	1.94E-01	1.42E-01	1.04E+00	1.42E-01	6.83E-03	5.72E-02	2.46E-02	5.74E-02	1.39E-02	1.46E-02	1.16E-02	4.45E-05	7.83E-03	2.70E-04	3.94E-05	1.41E-04
155	372055	757363	Residential	2.98E-01	1.53E-01	1.14E-01	8.32E-01	1.13E-01	6.47E-03	4.52E-02	1.95E-02	4.65E-02	1.15E-02	1.18E-02	9.20E-03	4.49E-05	7.90E-03	2.72E-04	3.98E-05	1.42E-04
156	372055	757416	Offsite Worker	2.88E-01	1.47E-01	1.09E-01	8.02E-01	1.08E-01	6.38E-03	4.35E-02	1.88E-02	4.48E-02	1.11E-02	1.14E-02	8.86E-03	4.51E-05	7.94E-03	2.73E-04	4.00E-05	1.43E-04
157	371952	757442	Offsite Worker	2.98E-01	1.52E-01	1.13E-01	8.29E-01	1.12E-01	6.97E-03	4.48E-02	1.93E-02	4.66E-02	1.16E-02	1.18E-02	9.15E-03	5.15E-05	9.07E-03	3.09E-04	4.56E-05	1.63E-04
158	371950	757345	Offsite Worker	3.01E-01	1.52E-01	1.14E-01	8.35E-01	1.12E-01	7.32E-03	4.50E-02	1.94E-02	4.71E-02	1.18E-02	1.19E-02	9.20E-03	5.11E-05	8.99E-03	3.08E-04	4.52E-05	1.62E-04
159	371864	757344	Offsite Worker	3.08E-01	1.54E-01	1.16E-01	8.52E-01	1.13E-01	8.12E-03	4.55E-02	1.97E-02	4.83E-02	1.22E-02	1.22E-02	9.35E-03	5.73E-05	1.01E-02	3.44E-04	5.08E-05	1.82E-04
160	371790	757347	Offsite Worker	3.22E-01	1.60E-01	1.21E-01	8.89E-01	1.17E-01	9.01E-03	4.71E-02	2.04E-02	5.07E-02	1.29E-02	1.28E-02	9.73E-03	6.38E-05	1.12E-02	3.81E-04	5.65E-05	2.03E-04
161	371708	757356	Offsite Worker	3.47E-01	1.71E-01	1.30E-01	9.56E-01	1.26E-01	1.01E-02	5.04E-02	2.18E-02	5.47E-02	1.40E-02	1.38E-02	1.04E-02	7.26E-05	1.28E-02	4.33E-04	6.43E-05	2.30E-04
162	371615	757356	Offsite Worker	5.42E-01	2.78E-01	2.06E-01	1.51E+00	2.05E-01	1.17E-02	8.22E-02	3.54E-02	8.44E-02	2.08E-02	2.14E-02	1.67E-02	8.49E-05	1.49E-02	5.08E-04	7.53E-05	2.69E-04
163	371523	757356	Offsite Worker	5.25E-01	2.63E-01	1.98E-01	1.45E+00	1.93E-01	1.36E-02	7.76E-02	3.36E-02	8.22E-02	2.07E-02	2.08E-02	1.60E-02	1.01E-04	1.77E-02	6.01E-04	8.93E-05	3.20E-04
164	371430	757356	Offsite Worker	3.51E-01	1.57E-01	1.28E-01	9.40E-01	1.15E-01	1.60E-02	4.61E-02	2.02E-02	5.67E-02	1.56E-02	1.42E-02	9.97E-03	1.22E-04	2.15E-02	7.26E-04	1.08E-04	3.87E-04
165	371338	757356	Offsite Worker	2.14E-01	7.02E-02	7.29E-02	5.34E-01	5.10E-02	1.90E-02	2.03E-02	9.40E-03	3.69E-02	1.18E-02	8.96E-03	5.17E-03	1.51E-04	2.66E-02	8.96E-04	1.34E-04	4.80E-04
166	371245	757356	Offsite Worker	2.25E-01	6.57E-02	7.48E-02	5.49E-01	4.75E-02	2.29E-02	1.89E-02	8.95E-03	3.96E-02	1.31E-02	9.52E-03	5.15E-03	1.93E-04	3.40E-02	1.14E-03	1.72E-04	6.14E-04
167	371153	757356	Offsite Worker	2.47E-01	6.41E-02	8.02E-02	5.88E-01	4.61E-02	2.79E-02	1.83E-02	8.88E-03	4.40E-02	1.51E-02	1.05E-02	5.35E-03	2.56E-04	4.51E-02	1.50E-03	2.27E-04	8.14E-04
168	371061	757356	Offsite Worker	2.62E-01	5.50E-02	8.23E-02	6.04E-01	3.91E-02	3.44E-02	1.54E-02	7.92E-03	4.79E-02	1.72E-02	1.13E-02	5.21E-03	3.56E-04	6.27E-02	2.08E-03	3.16E-04	1.13E-03

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE, TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
169	371005	757357	Offsite Worker	2.68E-01	4.49E-02	8.18E-02	6.01E-01	3.14E-02	3.94E-02	1.23E-02	6.78E-03	5.01E-02	1.87E-02	1.17E-02	4.92E-03	4.48E-04	7.88E-02	2.60E-03	3.97E-04	1.42E-03
170	370998	757293	Offsite Worker	2.23E-01	3.78E-02	6.81E-02	5.00E-01	2.65E-02	3.25E-02	1.04E-02	5.70E-03	4.16E-02	1.55E-02	9.75E-03	4.11E-03	3.87E-04	6.82E-02	2.24E-03	3.44E-04	1.23E-03
171	370998	757194	Offsite Worker	-1.48E-01	-1.53E-01	-7.31E-02	-5.34E-01	-1.14E-01	2.47E-02	-4.60E-02	-1.86E-02	-1.60E-02	1.29E-03	-4.91E-03	-7.35E-03	2.96E-04	5.22E-02	1.70E-03	2.63E-04	9.41E-04
172	370998	757096	Offsite Worker	-3.06E-01	-2.28E-01	-1.32E-01	-9.65E-01	-1.69E-01	1.91E-02	-6.82E-02	-2.83E-02	-4.12E-02	-5.32E-03	-1.12E-02	-1.20E-02	2.30E-04	4.05E-02	1.31E-03	2.04E-04	7.30E-04
173	370998	756998	Offsite Worker	-2.77E-01	-2.01E-01	-1.18E-01	-8.64E-01	-1.48E-01	1.51E-02	-5.98E-02	-2.49E-02	-3.79E-02	-5.39E-03	-1.03E-02	-1.07E-02	1.81E-04	3.19E-02	1.04E-03	1.61E-04	5.75E-04
174	371057	756997	Offsite Worker	-2.64E-01	-1.89E-01	-1.12E-01	-8.21E-01	-1.40E-01	1.37E-02	-5.65E-02	-2.35E-02	-3.63E-02	-5.29E-03	-9.80E-03	-1.01E-02	1.65E-04	2.91E-02	9.50E-04	1.46E-04	5.24E-04
175	371153	756997	Offsite Worker	3.99E-01	1.96E-01	1.50E-01	1.10E+00	1.44E-01	1.18E-02	5.78E-02	2.51E-02	6.29E-02	1.61E-02	1.59E-02	1.20E-02	1.41E-04	2.49E-02	8.32E-04	1.25E-04	4.49E-04
176	371249	756997	Offsite Worker	3.52E-01	1.74E-01	1.32E-01	9.70E-01	1.28E-01	1.01E-02	5.13E-02	2.22E-02	5.54E-02	1.41E-02	1.40E-02	1.06E-02	1.21E-04	2.13E-02	7.15E-04	1.07E-04	3.84E-04
177	371345	756997	Offsite Worker	3.40E-01	1.71E-01	1.29E-01	9.41E-01	1.26E-01	8.63E-03	5.05E-02	2.18E-02	5.32E-02	1.34E-02	1.35E-02	1.04E-02	1.04E-04	1.82E-02	6.15E-04	9.18E-05	3.29E-04
178	371440	756997	Offsite Worker	3.53E-01	1.82E-01	1.34E-01	9.84E-01	1.34E-01	7.45E-03	5.37E-02	2.31E-02	5.49E-02	1.35E-02	1.40E-02	1.09E-02	8.95E-05	1.57E-02	5.33E-04	7.93E-05	2.84E-04
179	371536	756997	Offsite Worker	3.83E-01	2.02E-01	1.47E-01	1.07E+00	1.48E-01	6.46E-03	5.96E-02	2.56E-02	5.92E-02	1.42E-02	1.51E-02	1.20E-02	7.76E-05	1.37E-02	4.65E-04	6.88E-05	2.46E-04
180	371632	756997	Offsite Worker	4.20E-01	2.23E-01	1.61E-01	1.18E+00	1.64E-01	6.30E-03	6.60E-02	2.83E-02	6.46E-02	1.54E-02	1.65E-02	1.32E-02	6.78E-05	1.19E-02	4.08E-04	6.01E-05	2.15E-04
181	371728	756997	Offsite Worker	9.32E-01	5.17E-01	3.63E-01	2.66E+00	3.81E-01	6.19E-03	1.53E-01	6.54E-02	1.42E-01	3.23E-02	3.64E-02	3.01E-02	5.97E-05	1.05E-02	3.60E-04	5.29E-05	1.89E-04
182	371824	756997	Offsite Worker	6.41E-01	3.51E-01	2.49E-01	1.82E+00	2.58E-01	6.08E-03	1.04E-01	4.44E-02	9.79E-02	2.27E-02	2.51E-02	2.06E-02	5.29E-05	9.31E-03	3.21E-04	4.69E-05	1.68E-04
183	371920	756997	Offsite Worker	2.68E-01	1.37E-01	1.02E-01	7.46E-01	1.01E-01	5.97E-03	4.05E-02	1.75E-02	4.18E-02	1.03E-02	1.06E-02	8.25E-03	4.72E-05	8.31E-03	2.87E-04	4.18E-05	1.50E-04
184	372016	756997	Offsite Worker	3.11E-01	1.62E-01	1.19E-01	8.71E-01	1.19E-01	5.87E-03	4.79E-02	2.06E-02	4.82E-02	1.17E-02	1.23E-02	9.68E-03	4.24E-05	7.46E-03	2.59E-04	3.75E-05	1.35E-04
185	372111	756997	Offsite Worker	3.54E-01	1.87E-01	1.36E-01	9.95E-01	1.38E-01	5.79E-03	5.53E-02	2.38E-02	5.47E-02	1.31E-02	1.40E-02	1.11E-02	3.83E-05	6.74E-03	2.35E-04	3.39E-05	1.22E-04
186	372207	756997	Offsite Worker	3.97E-01	2.12E-01	1.53E-01	1.12E+00	1.56E-01	5.70E-03	6.26E-02	2.69E-02	6.11E-02	1.45E-02	1.56E-02	1.25E-02	3.48E-05	6.12E-03	2.15E-04	3.08E-05	1.10E-04
187	372303	756997	Offsite Worker	4.39E-01	2.36E-01	1.69E-01	1.24E+00	1.74E-01	5.62E-03	6.99E-02	3.00E-02	6.74E-02	1.59E-02	1.73E-02	1.39E-02	3.17E-05	5.58E-03	1.97E-04	2.81E-05	1.01E-04
188	372399	756997	Offsite Worker	4.81E-01	2.60E-01	1.86E-01	1.36E+00	1.91E-01	5.53E-03	7.70E-02	3.30E-02	7.36E-02	1.72E-02	1.89E-02	1.53E-02	2.90E-05	5.11E-03	1.83E-04	2.57E-05	9.21E-05
189	372495	756997	Offsite Worker	5.20E-01	2.83E-01	2.01E-01	1.48E+00	2.08E-01	5.44E-03	8.38E-02	3.59E-02	7.95E-02	1.85E-02	2.04E-02	1.66E-02	2.67E-05	4.70E-03	1.66E-04	2.36E-05	8.47E-05
190	372591	756997	Offsite Worker	5.59E-01	3.06E-01	2.17E-01	1.59E+00	2.25E-01	5.35E-03	9.05E-02	3.87E-02	8.54E-02	1.98E-02	2.19E-02	1.79E-02	2.46E-05	4.34E-03	1.56E-04	2.18E-05	7.82E-05
191	372610	757063	Offsite Worker	4.46E-01	2.40E-01	1.72E-01	1.26E+00	1.77E-01	5.45E-03	7.12E-02	3.05E-02	6.84E-02	1.61E-02	1.75E-02	1.42E-02	2.46E-05	4.33E-03	1.55E-04	2.18E-05	7.80E-05
192	372612	757132	Offsite Worker	3.40E-01	1.80E-01	1.31E-01	9.57E-01	1.33E-01	5.43E-03	5.33E-02	2.29E-02	5.25E-02	1.26E-02	1.34E-02	1.07E-02	2.48E-05	4.37E-03	1.56E-04	2.20E-05	7.88E-05
193	372614	757201	Offsite Worker	2.57E-01	1.33E-01	9.78E-02	7.17E-01	9.75E-02	5.27E-03	3.92E-02	1.69E-02	3.99E-02	9.79E-03	1.02E-02	7.95E-03	2.51E-05	4.41E-03	1.57E-04	2.22E-05	7.95E-05
194	372616	757270	Offsite Worker	3.99E-01	2.15E-01	1.54E-01	1.13E+00	1.58E-01	4.96E-03	6.36E-02	2.73E-02	6.12E-02	1.44E-02	1.57E-02	1.27E-02	2.52E-05	4.44E-03	1.57E-04	2.23E-05	8.00E-05
195	372627	757351	Offsite Worker	7.62E-01	4.23E-01	2.97E-01	2.17E+00	3.11E-01	5.00E-03	1.25E-01	5.35E-02	1.16E-01	2.64E-02	2.98E-02	2.46E-02	2.52E-05	4.43E-03	1.57E-04	2.23E-05	7.98E-05
196	372651	757422	Offsite Worker	7.20E-01	3.99E-01	2.80E-01	2.05E+00	2.94E-01	5.10E-03	1.18E-01	5.04E-02	1.09E-01	2.50E-02	2.81E-02	2.33E-02	2.47E-05	4.35E-03	1.54E-04	2.19E-05	7.85E-05
197	372676	757494	Offsite Worker	6.63E-01	3.66E-01	2.58E-01	1.89E+00	2.70E-01	5.07E-03	1.08E-01	4.63E-02	1.01E-01	2.32E-02	2.59E-02	2.14E-02	2.43E-05	4.27E-03	1.51E-04	2.15E-05	7.70E-05
198	372704	757569	Offsite Worker	6.12E-01	3.37E-01	2.38E-01	1.74E+00	2.48E-01	4.90E-03	9.98E-02	4.27E-02	9.32E-02	2.14E-02	2.39E-02	1.97E-02	2.37E-05	4.17E-03	1.48E-04	2.10E-05	7.51E-05
199	372733	757645	Offsite Worker	5.01E-01	2.73E-01	1.94E-01	1.42E+00	2.01E-01	4.97E-03	8.09E-02	3.46E-02	7.65E-02	1.78E-02	1.96E-02	1.60E-02	2.31E-05	4.06E-03	1.44E-04	2.04E-05	7.31E-05
200	372746	757702	Offsite Worker	4.07E-01	2.20E-01	1.57E-01	1.15E+00	1.62E-01	5.04E-03	6.50E-02	2.78E-02	6.25E-02	1.47E-02	1.60E-02	1.29E-02	2.27E-05	4.00E-03	1.42E-04	2.01E-05	7.21E-05
201	372746	757768	Offsite Worker	3.60E-01	1.93E-01	1.39E-01	1.02E+00	1.42E-01	5.06E-03	5.69E-02	2.44E-02	5.54E-02	1.32E-02	1.42E-02	1.14E-02	2.26E-05	3.98E-03	1.34E-04	2.00E-05	7.17E-05
202	372807	757781	School	3.61E-01	1.93E-01	1.39E-01	1.02E+00	1.42E-01	4.97E-03	5.72E-02	2.45E-02	5.55E-02	1.32E-02	1.42E-02	1.14E-02	2.15E-05	3.79E-03	1.30E-04	1.90E-05	6.82E-05
203	372901	757782	School	3.56E-01	1.90E-01	1.37E-01	1.00E+00	1.40E-01	4.85E-03	5.63E-02	2.42E-02	5.47E-02	1.29E-02	1.40E-02	1.13E-02	2.00E-05	3.53E-03	1.26E-04	1.77E-05	6.36E-05
204	372994	757783	Offsite Worker	3.48E-01	1.86E-01	1.34E-01	9.82E-01	1.37E-01	4.73E-03	5.52E-02	2.37E-02	5.35E-02	1.27E-02	1.37E-02	1.10E-02	1.87E-05	3.30E-03	1.18E-04	1.66E-05	5.94E-05
205	373087	757783	Offsite Worker	3.28E-01	1.75E-01	1.26E-01	9.24E-01	1.29E-01	4.62E-03	5.18E-02	2.22E-02	5.04E-02	1.20E-02	1.29E-02	1.04E-02	1.76E-05	3.09E-03	1.11E-04	1.55E-05	5.57E-05
206	373180	757784	Offsite Worker	3.04E-01	1.62E-01	1.17E-01	8.57E-01	1.19E-01	4.52E-03	4.79E-02	2.06E-02	4.69E-02	1.12E-02	1.20E-02	9.60E-03	1.65E-05	2.90E-03	1.05E-04	1.46E-05	5.23E-05
207	373274	757785	Offsite Worker	2.66E-01	1.40E-01	1.02E-01	7.48E-01	1.03E-01	4.41E-03	4.15E-02	1.79E-02	4.11E-02	9.89E-03	1.05E-02	8.35E-03	1.55E-05	2.73E-03	9.90E-05	1.37E-05	4.92E-05
208	373367	757786	Offsite Worker	2.18E-01	1.13E-01	8.30E-02	6.08E-01	8.29E-02	4.31E-03	3.33E-02	1.44E-02	3.38E-02	8.26E-03	8.60E-03	6.75E-03	1.46E-05	2.58E-03	9.38E-05	1.30E-05	4.65E-05
209	373418	757742	Offsite Worker	1.67E-01	8.42E-02	6.33E-02	4.63E-01	6.19E-02	4.22E-03	2.49E-02	1.07E-02	2.62E-02	6.57E-03	6.64E-03	5.10E-03	1.42E-05	2.51E-03	9.14E-05	1.26E-05	4.52E-05
210	373418	757653	Offsite Worker	1.52E-01	7.59E-02	5.73E-02	4.20E-01	5.58E-02	4.06E-03	2.24E-02	9.69E-03	2.38E-02	6.03E-03	6.04E-03	4.61E-03	1.43E-05	2.52E-03	9.19E-05	1.27E-05	4.54E-05

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE. TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
211	373419	757564	Offsite Worker	1.66E-01	8.38E-02	6.29E-02	4.60E-01	6.16E-02	4.11E-03	2.47E-02	1.07E-02	2.60E-02	6.50E-03	6.59E-03	5.07E-03	1.43E-05	2.52E-03	9.21E-05	1.27E-05	4.54E-05
212	373419	757475	Offsite Worker	2.05E-01	1.06E-01	7.82E-02	5.73E-01	7.80E-02	4.20E-03	3.13E-02	1.35E-02	3.19E-02	7.82E-03	8.12E-03	6.36E-03	1.43E-05	2.52E-03	9.22E-05	1.27E-05	4.54E-05
213	373420	757386	Offsite Worker	2.74E-01	1.45E-01	1.05E-01	7.71E-01	1.07E-01	4.18E-03	4.30E-02	1.85E-02	4.22E-02	1.01E-02	1.08E-02	8.62E-03	1.43E-05	2.52E-03	9.21E-05	1.27E-05	4.54E-05
214	373420	757297	Offsite Worker	3.64E-01	1.97E-01	1.41E-01	1.03E+00	1.45E-01	4.04E-03	5.84E-02	2.50E-02	5.57E-02	1.30E-02	1.43E-02	1.16E-02	1.46E-05	2.58E-03	9.39E-05	1.29E-05	4.64E-05
215	373421	757207	Offsite Worker	4.72E-01	2.60E-01	1.84E-01	1.34E+00	1.92E-01	3.79E-03	7.71E-02	3.29E-02	7.19E-02	1.65E-02	1.85E-02	1.52E-02	1.49E-05	2.63E-03	9.56E-05	1.32E-05	4.74E-05
216	373421	757118	Offsite Worker	5.95E-01	3.30E-01	2.32E-01	1.70E+00	2.43E-01	4.05E-03	9.76E-02	4.17E-02	9.04E-02	2.06E-02	2.32E-02	1.92E-02	1.44E-05	2.54E-03	9.23E-05	1.27E-05	4.57E-05
217	373292	757117	Offsite Worker	5.71E-01	3.15E-01	2.22E-01	1.63E+00	2.32E-01	4.26E-03	9.34E-02	3.99E-02	8.68E-02	1.99E-02	2.23E-02	1.84E-02	1.52E-05	2.68E-03	9.81E-05	1.35E-05	4.83E-05
218	373213	757118	Offsite Worker	5.50E-01	3.03E-01	2.14E-01	1.57E+00	2.23E-01	4.38E-03	8.98E-02	3.84E-02	8.37E-02	1.92E-02	2.15E-02	1.77E-02	1.60E-05	2.82E-03	1.03E-04	1.42E-05	5.08E-05
219	373158	757066	Offsite Worker	6.21E-01	3.43E-01	2.41E-01	1.77E+00	2.53E-01	4.59E-03	1.02E-01	4.34E-02	9.44E-02	2.16E-02	2.43E-02	2.00E-02	1.65E-05	2.90E-03	1.06E-04	1.46E-05	5.23E-05
220	373084	757026	Offsite Worker	6.72E-01	3.72E-01	2.62E-01	1.92E+00	2.74E-01	4.75E-03	1.10E-01	4.71E-02	1.02E-01	2.34E-02	2.63E-02	2.17E-02	1.72E-05	3.03E-03	1.11E-04	1.53E-05	5.47E-05
221	373009	757011	Offsite Worker	6.79E-01	3.76E-01	2.64E-01	1.94E+00	2.77E-01	4.86E-03	1.11E-01	4.76E-02	1.03E-01	2.36E-02	2.66E-02	2.19E-02	1.81E-05	3.18E-03	1.17E-04	1.60E-05	5.74E-05
222	372922	757009	Offsite Worker	6.57E-01	3.63E-01	2.55E-01	1.87E+00	2.67E-01	4.97E-03	1.07E-01	4.59E-02	1.00E-01	2.29E-02	2.57E-02	2.12E-02	1.92E-05	3.38E-03	1.24E-04	1.70E-05	6.09E-05
223	372835	757007	Offsite Worker	6.31E-01	3.48E-01	2.45E-01	1.80E+00	2.56E-01	5.08E-03	1.03E-01	4.40E-02	9.61E-02	2.21E-02	2.47E-02	2.03E-02	2.04E-05	3.60E-03	1.31E-04	1.81E-05	6.49E-05
224	372747	757006	Offsite Worker	6.01E-01	3.30E-01	2.34E-01	1.71E+00	2.43E-01	5.19E-03	9.78E-02	4.18E-02	9.17E-02	2.11E-02	2.35E-02	1.93E-02	2.18E-05	3.84E-03	1.40E-04	1.93E-05	6.93E-05
225	372660	757004	Offsite Worker	5.72E-01	3.14E-01	2.22E-01	1.63E+00	2.31E-01	5.29E-03	9.28E-02	3.97E-02	8.74E-02	2.02E-02	2.24E-02	1.84E-02	2.33E-05	4.11E-03	1.48E-04	2.07E-05	7.41E-05
226	372651	757063	Offsite Worker	4.61E-01	2.49E-01	1.78E-01	1.30E+00	1.84E-01	5.39E-03	7.38E-02	3.16E-02	7.06E-02	1.66E-02	1.81E-02	1.47E-02	2.38E-05	4.19E-03	1.50E-04	2.11E-05	7.55E-05
227	372629	756931	Offsite Worker	7.16E-01	3.96E-01	2.79E-01	2.04E+00	2.92E-01	5.07E-03	1.17E-01	5.02E-02	1.09E-01	2.49E-02	2.80E-02	2.31E-02	2.36E-05	4.15E-03	1.51E-04	2.09E-05	7.47E-05
228	372631	756857	Offsite Worker	6.43E-01	3.56E-01	2.50E-01	1.83E+00	2.62E-01	4.69E-03	1.05E-01	4.50E-02	9.78E-02	2.24E-02	2.52E-02	2.08E-02	2.31E-05	4.07E-03	1.50E-04	2.05E-05	7.33E-05
229	372634	756783	Offsite Worker	4.76E-01	2.61E-01	1.85E-01	1.35E+00	1.92E-01	4.22E-03	7.73E-02	3.31E-02	7.26E-02	1.68E-02	1.86E-02	1.53E-02	2.26E-05	3.98E-03	1.49E-04	2.00E-05	7.17E-05
230	372702	756778	Offsite Worker	4.84E-01	2.66E-01	1.88E-01	1.38E+00	1.96E-01	4.23E-03	7.87E-02	3.37E-02	7.38E-02	1.70E-02	1.90E-02	1.56E-02	2.15E-05	3.78E-03	1.42E-04	1.90E-05	6.81E-05
231	372756	756775	Offsite Worker	1.19E+00	6.68E-01	4.64E-01	3.40E+00	4.92E-01	4.24E-03	1.98E-01	8.44E-02	1.79E-01	4.02E-02	4.62E-02	3.87E-02	2.06E-05	3.63E-03	1.37E-04	1.83E-05	6.54E-05
232	372729	756712	Offsite Worker	1.40E+00	7.94E-01	5.50E-01	4.03E+00	5.85E-01	3.82E-03	2.35E-01	1.00E-01	2.12E-01	4.73E-02	5.47E-02	4.59E-02	2.07E-05	3.64E-03	1.40E-04	1.83E-05	6.56E-05
233	372703	756650	Offsite Worker	1.62E+00	9.21E-01	6.37E-01	4.66E+00	6.79E-01	3.36E-03	2.73E-01	1.16E-01	2.45E-01	5.44E-02	6.32E-02	5.33E-02	2.07E-05	3.64E-03	1.42E-04	1.83E-05	6.57E-05
234	372677	756588	Offsite Worker	1.83E+00	1.04E+00	7.20E-01	5.27E+00	7.69E-01	2.89E-03	3.09E-01	1.32E-01	2.76E-01	6.12E-02	7.13E-02	6.02E-02	2.07E-05	3.64E-03	1.43E-04	1.83E-05	6.56E-05
235	372619	756588	Offsite Worker	1.20E+00	6.79E-01	4.70E-01	3.44E+00	5.00E-01	2.81E-03	2.01E-01	8.58E-02	1.81E-01	4.02E-02	4.67E-02	3.93E-02	2.15E-05	3.79E-03	1.53E-04	1.91E-05	6.83E-05
236	372622	756509	Offsite Worker	2.12E+00	1.21E+00	8.34E-01	6.11E+00	8.92E-01	2.28E-03	3.59E-01	1.53E-01	3.20E-01	7.07E-02	8.26E-02	6.99E-02	2.09E-05	3.68E-03	1.46E-04	1.85E-05	6.64E-05
237	372700	756511	Offsite Worker	1.83E+00	1.04E+00	7.20E-01	5.27E+00	7.69E-01	2.41E-03	3.09E-01	1.32E-01	2.76E-01	6.11E-02	7.13E-02	6.02E-02	1.99E-05	3.50E-03	1.30E-04	1.76E-05	6.30E-05
238	372789	756510	Offsite Worker	1.55E+00	8.82E-01	6.09E-01	4.46E+00	6.50E-01	2.54E-03	2.61E-01	1.11E-01	2.34E-01	5.18E-02	6.04E-02	5.09E-02	1.87E-05	3.30E-03	1.63E-04	1.66E-05	5.94E-05
239	372871	756509	Offsite Worker	1.34E+00	7.62E-01	5.27E-01	3.86E+00	5.62E-01	2.65E-03	2.26E-01	9.62E-02	2.02E-01	4.50E-02	5.22E-02	4.40E-02	1.78E-05	3.13E-03	1.50E-04	1.57E-05	5.64E-05
240	372871	756437	Offsite Worker	8.96E-01	5.07E-01	3.51E-01	2.57E+00	3.74E-01	2.22E-03	1.50E-01	6.41E-02	1.35E-01	3.01E-02	3.49E-02	2.94E-02	1.74E-05	3.06E-03	1.39E-04	1.54E-05	5.52E-05
241	372970	756437	Offsite Worker	5.73E-01	3.22E-01	2.24E-01	1.64E+00	2.37E-01	2.36E-03	9.55E-02	4.07E-02	8.68E-02	1.95E-02	2.24E-02	1.87E-02	1.64E-05	2.88E-03	1.26E-04	1.45E-05	5.20E-05
242	373069	756437	Offsite Worker	5.04E-01	2.82E-01	1.97E-01	1.44E+00	2.08E-01	2.49E-03	8.35E-02	3.56E-02	7.63E-02	1.72E-02	1.97E-02	1.64E-02	1.55E-05	2.72E-03	1.16E-04	1.37E-05	4.91E-05
243	373168	756437	Offsite Worker	4.48E-01	2.50E-01	1.75E-01	1.28E+00	1.84E-01	2.60E-03	7.40E-02	3.16E-02	6.80E-02	1.54E-02	1.75E-02	1.45E-02	1.46E-05	2.57E-03	1.08E-04	1.29E-05	4.64E-05
244	373267	756437	Offsite Worker	4.04E-01	2.24E-01	1.57E-01	1.15E+00	1.65E-01	2.71E-03	6.63E-02	2.83E-02	6.14E-02	1.40E-02	1.58E-02	1.31E-02	1.38E-05	2.43E-03	1.00E-04	1.22E-05	4.39E-05
245	373412	756437	Offsite Worker	3.51E-01	1.93E-01	1.37E-01	1.00E+00	1.42E-01	2.85E-03	5.73E-02	2.45E-02	5.35E-02	1.23E-02	1.37E-02	1.13E-02	1.28E-05	2.25E-03	9.79E-05	1.13E-05	4.06E-05
246	373409	756339	Offsite Worker	3.97E-01	2.21E-01	1.55E-01	1.13E+00	1.63E-01	2.36E-03	6.55E-02	2.80E-02	6.03E-02	1.37E-02	1.55E-02	1.29E-02	1.26E-05	2.21E-03	8.80E-05	1.11E-05	3.99E-05
247	373406	756240	Offsite Worker	5.78E-01	3.26E-01	2.26E-01	1.66E+00	2.40E-01	1.90E-03	9.67E-02	4.12E-02	8.74E-02	1.96E-02	2.25E-02	1.89E-02	1.23E-05	2.17E-03	9.29E-05	1.09E-05	3.91E-05
248	373403	756142	Offsite Worker	6.20E-01	3.51E-01	2.43E-01	1.78E+00	2.58E-01	1.84E-03	1.04E-01	4.43E-02	9.37E-02	2.09E-02	2.42E-02	2.03E-02	1.31E-05	2.30E-03	9.11E-05	1.15E-05	4.14E-05
249	373400	756042	Offsite Worker	5.89E-01	3.33E-01	2.31E-01	1.69E+00	2.45E-01	1.71E-03	9.86E-02	4.20E-02	8.89E-02	1.99E-02	2.29E-02	1.93E-02	1.44E-05	2.54E-03	1.02E-04	1.26E-05	4.57E-05
250	373397	755944	Offsite Worker	4.62E-01	2.61E-01	1.81E-01	1.33E+00	1.92E-01	1.61E-03	7.72E-02	3.29E-02	6.99E-02	1.57E-02	1.80E-02	1.51E-02	1.59E-05	2.80E-03	1.12E-04	1.38E-05	5.03E-05
251	373393	755846	Offsite Worker	4.03E-01	2.26E-01	1.58E-01	1.15E+00	1.67E-01	1.60E-03	6.71E-02	2.86E-02	6.09E-02	1.37E-02	1.57E-02	1.31E-02	1.75E-05	3.09E-03	1.16E-04	1.52E-05	5.55E-05
252	373390	755747	Offsite Worker	3.20E-01	1.79E-01	1.25E-01	9.15E-01	1.32E-01	1.62E-03	5.30E-02	2.26E-02	4.85E-02	1.10E-02	1.25E-02	1.04E-02	1.90E-05	3.35E-03	1.30E-04	1.64E-05	6.02E-05

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE. TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
253	373309	755744	Offsite Worker	3.19E-01	1.78E-01	1.25E-01	9.12E-01	1.31E-01	1.96E-03	5.26E-02	2.25E-02	4.85E-02	1.10E-02	1.25E-02	1.03E-02	2.34E-05	4.12E-03	1.59E-04	2.01E-05	7.40E-05
254	373229	755743	Offsite Worker	3.19E-01	1.76E-01	1.24E-01	9.08E-01	1.30E-01	2.43E-03	5.21E-02	2.23E-02	4.85E-02	1.11E-02	1.25E-02	1.03E-02	2.95E-05	5.21E-03	1.97E-04	2.52E-05	9.35E-05
255	373143	755741	Offsite Worker	3.15E-01	1.72E-01	1.22E-01	8.95E-01	1.27E-01	3.17E-03	5.09E-02	2.18E-02	4.82E-02	1.12E-02	1.24E-02	1.01E-02	3.96E-05	7.01E-03	2.60E-04	3.37E-05	1.26E-04
256	373143	755823	Offsite Worker	4.12E-01	2.28E-01	1.60E-01	1.17E+00	1.68E-01	2.88E-03	6.75E-02	2.88E-02	6.26E-02	1.43E-02	1.61E-02	1.33E-02	3.43E-05	6.05E-03	2.24E-04	2.92E-05	1.09E-04
257	373143	755906	Offsite Worker	5.10E-01	2.85E-01	1.99E-01	1.46E+00	2.10E-01	2.68E-03	8.44E-02	3.60E-02	7.73E-02	1.75E-02	1.99E-02	1.66E-02	2.90E-05	5.13E-03	1.87E-04	2.49E-05	9.20E-05
258	373065	755906	Offsite Worker	5.26E-01	2.93E-01	2.05E-01	1.50E+00	2.16E-01	3.09E-03	8.68E-02	3.71E-02	7.99E-02	1.81E-02	2.06E-02	1.71E-02	3.53E-05	6.24E-03	2.27E-04	3.01E-05	1.12E-04
259	373065	755827	Offsite Worker	4.22E-01	2.32E-01	1.64E-01	1.20E+00	1.71E-01	3.57E-03	6.86E-02	2.94E-02	6.43E-02	1.48E-02	1.65E-02	1.36E-02	4.39E-05	7.75E-03	2.83E-04	3.72E-05	1.39E-04
260	373068	755733	Offsite Worker	3.05E-01	1.63E-01	1.18E-01	8.61E-01	1.20E-01	4.28E-03	4.83E-02	2.07E-02	4.69E-02	1.11E-02	1.20E-02	9.65E-03	5.49E-05	9.71E-03	3.52E-04	4.64E-05	1.74E-04
261	373007	755733	Offsite Worker	3.06E-01	1.59E-01	1.17E-01	8.55E-01	1.17E-01	5.76E-03	4.71E-02	2.03E-02	4.74E-02	1.15E-02	1.21E-02	9.51E-03	7.52E-05	1.33E-02	4.72E-04	6.34E-05	2.38E-04
262	372941	755733	Offsite Worker	3.12E-01	1.54E-01	1.17E-01	8.60E-01	1.13E-01	9.00E-03	4.54E-02	1.97E-02	4.91E-02	1.25E-02	1.24E-02	9.40E-03	1.19E-04	2.11E-02	7.21E-04	1.00E-04	3.78E-04
263	372941	755636	Offsite Worker	2.27E-01	9.58E-02	8.18E-02	5.99E-01	7.01E-02	1.24E-02	2.81E-02	1.24E-02	3.72E-02	1.06E-02	9.23E-03	6.25E-03	1.66E-04	2.94E-02	9.80E-04	1.39E-04	5.25E-04
264	372941	755539	Offsite Worker	4.58E-01	2.26E-01	1.72E-01	1.26E+00	1.66E-01	1.32E-02	6.66E-02	2.89E-02	7.21E-02	1.84E-02	1.82E-02	1.38E-02	1.78E-04	3.14E-02	1.04E-03	1.49E-04	5.62E-04
265	372941	755442	Offsite Worker	3.20E-01	1.50E-01	1.19E-01	8.70E-01	1.10E-01	1.21E-02	4.42E-02	1.93E-02	5.11E-02	1.36E-02	1.28E-02	9.36E-03	1.63E-04	2.88E-02	9.46E-04	1.36E-04	5.15E-04
266	372913	755342	Offsite Worker	-4.17E-01	-2.63E-01	-1.69E-01	-1.24E+00	-1.94E-01	8.56E-03	-7.81E-02	-3.29E-02	-6.05E-02	-1.16E-02	-1.59E-02	-1.46E-02	1.15E-04	2.04E-02	6.66E-04	9.66E-05	3.65E-04
267	372817	755346	Offsite Worker	-5.74E-01	-3.62E-01	-2.33E-01	-1.71E+00	-2.67E-01	1.20E-02	-1.08E-01	-4.54E-02	-8.33E-02	-1.60E-02	-2.19E-02	-2.01E-02	1.62E-04	2.86E-02	9.32E-04	1.36E-04	5.13E-04
268	372720	755349	Offsite Worker	-6.76E-01	-4.29E-01	-2.75E-01	-2.01E+00	-3.17E-01	1.51E-02	-1.28E-01	-5.37E-02	-9.78E-02	-1.85E-02	-2.58E-02	-2.38E-02	2.04E-04	3.61E-02	1.17E-03	1.71E-04	6.46E-04
269	372624	755352	Offsite Worker	-6.75E-01	-4.16E-01	-2.72E-01	-1.99E+00	-3.07E-01	1.05E-02	-1.24E-01	-5.22E-02	-9.89E-02	-1.97E-02	-2.59E-02	-2.33E-02	1.41E-04	2.50E-02	8.12E-04	1.18E-04	4.47E-04
270	372527	755349	Offsite Worker	-4.79E-01	-2.89E-01	-1.92E-01	-1.40E+00	-2.14E-01	5.41E-03	-8.59E-02	-3.64E-02	-7.06E-02	-1.45E-02	-1.84E-02	-1.63E-02	7.27E-05	1.29E-02	4.18E-04	6.13E-05	2.30E-04
271	372431	755353	Offsite Worker	-2.88E-01	-1.75E-01	-1.15E-01	-8.44E-01	-1.29E-01	3.49E-03	-5.18E-02	-2.19E-02	-4.24E-02	-8.62E-03	-1.11E-02	-9.84E-03	4.67E-05	8.26E-03	2.68E-04	3.97E-05	1.48E-04
272	372334	755356	Offsite Worker	-1.93E-01	-1.18E-01	-7.76E-02	-5.68E-01	-8.68E-02	2.46E-03	-3.49E-02	-1.48E-02	-2.84E-02	-5.77E-03	-7.43E-03	-6.63E-03	3.29E-05	5.80E-03	1.89E-04	2.81E-05	1.04E-04
273	372237	755359	Offsite Worker	-1.89E-01	-1.13E-01	-7.55E-02	-5.53E-01	-8.37E-02	1.85E-03	-3.37E-02	-1.43E-02	-2.79E-02	-5.78E-03	-7.28E-03	-6.42E-03	2.46E-05	4.34E-03	1.51E-04	2.13E-05	7.80E-05
274	372141	755362	Offsite Worker	-1.90E-01	-1.13E-01	-7.57E-02	-5.54E-01	-8.33E-02	1.45E-03	-3.35E-02	-1.42E-02	-2.82E-02	-5.91E-03	-7.34E-03	-6.42E-03	1.93E-05	3.40E-03	1.23E-04	1.69E-05	6.12E-05
275	372044	755366	Offsite Worker	-2.69E-01	-1.58E-01	-1.07E-01	-7.80E-01	-1.16E-01	1.35E-03	-4.68E-02	-1.99E-02	-4.01E-02	-8.53E-03	-1.04E-02	-9.01E-03	1.63E-05	2.87E-03	1.02E-04	1.45E-05	5.18E-05
276	371948	755369	Offsite Worker	-2.86E-01	-1.68E-01	-1.13E-01	-8.31E-01	-1.24E-01	1.40E-03	-4.98E-02	-2.12E-02	-4.27E-02	-9.10E-03	-1.11E-02	-9.59E-03	1.69E-05	2.98E-03	1.02E-04	1.50E-05	5.37E-05
277	371851	755372	Offsite Worker	-1.80E-01	-1.07E-01	-7.16E-02	-5.24E-01	-7.90E-02	1.45E-03	-3.18E-02	-1.35E-02	-2.67E-02	-5.57E-03	-6.94E-03	-6.08E-03	1.75E-05	3.08E-03	1.11E-04	1.55E-05	5.56E-05
278	371755	755375	Offsite Worker	-1.55E-01	-9.28E-02	-6.18E-02	-4.52E-01	-6.85E-02	1.50E-03	-2.76E-02	-1.17E-02	-2.29E-02	-4.73E-03	-5.96E-03	-5.25E-03	1.81E-05	3.19E-03	1.13E-04	1.60E-05	5.74E-05
279	371658	755378	Offsite Worker	-5.00E-02	-3.30E-02	-2.06E-02	-1.51E-01	-2.44E-02	1.55E-03	-9.81E-03	-4.11E-03	-7.13E-03	-1.26E-03	-1.89E-03	-1.81E-03	1.87E-05	3.29E-03	1.16E-04	1.65E-05	5.93E-05
280	371562	755382	Offsite Worker	-1.75E-01	-1.05E-01	-6.97E-02	-5.11E-01	-7.72E-02	1.60E-03	-3.10E-02	-1.32E-02	-2.59E-02	-5.37E-03	-6.74E-03	-5.93E-03	1.93E-05	3.39E-03	1.20E-04	1.71E-05	6.12E-05
281	371465	755385	Offsite Worker	-1.78E-01	-1.07E-01	-7.12E-02	-5.21E-01	-7.88E-02	1.64E-03	-3.17E-02	-1.34E-02	-2.64E-02	-5.48E-03	-6.88E-03	-6.05E-03	1.98E-05	3.49E-03	1.23E-04	1.76E-05	6.29E-05
282	371368	755388	Offsite Worker	-1.84E-01	-1.10E-01	-7.35E-02	-5.38E-01	-8.13E-02	1.69E-03	-3.27E-02	-1.39E-02	-2.73E-02	-5.66E-03	-7.10E-03	-6.25E-03	2.04E-05	3.58E-03	1.26E-04	1.80E-05	6.46E-05
283	371272	755391	Offsite Worker	-4.23E-02	-2.91E-02	-1.77E-02	-1.30E-01	-2.15E-02	1.73E-03	-8.66E-03	-3.62E-03	-5.93E-03	-9.67E-04	-1.59E-03	-1.57E-03	2.08E-05	3.67E-03	1.29E-04	1.85E-05	6.61E-05
284	371175	755395	Offsite Worker	5.78E-01	3.26E-01	2.26E-01	1.66E+00	2.41E-01	1.76E-03	9.67E-02	4.12E-02	8.73E-02	1.95E-02	2.25E-02	1.89E-02	2.13E-05	3.75E-03	1.31E-04	1.89E-05	6.76E-05
285	371079	755398	Offsite Worker	3.57E-02	1.55E-02	1.30E-02	9.50E-02	1.13E-02	1.80E-03	4.55E-03	2.01E-03	5.81E-03	1.63E-03	1.45E-03	9.98E-04	2.17E-05	3.82E-03	1.32E-04	1.92E-05	6.89E-05
286	371042	755478	Offsite Worker	4.76E-01	2.67E-01	1.86E-01	1.36E+00	1.97E-01	1.92E-03	7.92E-02	3.38E-02	7.20E-02	1.62E-02	1.85E-02	1.55E-02	2.32E-05	4.09E-03	1.43E-04	2.06E-05	7.37E-05
287	371009	755538	Offsite Worker	6.34E-01	3.58E-01	2.48E-01	1.82E+00	2.64E-01	2.03E-03	1.06E-01	4.52E-02	9.57E-02	2.14E-02	2.47E-02	2.07E-02	2.45E-05	4.31E-03	1.51E-04	2.17E-05	7.78E-05
288	370975	755597	Offsite Worker	6.72E-01	3.79E-01	2.63E-01	1.93E+00	2.80E-01	2.14E-03	1.12E-01	4.79E-02	1.02E-01	2.27E-02	2.62E-02	2.20E-02	2.59E-05	4.56E-03	1.60E-04	2.29E-05	8.21E-05
289	370925	755597	Offsite Worker	6.77E-01	3.82E-01	2.65E-01	1.94E+00	2.82E-01	2.16E-03	1.13E-01	4.83E-02	1.02E-01	2.29E-02	2.64E-02	2.21E-02	2.61E-05	4.59E-03	1.60E-04	2.31E-05	8.27E-05
290	370860	755547	Offsite Worker	6.53E-01	3.68E-01	2.56E-01	1.87E+00	2.71E-01	2.08E-03	1.09E-01	4.65E-02	9.86E-02	2.21E-02	2.54E-02	2.13E-02	2.51E-05	4.42E-03	1.54E-04	2.22E-05	7.97E-05
291	370796	755497	Offsite Worker	-2.97E-01	-1.76E-01	-1.18E-01	-8.65E-01	-1.30E-01	2.00E-03	-5.22E-02	-2.21E-02	-4.42E-02	-9.31E-03	-1.15E-02	-1.00E-02	2.42E-05	4.26E-03	1.45E-04	2.14E-05	7.68E-05
292	370733	755428	Offsite Worker	-4.08E-01	-2.40E-01	-1.62E-01	-1.19E+00	-1.77E-01	1.99E-03	-7.11E-02	-3.02E-02	-6.09E-02	-1.30E-02	-1.58E-02	-1.37E-02	2.29E-05	4.04E-03	1.32E-04	2.03E-05	7.28E-05
293	370634	755428	Offsite Worker	4.26E-01	2.38E-01	1.66E-01	1.22E+00	1.75E-01	2.07E-03	7.06E-02	3.01E-02	6.45E-02	1.46E-02	1.66E-02	1.38E-02	2.30E-05	4.04E-03	1.28E-04	2.03E-05	7.28E-05
294	370536	755428	Offsite Worker	7.36E-01	4.16E-01	2.88E-01	2.11E+00	3.06E-01	2.15E-03	1.23E-01	5.25E-02	1.11E-01	2.48E-02	2.87E-02	2.41E-02	2.29E-05	4.03E-03	1.23E-04	2.03E-05	7.26E-05

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE, TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
295	370437	755428	Offsite Worker	6.55E-01	3.69E-01	2.56E-01	1.88E+00	2.72E-01	2.24E-03	1.09E-01	4.67E-02	9.90E-02	2.22E-02	2.55E-02	2.14E-02	2.27E-05	4.00E-03	1.39E-04	2.01E-05	7.21E-05
296	370338	755427	Offsite Worker	-2.96E-01	-1.76E-01	-1.18E-01	-8.64E-01	-1.30E-01	2.34E-03	-5.24E-02	-2.22E-02	-4.40E-02	-9.20E-03	-1.14E-02	-1.00E-02	2.25E-05	3.96E-03	1.48E-04	1.99E-05	7.13E-05
297	370239	755427	Residential	-5.01E-02	-3.55E-02	-2.12E-02	-1.55E-01	-2.62E-02	2.44E-03	-1.06E-02	-4.40E-03	-6.92E-03	-1.04E-03	-1.86E-03	-1.90E-03	2.22E-05	3.90E-03	1.56E-04	1.96E-05	7.04E-05
298	370138	755427	Residential	-2.01E+00	-1.16E+00	-7.92E-01	-5.80E+00	-8.54E-01	2.55E-03	-3.43E-01	-1.46E-01	-3.01E-01	-6.56E-02	-7.79E-02	-6.65E-02	2.18E-05	3.83E-03	1.51E-04	1.93E-05	6.91E-05
299	370040	755427	Residential	-2.86E+00	-1.65E+00	-1.13E+00	-8.26E+00	-1.22E+00	2.66E-03	-4.89E-01	-2.08E-01	-4.30E-01	-9.39E-02	-1.11E-01	-9.48E-02	2.13E-05	3.76E-03	1.49E-04	1.89E-05	6.77E-05
300	369941	755426	Residential	-1.52E-01	-9.48E-02	-6.15E-02	-4.50E-01	-7.00E-02	2.79E-03	-2.82E-02	-1.19E-02	-2.21E-02	-4.32E-03	-5.81E-03	-5.30E-03	2.08E-05	3.67E-03	1.40E-04	1.84E-05	6.61E-05
301	369842	755426	Residential	-2.19E-01	-1.33E-01	-8.78E-02	-6.43E-01	-9.85E-02	2.91E-03	-3.96E-02	-1.68E-02	-3.22E-02	-6.49E-03	-8.40E-03	-7.51E-03	2.03E-05	3.57E-03	1.35E-04	1.80E-05	6.44E-05
302	369741	755435	Residential	-2.81E-01	-1.69E-01	-1.12E-01	-8.22E-01	-1.25E-01	3.06E-03	-5.03E-02	-2.13E-02	-4.14E-02	-8.50E-03	-1.08E-02	-9.57E-03	1.98E-05	3.49E-03	1.33E-04	1.76E-05	6.30E-05
303	369643	755434	Residential	6.05E-01	3.38E-01	2.36E-01	1.73E+00	2.49E-01	3.21E-03	1.00E-01	4.28E-02	9.18E-02	2.08E-02	2.36E-02	1.97E-02	1.92E-05	3.38E-03	1.26E-04	1.70E-05	6.10E-05
304	369544	755434	Residential	4.51E-01	2.49E-01	1.76E-01	1.29E+00	1.84E-01	3.36E-03	7.38E-02	3.16E-02	6.87E-02	1.57E-02	1.76E-02	1.46E-02	1.86E-05	3.28E-03	1.24E-04	1.65E-05	5.91E-05
305	369445	755434	Residential	2.20E-01	1.16E-01	8.43E-02	6.18E-01	8.55E-02	3.53E-03	3.44E-02	1.48E-02	3.39E-02	8.13E-03	8.65E-03	6.90E-03	1.80E-05	3.17E-03	1.20E-04	1.59E-05	5.71E-05
306	369346	755434	Residential	-6.44E-02	-4.72E-02	-2.76E-02	-2.02E-01	-3.49E-02	3.70E-03	-1.41E-02	-5.85E-03	-8.76E-03	-1.20E-03	-2.38E-03	-2.50E-03	1.74E-05	3.05E-03	1.16E-04	1.54E-05	5.51E-05
307	369249	755442	Offsite Worker	-4.14E-01	-2.48E-01	-1.65E-01	-1.21E+00	-1.83E-01	3.89E-03	-7.36E-02	-3.12E-02	-6.12E-02	-1.27E-02	-1.59E-02	-1.40E-02	1.68E-05	2.96E-03	1.18E-04	1.49E-05	5.33E-05
308	369151	755442	Offsite Worker	-6.59E-01	-3.89E-01	-2.62E-01	-1.92E+00	-2.87E-01	4.08E-03	-1.16E-01	-4.90E-02	-9.81E-02	-2.07E-02	-2.55E-02	-2.22E-02	1.62E-05	2.85E-03	1.16E-04	1.43E-05	5.14E-05
309	369052	755442	Offsite Worker	6.59E-01	3.66E-01	2.57E-01	1.88E+00	2.70E-01	4.29E-03	1.08E-01	4.63E-02	1.00E-01	2.28E-02	2.58E-02	2.13E-02	1.56E-05	2.74E-03	1.12E-04	1.38E-05	4.94E-05
310	368953	755441	Residential	1.81E-01	9.12E-02	6.84E-02	5.01E-01	6.70E-02	4.50E-03	2.69E-02	1.16E-02	2.83E-02	7.09E-03	7.17E-03	5.52E-03	1.50E-05	2.64E-03	1.07E-04	1.33E-05	4.75E-05
311	368854	755441	Residential	-6.46E-01	-3.84E-01	-2.57E-01	-1.88E+00	-2.83E-01	4.72E-03	-1.14E-01	-4.83E-02	-9.60E-02	-2.02E-02	-2.50E-02	-2.18E-02	1.44E-05	2.53E-03	1.04E-04	1.27E-05	4.57E-05
312	368755	755441	Residential	-2.84E-01	-1.77E-01	-1.15E-01	-8.41E-01	-1.30E-01	4.95E-03	-5.25E-02	-2.22E-02	-4.15E-02	-8.15E-03	-1.09E-02	-9.88E-03	1.44E-05	2.53E-03	1.03E-04	1.27E-05	4.56E-05
313	368657	755441	Residential	-1.72E-01	-1.13E-01	-7.10E-02	-5.20E-01	-8.37E-02	5.18E-03	-3.37E-02	-1.41E-02	-2.46E-02	-4.40E-03	-6.53E-03	-6.21E-03	1.51E-05	2.65E-03	1.06E-04	1.33E-05	4.78E-05
314	368558	755440	Residential	-3.27E-01	-2.02E-01	-1.32E-01	-9.66E-01	-1.49E-01	5.41E-03	-6.02E-02	-2.54E-02	-4.78E-02	-9.44E-03	-1.25E-02	-1.13E-02	1.57E-05	2.77E-03	1.09E-04	1.39E-05	4.99E-05
315	368459	755440	Residential	-9.32E-02	-6.91E-02	-4.01E-02	-2.93E-01	-5.12E-02	5.65E-03	-2.06E-02	-8.55E-03	-1.26E-02	-1.67E-03	-3.43E-03	-3.64E-03	1.64E-05	2.89E-03	1.13E-04	1.46E-05	5.22E-05
316	368360	755440	Residential	-6.91E-01	-4.12E-01	-2.75E-01	-2.02E+00	-3.04E-01	5.89E-03	-1.22E-01	-5.19E-02	-1.02E-01	-2.13E-02	-2.67E-02	-2.34E-02	1.71E-05	3.02E-03	1.16E-04	1.52E-05	5.44E-05
317	368262	755439	Residential	-8.24E-01	-4.89E-01	-3.28E-01	-2.40E+00	-3.61E-01	6.12E-03	-1.45E-01	-6.15E-02	-1.22E-01	-2.57E-02	-3.18E-02	-2.78E-02	1.78E-05	3.13E-03	1.19E-04	1.58E-05	5.65E-05
318	368186	755427	Residential	-7.10E-01	-4.24E-01	-2.83E-01	-2.07E+00	-3.13E-01	6.23E-03	-1.26E-01	-5.34E-02	-1.05E-01	-2.19E-02	-2.74E-02	-2.41E-02	1.81E-05	3.19E-03	1.21E-04	1.61E-05	5.76E-05
319	368111	755414	Residential	-6.11E-01	-3.68E-01	-2.44E-01	-1.79E+00	-2.71E-01	6.32E-03	-1.09E-01	-4.62E-02	-9.02E-02	-1.86E-02	-2.35E-02	-2.08E-02	1.84E-05	3.24E-03	1.22E-04	1.63E-05	5.84E-05
320	368035	755402	Offsite Worker	-5.30E-01	-3.21E-01	-2.12E-01	-1.55E+00	-2.37E-01	6.41E-03	-9.54E-02	-4.04E-02	-7.80E-02	-1.59E-02	-2.04E-02	-1.81E-02	1.87E-05	3.28E-03	1.23E-04	1.65E-05	5.92E-05
321	367960	755389	Offsite Worker	-4.68E-01	-2.86E-01	-1.88E-01	-1.38E+00	-2.11E-01	6.46E-03	-8.51E-02	-3.60E-02	-6.88E-02	-1.38E-02	-1.80E-02	-1.61E-02	1.88E-05	3.31E-03	1.23E-04	1.67E-05	5.98E-05
322	367863	755390	Offsite Worker	-4.10E-01	-2.53E-01	-1.65E-01	-1.21E+00	-1.87E-01	6.62E-03	-7.53E-02	-3.18E-02	-6.00E-02	-1.19E-02	-1.57E-02	-1.42E-02	1.93E-05	3.39E-03	1.25E-04	1.71E-05	6.12E-05
323	367766	755392	Offsite Worker	-3.73E-01	-2.32E-01	-1.51E-01	-1.10E+00	-1.72E-01	6.75E-03	-6.90E-02	-2.91E-02	-5.43E-02	-1.06E-02	-1.43E-02	-1.30E-02	1.97E-05	3.47E-03	1.28E-04	1.75E-05	6.25E-05
324	367669	755393	Offsite Worker	-1.71E-01	-1.17E-01	-7.15E-02	-5.23E-01	-8.66E-02	6.86E-03	-3.49E-02	-1.46E-02	-2.40E-02	-3.94E-03	-6.42E-03	-6.33E-03	2.00E-05	3.52E-03	1.29E-04	1.77E-05	6.34E-05
325	367572	755394	Offsite Worker	3.28E-01	1.69E-01	1.25E-01	9.15E-01	1.24E-01	6.92E-03	4.99E-02	2.15E-02	5.10E-02	1.26E-02	1.30E-02	1.01E-02	2.02E-05	3.56E-03	1.30E-04	1.79E-05	6.41E-05
326	367475	755395	Offsite Worker	3.19E-01	1.64E-01	1.21E-01	8.89E-01	1.20E-01	6.96E-03	4.83E-02	2.08E-02	4.97E-02	1.23E-02	1.26E-02	9.83E-03	2.03E-05	3.58E-03	1.30E-04	1.80E-05	6.45E-05
327	370403	756882	On-Site Occupational	6.08E-01	3.13E-01	2.32E-01	1.70E+00	2.30E-01	1.29E-02	9.25E-02	3.99E-02	9.46E-02	2.33E-02	2.41E-02	1.88E-02	1.56E-04	2.75E-02	9.23E-04	1.38E-04	4.95E-04
328	370646	757761	On-Site Occupational	1.15E+00	3.45E-01	3.85E-01	2.82E+00	2.49E-01	1.14E-01	9.93E-02	4.68E-02	2.02E-01	6.66E-02	4.86E-02	2.66E-02	1.36E-03	2.39E-01	7.80E-03	1.21E-03	4.31E-03
329	370646	757761	On-Site Occupational	1.16E+00	6.12E-01	4.46E-01	3.27E+00	4.50E-01	1.98E-02	1.81E-01	7.78E-02	1.80E-01	4.33E-02	4.59E-02	3.64E-02	5.68E-05	1.00E-02	3.26E-04	5.03E-05	1.80E-04
330	370646	757761	On-Site Occupational	2.93E+00	4.35E-01	8.80E-01	6.46E+00	3.01E-01	4.49E-01	1.18E-01	6.77E-02	5.51E-01	2.08E-01	1.29E-01	5.17E-02	1.42E-03	2.49E-01	8.14E-03	1.26E-03	4.50E-03

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

				ACETALDEHYDE	ACETALDEHYDE	ACROLEIN	ACROLEIN	BENZENE	BENZENE	FORMALDEHYDE	FORMALDEHYDE	METHYL ALCOHOL	METHYL ALCOHOL	METHYL ETHYL KETONE	METHYL ETHYL KETONE	STYRENE	STYRENE	TOULENE	TOULENE
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
1	367379	755396	Recreational	2.95E-01	6.28E-04	1.50E-01	5.99E-02	1.12E-01	8.61E-05	8.20E-01	1.49E-02	1.10E-01	3.93E-06	6.96E-03	5.35E-07	1.91E-02	9.10E-07	4.61E-02	1.24E-06
2	367340	755485	Recreational	2.57E-01	5.47E-04	1.26E-01	5.06E-02	9.66E-02	7.43E-05	7.08E-01	1.29E-02	9.29E-02	3.32E-06	7.58E-03	5.83E-07	1.62E-02	7.70E-07	4.05E-02	1.10E-06
3	367301	755573	Recreational	5.76E-01	1.23E-03	3.08E-01	1.23E-01	2.22E-01	1.71E-04	1.62E+00	2.95E-02	2.26E-01	8.08E-06	8.27E-03	6.36E-07	3.90E-02	1.86E-06	8.87E-02	2.40E-06
4	367263	755661	Recreational	5.91E-01	1.26E-03	3.14E-01	1.25E-01	2.27E-01	1.75E-04	1.66E+00	3.02E-02	2.31E-01	8.24E-06	9.05E-03	6.96E-07	3.98E-02	1.90E-06	9.11E-02	2.46E-06
5	367224	755749	Recreational	5.71E-01	1.22E-03	3.00E-01	1.20E-01	2.19E-01	1.68E-04	1.60E+00	2.91E-02	2.21E-01	7.88E-06	9.94E-03	7.65E-07	3.81E-02	1.82E-06	8.84E-02	2.39E-06
6	367186	755838	Recreational	5.10E-01	1.09E-03	2.62E-01	1.05E-01	1.94E-01	1.49E-04	1.42E+00	2.59E-02	1.93E-01	6.88E-06	1.10E-02	8.44E-07	3.34E-02	1.59E-06	7.94E-02	2.15E-06
7	367147	755926	Recreational	4.15E-01	8.83E-04	2.04E-01	8.17E-02	1.56E-01	1.20E-04	1.14E+00	2.08E-02	1.50E-01	5.36E-06	1.21E-02	9.33E-07	2.61E-02	1.24E-06	6.54E-02	1.77E-06
8	367109	756014	Recreational	3.05E-01	6.48E-04	1.37E-01	5.50E-02	1.12E-01	8.60E-05	8.19E-01	1.49E-02	1.01E-01	3.60E-06	1.34E-02	1.03E-06	1.77E-02	8.44E-07	4.91E-02	1.33E-06
9	367070	756103	Recreational	2.11E-01	4.48E-04	7.93E-02	3.17E-02	7.38E-02	5.68E-05	5.41E-01	9.84E-03	5.78E-02	2.07E-06	1.49E-02	1.15E-06	1.04E-02	4.97E-07	3.54E-02	9.56E-07
10	367032	756191	Recreational	8.46E-01	1.80E-03	4.39E-01	1.76E-01	3.23E-01	2.48E-04	2.37E+00	4.30E-02	3.23E-01	1.15E-05	1.66E-02	1.28E-06	5.59E-02	2.66E-06	1.31E-01	3.55E-06
11	366993	756279	Recreational	8.66E-01	1.84E-03	4.45E-01	1.78E-01	3.30E-01	2.54E-04	2.41E+00	4.39E-02	3.27E-01	1.17E-05	1.84E-02	1.42E-06	5.67E-02	2.70E-06	1.35E-01	3.64E-06
12	366954	756367	Recreational	8.70E-01	1.85E-03	4.42E-01	1.77E-01	3.30E-01	2.54E-04	2.42E+00	4.40E-02	3.25E-01	1.16E-05	2.04E-02	1.57E-06	5.64E-02	2.68E-06	1.36E-01	3.67E-06
13	366916	756456	Recreational	8.68E-01	1.85E-03	4.35E-01	1.74E-01	3.28E-01	2.52E-04	2.40E+00	4.37E-02	3.20E-01	1.14E-05	2.25E-02	1.73E-06	5.55E-02	2.64E-06	1.36E-01	3.68E-06
14	366877	756544	Recreational	8.58E-01	1.83E-03	4.24E-01	1.70E-01	3.23E-01	2.48E-04	2.36E+00	4.30E-02	3.11E-01	1.11E-05	2.45E-02	1.89E-06	5.42E-02	2.58E-06	1.35E-01	3.65E-06
15	366839	756632	Recreational	8.40E-01	1.79E-03	4.09E-01	1.63E-01	3.15E-01	2.42E-04	2.31E+00	4.19E-02	3.00E-01	1.07E-05	2.63E-02	2.03E-06	5.23E-02	2.49E-06	1.33E-01	3.59E-06
16	366800	756720	Recreational	8.17E-01	1.74E-03	3.92E-01	1.57E-01	3.05E-01	2.34E-04	2.23E+00	4.06E-02	2.87E-01	1.03E-05	2.77E-02	2.13E-06	5.02E-02	2.39E-06	1.30E-01	3.50E-06
17	366762	756809	Recreational	7.82E-01	1.66E-03	3.70E-01	1.48E-01	2.91E-01	2.24E-04	2.13E+00	3.87E-02	2.71E-01	9.68E-06	2.85E-02	2.19E-06	4.74E-02	2.26E-06	1.25E-01	3.37E-06
18	366723	756897	Recreational	7.54E-01	1.60E-03	3.53E-01	1.41E-01	2.79E-01	2.15E-04	2.05E+00	3.72E-02	2.59E-01	9.25E-06	2.85E-02	2.19E-06	4.54E-02	2.16E-06	1.20E-01	3.25E-06
19	366685	756985	Recreational	7.12E-01	1.51E-03	3.31E-01	1.32E-01	2.63E-01	2.03E-04	1.93E+00	3.51E-02	2.43E-01	8.68E-06	2.78E-02	2.14E-06	4.26E-02	2.03E-06	1.14E-01	3.08E-06
20	366646	757074	Recreational	6.67E-01	1.42E-03	3.10E-01	1.24E-01	2.47E-01	1.90E-04	1.81E+00	3.29E-02	2.27E-01	8.11E-06	2.63E-02	2.03E-06	3.98E-02	1.90E-06	1.07E-01	2.89E-06
21	366607	757162	Recreational	6.20E-01	1.32E-03	2.88E-01	1.15E-01	2.29E-01	1.76E-04	1.68E+00	3.05E-02	2.11E-01	7.53E-06	2.45E-02	1.88E-06	3.70E-02	1.76E-06	9.92E-02	2.68E-06
22	366569	757250	Recreational	4.83E-01	1.03E-03	2.15E-01	8.59E-02	1.76E-01	1.36E-04	1.29E+00	2.35E-02	1.57E-01	5.62E-06	2.24E-02	1.72E-06	2.77E-02	1.32E-06	7.81E-02	2.11E-06
23	366530	757338	Recreational	1.86E-01	3.96E-04	5.06E-02	2.02E-02	6.10E-02	4.70E-05	4.48E-01	8.14E-03	3.64E-02	1.30E-06	2.03E-02	1.56E-06	6.97E-03	3.32E-07	3.30E-02	8.93E-07
24	366492	757427	Recreational	4.37E-01	9.31E-04	2.00E-01	8.01E-02	1.61E-01	1.24E-04	1.18E+00	2.15E-02	1.47E-01	5.24E-06	1.83E-02	1.41E-06	2.58E-02	1.23E-06	7.03E-02	1.90E-06
25	366453	757515	Recreational	5.27E-01	1.12E-03	2.57E-01	1.03E-01	1.98E-01	1.52E-04	1.45E+00	2.63E-02	1.89E-01	6.74E-06	1.64E-02	1.26E-06	3.29E-02	1.57E-06	8.33E-02	2.25E-06
26	366415	757603	Recreational	5.12E-01	1.09E-03	2.53E-01	1.01E-01	1.93E-01	1.48E-04	1.41E+00	2.57E-02	1.86E-01	6.63E-06	1.47E-02	1.13E-06	3.23E-02	1.54E-06	8.06E-02	2.18E-06
27	366376	757692	Recreational	4.95E-01	1.05E-03	2.47E-01	9.89E-02	1.87E-01	1.44E-04	1.37E+00	2.49E-02	1.82E-01	6.49E-06	1.32E-02	1.02E-06	3.16E-02	1.50E-06	7.77E-02	2.10E-06
28	366338	757780	Residential	4.78E-01	1.02E-03	2.41E-01	9.63E-02	1.81E-01	1.39E-04	1.32E+00	2.41E-02	1.77E-01	6.32E-06	1.19E-02	9.17E-07	3.07E-02	1.46E-06	7.47E-02	2.02E-06
29	366402	757746	Residential	4.95E-01	1.05E-03	2.47E-01	9.90E-02	1.87E-01	1.44E-04	1.37E+00	2.49E-02	1.82E-01	6.49E-06	1.32E-02	1.01E-06	3.16E-02	1.50E-06	7.77E-02	2.10E-06
30	366467	757713	Residential	5.14E-01	1.09E-03	2.54E-01	1.02E-01	1.94E-01	1.49E-04	1.42E+00	2.58E-02	1.87E-01	6.68E-06	1.46E-02	1.12E-06	3.25E-02	1.55E-06	8.10E-02	2.19E-06
31	366531	757679	Residential	5.36E-01	1.14E-03	2.62E-01	1.05E-01	2.01E-01	1.55E-04	1.47E+00	2.68E-02	1.92E-01	6.87E-06	1.64E-02	1.26E-06	3.35E-02	1.60E-06	8.46E-02	2.29E-06
32	366567	757773	Residential	5.29E-01	1.12E-03	2.59E-01	1.04E-01	1.98E-01	1.53E-04	1.45E+00	2.64E-02	1.90E-01	6.80E-06	1.58E-02	1.22E-06	3.32E-02	1.58E-06	8.34E-02	2.25E-06
33	366625	757758	Residential	5.46E-01	1.16E-03	2.65E-01	1.06E-01	2.04E-01	1.57E-04	1.50E+00	2.72E-02	1.95E-01	6.96E-06	1.73E-02	1.33E-06	3.40E-02	1.62E-06	8.64E-02	2.33E-06
34	366682	757744	Residential	5.65E-01	1.20E-03	2.71E-01	1.09E-01	2.11E-01	1.62E-04	1.54E+00	2.81E-02	1.99E-01	7.11E-06	1.89E-02	1.46E-06	3.48E-02	1.66E-06	8.96E-02	2.42E-06
35	366768	757788	Residential	5.75E-01	1.22E-03	2.74E-01	1.10E-01	2.14E-01	1.65E-04	1.57E+00	2.85E-02	2.01E-01	7.18E-06	2.02E-02	1.55E-06	3.51E-02	1.67E-06	9.15E-02	2.47E-06
36	366854	757833	Residential	5.80E-01	1.23E-03	2.74E-01	1.10E-01	2.16E-01	1.66E-04	1.58E+00	2.87E-02	2.01E-01	7.19E-06	2.11E-02	1.62E-06	3.52E-02	1.68E-06	9.25E-02	2.50E-06
37	366941	757877	Residential	5.81E-01	1.24E-03	2.73E-01	1.09E-01	2.16E-01	1.66E-04	1.58E+00	2.87E-02	2.00E-01	7.15E-06	2.18E-02	1.67E-06	3.51E-02	1.67E-06	9.28E-02	2.51E-06
38	367027	757922	Residential	5.74E-01	1.22E-03	2.69E-01	1.07E-01	2.13E-01	1.64E-04	1.56E+00	2.83E-02	1.97E-01	7.04E-06	2.20E-02	1.69E-06	3.45E-02	1.64E-06	9.18E-02	2.48E-06
39	367113	757966	Residential	5.61E-01	1.19E-03	2.62E-01	1.05E-01	2.08E-01	1.60E-04	1.52E+00	2.77E-02	1.92E-01	6.85E-06	2.17E-02	1.67E-06	3.36E-02	1.60E-06	8.97E-02	2.43E-06
40	367192	757916	Residential	6.02E-01	1.28E-03	2.75E-01	1.10E-01	2.22E-01	1.70E-04	1.62E+00	2.95E-02	2.02E-01	7.21E-06	2.51E-02	1.93E-06	3.55E-02	1.69E-06	9.66E-02	2.61E-06
41	367264	757916	Residential	6.09E-01	1.30E-03	2.77E-01	1.11E-01	2.24E-01	1.72E-04	1.64E+00	2.98E-02	2.03E-01	7.25E-06	2.60E-02	2.00E-06	3.57E-02	1.70E-06	9.80E-02	2.65E-06
42	367335	757916	Residential	5.14E-01	1.09E-03	2.21E-01	8.82E-02	1.86E-01	1.43E-04	1.36E+00	2.48E-02	1.61E-01	5.76E-06	2.67E-02	2.05E-06	2.86E-02	1.36E-06	8.38E-02	2.27E-06
43	367343	757966	Residential	4.80E-01	1.02E-03	2.09E-01	8.34E-02	1.74E-01	1.34E-04	1.28E+00	2.32E-02	1.53E-01	5.45E-06	2.41E-02	1.86E-06	2.70E-02	1.29E-06	7.82E-02	2.11E-06
44	367404	757995	Residential	4.60E-01	9.79E-04	2.00E-01	8.00E-02	1.67E-01	1.29E-04	1.22E+00	2.23E-02	1.46E-01	5.23E-06	2.30E-02	1.77E-06	2.59E-02	1.23E-06	7.48E-02	2.02E-06

NOTE: µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

				ACETALDEHYDE	ACETALDEHYDE	ACROLEIN	ACROLEIN	BENZENE	BENZENE	FORMALDEHYDE	FORMALDEHYDE	METHYL ALCOHOL	METHYL ALCOHOL	METHYL ETHYL KETONE	METHYL ETHYL KETONE	STYRENE	STYRENE	TOULENE	TOULENE
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
45	367465	758024	Residential	4.33E-01	9.22E-04	1.88E-01	7.53E-02	1.57E-01	1.21E-04	1.15E+00	2.10E-02	1.38E-01	4.92E-06	2.17E-02	1.67E-06	2.44E-02	1.16E-06	7.05E-02	1.91E-06
46	367504	757948	School	4.88E-01	1.04E-03	2.10E-01	8.40E-02	1.77E-01	1.36E-04	1.29E+00	2.35E-02	1.54E-01	5.49E-06	2.51E-02	1.93E-06	2.72E-02	1.30E-06	7.95E-02	2.15E-06
47	367544	757873	School	5.50E-01	1.17E-03	2.35E-01	9.39E-02	1.99E-01	1.53E-04	1.46E+00	2.65E-02	1.72E-01	6.13E-06	2.92E-02	2.24E-06	3.05E-02	1.45E-06	9.00E-02	2.43E-06
48	367587	757909	School	5.09E-01	1.08E-03	2.18E-01	8.74E-02	1.84E-01	1.42E-04	1.35E+00	2.46E-02	1.60E-01	5.71E-06	2.66E-02	2.04E-06	2.83E-02	1.35E-06	8.32E-02	2.25E-06
49	367623	757866	School	5.45E-01	1.16E-03	2.33E-01	9.33E-02	1.97E-01	1.52E-04	1.45E+00	2.63E-02	1.71E-01	6.10E-06	2.86E-02	2.20E-06	3.03E-02	1.44E-06	8.91E-02	2.41E-06
50	367694	757866	School	5.26E-01	1.12E-03	2.26E-01	9.02E-02	1.90E-01	1.46E-04	1.39E+00	2.54E-02	1.65E-01	5.89E-06	2.74E-02	2.11E-06	2.92E-02	1.39E-06	8.58E-02	2.32E-06
51	367716	757927	School	4.52E-01	9.61E-04	1.93E-01	7.71E-02	1.63E-01	1.26E-04	1.20E+00	2.18E-02	1.41E-01	5.04E-06	2.39E-02	1.84E-06	2.50E-02	1.19E-06	7.39E-02	2.00E-06
52	367737	757988	School	6.24E-01	1.33E-03	2.99E-01	1.20E-01	2.33E-01	1.79E-04	1.71E+00	3.10E-02	2.20E-01	7.85E-06	2.12E-02	1.63E-06	3.84E-02	1.83E-06	9.91E-02	2.68E-06
53	367727	758067	School	5.89E-01	1.25E-03	2.86E-01	1.14E-01	2.20E-01	1.70E-04	1.62E+00	2.94E-02	2.10E-01	7.50E-06	1.86E-02	1.43E-06	3.66E-02	1.74E-06	9.31E-02	2.52E-06
54	367716	758146	School	5.58E-01	1.19E-03	2.74E-01	1.10E-01	2.10E-01	1.61E-04	1.54E+00	2.79E-02	2.01E-01	7.19E-06	1.65E-02	1.27E-06	3.51E-02	1.67E-06	8.80E-02	2.38E-06
55	367673	758189	Residential	5.39E-01	1.15E-03	2.66E-01	1.06E-01	2.03E-01	1.56E-04	1.48E+00	2.70E-02	1.95E-01	6.97E-06	1.57E-02	1.21E-06	3.40E-02	1.62E-06	8.49E-02	2.30E-06
56	367723	758254	School	5.24E-01	1.12E-03	2.62E-01	1.05E-01	1.98E-01	1.52E-04	1.45E+00	2.64E-02	1.92E-01	6.87E-06	1.40E-02	1.08E-06	3.34E-02	1.59E-06	8.23E-02	2.22E-06
57	367784	758221	School	5.38E-01	1.14E-03	2.69E-01	1.07E-01	2.03E-01	1.56E-04	1.49E+00	2.70E-02	1.97E-01	7.05E-06	1.43E-02	1.10E-06	3.43E-02	1.63E-06	8.44E-02	2.28E-06
58	367845	758189	School	5.51E-01	1.17E-03	2.75E-01	1.10E-01	2.08E-01	1.60E-04	1.52E+00	2.77E-02	2.02E-01	7.23E-06	1.46E-02	1.12E-06	3.52E-02	1.67E-06	8.64E-02	2.33E-06
59	367816	758096	Residential	5.85E-01	1.24E-03	2.88E-01	1.15E-01	2.20E-01	1.69E-04	1.61E+00	2.93E-02	2.12E-01	7.56E-06	1.69E-02	1.30E-06	3.69E-02	1.76E-06	9.21E-02	2.49E-06
60	367898	758066	Residential	5.99E-01	1.27E-03	2.97E-01	1.19E-01	2.26E-01	1.73E-04	1.65E+00	3.00E-02	2.18E-01	7.79E-06	1.68E-02	1.29E-06	3.79E-02	1.81E-06	9.42E-02	2.55E-06
61	367980	758035	Residential	6.09E-01	1.30E-03	3.03E-01	1.21E-01	2.30E-01	1.77E-04	1.68E+00	3.06E-02	2.23E-01	7.96E-06	1.65E-02	1.27E-06	3.88E-02	1.85E-06	9.56E-02	2.58E-06
62	368062	758005	Residential	6.15E-01	1.31E-03	3.08E-01	1.23E-01	2.32E-01	1.79E-04	1.70E+00	3.10E-02	2.27E-01	8.09E-06	1.60E-02	1.23E-06	3.94E-02	1.87E-06	9.64E-02	2.61E-06
63	368144	757975	Residential	6.18E-01	1.31E-03	3.12E-01	1.25E-01	2.34E-01	1.80E-04	1.71E+00	3.11E-02	2.29E-01	8.18E-06	1.53E-02	1.18E-06	3.97E-02	1.89E-06	9.66E-02	2.61E-06
64	368226	757945	Residential	6.19E-01	1.32E-03	3.14E-01	1.26E-01	2.35E-01	1.81E-04	1.72E+00	3.13E-02	2.31E-01	8.25E-06	1.46E-02	1.12E-06	4.01E-02	1.91E-06	9.66E-02	2.61E-06
65	368301	757943	Residential	6.13E-01	1.30E-03	3.14E-01	1.26E-01	2.33E-01	1.79E-04	1.71E+00	3.11E-02	2.31E-01	8.25E-06	1.36E-02	1.04E-06	4.00E-02	1.91E-06	9.55E-02	2.58E-06
66	368376	757941	Residential	6.14E-01	1.31E-03	3.17E-01	1.27E-01	2.34E-01	1.80E-04	1.71E+00	3.12E-02	2.33E-01	8.33E-06	1.26E-02	9.67E-07	4.04E-02	1.92E-06	9.54E-02	2.58E-06
67	368452	757940	Residential	6.22E-01	1.32E-03	3.24E-01	1.30E-01	2.38E-01	1.83E-04	1.74E+00	3.17E-02	2.38E-01	8.52E-06	1.16E-02	8.96E-07	4.12E-02	1.96E-06	9.64E-02	2.60E-06
68	368527	757938	Residential	6.32E-01	1.34E-03	3.32E-01	1.33E-01	2.42E-01	1.86E-04	1.77E+00	3.22E-02	2.44E-01	8.73E-06	1.08E-02	8.32E-07	4.22E-02	2.01E-06	9.76E-02	2.64E-06
69	368563	757880	Residential	6.64E-01	1.41E-03	3.51E-01	1.40E-01	2.55E-01	1.96E-04	1.87E+00	3.39E-02	2.58E-01	9.21E-06	1.09E-02	8.36E-07	4.45E-02	2.12E-06	1.02E-01	2.77E-06
70	368636	757926	Residential	6.48E-01	1.38E-03	3.45E-01	1.38E-01	2.49E-01	1.92E-04	1.83E+00	3.32E-02	2.54E-01	9.05E-06	9.79E-03	7.53E-07	4.38E-02	2.08E-06	9.99E-02	2.70E-06
71	368709	757971	Residential	6.31E-01	1.34E-03	3.37E-01	1.35E-01	2.43E-01	1.87E-04	1.78E+00	3.23E-02	2.48E-01	8.86E-06	8.88E-03	6.83E-07	4.28E-02	2.04E-06	9.70E-02	2.62E-06
72	368782	758017	Residential	6.18E-01	1.31E-03	3.32E-01	1.33E-01	2.38E-01	1.83E-04	1.74E+00	3.17E-02	2.44E-01	8.72E-06	8.10E-03	6.23E-07	4.21E-02	2.00E-06	9.48E-02	2.56E-06
73	368855	758062	Residential	6.13E-01	1.30E-03	3.31E-01	1.32E-01	2.37E-01	1.82E-04	1.73E+00	3.15E-02	2.43E-01	8.69E-06	7.42E-03	5.71E-07	4.19E-02	2.00E-06	9.39E-02	2.54E-06
74	368928	758108	Residential	6.16E-01	1.31E-03	3.34E-01	1.34E-01	2.38E-01	1.83E-04	1.74E+00	3.17E-02	2.46E-01	8.78E-06	6.82E-03	5.25E-07	4.23E-02	2.02E-06	9.42E-02	2.55E-06
75	369001	758153	Residential	6.33E-01	1.35E-03	3.46E-01	1.38E-01	2.45E-01	1.89E-04	1.80E+00	3.27E-02	2.54E-01	9.09E-06	6.31E-03	4.85E-07	4.38E-02	2.09E-06	9.68E-02	2.62E-06
76	369058	758074	Residential	7.15E-01	1.52E-03	3.92E-01	1.57E-01	2.78E-01	2.13E-04	2.03E+00	3.70E-02	2.89E-01	1.03E-05	6.27E-03	4.82E-07	4.97E-02	2.37E-06	1.09E-01	2.95E-06
77	369102	758103	Residential	6.78E-01	1.44E-03	3.72E-01	1.49E-01	2.63E-01	2.02E-04	1.93E+00	3.50E-02	2.74E-01	9.78E-06	5.98E-03	4.60E-07	4.71E-02	2.24E-06	1.03E-01	2.79E-06
78	369145	758132	Residential	6.40E-01	1.36E-03	3.51E-01	1.40E-01	2.48E-01	1.91E-04	1.82E+00	3.31E-02	2.58E-01	9.23E-06	5.72E-03	4.40E-07	4.45E-02	2.12E-06	9.76E-02	2.64E-06
79	369200	758065	Residential	6.41E-01	1.36E-03	3.52E-01	1.41E-01	2.49E-01	1.91E-04	1.82E+00	3.31E-02	2.59E-01	9.26E-06	5.65E-03	4.34E-07	4.46E-02	2.12E-06	9.78E-02	2.64E-06
80	369255	757998	Residential	6.35E-01	1.35E-03	3.47E-01	1.39E-01	2.46E-01	1.89E-04	1.80E+00	3.28E-02	2.55E-01	9.12E-06	6.09E-03	4.68E-07	4.39E-02	2.09E-06	9.69E-02	2.62E-06
81	369310	757931	Residential	6.36E-01	1.35E-03	3.46E-01	1.38E-01	2.46E-01	1.89E-04	1.80E+00	3.28E-02	2.55E-01	9.10E-06	6.68E-03	5.14E-07	4.38E-02	2.09E-06	9.72E-02	2.63E-06
82	369356	757981	Residential	5.42E-01	1.15E-03	2.92E-01	1.17E-01	2.09E-01	1.61E-04	1.53E+00	2.78E-02	2.15E-01	7.67E-06	6.73E-03	5.17E-07	3.70E-02	1.76E-06	8.31E-02	2.25E-06
83	369403	758031	Residential	4.66E-01	9.92E-04	2.49E-01	9.97E-02	1.79E-01	1.38E-04	1.31E+00	2.39E-02	1.83E-01	6.55E-06	6.51E-03	5.01E-07	3.16E-02	1.51E-06	7.17E-02	1.94E-06
84	369336	758100	Recreational	5.09E-01	1.08E-03	2.76E-01	1.11E-01	1.97E-01	1.52E-04	1.44E+00	2.62E-02	2.04E-01	7.27E-06	5.58E-03	4.29E-07	3.50E-02	1.67E-06	7.79E-02	2.11E-06
85	369269	758170	Recreational	5.38E-01	1.15E-03	2.94E-01	1.18E-01	2.09E-01	1.61E-04	1.53E+00	2.78E-02	2.17E-01	7.74E-06	5.16E-03	3.97E-07	囧.73E-02	1.78E-06	8.22E-02	2.22E-06
86	369202	758239	Recreational	5.55E-01	1.18E-03	3.04E-01	1.22E-01	2.15E-01	1.66E-04	1.58E+00	2.87E-02	2.24E-01	7.99E-06	5.25E-03	4.04E-07	3.85E-02	1.83E-06	8.48E-02	2.29E-06
87	369264	758285	Recreational	4.97E-01	1.06E-03	2.71E-01	1.08E-01	1.93E-01	1.48E-04	1.41E+00	2.56E-02	2.00E-01	7.13E-06	4.94E-03	3.80E-07	3.44E-02	1.64E-06	7.59E-02	2.05E-06
88	369326	758330	Recreational	4.37E-01	9.31E-04	2.38E-01	9.51E-02	1.69E-01	1.30E-04	1.24E+00	2.25E-02	1.75E-01	6.25E-06	4.66E-03	3.58E-07	3.01E-02	1.44E-06	6.69E-02	1.81E-06

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACETALDEHYDE ACUTE HAZARD	ACROLEIN ($\mu g/m^3$)	ACROLEIN ACUTE HAZARD	BENZENE ($\mu g/m^3$)	BENZENE ACUTE HAZARD	FORMALDEHYDE ($\mu g/m^3$)	FORMALDEHYDE ACUTE HAZARD	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ALCOHOL ACUTE HAZARD	METHYL ETHYL KETONE ($\mu g/m^3$)	METHYL ETHYL KETONE ACUTE HAZARD	STYRENE ($\mu g/m^3$)	STYRENE ACUTE HAZARD	TOULENE ($\mu g/m^3$)	TOULENE ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
89	369389	758376	Recreational	3.79E-01	8.07E-04	2.03E-01	8.12E-02	1.46E-01	1.12E-04	1.07E+00	1.95E-02	1.49E-01	5.34E-06	5.13E-03	3.95E-07	2.58E-02	1.23E-06	5.83E-02	1.57E-06
90	369389	758462	Recreational	3.62E-01	7.71E-04	1.93E-01	7.71E-02	1.39E-01	1.07E-04	1.02E+00	1.86E-02	1.42E-01	5.07E-06	5.39E-03	4.14E-07	2.45E-02	1.17E-06	5.58E-02	1.51E-06
91	369389	758548	Recreational	3.47E-01	7.38E-04	1.84E-01	7.35E-02	1.33E-01	1.02E-04	9.75E-01	1.77E-02	1.35E-01	4.83E-06	5.47E-03	4.20E-07	2.33E-02	1.11E-06	5.35E-02	1.45E-06
92	369389	758634	Residential	3.30E-01	7.02E-04	1.74E-01	6.97E-02	1.27E-01	9.74E-05	9.27E-01	1.69E-02	1.28E-01	4.58E-06	5.38E-03	4.14E-07	2.21E-02	1.05E-06	5.09E-02	1.38E-06
93	369469	758630	Residential	2.78E-01	5.90E-04	1.44E-01	5.74E-02	1.06E-01	8.14E-05	7.75E-01	1.41E-02	1.06E-01	3.77E-06	5.60E-03	4.31E-07	1.83E-02	8.70E-07	4.31E-02	1.16E-06
94	369549	758625	Residential	2.20E-01	4.68E-04	1.10E-01	4.41E-02	8.32E-02	6.40E-05	6.09E-01	1.11E-02	8.11E-02	2.90E-06	5.73E-03	4.41E-07	1.41E-02	6.71E-07	3.45E-02	9.33E-07
95	369630	758621	Residential	1.59E-01	3.38E-04	7.49E-02	3.00E-02	5.90E-02	4.54E-05	4.33E-01	7.86E-03	5.49E-02	1.96E-06	5.89E-03	4.53E-07	9.62E-03	4.58E-07	2.54E-02	6.86E-07
96	369710	758617	Residential	1.01E-01	2.15E-04	4.15E-02	1.66E-02	3.62E-02	2.79E-05	2.65E-01	4.83E-03	3.03E-02	1.08E-06	5.98E-03	4.60E-07	5.40E-03	2.57E-07	1.67E-02	4.51E-07
97	369791	758613	Residential	5.17E-02	1.10E-04	1.24E-02	4.96E-03	1.66E-02	1.28E-05	1.22E-01	2.21E-03	8.88E-03	3.17E-07	6.22E-03	4.78E-07	1.74E-03	8.30E-08	9.32E-03	2.52E-07
98	369791	758514	Residential	3.74E-02	7.96E-05	3.44E-03	1.38E-03	1.08E-02	8.30E-06	7.93E-02	1.44E-03	2.26E-03	8.08E-08	6.50E-03	5.00E-07	6.20E-04	2.95E-08	7.24E-03	1.96E-07
99	369791	758416	Residential	2.43E-02	5.17E-05	-6.12E-03	-2.45E-03	5.19E-03	3.99E-06	3.83E-02	6.97E-04	-4.82E-03	-1.72E-07	7.25E-03	5.57E-07	-5.65E-04	-2.69E-08	5.46E-03	1.48E-07
100	369791	758318	Residential	-7.65E-03	-1.63E-05	-2.65E-02	-1.06E-02	-7.84E-03	-6.03E-06	-5.71E-02	-1.04E-03	-1.99E-02	-7.10E-07	7.99E-03	6.15E-07	-3.12E-03	-1.48E-07	8.42E-04	2.28E-08
101	369881	758318	Residential	-4.85E-02	-1.03E-04	-5.11E-02	-2.05E-02	-2.42E-02	-1.86E-05	-1.77E-01	-3.21E-03	-3.80E-02	-1.36E-06	8.43E-03	6.49E-07	-6.21E-03	-2.96E-07	-5.18E-03	-1.40E-07
102	369972	758318	Residential	-7.09E-02	-1.51E-04	-6.43E-02	-2.57E-02	-3.31E-02	-2.54E-05	-2.42E-01	-4.40E-03	-4.78E-02	-1.71E-06	8.55E-03	6.57E-07	-7.87E-03	-3.75E-07	-8.53E-03	-2.30E-07
103	370062	758318	Residential	-5.08E-02	-1.08E-04	-5.65E-02	-2.26E-02	-2.60E-02	-2.00E-05	-1.90E-01	-3.45E-03	-4.20E-02	-1.50E-06	9.88E-03	7.60E-07	-6.84E-03	-3.26E-07	-5.18E-03	-1.40E-07
104	370153	758318	Residential	1.67E-01	3.55E-04	6.52E-02	2.61E-02	5.90E-02	4.54E-05	4.33E-01	7.87E-03	4.76E-02	1.70E-06	1.10E-02	8.46E-07	8.54E-03	4.07E-07	2.78E-02	7.52E-07
105	370243	758318	Residential	2.15E-01	4.57E-04	9.18E-02	3.67E-02	7.77E-02	5.98E-05	5.70E-01	1.04E-02	6.72E-02	2.40E-06	1.13E-02	8.73E-07	1.19E-02	5.67E-07	3.51E-02	9.49E-07
106	370247	758254	School	2.48E-01	5.28E-04	1.07E-01	4.28E-02	9.00E-02	6.92E-05	6.59E-01	1.20E-02	7.83E-02	2.80E-06	1.28E-02	9.82E-07	1.39E-02	6.60E-07	4.05E-02	1.09E-06
107	370250	758189	School	2.87E-01	6.11E-04	1.25E-01	5.00E-02	1.04E-01	8.03E-05	7.65E-01	1.39E-02	9.16E-02	3.27E-06	1.43E-02	1.10E-06	1.62E-02	7.71E-07	4.67E-02	1.26E-06
108	370308	758196	School	3.25E-01	6.91E-04	1.46E-01	5.86E-02	1.19E-01	9.17E-05	8.73E-01	1.59E-02	1.07E-01	3.83E-06	1.44E-02	1.11E-06	1.89E-02	8.99E-07	5.24E-02	1.42E-06
109	370361	758236	School	3.26E-01	6.94E-04	1.52E-01	6.06E-02	1.21E-01	9.28E-05	8.84E-01	1.61E-02	1.11E-01	3.97E-06	1.28E-02	9.84E-07	1.95E-02	9.28E-07	5.22E-02	1.41E-06
110	370415	758275	School	3.22E-01	6.85E-04	1.55E-01	6.19E-02	1.20E-01	9.24E-05	8.80E-01	1.60E-02	1.14E-01	4.06E-06	1.07E-02	8.24E-07	1.98E-02	9.45E-07	5.10E-02	1.38E-06
111	370408	758347	Residential	2.88E-01	6.13E-04	1.41E-01	5.62E-02	1.08E-01	8.31E-05	7.92E-01	1.44E-02	1.03E-01	3.69E-06	8.88E-03	6.83E-07	1.80E-02	8.57E-07	4.55E-02	1.23E-06
112	370490	758344	Residential	3.13E-01	6.66E-04	1.57E-01	6.26E-02	1.18E-01	9.09E-05	8.66E-01	1.57E-02	1.15E-01	4.11E-06	8.28E-03	6.37E-07	2.00E-02	9.52E-07	4.91E-02	1.33E-06
113	370572	758341	Residential	2.95E-01	6.27E-04	1.43E-01	5.71E-02	1.10E-01	8.48E-05	8.08E-01	1.47E-02	1.05E-01	3.75E-06	9.43E-03	7.25E-07	1.83E-02	8.71E-07	4.66E-02	1.26E-06
114	370654	758338	Residential	2.83E-01	6.02E-04	1.35E-01	5.39E-02	1.05E-01	8.10E-05	7.71E-01	1.40E-02	9.88E-02	3.53E-06	9.92E-03	7.63E-07	1.73E-02	8.22E-07	4.50E-02	1.22E-06
115	370735	758335	Residential	1.15E-01	2.44E-04	3.91E-02	1.56E-02	3.93E-02	3.02E-05	2.88E-01	5.24E-03	2.84E-02	1.01E-06	9.65E-03	7.42E-07	5.20E-03	2.48E-07	1.96E-02	5.31E-07
116	370817	758333	Residential	1.19E-01	2.53E-04	4.38E-02	1.75E-02	4.15E-02	3.19E-05	3.04E-01	5.54E-03	3.19E-02	1.14E-06	8.85E-03	6.81E-07	5.78E-03	2.75E-07	2.01E-02	5.43E-07
117	370814	758243	Offsite Worker	1.27E-01	2.70E-04	4.39E-02	1.76E-02	4.37E-02	3.36E-05	3.20E-01	5.82E-03	3.19E-02	1.14E-06	1.04E-02	8.03E-07	5.83E-03	2.78E-07	2.17E-02	5.86E-07
118	370810	758153	Offsite Worker	8.10E-02	1.72E-04	1.14E-02	4.55E-03	2.42E-02	1.86E-05	1.78E-01	3.24E-03	7.85E-03	2.80E-07	1.27E-02	9.75E-07	1.80E-03	8.56E-08	1.53E-02	4.15E-07
119	370807	758063	Offsite Worker	-9.79E-02	-2.08E-04	-1.01E-01	-4.04E-02	-4.83E-02	-3.71E-05	-3.53E-01	-6.42E-03	-7.51E-02	-2.68E-06	1.62E-02	1.24E-06	-1.23E-02	-5.84E-07	-1.07E-02	-2.89E-07
120	370803	757974	Offsite Worker	-7.33E-02	-1.56E-04	-1.02E-01	-4.06E-02	-4.18E-02	-3.22E-05	-3.06E-01	-5.56E-03	-7.58E-02	-2.71E-06	2.15E-02	1.65E-06	-1.22E-02	-5.81E-07	-5.66E-03	-1.53E-07
121	370835	757927	Offsite Worker	2.75E-01	5.84E-04	8.80E-02	3.52E-02	9.29E-02	7.15E-05	6.82E-01	1.24E-02	6.38E-02	2.28E-06	2.51E-02	1.93E-06	1.18E-02	5.63E-07	4.75E-02	1.28E-06
122	370868	757880	Offsite Worker	4.64E-01	9.87E-04	1.82E-01	7.28E-02	1.64E-01	1.26E-04	1.20E+00	2.19E-02	1.33E-01	4.75E-06	3.03E-02	2.33E-06	2.38E-02	1.13E-06	7.72E-02	2.09E-06
123	370921	757884	Offsite Worker	4.68E-01	9.96E-04	1.87E-01	7.47E-02	1.66E-01	1.28E-04	1.22E+00	2.22E-02	1.36E-01	4.87E-06	2.94E-02	2.26E-06	2.44E-02	1.16E-06	7.77E-02	2.10E-06
124	370975	757887	Offsite Worker	4.47E-01	9.52E-04	1.80E-01	7.20E-02	1.59E-01	1.23E-04	1.17E+00	2.12E-02	1.31E-01	4.70E-06	2.76E-02	2.13E-06	2.35E-02	1.12E-06	7.41E-02	2.00E-06
125	370975	757794	Offsite Worker	5.03E-01	1.07E-03	1.89E-01	7.57E-02	1.76E-01	1.36E-04	1.29E+00	2.35E-02	1.38E-01	4.93E-06	3.57E-02	2.75E-06	2.49E-02	1.19E-06	8.44E-02	2.28E-06
126	371026	757794	Offsite Worker	3.07E-01	6.52E-04	8.42E-02	3.37E-02	1.01E-01	7.75E-05	7.39E-01	1.34E-02	6.07E-02	2.17E-06	3.31E-02	2.54E-06	1.16E-02	5.51E-07	5.43E-02	1.47E-06
127	371076	757877	Offsite Worker	5.87E-01	1.25E-03	2.68E-01	1.07E-01	2.16E-01	1.66E-04	1.58E+00	2.88E-02	1.96E-01	7.01E-06	2.47E-02	1.90E-06	3.45E-02	1.64E-06	9.43E-02	2.55E-06
128	371126	757959	Offsite Worker	5.14E-01	1.09E-03	2.41E-01	9.63E-02	1.90E-01	1.46E-04	1.39E+00	2.54E-02	1.77E-01	6.31E-06	1.94E-02	1.49E-06	3.09E-02	1.47E-06	8.20E-02	2.22E-06
129	371119	758031	Offsite Worker	2.72E-01	5.78E-04	1.07E-01	4.28E-02	9.63E-02	7.41E-05	7.06E-01	1.28E-02	7.81E-02	2.79E-06	1.76E-02	1.36E-06	1.40E-02	6.67E-07	4.53E-02	1.22E-06
130	371183	758027	Residential	4.34E-01	9.23E-04	2.04E-01	8.16E-02	1.61E-01	1.24E-04	1.18E+00	2.14E-02	1.50E-01	5.35E-06	1.61E-02	1.24E-06	2.62E-02	1.25E-06	6.92E-02	1.87E-06
131	371248	758024	Residential	4.53E-01	9.64E-04	2.18E-01	8.73E-02	1.69E-01	1.30E-04	1.24E+00	2.25E-02	1.60E-01	5.72E-06	1.50E-02	1.15E-06	2.80E-02	1.33E-06	7.18E-02	1.94E-06
132	371326	758075	Residential	4.17E-01	8.86E-04	2.04E-01	8.15E-02	1.56E-01	1.20E-04	1.14E+00	2.08E-02	1.50E-01	5.35E-06	1.26E-02	9.73E-07	2.61E-02	1.24E-06	6.57E-02	1.78E-06

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

				ACETALDEHYDE	ACETALDEHYDE	ACROLEIN	ACROLEIN	BENZENE	BENZENE	FORMALDEHYDE	FORMALDEHYDE	METHYL ALCOHOL	METHYL ALCOHOL	METHYL ETHYL KETONE	METHYL ETHYL KETONE	STYRENE	STYRENE	TOULENE	TOULENE
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
133	371404	758127	Residential	3.87E-01	8.24E-04	1.92E-01	7.68E-02	1.46E-01	1.12E-04	1.07E+00	1.94E-02	1.41E-01	5.04E-06	1.09E-02	8.35E-07	2.45E-02	1.17E-06	6.09E-02	1.65E-06
134	371481	758178	Residential	3.64E-01	7.75E-04	1.83E-01	7.30E-02	1.38E-01	1.06E-04	1.01E+00	1.83E-02	1.34E-01	4.79E-06	9.52E-03	7.32E-07	2.33E-02	1.11E-06	5.71E-02	1.54E-06
135	371559	758230	Residential	3.46E-01	7.35E-04	1.75E-01	6.98E-02	1.31E-01	1.01E-04	9.59E-01	1.74E-02	1.28E-01	4.58E-06	8.50E-03	6.54E-07	2.23E-02	1.06E-06	5.41E-02	1.46E-06
136	371637	758281	Residential	3.31E-01	7.03E-04	1.68E-01	6.72E-02	1.25E-01	9.64E-05	9.19E-01	1.67E-02	1.24E-01	4.41E-06	7.76E-03	5.97E-07	2.14E-02	1.02E-06	5.16E-02	1.39E-06
137	371715	758333	Residential	3.18E-01	6.76E-04	1.62E-01	6.48E-02	1.21E-01	9.28E-05	8.83E-01	1.61E-02	1.19E-01	4.26E-06	7.21E-03	5.55E-07	2.07E-02	9.84E-07	4.95E-02	1.34E-06
138	371769	758261	Residential	3.94E-01	8.37E-04	2.06E-01	8.22E-02	1.50E-01	1.16E-04	1.10E+00	2.00E-02	1.51E-01	5.40E-06	7.22E-03	5.55E-07	2.61E-02	1.25E-06	6.09E-02	1.65E-06
139	371822	758189	Residential	3.95E-01	8.40E-04	2.05E-01	8.21E-02	1.51E-01	1.16E-04	1.10E+00	2.01E-02	1.51E-01	5.39E-06	7.56E-03	5.82E-07	2.61E-02	1.24E-06	6.12E-02	1.65E-06
140	371894	758160	Residential	3.81E-01	8.10E-04	1.97E-01	7.89E-02	1.45E-01	1.12E-04	1.06E+00	1.93E-02	1.45E-01	5.18E-06	7.52E-03	5.79E-07	2.51E-02	1.20E-06	5.91E-02	1.60E-06
141	371894	758081	Residential	3.05E-01	6.48E-04	1.53E-01	6.13E-02	1.15E-01	8.86E-05	8.44E-01	1.53E-02	1.13E-01	4.02E-06	7.72E-03	5.94E-07	1.96E-02	9.32E-07	4.77E-02	1.29E-06
142	371959	758074	Residential	2.42E-01	5.14E-04	1.18E-01	4.73E-02	9.07E-02	6.98E-05	6.64E-01	1.21E-02	8.69E-02	3.10E-06	7.28E-03	5.60E-07	1.51E-02	7.21E-07	3.81E-02	1.03E-06
143	371953	757977	Offsite Worker	2.75E-01	5.85E-04	1.37E-01	5.47E-02	1.04E-01	7.97E-05	7.59E-01	1.38E-02	1.00E-01	3.59E-06	7.59E-03	5.84E-07	1.75E-02	8.32E-07	4.32E-02	1.17E-06
144	371948	757880	Offsite Worker	3.14E-01	6.67E-04	1.58E-01	6.34E-02	1.19E-01	9.13E-05	8.70E-01	1.58E-02	1.16E-01	4.16E-06	7.74E-03	5.95E-07	2.02E-02	9.62E-07	4.91E-02	1.33E-06
145	371943	757783	Offsite Worker	3.52E-01	7.50E-04	1.81E-01	7.25E-02	1.34E-01	1.03E-04	9.83E-01	1.79E-02	1.33E-01	4.76E-06	7.48E-03	5.76E-07	2.31E-02	1.10E-06	5.48E-02	1.48E-06
146	372016	757794	Offsite Worker	3.58E-01	7.62E-04	1.86E-01	7.43E-02	1.37E-01	1.05E-04	1.00E+00	1.82E-02	1.37E-01	4.88E-06	7.01E-03	5.39E-07	2.36E-02	1.13E-06	5.55E-02	1.50E-06
147	372102	757791	Offsite Worker	3.72E-01	7.92E-04	1.95E-01	7.80E-02	1.42E-01	1.10E-04	1.04E+00	1.90E-02	1.43E-01	5.12E-06	6.65E-03	5.11E-07	2.48E-02	1.18E-06	5.76E-02	1.56E-06
148	372178	757760	Offsite Worker	3.97E-01	8.45E-04	2.10E-01	8.40E-02	1.52E-01	1.17E-04	1.12E+00	2.03E-02	1.55E-01	5.52E-06	6.33E-03	4.87E-07	2.67E-02	1.27E-06	6.12E-02	1.65E-06
149	372177	757670	Offsite Worker	2.61E-01	5.55E-04	1.32E-01	5.30E-02	9.89E-02	7.60E-05	7.24E-01	1.32E-02	9.73E-02	3.48E-06	6.14E-03	4.72E-07	1.69E-02	8.04E-07	4.07E-02	1.10E-06
150	372176	757579	Offsite Worker	3.84E-01	8.18E-04	2.04E-01	8.15E-02	1.48E-01	1.14E-04	1.08E+00	1.97E-02	1.50E-01	5.36E-06	5.96E-03	4.58E-07	2.59E-02	1.23E-06	5.92E-02	1.60E-06
151	372174	757489	Offsite Worker	2.78E-01	5.92E-04	1.43E-01	5.71E-02	1.06E-01	8.14E-05	7.75E-01	1.41E-02	1.05E-01	3.75E-06	6.07E-03	4.67E-07	1.82E-02	8.66E-07	4.33E-02	1.17E-06
152	372173	757398	Offsite Worker	4.10E-01	8.73E-04	2.19E-01	8.75E-02	1.58E-01	1.21E-04	1.16E+00	2.10E-02	1.61E-01	5.75E-06	5.97E-03	4.59E-07	2.78E-02	1.32E-06	6.31E-02	1.71E-06
153	372171	757308	Offsite Worker	7.07E-01	1.50E-03	3.88E-01	1.55E-01	2.74E-01	2.11E-04	2.01E+00	3.65E-02	2.86E-01	1.02E-05	6.23E-03	4.79E-07	4.91E-02	2.34E-06	1.08E-01	2.91E-06
154	372055	757309	Offsite Worker	3.71E-01	7.89E-04	1.94E-01	7.75E-02	1.42E-01	1.09E-04	1.04E+00	1.89E-02	1.42E-01	5.09E-06	6.83E-03	5.25E-07	2.46E-02	1.17E-06	5.74E-02	1.55E-06
155	372055	757363	Residential	2.98E-01	6.35E-04	1.53E-01	6.13E-02	1.14E-01	8.73E-05	8.32E-01	1.51E-02	1.13E-01	4.02E-06	6.47E-03	4.98E-07	1.95E-02	9.29E-07	4.65E-02	1.26E-06
156	372055	757416	Offsite Worker	2.88E-01	6.12E-04	1.47E-01	5.89E-02	1.09E-01	8.42E-05	8.02E-01	1.46E-02	1.08E-01	3.87E-06	6.38E-03	4.91E-07	1.88E-02	8.94E-07	4.48E-02	1.21E-06
157	371952	757442	Offsite Worker	2.98E-01	6.35E-04	1.52E-01	6.07E-02	1.13E-01	8.71E-05	8.29E-01	1.51E-02	1.12E-01	3.98E-06	6.97E-03	5.36E-07	1.93E-02	9.21E-07	4.66E-02	1.26E-06
158	371950	757345	Offsite Worker	3.01E-01	6.41E-04	1.52E-01	6.09E-02	1.14E-01	8.77E-05	8.35E-01	1.52E-02	1.12E-01	4.00E-06	7.32E-03	5.63E-07	1.94E-02	9.25E-07	4.71E-02	1.27E-06
159	371864	757344	Offsite Worker	3.08E-01	6.55E-04	1.54E-01	6.16E-02	1.16E-01	8.94E-05	8.52E-01	1.55E-02	1.13E-01	4.04E-06	8.12E-03	6.25E-07	1.97E-02	9.36E-07	4.83E-02	1.31E-06
160	371790	757347	Offsite Worker	3.22E-01	6.85E-04	1.60E-01	6.39E-02	1.21E-01	9.33E-05	8.89E-01	1.62E-02	1.17E-01	4.19E-06	9.01E-03	6.93E-07	2.04E-02	9.72E-07	5.07E-02	1.37E-06
161	371708	757356	Offsite Worker	3.47E-01	7.38E-04	1.71E-01	6.83E-02	1.30E-01	1.00E-04	9.56E-01	1.74E-02	1.26E-01	4.48E-06	1.01E-02	7.80E-07	2.18E-02	1.04E-06	5.47E-02	1.48E-06
162	371615	757356	Offsite Worker	5.42E-01	1.15E-03	2.78E-01	1.11E-01	2.06E-01	1.59E-04	1.51E+00	2.75E-02	2.05E-01	7.31E-06	1.17E-02	9.01E-07	3.54E-02	1.69E-06	8.44E-02	2.28E-06
163	371523	757356	Offsite Worker	5.25E-01	1.12E-03	2.63E-01	1.05E-01	1.98E-01	1.52E-04	1.45E+00	2.64E-02	1.93E-01	6.90E-06	1.36E-02	1.05E-06	3.36E-02	1.60E-06	8.22E-02	2.22E-06
164	371430	757356	Offsite Worker	3.51E-01	7.46E-04	1.57E-01	6.27E-02	1.28E-01	9.87E-05	9.40E-01	1.71E-02	1.15E-01	4.10E-06	1.60E-02	1.23E-06	2.02E-02	9.63E-07	5.67E-02	1.53E-06
165	371338	757356	Offsite Worker	2.14E-01	4.56E-04	7.02E-02	2.81E-02	7.29E-02	5.60E-05	5.34E-01	9.71E-03	5.10E-02	1.82E-06	1.90E-02	1.46E-06	9.40E-03	4.48E-07	3.69E-02	9.99E-07
166	371245	757356	Offsite Worker	2.25E-01	4.79E-04	6.57E-02	2.63E-02	7.48E-02	5.75E-05	5.49E-01	9.98E-03	4.75E-02	1.70E-06	2.29E-02	1.76E-06	8.95E-03	4.26E-07	3.96E-02	1.07E-06
167	371153	757356	Offsite Worker	2.47E-01	5.25E-04	6.41E-02	2.56E-02	8.02E-02	6.17E-05	5.88E-01	1.07E-02	4.61E-02	1.64E-06	2.79E-02	2.15E-06	8.88E-03	4.23E-07	4.40E-02	1.19E-06
168	371061	757356	Offsite Worker	2.62E-01	5.57E-04	5.50E-02	2.20E-02	8.23E-02	6.33E-05	6.04E-01	1.10E-02	3.91E-02	1.40E-06	3.44E-02	2.65E-06	7.92E-03	3.77E-07	4.79E-02	1.30E-06
169	371005	757357	Offsite Worker	2.68E-01	5.71E-04	4.49E-02	1.79E-02	8.18E-02	6.29E-05	6.01E-01	1.09E-02	3.14E-02	1.12E-06	3.94E-02	3.03E-06	6.78E-03	3.23E-07	5.01E-02	1.36E-06
170	370998	757293	Offsite Worker	2.23E-01	4.75E-04	3.78E-02	1.51E-02	6.81E-02	5.24E-05	5.00E-01	9.09E-03	2.65E-02	9.47E-07	3.25E-02	2.50E-06	5.70E-03	2.72E-07	4.16E-02	1.12E-06
171	370998	757194	Offsite Worker	-1.48E-01	-3.14E-04	-1.53E-01	-6.13E-02	-7.31E-02	-5.62E-05	-5.34E-01	-9.71E-03	-1.14E-01	-4.07E-06	2.47E-02	1.90E-06	-1.86E-02	-8.87E-07	-1.60E-02	-4.33E-07
172	370998	757096	Offsite Worker	-3.06E-01	-6.51E-04	-2.28E-01	-9.13E-02	-1.32E-01	-1.01E-04	-9.65E-01	-1.75E-02	-1.69E-01	-6.04E-06	1.91E-02	1.47E-06	-2.83E-02	-1.35E-06	-4.12E-02	-1.11E-06
173	370998	756998	Offsite Worker	-2.77E-01	-5.89E-04	-2.01E-01	-8.02E-02	-1.18E-01	-9.09E-05	-8.64E-01	-1.57E-02	-1.48E-01	-5.30E-06	1.51E-02	1.16E-06	-2.49E-02	-1.18E-06	-3.79E-02	-1.02E-06
174	371057	756997	Offsite Worker	-2.64E-01	-5.62E-04	-1.89E-01	-7.58E-02	-1.12E-01	-8.63E-05	-8.21E-01	-1.49E-02	-1.40E-01	-5.01E-06	1.37E-02	1.06E-06	-2.35E-02	-1.12E-06	-3.63E-02	-9.80E-07
175	371153	756997	Offsite Worker	3.99E-01	8.48E-04	1.96E-01	7.84E-02	1.50E-01	1.15E-04	1.10E+00	2.00E-02	1.44E-01	5.14E-06	1.18E-02	9.05E-07	2.51E-02	1.19E-06	6.29E-02	1.70E-06
176	371249	756997	Offsite Worker	3.52E-01	7.49E-04	1.74E-01	6.96E-02	1.32E-01	1.02E-04	9.70E-01	1.76E-02	1.28E-01	4.56E-06	1.01E-02	7.74E-07	2.22E-02	1.06E-06	5.54E-02	1.50E-06
177	371345	756997	Offsite Worker	3.40E-01	7.23E-04	1.71E-01	6.84E-02	1.29E-01	9.89E-05	9.41E-01	1.71E-02	1.26E-01	4.49E-06	8.63E-03	6.64E-07	2.18E-02	1.04E-06	5.32E-02	1.44E-06

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

				ACETALDEHYDE	ACETALDEHYDE	ACROLEIN	ACROLEIN	BENZENE	BENZENE	FORMALDEHYDE	FORMALDEHYDE	METHYL ALCOHOL	METHYL ALCOHOL	METHYL ETHYL KETONE	METHYL ETHYL KETONE	STYRENE	STYRENE	TOULENE	TOULENE
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
178	371440	756997	Offsite Worker	3.53E-01	7.51E-04	1.82E-01	7.27E-02	1.34E-01	1.03E-04	9.84E-01	1.79E-02	1.34E-01	4.77E-06	7.45E-03	5.73E-07	2.31E-02	1.10E-06	5.49E-02	1.48E-06
179	371536	756997	Offsite Worker	3.83E-01	8.15E-04	2.02E-01	8.06E-02	1.47E-01	1.13E-04	1.07E+00	1.95E-02	1.48E-01	5.30E-06	6.46E-03	4.97E-07	2.56E-02	1.22E-06	5.92E-02	1.60E-06
180	371632	756997	Offsite Worker	4.20E-01	8.93E-04	2.23E-01	8.93E-02	1.61E-01	1.24E-04	1.18E+00	2.15E-02	1.64E-01	5.86E-06	6.30E-03	4.85E-07	2.83E-02	1.35E-06	6.46E-02	1.75E-06
181	371728	756997	Offsite Worker	9.32E-01	1.98E-03	5.17E-01	2.07E-01	3.63E-01	2.79E-04	2.66E+00	4.83E-02	3.81E-01	1.36E-05	6.19E-03	4.76E-07	6.54E-02	3.12E-06	1.42E-01	3.83E-06
182	371824	756997	Offsite Worker	6.41E-01	1.36E-03	3.51E-01	1.40E-01	2.49E-01	1.91E-04	1.82E+00	3.31E-02	2.58E-01	9.22E-06	6.08E-03	4.67E-07	4.44E-02	2.12E-06	9.79E-02	2.64E-06
183	371920	756997	Offsite Worker	2.68E-01	5.70E-04	1.37E-01	5.48E-02	1.02E-01	7.83E-05	7.46E-01	1.36E-02	1.01E-01	3.60E-06	5.97E-03	4.59E-07	1.75E-02	8.32E-07	4.18E-02	1.13E-06
184	372016	756997	Offsite Worker	3.11E-01	6.62E-04	1.62E-01	6.48E-02	1.19E-01	9.14E-05	8.71E-01	1.58E-02	1.19E-01	4.26E-06	5.87E-03	4.52E-07	2.06E-02	9.82E-07	4.82E-02	1.30E-06
185	372111	756997	Offsite Worker	3.54E-01	7.53E-04	1.87E-01	7.48E-02	1.36E-01	1.04E-04	9.95E-01	1.81E-02	1.38E-01	4.91E-06	5.79E-03	4.45E-07	2.38E-02	1.13E-06	5.47E-02	1.48E-06
186	372207	756997	Offsite Worker	3.97E-01	8.44E-04	2.12E-01	8.47E-02	1.53E-01	1.17E-04	1.12E+00	2.03E-02	1.56E-01	5.56E-06	5.70E-03	4.39E-07	2.69E-02	1.28E-06	6.11E-02	1.65E-06
187	372303	756997	Offsite Worker	4.39E-01	9.35E-04	2.36E-01	9.45E-02	1.69E-01	1.30E-04	1.24E+00	2.26E-02	1.74E-01	6.21E-06	5.62E-03	4.32E-07	3.00E-02	1.43E-06	6.74E-02	1.82E-06
188	372399	756997	Offsite Worker	4.81E-01	1.02E-03	2.60E-01	1.04E-01	1.86E-01	1.43E-04	1.36E+00	2.47E-02	1.91E-01	6.84E-06	5.53E-03	4.26E-07	3.30E-02	1.57E-06	7.36E-02	1.99E-06
189	372495	756997	Offsite Worker	5.20E-01	1.11E-03	2.83E-01	1.13E-01	2.01E-01	1.55E-04	1.48E+00	2.68E-02	2.08E-01	7.45E-06	5.44E-03	4.19E-07	3.59E-02	1.71E-06	7.95E-02	2.15E-06
190	372591	756997	Offsite Worker	5.59E-01	1.19E-03	3.06E-01	1.22E-01	2.17E-01	1.67E-04	1.59E+00	2.89E-02	2.25E-01	8.04E-06	5.35E-03	4.11E-07	3.87E-02	1.84E-06	8.54E-02	2.31E-06
191	372610	757063	Offsite Worker	4.46E-01	9.49E-04	2.40E-01	9.62E-02	1.72E-01	1.32E-04	1.26E+00	2.29E-02	1.77E-01	6.32E-06	5.45E-03	4.19E-07	3.05E-02	1.45E-06	6.84E-02	1.85E-06
192	372612	757132	Offsite Worker	3.40E-01	7.24E-04	1.80E-01	7.20E-02	1.31E-01	1.01E-04	9.57E-01	1.74E-02	1.33E-01	4.73E-06	5.43E-03	4.18E-07	2.29E-02	1.09E-06	5.25E-02	1.42E-06
193	372614	757201	Offsite Worker	2.57E-01	5.46E-04	1.33E-01	5.30E-02	9.78E-02	7.53E-05	7.17E-01	1.30E-02	9.75E-02	3.48E-06	5.27E-03	4.05E-07	1.69E-02	8.04E-07	3.99E-02	1.08E-06
194	372616	757270	Offsite Worker	3.99E-01	8.49E-04	2.15E-01	8.60E-02	1.54E-01	1.19E-04	1.13E+00	2.05E-02	1.58E-01	5.65E-06	4.96E-03	3.82E-07	2.73E-02	1.30E-06	6.12E-02	1.65E-06
195	372627	757351	Offsite Worker	7.62E-01	1.62E-03	4.23E-01	1.69E-01	2.97E-01	2.28E-04	2.17E+00	3.95E-02	3.11E-01	1.11E-05	5.00E-03	3.84E-07	5.35E-02	2.55E-06	1.16E-01	3.13E-06
196	372651	757422	Offsite Worker	7.20E-01	1.53E-03	3.99E-01	1.59E-01	2.80E-01	2.16E-04	2.05E+00	3.73E-02	2.94E-01	1.05E-05	5.10E-03	3.93E-07	5.04E-02	2.40E-06	1.09E-01	2.96E-06
197	372676	757494	Offsite Worker	6.63E-01	1.41E-03	3.66E-01	1.46E-01	2.58E-01	1.98E-04	1.89E+00	3.43E-02	2.70E-01	9.63E-06	5.07E-03	3.90E-07	4.63E-02	2.21E-06	1.01E-01	2.73E-06
198	372704	757569	Offsite Worker	6.12E-01	1.30E-03	3.37E-01	1.35E-01	2.38E-01	1.83E-04	1.74E+00	3.17E-02	2.48E-01	8.87E-06	4.90E-03	3.77E-07	4.27E-02	2.03E-06	9.32E-02	2.52E-06
199	372733	757645	Offsite Worker	5.01E-01	1.07E-03	2.73E-01	1.09E-01	1.94E-01	1.49E-04	1.42E+00	2.58E-02	2.01E-01	7.19E-06	4.97E-03	3.82E-07	3.46E-02	1.65E-06	7.65E-02	2.07E-06
200	372746	757702	Offsite Worker	4.07E-01	8.67E-04	2.20E-01	8.78E-02	1.57E-01	1.21E-04	1.15E+00	2.09E-02	1.62E-01	5.77E-06	5.04E-03	3.88E-07	2.78E-02	1.33E-06	6.25E-02	1.69E-06
201	372746	757768	Offsite Worker	3.60E-01	7.67E-04	1.93E-01	7.70E-02	1.39E-01	1.07E-04	1.02E+00	1.85E-02	1.42E-01	5.06E-06	5.06E-03	3.89E-07	2.44E-02	1.16E-06	5.54E-02	1.50E-06
202	372807	757781	School	3.61E-01	7.68E-04	1.93E-01	7.73E-02	1.39E-01	1.07E-04	1.02E+00	1.85E-02	1.42E-01	5.08E-06	4.97E-03	3.82E-07	2.45E-02	1.17E-06	5.55E-02	1.50E-06
203	372901	757782	School	3.56E-01	7.57E-04	1.90E-01	7.62E-02	1.37E-01	1.05E-04	1.00E+00	1.82E-02	1.40E-01	5.01E-06	4.85E-03	3.73E-07	2.42E-02	1.15E-06	5.47E-02	1.48E-06
204	372994	757783	Offsite Worker	3.48E-01	7.41E-04	1.86E-01	7.46E-02	1.34E-01	1.03E-04	9.82E-01	1.79E-02	1.37E-01	4.90E-06	4.73E-03	3.64E-07	2.37E-02	1.13E-06	5.35E-02	1.45E-06
205	373087	757783	Offsite Worker	3.28E-01	6.97E-04	1.75E-01	7.01E-02	1.26E-01	9.71E-05	9.24E-01	1.68E-02	1.29E-01	4.60E-06	4.62E-03	3.56E-07	2.22E-02	1.06E-06	5.04E-02	1.36E-06
206	373180	757784	Offsite Worker	3.04E-01	6.48E-04	1.62E-01	6.48E-02	1.17E-01	9.01E-05	8.57E-01	1.56E-02	1.19E-01	4.26E-06	4.52E-03	3.47E-07	2.06E-02	9.80E-07	4.69E-02	1.27E-06
207	373274	757785	Offsite Worker	2.66E-01	5.67E-04	1.40E-01	5.62E-02	1.02E-01	7.86E-05	7.48E-01	1.36E-02	1.03E-01	3.69E-06	4.41E-03	3.39E-07	1.79E-02	8.50E-07	4.11E-02	1.11E-06
208	373367	757786	Offsite Worker	2.18E-01	4.63E-04	1.13E-01	4.51E-02	8.30E-02	6.38E-05	6.08E-01	1.11E-02	8.29E-02	2.96E-06	4.31E-03	3.32E-07	1.44E-02	6.83E-07	3.38E-02	9.13E-07
209	373418	757742	Offsite Worker	1.67E-01	3.56E-04	8.42E-02	3.37E-02	6.33E-02	4.87E-05	4.63E-01	8.43E-03	6.19E-02	2.21E-06	4.22E-03	3.25E-07	1.07E-02	5.12E-07	2.62E-02	7.08E-07
210	373418	757653	Offsite Worker	1.52E-01	3.23E-04	7.59E-02	3.04E-02	5.73E-02	4.41E-05	4.20E-01	7.64E-03	5.58E-02	1.99E-06	4.06E-03	3.12E-07	9.69E-03	4.61E-07	2.38E-02	6.45E-07
211	373419	757564	Offsite Worker	1.66E-01	3.53E-04	8.38E-02	3.35E-02	6.29E-02	4.84E-05	4.60E-01	8.37E-03	6.16E-02	2.20E-06	4.11E-03	3.16E-07	1.07E-02	5.09E-07	2.60E-02	7.02E-07
212	373419	757475	Offsite Worker	2.05E-01	4.37E-04	1.06E-01	4.24E-02	7.82E-02	6.02E-05	5.73E-01	1.04E-02	7.80E-02	2.79E-06	4.20E-03	3.23E-07	1.35E-02	6.43E-07	3.19E-02	8.62E-07
213	373420	757386	Offsite Worker	2.74E-01	5.83E-04	1.45E-01	5.82E-02	1.05E-01	8.09E-05	7.71E-01	1.40E-02	1.07E-01	3.82E-06	4.18E-03	3.21E-07	1.85E-02	8.79E-07	4.22E-02	1.14E-06
214	373420	757297	Offsite Worker	3.64E-01	7.74E-04	1.97E-01	7.90E-02	1.41E-01	1.08E-04	1.03E+00	1.87E-02	1.45E-01	5.19E-06	4.04E-03	3.11E-07	2.50E-02	1.19E-06	5.57E-02	1.50E-06
215	373421	757207	Offsite Worker	4.72E-01	1.00E-03	2.60E-01	1.04E-01	1.84E-01	1.41E-04	1.34E+00	2.44E-02	1.92E-01	6.84E-06	3.79E-03	2.92E-07	3.29E-02	1.57E-06	7.19E-02	1.94E-06
216	373421	757118	Offsite Worker	5.95E-01	1.27E-03	3.30E-01	1.32E-01	2.32E-01	1.78E-04	1.70E+00	3.08E-02	2.43E-01	8.67E-06	4.05E-03	3.12E-07	4.17E-02	1.99E-06	9.04E-02	2.44E-06
217	373292	757117	Offsite Worker	5.71E-01	1.21E-03	3.15E-01	1.26E-01	2.22E-01	1.71E-04	1.63E+00	2.96E-02	2.32E-01	8.29E-06	4.26E-03	3.27E-07	3.99E-02	1.90E-06	8.68E-02	2.35E-06
218	373213	757118	Offsite Worker	5.50E-01	1.17E-03	3.03E-01	1.21E-01	2.14E-01	1.64E-04	1.57E+00	2.85E-02	2.23E-01	7.97E-06	4.38E-03	3.37E-07	3.84E-02	1.83E-06	8.37E-02	2.26E-06
219	373158	757066	Offsite Worker	6.21E-01	1.32E-03	3.43E-01	1.37E-01	2.41E-01	1.86E-04	1.77E+00	3.22E-02	2.53E-01	4.	4.59E-03	3.53E-07	4.34E-02	2.07E-06	9.44E-02	2.55E-06
220	373084	757026	Offsite Worker	6.72E-01	1.43E-03	3.72E-01	1.49E-01	2.62E-01	2.01E-04	1.92E+00	3.48E-02	2.74E-01	9.79E-06	4.75E-03	3.66E-07	4.71E-02	2.24E-06	1.02E-01	2.76E-06
221	373009	757011	Offsite Worker	6.79E-01	1.45E-03	3.76E-01	1.50E-01	2.64E-01	2.03E-04	1.94E+00	3.52E-02	2.77E-01	9.89E-06	4.86E-03	3.74E-07	4.76E-02	2.27E-06	1.03E-01	2.79E-06
222	372922	757009	Offsite Worker	6.57E-01	1.40E-03	3.63E-01	1.45E-01	2.55E-01	1.97E-04	1.87E+00	3.40E-02	2.67E-01	9.54E-06	4.97E-03	3.83E-07	4.59E-02	2.19E-06	1.00E-01	2.70E-06

NOTE: µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACETALDEHYDE ACUTE HAZARD	ACROLEIN ($\mu g/m^3$)	ACROLEIN ACUTE HAZARD	BENZENE ($\mu g/m^3$)	BENZENE ACUTE HAZARD	FORMALDEHYDE ($\mu g/m^3$)	FORMALDEHYDE ACUTE HAZARD	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ALCOHOL ACUTE HAZARD	METHYL ETHYL KETONE ($\mu g/m^3$)	METHYL ETHYL KETONE ACUTE HAZARD	STYRENE ($\mu g/m^3$)	STYRENE ACUTE HAZARD	TOULENE ($\mu g/m^3$)	TOULENE ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
223	372835	757007	Offsite Worker	6.31E-01	1.34E-03	3.48E-01	1.39E-01	2.45E-01	1.89E-04	1.80E+00	3.27E-02	2.56E-01	9.15E-06	5.08E-03	3.91E-07	4.40E-02	2.10E-06	9.61E-02	2.60E-06
224	372747	757006	Offsite Worker	6.01E-01	1.28E-03	3.30E-01	1.32E-01	2.34E-01	1.80E-04	1.71E+00	3.11E-02	2.43E-01	8.69E-06	5.19E-03	3.99E-07	4.18E-02	1.99E-06	9.17E-02	2.48E-06
225	372660	757004	Offsite Worker	5.72E-01	1.22E-03	3.14E-01	1.25E-01	2.22E-01	1.71E-04	1.63E+00	2.96E-02	2.31E-01	8.25E-06	5.29E-03	4.07E-07	3.97E-02	1.89E-06	8.74E-02	2.36E-06
226	372651	757063	Offsite Worker	4.61E-01	9.81E-04	2.49E-01	9.97E-02	1.78E-01	1.37E-04	1.30E+00	2.37E-02	1.84E-01	6.55E-06	5.39E-03	4.14E-07	3.16E-02	1.51E-06	7.06E-02	1.91E-06
227	372629	756931	Offsite Worker	7.16E-01	1.52E-03	3.96E-01	1.59E-01	2.79E-01	2.14E-04	2.04E+00	3.71E-02	2.92E-01	1.04E-05	5.07E-03	3.90E-07	5.02E-02	2.39E-06	1.09E-01	2.94E-06
228	372631	756857	Offsite Worker	6.43E-01	1.37E-03	3.56E-01	1.42E-01	2.50E-01	1.93E-04	1.83E+00	3.33E-02	2.62E-01	9.36E-06	4.69E-03	3.61E-07	4.50E-02	2.14E-06	9.78E-02	2.64E-06
229	372634	756783	Offsite Worker	4.76E-01	1.01E-03	2.61E-01	1.05E-01	1.85E-01	1.42E-04	1.35E+00	2.46E-02	1.92E-01	6.87E-06	4.22E-03	3.25E-07	3.31E-02	1.58E-06	7.26E-02	1.96E-06
230	372702	756778	Offsite Worker	4.84E-01	1.03E-03	2.66E-01	1.06E-01	1.88E-01	1.45E-04	1.38E+00	2.50E-02	1.96E-01	6.99E-06	4.23E-03	3.26E-07	3.37E-02	1.60E-06	7.38E-02	1.99E-06
231	372756	756775	Offsite Worker	1.19E+00	2.52E-03	6.68E-01	2.67E-01	4.64E-01	3.57E-04	3.40E+00	6.18E-02	4.92E-01	1.76E-05	4.24E-03	3.26E-07	8.44E-02	4.02E-06	1.79E-01	4.84E-06
232	372729	756712	Offsite Worker	1.40E+00	2.99E-03	7.94E-01	3.18E-01	5.50E-01	4.23E-04	4.03E+00	7.32E-02	5.85E-01	2.09E-05	3.82E-03	2.94E-07	1.00E-01	4.78E-06	2.12E-01	5.73E-06
233	372703	756650	Offsite Worker	1.62E+00	3.45E-03	9.21E-01	3.69E-01	6.37E-01	4.90E-04	4.66E+00	8.48E-02	6.79E-01	2.42E-05	3.36E-03	2.59E-07	1.16E-01	5.54E-06	2.45E-01	6.62E-06
234	372677	756588	Offsite Worker	1.83E+00	3.90E-03	1.04E+00	4.17E-01	7.20E-01	5.54E-04	5.27E+00	9.58E-02	7.69E-01	2.74E-05	2.89E-03	2.23E-07	1.32E-01	6.27E-06	2.76E-01	7.47E-06
235	372619	756588	Offsite Worker	1.20E+00	2.55E-03	6.79E-01	2.72E-01	4.70E-01	3.61E-04	3.44E+00	6.25E-02	5.00E-01	1.79E-05	2.81E-03	2.16E-07	8.58E-02	4.08E-06	1.81E-01	4.89E-06
236	372622	756509	Offsite Worker	2.12E+00	4.52E-03	1.21E+00	4.84E-01	8.34E-01	6.42E-04	6.11E+00	1.11E-01	8.92E-01	3.19E-05	2.28E-03	1.75E-07	1.53E-01	7.28E-06	3.20E-01	8.64E-06
237	372700	756511	Offsite Worker	1.83E+00	3.90E-03	1.04E+00	4.18E-01	7.20E-01	5.54E-04	5.27E+00	9.58E-02	7.69E-01	2.75E-05	2.41E-03	1.86E-07	1.32E-01	6.27E-06	2.76E-01	7.46E-06
238	372789	756510	Offsite Worker	1.55E+00	3.30E-03	8.82E-01	3.53E-01	6.09E-01	4.68E-04	4.46E+00	8.11E-02	6.50E-01	2.32E-05	2.54E-03	1.96E-07	1.11E-01	5.30E-06	2.34E-01	6.32E-06
239	372871	756509	Offsite Worker	1.34E+00	2.86E-03	7.62E-01	3.05E-01	5.27E-01	4.05E-04	3.86E+00	7.01E-02	5.62E-01	2.01E-05	2.65E-03	2.04E-07	9.62E-02	4.58E-06	2.02E-01	5.47E-06
240	372871	756437	Offsite Worker	8.96E-01	1.91E-03	5.07E-01	2.03E-01	3.51E-01	2.70E-04	2.57E+00	4.68E-02	3.74E-01	1.34E-05	2.22E-03	1.71E-07	6.41E-02	3.05E-06	1.35E-01	3.65E-06
241	372970	756437	Offsite Worker	5.73E-01	1.22E-03	3.22E-01	1.29E-01	2.24E-01	1.72E-04	1.64E+00	2.99E-02	2.37E-01	8.48E-06	2.36E-03	1.81E-07	4.07E-02	1.94E-06	8.68E-02	2.35E-06
242	373069	756437	Offsite Worker	5.04E-01	1.07E-03	2.82E-01	1.13E-01	1.97E-01	1.51E-04	1.44E+00	2.62E-02	2.08E-01	7.41E-06	2.49E-03	1.91E-07	3.56E-02	1.70E-06	7.63E-02	2.06E-06
243	373168	756437	Offsite Worker	4.48E-01	9.54E-04	2.50E-01	9.99E-02	1.75E-01	1.34E-04	1.28E+00	2.33E-02	1.84E-01	6.57E-06	2.60E-03	2.00E-07	3.16E-02	1.50E-06	6.80E-02	1.84E-06
244	373267	756437	Offsite Worker	4.04E-01	8.59E-04	2.24E-01	8.96E-02	1.57E-01	1.21E-04	1.15E+00	2.09E-02	1.65E-01	5.89E-06	2.71E-03	2.08E-07	2.83E-02	1.35E-06	6.14E-02	1.66E-06
245	373412	756437	Offsite Worker	3.51E-01	7.47E-04	1.93E-01	7.74E-02	1.37E-01	1.05E-04	1.00E+00	1.82E-02	1.42E-01	5.09E-06	2.85E-03	2.19E-07	2.45E-02	1.17E-06	5.35E-02	1.45E-06
246	373409	756339	Offsite Worker	3.97E-01	8.45E-04	2.21E-01	8.84E-02	1.55E-01	1.19E-04	1.13E+00	2.06E-02	1.63E-01	5.82E-06	2.36E-03	1.82E-07	2.80E-02	1.33E-06	6.03E-02	1.63E-06
247	373406	756240	Offsite Worker	5.78E-01	1.23E-03	3.26E-01	1.31E-01	2.26E-01	1.74E-04	1.66E+00	3.02E-02	2.40E-01	8.59E-06	1.90E-03	1.46E-07	4.12E-02	1.96E-06	8.74E-02	2.36E-06
248	373403	756142	Offsite Worker	6.20E-01	1.32E-03	3.51E-01	1.40E-01	2.43E-01	1.87E-04	1.78E+00	3.24E-02	2.58E-01	9.22E-06	1.84E-03	1.41E-07	4.43E-02	2.11E-06	9.37E-02	2.53E-06
249	373400	756042	Offsite Worker	5.89E-01	1.25E-03	3.33E-01	1.33E-01	2.31E-01	1.77E-04	1.69E+00	3.07E-02	2.45E-01	8.76E-06	1.71E-03	1.32E-07	4.20E-02	2.00E-06	8.89E-02	2.40E-06
250	373397	755944	Offsite Worker	4.62E-01	9.84E-04	2.61E-01	1.04E-01	1.81E-01	1.39E-04	1.33E+00	2.41E-02	1.92E-01	6.86E-06	1.61E-03	1.24E-07	3.29E-02	1.57E-06	6.99E-02	1.89E-06
251	373393	755846	Offsite Worker	4.03E-01	8.57E-04	2.26E-01	9.06E-02	1.58E-01	1.21E-04	1.15E+00	2.10E-02	1.67E-01	5.96E-06	1.60E-03	1.23E-07	2.86E-02	1.36E-06	6.09E-02	1.65E-06
252	373390	755747	Offsite Worker	3.20E-01	6.81E-04	1.79E-01	7.16E-02	1.25E-01	9.61E-05	9.15E-01	1.66E-02	1.32E-01	4.71E-06	1.62E-03	1.25E-07	2.26E-02	1.08E-06	4.85E-02	1.31E-06
253	373309	755744	Offsite Worker	3.19E-01	6.80E-04	1.78E-01	7.11E-02	1.25E-01	9.58E-05	9.12E-01	1.66E-02	1.31E-01	4.67E-06	1.96E-03	1.51E-07	2.25E-02	1.07E-06	4.85E-02	1.31E-06
254	373229	755743	Offsite Worker	3.19E-01	6.78E-04	1.76E-01	7.04E-02	1.24E-01	9.53E-05	9.08E-01	1.65E-02	1.30E-01	4.63E-06	2.43E-03	1.87E-07	2.23E-02	1.06E-06	4.85E-02	1.31E-06
255	373143	755741	Offsite Worker	3.15E-01	6.71E-04	1.72E-01	6.88E-02	1.22E-01	9.40E-05	8.95E-01	1.63E-02	1.27E-01	4.52E-06	3.17E-03	2.44E-07	2.18E-02	1.04E-06	4.82E-02	1.30E-06
256	373143	755823	Offsite Worker	4.12E-01	8.76E-04	2.28E-01	9.12E-02	1.60E-01	1.23E-04	1.17E+00	2.13E-02	1.68E-01	6.00E-06	2.88E-03	2.22E-07	2.88E-02	1.37E-06	6.26E-02	1.69E-06
257	373143	755906	Offsite Worker	5.10E-01	1.09E-03	2.85E-01	1.14E-01	1.99E-01	1.53E-04	1.46E+00	2.65E-02	2.10E-01	7.50E-06	2.68E-03	2.06E-07	3.60E-02	1.72E-06	7.73E-02	2.09E-06
258	373065	755906	Offsite Worker	5.26E-01	1.12E-03	2.93E-01	1.17E-01	2.05E-01	1.58E-04	1.50E+00	2.73E-02	2.16E-01	7.71E-06	3.09E-03	2.38E-07	3.71E-02	1.77E-06	7.99E-02	2.16E-06
259	373065	755827	Offsite Worker	4.22E-01	8.97E-04	2.32E-01	9.27E-02	1.64E-01	1.26E-04	1.20E+00	2.18E-02	1.71E-01	6.10E-06	3.57E-03	2.75E-07	2.94E-02	1.40E-06	6.43E-02	1.74E-06
260	373068	755733	Offsite Worker	3.05E-01	6.49E-04	1.63E-01	6.53E-02	1.18E-01	9.04E-05	8.61E-01	1.57E-02	1.20E-01	4.29E-06	4.28E-03	3.29E-07	2.07E-02	9.86E-07	4.69E-02	1.27E-06
261	373007	755733	Offsite Worker	3.06E-01	6.50E-04	1.59E-01	6.37E-02	1.17E-01	8.98E-05	8.55E-01	1.56E-02	1.17E-01	4.18E-06	5.76E-03	4.43E-07	2.03E-02	9.65E-07	4.74E-02	1.28E-06
262	372941	755733	Offsite Worker	3.12E-01	6.64E-04	1.54E-01	6.16E-02	1.17E-01	9.03E-05	8.60E-01	1.56E-02	1.13E-01	4.04E-06	9.00E-03	6.92E-07	1.97E-02	9.37E-07	4.91E-02	1.33E-06
263	372941	755636	Offsite Worker	2.27E-01	4.83E-04	9.58E-02	3.83E-02	8.18E-02	6.29E-05	5.99E-01	1.09E-02	7.01E-02	2.50E-06	1.24E-02	9.52E-07	1.24E-02	5.92E-07	3.72E-02	1.00E-06
264	372941	755539	Offsite Worker	4.58E-01	9.74E-04	2.26E-01	9.03E-02	1.72E-01	1.32E-04	1.26E+00	2.29E-02	1.66E-01	5.93E-06	1.32E-02	1.02E-06	2.89E-02	1.37E-06	7.21E-02	1.95E-06
265	372941	755442	Offsite Worker	3.20E-01	6.81E-04	1.50E-01	6.01E-02	1.19E-01	9.13E-05	8.70E-01	1.58E-02	1.10E-01	3.93E-06	1.21E-02	9.28E-07	1.93E-02	9.18E-07	5.11E-02	1.38E-06
266	372913	755342	Offsite Worker	-4.17E-01	-8.87E-04	-2.63E-01	-1.05E-01	-1.69E-01	-1.30E-04	-1.24E+00	-2.25E-02	-1.94E-01	-6.93E-06	8.56E-03	6.58E-07	-3.29E-02	-1.57E-06	-6.05E-02	-1.64E-06

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

				ACETALDEHYDE	ACETALDEHYDE	ACROLEIN	ACROLEIN	BENZENE	BENZENE	FORMALDEHYDE	FORMALDEHYDE	METHYL ALCOHOL	METHYL ALCOHOL	METHYL ETHYL KETONE	METHYL ETHYL KETONE	STYRENE	STYRENE	TOULENE	TOULENE
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
267	372817	755346	Offsite Worker	-5.74E-01	-1.22E-03	-3.62E-01	-1.45E-01	-2.33E-01	-1.79E-04	-1.71E+00	-3.10E-02	-2.67E-01	-9.55E-06	1.20E-02	9.22E-07	-4.54E-02	-2.16E-06	-8.33E-02	-2.25E-06
268	372720	755349	Offsite Worker	-6.76E-01	-1.44E-03	-4.29E-01	-1.72E-01	-2.75E-01	-2.12E-04	-2.01E+00	-3.66E-02	-3.17E-01	-1.13E-05	1.51E-02	1.16E-06	-5.37E-02	-2.56E-06	-9.78E-02	-2.64E-06
269	372624	755352	Offsite Worker	-6.75E-01	-1.44E-03	-4.16E-01	-1.66E-01	-2.72E-01	-2.09E-04	-1.99E+00	-3.62E-02	-3.07E-01	-1.10E-05	1.05E-02	8.04E-07	-5.22E-02	-2.49E-06	-9.89E-02	-2.67E-06
270	372527	755349	Offsite Worker	-4.79E-01	-1.02E-03	-2.89E-01	-1.16E-01	-1.92E-01	-1.47E-04	-1.40E+00	-2.55E-02	-2.14E-01	-7.63E-06	5.41E-03	4.16E-07	-3.64E-02	-1.73E-06	-7.06E-02	-1.91E-06
271	372431	755353	Offsite Worker	-2.88E-01	-6.12E-04	-1.75E-01	-6.98E-02	-1.15E-01	-8.87E-05	-8.44E-01	-1.53E-02	-1.29E-01	-4.60E-06	3.49E-03	2.68E-07	-2.19E-02	-1.04E-06	-4.24E-02	-1.14E-06
272	372334	755356	Offsite Worker	-1.93E-01	-4.11E-04	-1.18E-01	-4.71E-02	-7.76E-02	-5.97E-05	-5.68E-01	-1.03E-02	-8.68E-02	-3.10E-06	2.46E-03	1.89E-07	-1.48E-02	-7.03E-07	-2.84E-02	-7.69E-07
273	372237	755359	Offsite Worker	-1.89E-01	-4.02E-04	-1.13E-01	-4.54E-02	-7.55E-02	-5.81E-05	-5.53E-01	-1.00E-02	-8.37E-02	-2.99E-06	1.85E-03	1.42E-07	-1.43E-02	-6.79E-07	-2.79E-02	-7.55E-07
274	372141	755362	Offsite Worker	-1.90E-01	-4.04E-04	-1.13E-01	-4.52E-02	-7.57E-02	-5.82E-05	-5.54E-01	-1.01E-02	-8.33E-02	-2.98E-06	1.45E-03	1.12E-07	-1.42E-02	-6.77E-07	-2.82E-02	-7.62E-07
275	372044	755366	Offsite Worker	-2.69E-01	-5.72E-04	-1.58E-01	-6.31E-02	-1.07E-01	-8.20E-05	-7.80E-01	-1.42E-02	-1.16E-01	-4.16E-06	1.35E-03	1.04E-07	-1.99E-02	-9.46E-07	-4.01E-02	-1.08E-06
276	371948	755369	Offsite Worker	-2.86E-01	-6.09E-04	-1.68E-01	-6.72E-02	-1.13E-01	-8.73E-05	-8.31E-01	-1.51E-02	-1.24E-01	-4.42E-06	1.40E-03	1.08E-07	-2.12E-02	-1.01E-06	-4.27E-02	-1.15E-06
277	371851	755372	Offsite Worker	-1.80E-01	-3.83E-04	-1.07E-01	-4.28E-02	-7.16E-02	-5.51E-05	-5.24E-01	-9.54E-03	-7.90E-02	-2.82E-06	1.45E-03	1.12E-07	-1.35E-02	-6.41E-07	-2.67E-02	-7.20E-07
278	371755	755375	Offsite Worker	-1.55E-01	-3.29E-04	-9.28E-02	-3.71E-02	-6.18E-02	-4.75E-05	-4.52E-01	-8.22E-03	-6.85E-02	-2.45E-06	1.50E-03	1.15E-07	-1.17E-02	-5.56E-07	-2.29E-02	-6.18E-07
279	371658	755378	Offsite Worker	-5.00E-02	-1.06E-04	-3.30E-02	-1.32E-02	-2.06E-02	-1.59E-05	-1.51E-01	-2.74E-03	-2.44E-02	-8.70E-07	1.55E-03	1.19E-07	-4.11E-03	-1.96E-07	-7.13E-03	-1.93E-07
280	371562	755382	Offsite Worker	-1.75E-01	-3.72E-04	-1.05E-01	-4.18E-02	-6.97E-02	-5.36E-05	-5.11E-01	-9.28E-03	-7.72E-02	-2.76E-06	1.60E-03	1.23E-07	-1.32E-02	-6.26E-07	-2.59E-02	-6.99E-07
281	371465	755385	Offsite Worker	-1.78E-01	-3.79E-04	-1.07E-01	-4.27E-02	-7.12E-02	-5.48E-05	-5.21E-01	-9.48E-03	-7.88E-02	-2.81E-06	1.64E-03	1.26E-07	-1.34E-02	-6.39E-07	-2.64E-02	-7.13E-07
282	371368	755388	Offsite Worker	-1.84E-01	-3.92E-04	-1.10E-01	-4.41E-02	-7.35E-02	-5.65E-05	-5.38E-01	-9.78E-03	-8.13E-02	-2.90E-06	1.69E-03	1.30E-07	-1.39E-02	-6.60E-07	-2.73E-02	-7.37E-07
283	371272	755391	Offsite Worker	-4.23E-02	-9.01E-05	-2.91E-02	-1.16E-02	-1.77E-02	-1.36E-05	-1.30E-01	-2.36E-03	-2.15E-02	-7.67E-07	1.73E-03	1.33E-07	-3.62E-03	-1.72E-07	-5.93E-03	-1.60E-07
284	371175	755395	Offsite Worker	5.78E-01	1.23E-03	3.26E-01	1.31E-01	2.26E-01	1.74E-04	1.66E+00	3.01E-02	2.41E-01	8.59E-06	1.76E-03	1.36E-07	4.12E-02	1.96E-06	8.73E-02	2.36E-06
285	371079	755398	Offsite Worker	3.57E-02	7.59E-05	1.55E-02	6.19E-03	1.30E-02	9.97E-06	9.50E-02	1.73E-03	1.13E-02	4.05E-07	1.80E-03	1.38E-07	2.01E-03	9.55E-08	5.81E-03	1.57E-07
286	371042	755478	Offsite Worker	4.76E-01	1.01E-03	2.67E-01	1.07E-01	1.86E-01	1.43E-04	1.36E+00	2.48E-02	1.97E-01	7.04E-06	1.92E-03	1.48E-07	3.38E-02	1.61E-06	7.20E-02	1.95E-06
287	371009	755538	Offsite Worker	6.34E-01	1.35E-03	3.58E-01	1.43E-01	2.48E-01	1.91E-04	1.82E+00	3.30E-02	2.64E-01	9.41E-06	2.03E-03	1.56E-07	4.52E-02	2.15E-06	9.57E-02	2.59E-06
288	370975	755597	Offsite Worker	6.72E-01	1.43E-03	3.79E-01	1.52E-01	2.63E-01	2.02E-04	1.93E+00	3.51E-02	2.80E-01	9.99E-06	2.14E-03	1.65E-07	4.79E-02	2.28E-06	1.02E-01	2.74E-06
289	370925	755597	Offsite Worker	6.77E-01	1.44E-03	3.82E-01	1.53E-01	2.65E-01	2.04E-04	1.94E+00	3.53E-02	2.82E-01	1.01E-05	2.16E-03	1.66E-07	4.83E-02	2.30E-06	1.02E-01	2.76E-06
290	370860	755547	Offsite Worker	6.53E-01	1.39E-03	3.68E-01	1.47E-01	2.56E-01	1.97E-04	1.87E+00	3.40E-02	2.71E-01	9.70E-06	2.08E-03	1.60E-07	4.65E-02	2.22E-06	9.86E-02	2.67E-06
291	370796	755497	Offsite Worker	-2.97E-01	-6.32E-04	-1.76E-01	-7.04E-02	-1.18E-01	-9.09E-05	-8.65E-01	-1.57E-02	-1.30E-01	-4.63E-06	2.00E-03	1.54E-07	-2.21E-02	-1.05E-06	-4.42E-02	-1.19E-06
292	370733	755428	Offsite Worker	-4.08E-01	-8.69E-04	-2.40E-01	-9.58E-02	-1.62E-01	-1.24E-04	-1.19E+00	-2.15E-02	-1.77E-01	-6.31E-06	1.99E-03	1.53E-07	-3.02E-02	-1.44E-06	-6.09E-02	-1.64E-06
293	370634	755428	Offsite Worker	4.26E-01	9.05E-04	2.38E-01	9.53E-02	1.66E-01	1.28E-04	1.22E+00	2.21E-02	1.75E-01	6.27E-06	2.07E-03	1.59E-07	3.01E-02	1.43E-06	6.45E-02	1.74E-06
294	370536	755428	Offsite Worker	7.36E-01	1.57E-03	4.16E-01	1.66E-01	2.88E-01	2.22E-04	2.11E+00	3.84E-02	3.06E-01	1.09E-05	2.15E-03	1.66E-07	5.25E-02	2.50E-06	1.11E-01	3.00E-06
295	370437	755428	Offsite Worker	6.55E-01	1.39E-03	3.69E-01	1.48E-01	2.56E-01	1.97E-04	1.88E+00	3.41E-02	2.72E-01	9.72E-06	2.24E-03	1.73E-07	4.67E-02	2.22E-06	9.90E-02	2.68E-06
296	370338	755427	Offsite Worker	-2.96E-01	-6.31E-04	-1.76E-01	-7.06E-02	-1.18E-01	-9.08E-05	-8.64E-01	-1.57E-02	-1.30E-01	-4.65E-06	2.34E-03	1.80E-07	-2.22E-02	-1.06E-06	-4.40E-02	-1.19E-06
297	370239	755427	Residential	-5.01E-02	-1.07E-04	-3.55E-02	-1.42E-02	-2.12E-02	-1.63E-05	-1.55E-01	-2.82E-03	-2.62E-02	-9.37E-07	2.44E-03	1.88E-07	-4.40E-03	-2.10E-07	-6.92E-03	-1.87E-07
298	370138	755427	Residential	-2.01E+00	-4.27E-03	-1.16E+00	-4.63E-01	-7.92E-01	-6.09E-04	-5.80E+00	-1.05E-01	-8.54E-01	-3.05E-05	2.55E-03	1.96E-07	-1.46E-01	-6.96E-06	-3.01E-01	-8.14E-06
299	370040	755427	Residential	-2.86E+00	-6.09E-03	-1.65E+00	-6.60E-01	-1.13E+00	-8.68E-04	-8.26E+00	-1.50E-01	-1.22E+00	-4.34E-05	2.66E-03	2.05E-07	-2.08E-01	-9.90E-06	-4.30E-01	-1.16E-05
300	369941	755426	Residential	-1.52E-01	-3.23E-04	-9.48E-02	-3.79E-02	-6.15E-02	-4.73E-05	-4.50E-01	-8.19E-03	-7.00E-02	-2.50E-06	2.79E-03	2.14E-07	-1.19E-02	-5.66E-07	-2.21E-02	-5.99E-07
301	369842	755426	Residential	-2.19E-01	-4.65E-04	-1.33E-01	-5.34E-02	-8.78E-02	-6.76E-05	-6.43E-01	-1.17E-02	-9.85E-02	-3.52E-06	2.91E-03	2.24E-07	-1.68E-02	-7.98E-07	-3.22E-02	-8.69E-07
302	369741	755435	Residential	-2.81E-01	-5.97E-04	-1.69E-01	-6.78E-02	-1.12E-01	-8.64E-05	-8.22E-01	-1.50E-02	-1.25E-01	-4.46E-06	3.06E-03	2.36E-07	-2.13E-02	-1.01E-06	-4.14E-02	-1.12E-06
303	369643	755434	Residential	6.05E-01	1.29E-03	3.38E-01	1.35E-01	2.36E-01	1.82E-04	1.73E+00	3.15E-02	2.49E-01	8.90E-06	3.21E-03	2.47E-07	4.28E-02	2.04E-06	9.18E-02	2.48E-06
304	369544	755434	Residential	4.51E-01	9.60E-04	2.49E-01	9.98E-02	1.76E-01	1.35E-04	1.29E+00	2.34E-02	1.84E-01	6.56E-06	3.36E-03	2.59E-07	3.16E-02	1.50E-06	6.87E-02	1.86E-06
305	369445	755434	Residential	2.20E-01	4.67E-04	1.16E-01	4.65E-02	8.43E-02	6.49E-05	6.18E-01	1.12E-02	8.55E-02	3.05E-06	3.53E-03	2.71E-07	1.48E-02	7.03E-07	3.39E-02	9.16E-07
306	369346	755434	Residential	-6.44E-02	-1.37E-04	-4.72E-02	-1.89E-02	-2.76E-02	-2.12E-05	-2.02E-01	-3.67E-03	-3.49E-02	-1.25E-06	3.70E-03	2.85E-07	-5.85E-03	-2.78E-07	-8.76E-03	-2.37E-07
307	369249	755442	Offsite Worker	-4.14E-01	-8.80E-04	-2.48E-01	-9.92E-02	-1.65E-01	-1.27E-04	-1.21E+00	-2.20E-02	-1.83E-01	-6.53E-06	3.89E-03	2.99E-07	-3.12E-02	-1.48E-06	-6.12E-02	-1.65E-06
308	369151	755442	Offsite Worker	-6.59E-01	-1.40E-03	-3.89E-01	-1.56E-01	-2.62E-01	-2.01E-04	-1.92E+00	-3.49E-02	-2.87E-01	-1.03E-05	4.08E-03	3.14E-07	-4.90E-02	-2.33E-06	-9.81E-02	-2.65E-06
309	369052	755442	Offsite Worker	6.59E-01	1.40E-03	3.66E-01	1.46E-01	2.57E-01	1.98E-04	1.88E+00	3.42E-02	2.70E-01	9.63E-06	4.29E-03	3.30E-07	4.63E-02	2.21E-06	1.00E-01	2.71E-06

NOTE: µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACETALDEHYDE ACUTE HAZARD	ACROLEIN ($\mu g/m^3$)	ACROLEIN ACUTE HAZARD	BENZENE ($\mu g/m^3$)	BENZENE ACUTE HAZARD	FORMALDEHYDE ($\mu g/m^3$)	FORMALDEHYDE ACUTE HAZARD	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ALCOHOL ACUTE HAZARD	METHYL ETHYL KETONE ($\mu g/m^3$)	METHYL ETHYL KETONE ACUTE HAZARD	STYRENE ($\mu g/m^3$)	STYRENE ACUTE HAZARD	TOULENE ($\mu g/m^3$)	TOULENE ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
310	368953	755441	Residential	1.81E-01	3.85E-04	9.12E-02	3.65E-02	6.84E-02	5.26E-05	5.01E-01	9.11E-03	6.70E-02	2.39E-06	4.50E-03	3.46E-07	1.16E-02	5.54E-07	2.83E-02	7.65E-07
311	368854	755441	Residential	-6.46E-01	-1.38E-03	-3.84E-01	-1.53E-01	-2.57E-01	-1.98E-04	-1.88E+00	-3.42E-02	-2.83E-01	-1.01E-05	4.72E-03	3.63E-07	-4.83E-02	-2.30E-06	-9.60E-02	-2.59E-06
312	368755	755441	Residential	-2.84E-01	-6.05E-04	-1.77E-01	-7.07E-02	-1.15E-01	-8.84E-05	-8.41E-01	-1.53E-02	-1.30E-01	-4.66E-06	4.95E-03	3.80E-07	-2.22E-02	-1.06E-06	-4.15E-02	-1.12E-06
313	368657	755441	Residential	-1.72E-01	-3.67E-04	-1.13E-01	-4.53E-02	-7.10E-02	-5.46E-05	-5.20E-01	-9.45E-03	-8.37E-02	-2.99E-06	5.18E-03	3.98E-07	-1.41E-02	-6.73E-07	-2.46E-02	-6.66E-07
314	368558	755440	Residential	-3.27E-01	-6.96E-04	-2.02E-01	-8.10E-02	-1.32E-01	-1.02E-04	-9.66E-01	-1.76E-02	-1.49E-01	-5.34E-06	5.41E-03	4.16E-07	-2.54E-02	-1.21E-06	-4.78E-02	-1.29E-06
315	368459	755440	Residential	-9.32E-02	-1.98E-04	-6.91E-02	-2.76E-02	-4.01E-02	-3.08E-05	-2.93E-01	-5.33E-03	-5.12E-02	-1.83E-06	5.65E-03	4.35E-07	-8.55E-03	-4.07E-07	-1.26E-02	-3.40E-07
316	368360	755440	Residential	-6.91E-01	-1.47E-03	-4.12E-01	-1.65E-01	-2.75E-01	-2.12E-04	-2.02E+00	-3.67E-02	-3.04E-01	-1.09E-05	5.89E-03	4.53E-07	-5.19E-02	-2.47E-06	-1.02E-01	-2.77E-06
317	368262	755439	Residential	-8.24E-01	-1.75E-03	-4.89E-01	-1.96E-01	-3.28E-01	-2.52E-04	-2.40E+00	-4.36E-02	-3.61E-01	-1.29E-05	6.12E-03	4.71E-07	-6.15E-02	-2.93E-06	-1.22E-01	-3.30E-06
318	368186	755427	Residential	-7.10E-01	-1.51E-03	-4.24E-01	-1.70E-01	-2.83E-01	-2.18E-04	-2.07E+00	-3.77E-02	-3.13E-01	-1.12E-05	6.23E-03	4.79E-07	-5.34E-02	-2.54E-06	-1.05E-01	-2.84E-06
319	368111	755414	Residential	-6.11E-01	-1.30E-03	-3.68E-01	-1.47E-01	-2.44E-01	-1.88E-04	-1.79E+00	-3.25E-02	-2.71E-01	-9.69E-06	6.32E-03	4.86E-07	-4.62E-02	-2.20E-06	-9.02E-02	-2.44E-06
320	368035	755402	Offsite Worker	-5.30E-01	-1.13E-03	-3.21E-01	-1.29E-01	-2.12E-01	-1.63E-04	-1.55E+00	-2.83E-02	-2.37E-01	-8.47E-06	6.41E-03	4.93E-07	-4.04E-02	-1.92E-06	-7.80E-02	-2.11E-06
321	367960	755389	Offsite Worker	-4.68E-01	-9.96E-04	-2.86E-01	-1.15E-01	-1.88E-01	-1.45E-04	-1.38E+00	-2.51E-02	-2.11E-01	-7.55E-06	6.46E-03	4.97E-07	-3.60E-02	-1.71E-06	-6.88E-02	-1.86E-06
322	367863	755390	Offsite Worker	-4.10E-01	-8.73E-04	-2.53E-01	-1.01E-01	-1.65E-01	-1.27E-04	-1.21E+00	-2.20E-02	-1.87E-01	-6.68E-06	6.62E-03	5.09E-07	-3.18E-02	-1.51E-06	-6.00E-02	-1.62E-06
323	367766	755392	Offsite Worker	-3.73E-01	-7.93E-04	-2.32E-01	-9.29E-02	-1.51E-01	-1.16E-04	-1.10E+00	-2.01E-02	-1.72E-01	-6.13E-06	6.75E-03	5.20E-07	-2.91E-02	-1.39E-06	-5.43E-02	-1.47E-06
324	367669	755393	Offsite Worker	-1.71E-01	-3.64E-04	-1.17E-01	-4.68E-02	-7.15E-02	-5.50E-05	-5.23E-01	-9.51E-03	-8.66E-02	-3.09E-06	6.86E-03	5.27E-07	-1.46E-02	-6.94E-07	-2.40E-02	-6.49E-07
325	367572	755394	Offsite Worker	3.28E-01	6.98E-04	1.69E-01	6.76E-02	1.25E-01	9.61E-05	9.15E-01	1.66E-02	1.24E-01	4.44E-06	6.92E-03	5.33E-07	2.15E-02	1.02E-06	5.10E-02	1.38E-06
326	367475	755395	Offsite Worker	3.19E-01	6.79E-04	1.64E-01	6.54E-02	1.21E-01	9.33E-05	8.89E-01	1.62E-02	1.20E-01	4.30E-06	6.96E-03	5.35E-07	2.08E-02	9.92E-07	4.97E-02	1.34E-06
327	370403	756882	On-Site Occupational	6.08E-01	1.29E-03	3.13E-01	1.25E-01	2.32E-01	1.78E-04	1.70E+00	3.08E-02	2.30E-01	8.22E-06	1.29E-02	9.89E-07	3.99E-02	1.90E-06	9.46E-02	2.56E-06
328	370646	757761	On-Site Occupational	1.15E+00	2.45E-03	3.45E-01	1.38E-01	3.85E-01	2.96E-04	2.82E+00	5.13E-02	2.49E-01	8.90E-06	1.14E-01	8.79E-06	4.68E-02	2.23E-06	2.02E-01	5.45E-06
329	370646	757761	On-Site Occupational	1.16E+00	2.48E-03	6.12E-01	2.45E-01	4.46E-01	3.43E-04	3.27E+00	5.94E-02	4.50E-01	1.61E-05	1.98E-02	1.52E-06	7.78E-02	3.71E-06	1.80E-01	4.86E-06
330	370646	757761	On-Site Occupational	2.93E+00	6.22E-03	4.35E-01	1.74E-01	8.80E-01	6.77E-04	6.46E+00	1.18E-01	3.01E-01	1.08E-05	4.49E-01	3.45E-05	6.77E-02	3.22E-06	5.51E-01	1.49E-05

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	XYLENE, TOTAL ($\mu g/m^3$)	XYLENE, TOTAL ACUTE HAZARD	ARSENIC ($\mu g/m^3$)	ARSENIC ACUTE HAZARD	CHLORINE ($\mu g/m^3$)	CHLORINE ACUTE HAZARD	COPPER ($\mu g/m^3$)	COPPER ACUTE HAZARD	MERCURY ($\mu g/m^3$)	MERCURY ACUTE HAZARD	NICKEL ($\mu g/m^3$)	NICKEL ACUTE HAZARD	VANADIUM ($\mu g/m^3$)	VANADIUM ACUTE HAZARD	SULFATES ($\mu g/m^3$)	SULFATES ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
1	367379	755396	Recreational	1.15E-02	5.21E-07	1.17E-02	5.85E-02	9.04E-03	4.30E-05	2.03E-05	2.03E-07	3.58E-03	5.96E-03	1.30E-04	2.16E-05	1.80E-05	6.01E-07	6.45E-05	5.37E-07
2	367340	755485	Recreational	1.04E-02	4.72E-07	1.02E-02	5.12E-02	7.73E-03	3.68E-05	2.21E-05	2.21E-07	3.89E-03	6.49E-03	1.40E-04	2.33E-05	1.96E-05	6.54E-07	7.02E-05	5.85E-07
3	367301	755573	Recreational	2.11E-02	9.58E-07	2.27E-02	1.13E-01	1.82E-02	8.67E-05	2.42E-05	2.42E-07	4.25E-03	7.09E-03	1.53E-04	2.54E-05	2.14E-05	7.14E-07	7.67E-05	6.39E-07
4	367263	755661	Recreational	2.18E-02	9.89E-07	2.33E-02	1.16E-01	1.86E-02	8.86E-05	2.65E-05	2.65E-07	4.66E-03	7.76E-03	1.67E-04	2.78E-05	2.35E-05	7.82E-07	8.40E-05	7.00E-07
5	367224	755749	Recreational	2.13E-02	9.70E-07	2.25E-02	1.13E-01	1.79E-02	8.51E-05	2.91E-05	2.91E-07	5.12E-03	8.53E-03	1.82E-04	3.03E-05	2.58E-05	8.59E-07	9.23E-05	7.69E-07
6	367186	755838	Recreational	1.96E-02	8.90E-07	2.02E-02	1.01E-01	1.57E-02	7.50E-05	3.21E-05	3.21E-07	5.65E-03	9.42E-03	1.99E-04	3.32E-05	2.85E-05	9.49E-07	1.02E-04	8.49E-07
7	367147	755926	Recreational	1.67E-02	7.60E-07	1.65E-02	8.27E-02	1.25E-02	5.95E-05	3.55E-05	3.55E-07	6.25E-03	1.04E-02	2.17E-04	3.62E-05	3.15E-05	1.05E-06	1.13E-04	9.39E-07
8	367109	756014	Recreational	1.34E-02	6.09E-07	1.23E-02	6.14E-02	8.71E-03	4.15E-05	3.94E-05	3.94E-07	6.93E-03	1.16E-02	2.38E-04	3.97E-05	3.49E-05	1.16E-06	1.25E-04	1.04E-06
9	367070	756103	Recreational	1.07E-02	4.85E-07	8.68E-03	4.34E-02	5.46E-03	2.60E-05	4.38E-05	4.38E-07	7.71E-03	1.29E-02	2.62E-04	4.36E-05	3.89E-05	1.30E-06	1.39E-04	1.16E-06
10	367032	756191	Recreational	3.21E-02	1.46E-06	3.34E-02	1.67E-01	2.63E-02	1.25E-04	4.88E-05	4.88E-07	8.59E-03	1.43E-02	2.88E-04	4.80E-05	4.33E-05	1.44E-06	1.55E-04	1.29E-06
11	366993	756279	Recreational	3.32E-02	1.51E-06	3.43E-02	1.71E-01	2.67E-02	1.27E-04	5.43E-05	5.43E-07	9.55E-03	1.59E-02	3.28E-04	5.47E-05	4.81E-05	1.60E-06	1.72E-04	1.43E-06
12	366954	756367	Recreational	3.38E-02	1.54E-06	3.45E-02	1.72E-01	2.67E-02	1.27E-04	6.01E-05	6.01E-07	1.06E-02	1.76E-02	3.62E-04	6.03E-05	5.33E-05	1.78E-06	1.91E-04	1.59E-06
13	366916	756456	Recreational	3.42E-02	1.56E-06	3.45E-02	1.72E-01	2.64E-02	1.26E-04	6.64E-05	6.64E-07	1.17E-02	1.95E-02	3.98E-04	6.63E-05	5.89E-05	1.96E-06	2.11E-04	1.76E-06
14	366877	756544	Recreational	3.44E-02	1.56E-06	3.42E-02	1.71E-01	2.59E-02	1.23E-04	7.25E-05	7.25E-07	1.27E-02	2.12E-02	4.32E-04	7.20E-05	6.43E-05	2.14E-06	2.30E-04	1.92E-06
15	366839	756632	Recreational	3.43E-02	1.56E-06	3.35E-02	1.68E-01	2.51E-02	1.19E-04	7.80E-05	7.80E-07	1.37E-02	2.29E-02	4.63E-04	7.72E-05	6.92E-05	2.31E-06	2.47E-04	2.06E-06
16	366800	756720	Recreational	3.39E-02	1.54E-06	3.27E-02	1.63E-01	2.42E-02	1.15E-04	8.22E-05	8.22E-07	1.45E-02	2.41E-02	4.86E-04	8.10E-05	7.29E-05	2.43E-06	2.61E-04	2.17E-06
17	366762	756809	Recreational	3.29E-02	1.50E-06	3.14E-02	1.57E-01	2.30E-02	1.09E-04	8.47E-05	8.47E-07	1.49E-02	2.48E-02	4.92E-04	8.21E-05	7.52E-05	2.51E-06	2.69E-04	2.24E-06
18	366723	756897	Recreational	3.20E-02	1.45E-06	3.02E-02	1.51E-01	2.20E-02	1.05E-04	8.48E-05	8.48E-07	1.49E-02	2.49E-02	4.80E-04	8.01E-05	7.53E-05	2.51E-06	2.69E-04	2.24E-06
19	366685	756985	Recreational	3.04E-02	1.38E-06	2.86E-02	1.43E-01	2.07E-02	9.87E-05	8.26E-05	8.26E-07	1.45E-02	2.42E-02	4.60E-04	7.66E-05	7.34E-05	2.45E-06	2.62E-04	2.19E-06
20	366646	757074	Recreational	2.86E-02	1.30E-06	2.68E-02	1.34E-01	1.94E-02	9.24E-05	7.84E-05	7.84E-07	1.38E-02	2.30E-02	4.33E-04	7.21E-05	6.96E-05	2.32E-06	2.49E-04	2.07E-06
21	366607	757162	Recreational	2.66E-02	1.21E-06	2.49E-02	1.25E-01	1.80E-02	8.58E-05	7.27E-05	7.27E-07	1.28E-02	2.13E-02	4.10E-04	6.83E-05	6.46E-05	2.15E-06	2.31E-04	1.92E-06
22	366569	757250	Recreational	2.15E-02	9.78E-07	1.95E-02	9.75E-02	1.37E-02	6.52E-05	6.66E-05	6.66E-07	1.17E-02	1.95E-02	3.86E-04	6.43E-05	5.91E-05	1.97E-06	2.11E-04	1.76E-06
23	366530	757338	Recreational	1.12E-02	5.09E-07	7.91E-03	3.96E-02	4.12E-03	1.96E-05	6.02E-05	6.02E-07	1.06E-02	1.77E-02	3.48E-04	5.81E-05	5.35E-05	1.78E-06	1.91E-04	1.59E-06
24	366492	757427	Recreational	1.90E-02	8.63E-07	1.76E-02	8.80E-02	1.26E-02	6.00E-05	5.42E-05	5.42E-07	9.53E-03	1.59E-02	3.13E-04	5.21E-05	4.81E-05	1.60E-06	1.72E-04	1.43E-06
25	366453	757515	Recreational	2.15E-02	9.77E-07	2.10E-02	1.05E-01	1.58E-02	7.51E-05	4.85E-05	4.85E-07	8.54E-03	1.42E-02	2.80E-04	4.66E-05	4.31E-05	1.44E-06	1.54E-04	1.28E-06
26	366415	757603	Recreational	2.06E-02	9.35E-07	2.04E-02	1.02E-01	1.54E-02	7.35E-05	4.36E-05	4.36E-07	7.67E-03	1.28E-02	2.50E-04	4.17E-05	3.87E-05	1.29E-06	1.38E-04	1.15E-06
27	366376	757692	Recreational	1.96E-02	8.93E-07	1.97E-02	9.84E-02	1.50E-02	7.15E-05	3.91E-05	3.91E-07	6.87E-03	1.15E-02	2.30E-04	3.84E-05	3.47E-05	1.16E-06	1.24E-04	1.03E-06
28	366338	757780	Residential	1.87E-02	8.51E-07	1.90E-02	9.48E-02	1.46E-02	6.94E-05	3.52E-05	3.52E-07	6.19E-03	1.03E-02	2.11E-04	3.52E-05	3.12E-05	1.04E-06	1.12E-04	9.31E-07
29	366402	757746	Residential	1.96E-02	8.92E-07	1.97E-02	9.84E-02	1.50E-02	7.15E-05	3.89E-05	3.89E-07	6.84E-03	1.14E-02	2.32E-04	3.87E-05	3.45E-05	1.15E-06	1.23E-04	1.03E-06
30	366467	757713	Residential	2.06E-02	9.38E-07	2.05E-02	1.02E-01	1.55E-02	7.39E-05	4.32E-05	4.32E-07	7.61E-03	1.27E-02	2.58E-04	4.29E-05	3.84E-05	1.28E-06	1.37E-04	1.14E-06
31	366531	757679	Residential	2.18E-02	9.90E-07	2.14E-02	1.07E-01	1.61E-02	7.65E-05	4.84E-05	4.84E-07	8.52E-03	1.42E-02	2.87E-04	4.78E-05	4.30E-05	1.43E-06	1.54E-04	1.28E-06
32	366567	757773	Residential	2.14E-02	9.72E-07	2.11E-02	1.05E-01	1.59E-02	7.55E-05	4.67E-05	4.67E-07	8.22E-03	1.37E-02	2.79E-04	4.65E-05	4.15E-05	1.38E-06	1.48E-04	1.24E-06
33	366625	757758	Residential	2.23E-02	1.02E-06	2.18E-02	1.09E-01	1.63E-02	7.76E-05	5.12E-05	5.12E-07	9.00E-03	1.50E-02	3.04E-04	5.07E-05	4.54E-05	1.51E-06	1.62E-04	1.35E-06
34	366682	757744	Residential	2.34E-02	1.06E-06	2.26E-02	1.13E-01	1.67E-02	7.97E-05	5.61E-05	5.61E-07	9.87E-03	1.64E-02	3.33E-04	5.55E-05	4.98E-05	1.66E-06	1.78E-04	1.48E-06
35	366768	757788	Residential	2.40E-02	1.09E-06	2.30E-02	1.15E-01	1.70E-02	8.08E-05	5.97E-05	5.97E-07	1.05E-02	1.75E-02	3.54E-04	5.90E-05	5.30E-05	1.77E-06	1.89E-04	1.58E-06
36	366854	757833	Residential	2.44E-02	1.11E-06	2.33E-02	1.16E-01	1.70E-02	8.12E-05	6.25E-05	6.25E-07	1.10E-02	1.83E-02	3.70E-04	6.17E-05	5.55E-05	1.85E-06	1.98E-04	1.65E-06
37	366941	757877	Residential	2.46E-02	1.12E-06	2.33E-02	1.17E-01	1.70E-02	8.10E-05	6.44E-05	6.44E-07	1.13E-02	1.89E-02	3.81E-04	6.36E-05	5.72E-05	1.91E-06	2.04E-04	1.70E-06
38	367027	757922	Residential	2.44E-02	1.11E-06	2.31E-02	1.15E-01	1.68E-02	7.98E-05	6.49E-05	6.49E-07	1.14E-02	1.90E-02	3.84E-04	6.40E-05	5.76E-05	1.92E-06	2.06E-04	1.72E-06
39	367113	757966	Residential	2.39E-02	1.09E-06	2.25E-02	1.13E-01	1.63E-02	7.79E-05	6.41E-05	6.41E-07	1.13E-02	1.88E-02	3.81E-04	6.35E-05	5.69E-05	1.90E-06	2.04E-04	1.70E-06
40	367192	757916	Residential	2.61E-02	1.19E-06	2.42E-02	1.21E-01	1.73E-02	8.26E-05	7.41E-05	7.41E-07	1.30E-02	2.17E-02	4.39E-04	7.32E-05	6.57E-05	2.19E-06	2.35E-04	1.96E-06
41	367264	757916	Residential	2.66E-02	1.21E-06	2.45E-02	1.23E-01	1.75E-02	8.33E-05	7.68E-05	7.68E-07	1.35E-02	2.25E-02	4.54E-04	7.56E-05	6.82E-05	2.27E-06	2.44E-04	2.03E-06
42	367335	757916	Residential	2.36E-02	1.07E-06	2.08E-02	1.04E-01	1.43E-02	6.80E-05	7.86E-05	7.86E-07	1.38E-02	2.31E-02	4.63E-04	7.71E-05	6.98E-05	2.33E-06	2.50E-04	2.08E-06
43	367343	757966	Residential	2.19E-02	9.94E-07	1.95E-02	9.74E-02	1.34E-02	6.40E-05	7.10E-05	7.10E-07	1.25E-02	2.08E-02	4.15E-04	6.92E-05	6.30E-05	2.10E-06	2.25E-04	1.88E-06
44	367404	757995	Residential	2.09E-02	9.51E-07	1.86E-02	9.32E-02	1.29E-02	6.13E-05	6.75E-05	6.75E-07	1.19E-02	1.98E-02	3.92E-04	6.53E-05	5.99E-05	2.00E-06	2.14E-04	1.79E-06

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	XYLENE, TOTAL ($\mu g/m^3$)	XYLENE, TOTAL ACUTE HAZARD	ARSENIC ($\mu g/m^3$)	ARSENIC ACUTE HAZARD	CHLORINE ($\mu g/m^3$)	CHLORINE ACUTE HAZARD	COPPER ($\mu g/m^3$)	COPPER ACUTE HAZARD	MERCURY ($\mu g/m^3$)	MERCURY ACUTE HAZARD	NICKEL ($\mu g/m^3$)	NICKEL ACUTE HAZARD	VANADIUM ($\mu g/m^3$)	VANADIUM ACUTE HAZARD	SULFATES ($\mu g/m^3$)	SULFATES ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
45	367465	758024	Residential	1.97E-02	8.96E-07	1.76E-02	8.78E-02	1.21E-02	5.78E-05	6.38E-05	6.38E-07	1.12E-02	1.87E-02	3.69E-04	6.15E-05	5.66E-05	1.89E-06	2.02E-04	1.69E-06
46	367504	757948	School	2.24E-02	1.02E-06	1.98E-02	9.89E-02	1.36E-02	6.47E-05	7.37E-05	7.37E-07	1.30E-02	2.16E-02	4.28E-04	7.13E-05	6.53E-05	2.18E-06	2.34E-04	1.95E-06
47	367544	757873	School	2.54E-02	1.16E-06	2.24E-02	1.12E-01	1.52E-02	7.26E-05	8.56E-05	8.56E-07	1.51E-02	2.51E-02	5.01E-04	8.34E-05	7.59E-05	2.53E-06	2.72E-04	2.26E-06
48	367587	757909	School	2.34E-02	1.07E-06	2.07E-02	1.03E-01	1.42E-02	6.74E-05	7.78E-05	7.78E-07	1.37E-02	2.28E-02	4.52E-04	7.54E-05	6.90E-05	2.30E-06	2.47E-04	2.06E-06
49	367623	757866	School	2.51E-02	1.14E-06	2.21E-02	1.11E-01	1.51E-02	7.21E-05	8.38E-05	8.38E-07	1.47E-02	2.46E-02	4.89E-04	8.14E-05	7.42E-05	2.47E-06	2.66E-04	2.21E-06
50	367694	757866	School	2.42E-02	1.10E-06	2.13E-02	1.07E-01	1.46E-02	6.96E-05	8.00E-05	8.00E-07	1.41E-02	2.35E-02	4.65E-04	7.75E-05	7.09E-05	2.36E-06	2.54E-04	2.11E-06
51	367716	757927	School	2.09E-02	9.49E-07	1.84E-02	9.18E-02	1.25E-02	5.96E-05	6.99E-05	6.99E-07	1.23E-02	2.05E-02	4.03E-04	6.72E-05	6.19E-05	2.06E-06	2.22E-04	1.85E-06
52	367737	757988	School	2.59E-02	1.18E-06	2.50E-02	1.25E-01	1.85E-02	8.81E-05	6.17E-05	6.17E-07	1.09E-02	1.81E-02	3.55E-04	5.92E-05	5.47E-05	1.82E-06	1.96E-04	1.63E-06
53	367727	758067	School	2.41E-02	1.09E-06	2.35E-02	1.18E-01	1.76E-02	8.37E-05	5.43E-05	5.43E-07	9.56E-03	1.59E-02	3.21E-04	5.35E-05	4.82E-05	1.61E-06	1.72E-04	1.44E-06
54	367716	758146	School	2.25E-02	1.02E-06	2.22E-02	1.11E-01	1.68E-02	7.99E-05	4.82E-05	4.82E-07	8.48E-03	1.41E-02	2.94E-04	4.90E-05	4.27E-05	1.42E-06	1.53E-04	1.27E-06
55	367673	758189	Residential	2.17E-02	9.87E-07	2.15E-02	1.07E-01	1.62E-02	7.73E-05	4.59E-05	4.59E-07	8.08E-03	1.35E-02	2.80E-04	4.67E-05	4.07E-05	1.36E-06	1.46E-04	1.21E-06
56	367723	758254	School	2.08E-02	9.46E-07	2.08E-02	1.04E-01	1.59E-02	7.57E-05	4.10E-05	4.10E-07	7.21E-03	1.20E-02	2.52E-04	4.20E-05	3.63E-05	1.21E-06	1.30E-04	1.08E-06
57	367784	758221	School	2.13E-02	9.69E-07	2.14E-02	1.07E-01	1.63E-02	7.77E-05	4.19E-05	4.19E-07	7.37E-03	1.23E-02	2.58E-04	4.30E-05	3.71E-05	1.24E-06	1.33E-04	1.11E-06
58	367845	758189	School	2.18E-02	9.91E-07	2.19E-02	1.09E-01	1.67E-02	7.96E-05	4.25E-05	4.25E-07	7.47E-03	1.25E-02	2.62E-04	4.37E-05	3.76E-05	1.25E-06	1.35E-04	1.12E-06
59	367816	758096	Residential	2.35E-02	1.07E-06	2.33E-02	1.16E-01	1.76E-02	8.38E-05	4.94E-05	4.94E-07	8.69E-03	1.45E-02	3.02E-04	5.04E-05	4.38E-05	1.46E-06	1.57E-04	1.31E-06
60	367898	758066	Residential	2.40E-02	1.09E-06	2.38E-02	1.19E-01	1.81E-02	8.61E-05	4.89E-05	4.89E-07	8.60E-03	1.43E-02	3.01E-04	5.01E-05	4.33E-05	1.44E-06	1.55E-04	1.29E-06
61	367980	758035	Residential	2.42E-02	1.10E-06	2.42E-02	1.21E-01	1.84E-02	8.78E-05	4.79E-05	4.79E-07	8.43E-03	1.41E-02	2.96E-04	4.93E-05	4.25E-05	1.42E-06	1.52E-04	1.27E-06
62	368062	758005	Residential	2.43E-02	1.10E-06	2.44E-02	1.22E-01	1.87E-02	8.91E-05	4.64E-05	4.64E-07	8.17E-03	1.36E-02	2.88E-04	4.80E-05	4.11E-05	1.37E-06	1.47E-04	1.23E-06
63	368144	757975	Residential	2.42E-02	1.10E-06	2.45E-02	1.23E-01	1.88E-02	8.98E-05	4.45E-05	4.45E-07	7.84E-03	1.31E-02	2.78E-04	4.64E-05	3.95E-05	1.32E-06	1.41E-04	1.18E-06
64	368226	757945	Residential	2.41E-02	1.09E-06	2.45E-02	1.23E-01	1.90E-02	9.03E-05	4.24E-05	4.24E-07	7.46E-03	1.24E-02	2.67E-04	4.44E-05	3.76E-05	1.25E-06	1.35E-04	1.12E-06
65	368301	757943	Residential	2.36E-02	1.07E-06	2.43E-02	1.21E-01	1.89E-02	8.99E-05	3.93E-05	3.93E-07	6.92E-03	1.15E-02	2.49E-04	4.15E-05	3.48E-05	1.16E-06	1.25E-04	1.04E-06
66	368376	757941	Residential	2.34E-02	1.06E-06	2.43E-02	1.21E-01	1.90E-02	9.05E-05	3.70E-05	3.70E-07	6.52E-03	1.09E-02	2.37E-04	3.94E-05	3.28E-05	1.09E-06	1.18E-04	9.80E-07
67	368452	757940	Residential	2.34E-02	1.06E-06	2.46E-02	1.23E-01	1.94E-02	9.22E-05	3.73E-05	3.73E-07	6.57E-03	1.09E-02	2.38E-04	3.97E-05	3.29E-05	1.10E-06	1.18E-04	9.86E-07
68	368527	757938	Residential	2.35E-02	1.07E-06	2.49E-02	1.25E-01	1.98E-02	9.41E-05	3.77E-05	3.77E-07	6.64E-03	1.11E-02	2.41E-04	4.02E-05	3.31E-05	1.10E-06	1.20E-04	9.96E-07
69	368563	757880	Residential	2.46E-02	1.12E-06	2.62E-02	1.31E-01	2.08E-02	9.92E-05	5.17E-05	5.17E-07	9.12E-03	1.52E-02	3.23E-04	5.39E-05	4.48E-05	1.49E-06	1.64E-04	1.37E-06
70	368636	757926	Residential	2.38E-02	1.08E-06	2.55E-02	1.28E-01	2.04E-02	9.72E-05	4.02E-05	4.02E-07	7.08E-03	1.18E-02	2.55E-04	4.26E-05	3.50E-05	1.17E-06	1.27E-04	1.06E-06
71	368709	757971	Residential	2.30E-02	1.05E-06	2.48E-02	1.24E-01	1.99E-02	9.49E-05	3.25E-05	3.25E-07	5.73E-03	9.55E-03	2.10E-04	3.50E-05	2.85E-05	9.49E-07	1.03E-04	8.60E-07
72	368782	758017	Residential	2.24E-02	1.02E-06	2.43E-02	1.21E-01	1.96E-02	9.32E-05	2.64E-05	2.64E-07	4.66E-03	7.76E-03	1.73E-04	2.88E-05	2.33E-05	7.78E-07	8.39E-05	6.99E-07
73	368855	758062	Residential	2.21E-02	1.00E-06	2.41E-02	1.20E-01	1.95E-02	9.28E-05	2.65E-05	2.65E-07	4.67E-03	7.78E-03	1.72E-04	2.86E-05	2.35E-05	7.82E-07	8.42E-05	7.02E-07
74	368928	758108	Residential	2.20E-02	1.00E-06	2.41E-02	1.21E-01	1.96E-02	9.35E-05	2.79E-05	2.79E-07	4.90E-03	8.17E-03	1.78E-04	2.96E-05	2.46E-05	8.22E-07	8.84E-05	7.37E-07
75	369001	758153	Residential	2.25E-02	1.02E-06	2.48E-02	1.24E-01	2.03E-02	9.65E-05	2.92E-05	2.92E-07	5.15E-03	8.58E-03	1.84E-04	3.07E-05	2.59E-05	8.62E-07	9.28E-05	7.73E-07
76	369058	758074	Residential	2.52E-02	1.14E-06	2.80E-02	1.40E-01	2.30E-02	1.09E-04	3.16E-05	3.16E-07	5.56E-03	9.27E-03	1.98E-04	3.31E-05	2.80E-05	9.32E-07	1.00E-04	8.36E-07
77	369102	758103	Residential	2.39E-02	1.08E-06	2.65E-02	1.33E-01	2.18E-02	1.04E-04	3.26E-05	3.26E-07	5.74E-03	9.56E-03	2.04E-04	3.39E-05	2.88E-05	9.61E-07	1.03E-04	8.62E-07
78	369145	758132	Residential	2.25E-02	1.02E-06	2.51E-02	1.25E-01	2.05E-02	9.79E-05	3.36E-05	3.36E-07	5.91E-03	9.84E-03	2.09E-04	3.48E-05	2.97E-05	9.89E-07	1.06E-04	8.87E-07
79	369200	758065	Residential	2.26E-02	1.03E-06	2.51E-02	1.26E-01	2.06E-02	9.81E-05	3.63E-05	3.63E-07	6.39E-03	1.07E-02	2.25E-04	3.75E-05	3.21E-05	1.07E-06	1.15E-04	9.61E-07
80	369255	757998	Residential	2.25E-02	1.02E-06	2.49E-02	1.24E-01	2.03E-02	9.68E-05	3.94E-05	3.94E-07	6.94E-03	1.16E-02	2.44E-04	4.06E-05	3.49E-05	1.16E-06	1.25E-04	1.04E-06
81	369310	757931	Residential	2.26E-02	1.03E-06	2.49E-02	1.25E-01	2.03E-02	9.67E-05	4.29E-05	4.29E-07	7.56E-03	1.26E-02	2.65E-04	4.42E-05	3.80E-05	1.27E-06	1.36E-04	1.14E-06
82	369356	757981	Residential	1.96E-02	8.89E-07	2.13E-02	1.06E-01	1.72E-02	8.19E-05	4.43E-05	4.43E-07	7.80E-03	1.30E-02	2.72E-04	4.53E-05	3.92E-05	1.31E-06	1.41E-04	1.17E-06
83	369403	758031	Residential	1.70E-02	7.73E-07	1.83E-02	9.17E-02	1.47E-02	7.02E-05	4.57E-05	4.57E-07	8.04E-03	1.34E-02	2.78E-04	4.64E-05	4.04E-05	1.35E-06	1.45E-04	1.21E-06
84	369336	758100	Recreational	1.82E-02	8.27E-07	2.00E-02	9.99E-02	1.63E-02	7.74E-05	4.11E-05	4.11E-07	7.23E-03	1.21E-02	2.51E-04	4.19E-05	3.63E-05	1.21E-06	1.30E-04	1.09E-06
85	369269	758170	Recreational	1.91E-02	8.66E-07	2.11E-02	1.05E-01	1.73E-02	8.22E-05	3.71E-05	3.71E-07	6.54E-03	1.09E-02	2.28E-04	3.80E-05	3.29E-05	1.10E-06	1.18E-04	9.82E-07
86	369202	758239	Recreational	1.96E-02	8.93E-07	2.18E-02	1.09E-01	1.78E-02	8.48E-05	3.38E-05	3.38E-07	5.94E-03	9.91E-03	2.08E-04	3.47E-05	2.99E-05	9.96E-07	1.07E-04	8.93E-07
87	369264	758285	Recreational	1.76E-02	8.01E-07	1.95E-02	9.74E-02	1.59E-02	7.57E-05	3.49E-05	3.49E-07	6.15E-03	1.02E-02	2.14E-04	3.57E-05	3.09E-05	1.03E-06	1.11E-04	9.23E-07
88	369326	758330	Recreational	1.56E-02	7.09E-07	1.72E-02	8.58E-02	1.40E-02	6.65E-05	3.60E-05	3.60E-07	6.34E-03	1.06E-02	2.20E-04	3.67E-05	3.19E-05	1.06E-06	1.14E-04	9.53E-07

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

				XYLENE, TOTAL	XYLENE, TOTAL	ARSENIC	ARSENIC	CHLORINE	CHLORINE	COPPER	COPPER	MERCURY	MERCURY	NICKEL	NICKEL	VANADIUM	VANADIUM	SULFATES	SULFATES
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
89	369389	758376	Recreational	1.38E-02	6.27E-07	1.49E-02	7.45E-02	1.20E-02	5.71E-05	3.71E-05	3.71E-07	6.53E-03	1.09E-02	2.20E-04	3.67E-05	3.28E-05	1.09E-06	1.18E-04	9.81E-07
90	369389	758462	Recreational	1.33E-02	6.05E-07	1.43E-02	7.13E-02	1.14E-02	5.44E-05	3.51E-05	3.51E-07	6.19E-03	1.03E-02	2.08E-04	3.47E-05	3.11E-05	1.04E-06	1.12E-04	9.29E-07
91	369389	758548	Recreational	1.28E-02	5.82E-07	1.37E-02	6.83E-02	1.09E-02	5.19E-05	3.33E-05	3.33E-07	5.86E-03	9.76E-03	1.97E-04	3.29E-05	2.94E-05	9.81E-07	1.06E-04	8.80E-07
92	369389	758634	Residential	1.22E-02	5.56E-07	1.30E-02	6.50E-02	1.04E-02	4.93E-05	3.15E-05	3.15E-07	5.54E-03	9.23E-03	1.87E-04	3.11E-05	2.78E-05	9.28E-07	9.98E-05	8.32E-07
93	369469	758630	Residential	1.06E-02	4.80E-07	1.10E-02	5.49E-02	8.60E-03	4.10E-05	3.34E-05	3.34E-07	5.89E-03	9.81E-03	1.97E-04	3.29E-05	2.96E-05	9.86E-07	1.06E-04	8.84E-07
94	369549	758625	Residential	8.70E-03	3.95E-07	8.75E-03	4.37E-02	6.69E-03	3.19E-05	3.56E-05	3.56E-07	6.26E-03	1.04E-02	2.09E-04	3.48E-05	3.15E-05	1.05E-06	1.13E-04	9.41E-07
95	369630	758621	Residential	6.72E-03	3.05E-07	6.38E-03	3.19E-02	4.66E-03	2.22E-05	3.79E-05	3.79E-07	6.67E-03	1.11E-02	2.21E-04	3.69E-05	3.35E-05	1.12E-06	1.20E-04	1.00E-06
96	369710	758617	Residential	4.83E-03	2.20E-07	4.13E-03	2.07E-02	2.74E-03	1.31E-05	4.03E-05	4.03E-07	7.10E-03	1.18E-02	2.34E-04	3.90E-05	3.57E-05	1.19E-06	1.28E-04	1.07E-06
97	369791	758613	Residential	3.26E-03	1.48E-07	2.22E-03	1.11E-02	1.08E-03	5.16E-06	4.29E-05	4.29E-07	7.56E-03	1.26E-02	2.48E-04	4.13E-05	3.80E-05	1.27E-06	1.36E-04	1.14E-06
98	369791	758514	Residential	2.86E-03	1.30E-07	1.67E-03	8.35E-03	5.85E-04	2.78E-06	4.71E-05	4.71E-07	8.29E-03	1.38E-02	2.72E-04	4.53E-05	4.17E-05	1.39E-06	1.49E-04	1.25E-06
99	369791	758416	Residential	2.61E-03	1.19E-07	1.19E-03	5.93E-03	7.83E-05	3.73E-07	5.17E-05	5.17E-07	9.10E-03	1.52E-02	2.98E-04	4.97E-05	4.57E-05	1.52E-06	1.64E-04	1.37E-06
100	369791	758318	Residential	1.74E-03	7.91E-08	-3.04E-05	-1.52E-04	-1.05E-03	-5.01E-06	5.68E-05	5.68E-07	1.00E-02	1.67E-02	3.27E-04	5.45E-05	5.03E-05	1.68E-06	1.80E-04	1.50E-06
101	369881	758318	Residential	5.04E-04	2.29E-08	-1.60E-03	-8.01E-03	-2.44E-03	-1.16E-05	6.22E-05	6.22E-07	1.09E-02	1.82E-02	3.57E-04	5.94E-05	5.50E-05	1.83E-06	1.97E-04	1.64E-06
102	369972	758318	Residential	-2.10E-04	-9.52E-09	-2.47E-03	-1.24E-02	-3.19E-03	-1.52E-05	6.81E-05	6.81E-07	1.20E-02	2.00E-02	3.88E-04	6.47E-05	6.03E-05	2.01E-06	2.16E-04	1.80E-06
103	370062	758318	Residential	7.85E-04	3.57E-08	-1.64E-03	-8.22E-03	-2.66E-03	-1.27E-05	7.44E-05	7.44E-07	1.31E-02	2.18E-02	4.23E-04	7.05E-05	6.58E-05	2.19E-06	2.36E-04	1.97E-06
104	370153	758318	Residential	8.25E-03	3.75E-07	6.85E-03	3.43E-02	4.41E-03	2.10E-05	8.10E-05	8.10E-07	1.43E-02	2.38E-02	4.70E-04	7.84E-05	7.16E-05	2.39E-06	2.57E-04	2.14E-06
105	370243	758318	Residential	9.92E-03	4.51E-07	8.73E-03	4.37E-02	5.96E-03	2.84E-05	8.75E-05	8.75E-07	1.54E-02	2.57E-02	5.08E-04	8.46E-05	7.74E-05	2.58E-06	2.78E-04	2.31E-06
106	370247	758254	School	1.14E-02	5.17E-07	1.01E-02	5.04E-02	6.92E-03	3.29E-05	9.76E-05	9.76E-07	1.72E-02	2.86E-02	5.67E-04	9.45E-05	8.63E-05	2.88E-06	3.10E-04	2.58E-06
107	370250	758189	School	1.31E-02	5.93E-07	1.16E-02	5.82E-02	8.05E-03	3.83E-05	1.09E-04	1.09E-06	1.93E-02	3.21E-02	6.37E-04	1.06E-04	9.68E-05	3.23E-06	3.47E-04	2.89E-06
108	370308	758196	School	1.43E-02	6.51E-07	1.31E-02	6.55E-02	9.29E-03	4.42E-05	1.15E-04	1.15E-06	2.02E-02	3.36E-02	6.60E-04	1.10E-04	1.01E-04	3.38E-06	3.63E-04	3.03E-06
109	370361	758236	School	1.40E-02	6.34E-07	1.31E-02	6.55E-02	9.49E-03	4.52E-05	1.11E-04	1.11E-06	1.96E-02	3.26E-02	6.32E-04	1.05E-04	9.83E-05	3.28E-06	3.53E-04	2.94E-06
110	370415	758275	School	1.33E-02	6.04E-07	1.29E-02	6.43E-02	9.55E-03	4.55E-05	1.07E-04	1.07E-06	1.89E-02	3.14E-02	5.98E-04	9.97E-05	9.48E-05	3.16E-06	3.40E-04	2.83E-06
111	370408	758347	Residential	1.17E-02	5.33E-07	1.15E-02	5.75E-02	8.62E-03	4.11E-05	9.34E-05	9.34E-07	1.64E-02	2.74E-02	5.23E-04	8.71E-05	8.26E-05	2.75E-06	2.96E-04	2.47E-06
112	370490	758344	Residential	1.24E-02	5.64E-07	1.24E-02	6.22E-02	9.51E-03	4.53E-05	9.77E-05	9.77E-07	1.72E-02	2.87E-02	5.32E-04	8.87E-05	8.65E-05	2.88E-06	3.10E-04	2.58E-06
113	370572	758341	Residential	1.21E-02	5.49E-07	1.18E-02	5.88E-02	8.79E-03	4.18E-05	1.01E-04	1.01E-06	1.78E-02	2.96E-02	5.37E-04	8.96E-05	8.94E-05	2.98E-06	3.20E-04	2.67E-06
114	370654	758338	Residential	1.18E-02	5.37E-07	1.13E-02	5.66E-02	8.34E-03	3.97E-05	1.03E-04	1.03E-06	1.81E-02	3.02E-02	5.40E-04	9.00E-05	9.11E-05	3.04E-06	3.27E-04	2.72E-06
115	370735	758335	Residential	6.19E-03	2.81E-07	4.78E-03	2.39E-02	2.82E-03	1.34E-05	1.03E-04	1.03E-06	1.82E-02	3.03E-02	5.43E-04	9.06E-05	9.15E-05	3.05E-06	3.28E-04	2.73E-06
116	370817	758333	Residential	6.14E-03	2.79E-07	4.92E-03	2.46E-02	3.05E-03	1.45E-05	1.02E-04	1.02E-06	1.80E-02	3.00E-02	5.47E-04	9.12E-05	9.04E-05	3.01E-06	3.24E-04	2.70E-06
117	370814	758243	Offsite Worker	6.80E-03	3.09E-07	5.28E-03	2.64E-02	3.15E-03	1.50E-05	1.23E-04	1.23E-06	2.17E-02	3.61E-02	6.62E-04	1.10E-04	1.09E-04	3.64E-06	3.91E-04	3.26E-06
118	370810	758153	Offsite Worker	5.83E-03	2.65E-07	3.57E-03	1.79E-02	1.41E-03	6.70E-06	1.52E-04	1.52E-06	2.68E-02	4.47E-02	8.25E-04	1.38E-04	1.35E-04	4.50E-06	4.83E-04	4.03E-06
119	370807	758063	Offsite Worker	8.04E-04	3.66E-08	-3.26E-03	-1.63E-02	-4.85E-03	-2.31E-05	1.94E-04	1.94E-06	3.42E-02	5.70E-02	1.07E-03	1.78E-04	1.72E-04	5.73E-06	6.16E-04	5.14E-06
120	370803	757974	Offsite Worker	2.94E-03	1.34E-07	-2.13E-03	-1.07E-02	-4.57E-03	-2.18E-05	2.58E-04	2.58E-06	4.53E-02	7.56E-02	1.45E-03	2.41E-04	2.28E-04	7.61E-06	8.18E-04	6.81E-06
121	370835	757927	Offsite Worker	1.53E-02	6.96E-07	1.15E-02	5.75E-02	6.56E-03	3.12E-05	2.99E-04	2.99E-06	5.26E-02	8.76E-02	1.71E-03	2.85E-04	2.65E-04	8.83E-06	9.48E-04	7.90E-06
122	370868	757880	Offsite Worker	2.29E-02	1.04E-06	1.90E-02	9.52E-02	1.23E-02	5.85E-05	3.50E-04	3.50E-06	6.16E-02	1.03E-01	2.00E-03	3.34E-04	3.11E-04	1.04E-05	1.11E-03	9.25E-06
123	370921	757884	Offsite Worker	2.28E-02	1.04E-06	1.92E-02	9.58E-02	1.25E-02	5.95E-05	3.17E-04	3.17E-06	5.58E-02	9.31E-02	1.81E-03	3.02E-04	2.82E-04	9.40E-06	1.01E-03	8.39E-06
124	370975	757887	Offsite Worker	2.17E-02	9.84E-07	1.83E-02	9.15E-02	1.20E-02	5.72E-05	2.82E-04	2.82E-06	4.95E-02	8.26E-02	1.61E-03	2.68E-04	2.50E-04	8.34E-06	8.93E-04	7.45E-06
125	370975	757794	Offsite Worker	2.55E-02	1.16E-06	2.07E-02	1.04E-01	1.30E-02	6.20E-05	4.06E-04	4.06E-06	7.15E-02	1.19E-01	2.30E-03	3.83E-04	3.62E-04	1.21E-05	1.29E-03	1.08E-05
126	371026	757794	Offsite Worker	1.84E-02	8.35E-07	1.30E-02	6.51E-02	6.81E-03	3.24E-05	3.35E-04	3.35E-06	5.89E-02	9.82E-02	1.88E-03	3.14E-04	2.98E-04	9.93E-06	1.06E-03	8.86E-06
127	371076	757877	Offsite Worker	2.55E-02	1.16E-06	2.36E-02	1.18E-01	1.69E-02	8.04E-05	2.29E-04	2.29E-06	4.02E-02	6.70E-02	1.29E-03	2.15E-04	2.03E-04	6.77E-06	7.26E-04	6.05E-06
128	371126	757959	Offsite Worker	2.18E-02	9.91E-07	2.06E-02	1.03E-01	1.50E-02	7.15E-05	1.70E-04	1.70E-06	2.99E-02	4.99E-02	9.80E-04	1.63E-04	1.51E-04	5.03E-06	5.40E-04	4.50E-06
129	371119	758031	Offsite Worker	1.34E-02	6.08E-07	1.12E-02	5.58E-02	7.21E-03	3.43E-05	1.48E-04	1.48E-06	2.61E-02	4.35E-02	8.51E-04	1.42E-04	1.32E-04	4.39E-06	4.71E-04	3.92E-06
130	371183	758027	Residential	1.83E-02	8.34E-07	1.74E-02	8.70E-02	1.27E-02	6.05E-05	1.35E-04	1.35E-06	2.37E-02	3.96E-02	7.79E-04	1.30E-04	1.20E-04	3.99E-06	4.28E-04	3.57E-06
131	371248	758024	Residential	1.87E-02	8.49E-07	1.81E-02	9.05E-02	1.35E-02	6.41E-05	1.22E-04	1.22E-06	2.14E-02	3.57E-02	7.09E-04	1.18E-04	1.08E-04	3.60E-06	3.87E-04	3.22E-06
132	371326	758075	Residential	1.69E-02	7.68E-07	1.66E-02	8.30E-02	1.25E-02	5.94E-05	1.00E-04	1.00E-06	1.76E-02	2.94E-02	5.87E-04	9.79E-05	8.88E-05	2.96E-06	3.18E-04	2.65E-06

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	XYLENE, TOTAL ($\mu g/m^3$)	XYLENE, TOTAL ACUTE HAZARD	ARSENIC ($\mu g/m^3$)	ARSENIC ACUTE HAZARD	CHLORINE ($\mu g/m^3$)	CHLORINE ACUTE HAZARD	COPPER ($\mu g/m^3$)	COPPER ACUTE HAZARD	MERCURY ($\mu g/m^3$)	MERCURY ACUTE HAZARD	NICKEL ($\mu g/m^3$)	NICKEL ACUTE HAZARD	VANADIUM ($\mu g/m^3$)	VANADIUM ACUTE HAZARD	SULFATES ($\mu g/m^3$)	SULFATES ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
133	371404	758127	Residential	1.55E-02	7.04E-07	1.54E-02	7.71E-02	1.17E-02	5.57E-05	8.40E-05	8.40E-07	1.48E-02	2.46E-02	4.96E-04	8.27E-05	7.44E-05	2.48E-06	2.67E-04	2.22E-06
134	371481	758178	Residential	1.44E-02	6.55E-07	1.45E-02	7.24E-02	1.11E-02	5.27E-05	7.18E-05	7.18E-07	1.26E-02	2.11E-02	4.28E-04	7.14E-05	6.36E-05	2.12E-06	2.28E-04	1.90E-06
135	371559	758230	Residential	1.35E-02	6.15E-07	1.37E-02	6.86E-02	1.06E-02	5.03E-05	6.21E-05	6.21E-07	1.09E-02	1.82E-02	3.74E-04	6.23E-05	5.50E-05	1.83E-06	1.97E-04	1.64E-06
136	371637	758281	Residential	1.28E-02	5.84E-07	1.31E-02	6.55E-02	1.01E-02	4.83E-05	5.44E-05	5.44E-07	9.58E-03	1.60E-02	3.29E-04	5.48E-05	4.82E-05	1.61E-06	1.73E-04	1.44E-06
137	371715	758333	Residential	1.23E-02	5.58E-07	1.26E-02	6.29E-02	9.76E-03	4.65E-05	4.81E-05	4.81E-07	8.47E-03	1.41E-02	2.91E-04	4.86E-05	4.26E-05	1.42E-06	1.53E-04	1.27E-06
138	371769	758261	Residential	1.48E-02	6.72E-07	1.55E-02	7.77E-02	1.23E-02	5.84E-05	4.81E-05	4.81E-07	8.47E-03	1.41E-02	2.90E-04	4.83E-05	4.26E-05	1.42E-06	1.53E-04	1.27E-06
139	371822	758189	Residential	1.49E-02	6.78E-07	1.56E-02	7.80E-02	1.23E-02	5.84E-05	4.78E-05	4.78E-07	8.42E-03	1.40E-02	2.76E-04	4.60E-05	4.24E-05	1.41E-06	1.52E-04	1.26E-06
140	371894	758160	Residential	1.44E-02	6.56E-07	1.50E-02	7.52E-02	1.18E-02	5.62E-05	4.51E-05	4.51E-07	7.93E-03	1.32E-02	2.46E-04	4.10E-05	3.99E-05	1.33E-06	1.43E-04	1.19E-06
141	371894	758081	Residential	1.20E-02	5.45E-07	1.21E-02	6.05E-02	9.28E-03	4.42E-05	4.71E-05	4.71E-07	8.29E-03	1.38E-02	2.59E-04	4.31E-05	4.17E-05	1.39E-06	1.49E-04	1.25E-06
142	371959	758074	Residential	9.79E-03	4.45E-07	9.63E-03	4.82E-02	7.25E-03	3.45E-05	4.40E-05	4.40E-07	7.74E-03	1.29E-02	2.42E-04	4.03E-05	3.89E-05	1.30E-06	1.39E-04	1.16E-06
143	371953	757977	Offsite Worker	1.10E-02	4.99E-07	1.09E-02	5.47E-02	8.32E-03	3.96E-05	4.63E-05	4.63E-07	8.15E-03	1.36E-02	2.59E-04	4.32E-05	4.10E-05	1.37E-06	1.47E-04	1.22E-06
144	371948	757880	Offsite Worker	1.23E-02	5.58E-07	1.24E-02	6.22E-02	9.58E-03	4.56E-05	4.84E-05	4.84E-07	8.52E-03	1.42E-02	2.76E-04	4.60E-05	4.29E-05	1.43E-06	1.54E-04	1.28E-06
145	371943	757783	Offsite Worker	1.35E-02	6.13E-07	1.39E-02	6.97E-02	1.09E-02	5.18E-05	5.03E-05	5.03E-07	8.84E-03	1.47E-02	2.91E-04	4.84E-05	4.45E-05	1.48E-06	1.59E-04	1.33E-06
146	372016	757794	Offsite Worker	1.36E-02	6.17E-07	1.41E-02	7.07E-02	1.11E-02	5.29E-05	4.58E-05	4.58E-07	8.06E-03	1.34E-02	2.64E-04	4.41E-05	4.05E-05	1.35E-06	1.45E-04	1.21E-06
147	372102	757791	Offsite Worker	1.39E-02	6.34E-07	1.47E-02	7.34E-02	1.16E-02	5.53E-05	4.14E-05	4.14E-07	7.29E-03	1.21E-02	2.39E-04	3.98E-05	3.67E-05	1.22E-06	1.31E-04	1.10E-06
148	372178	757760	Offsite Worker	1.47E-02	6.67E-07	1.56E-02	7.82E-02	1.25E-02	5.94E-05	3.83E-05	3.83E-07	6.74E-03	1.12E-02	2.21E-04	3.69E-05	3.39E-05	1.13E-06	1.22E-04	1.01E-06
149	372177	757670	Offsite Worker	1.01E-02	4.61E-07	1.03E-02	5.17E-02	7.99E-03	3.80E-05	3.89E-05	3.89E-07	6.84E-03	1.14E-02	2.26E-04	3.76E-05	3.44E-05	1.15E-06	1.23E-04	1.03E-06
150	372176	757579	Offsite Worker	1.42E-02	6.44E-07	1.51E-02	7.57E-02	1.21E-02	5.76E-05	3.92E-05	3.92E-07	6.91E-03	1.15E-02	2.28E-04	3.79E-05	3.48E-05	1.16E-06	1.25E-04	1.04E-06
151	372174	757489	Offsite Worker	1.07E-02	4.86E-07	1.10E-02	5.51E-02	8.58E-03	4.08E-05	3.94E-05	3.94E-07	6.93E-03	1.16E-02	2.39E-04	3.99E-05	3.49E-05	1.16E-06	1.25E-04	1.04E-06
152	372173	757398	Offsite Worker	1.50E-02	6.83E-07	1.61E-02	8.07E-02	1.29E-02	6.16E-05	3.93E-05	3.93E-07	6.91E-03	1.15E-02	2.39E-04	3.98E-05	3.48E-05	1.16E-06	1.25E-04	1.04E-06
153	372171	757308	Offsite Worker	2.49E-02	1.13E-06	2.77E-02	1.38E-01	2.27E-02	1.08E-04	3.90E-05	3.90E-07	6.86E-03	1.14E-02	2.38E-04	3.96E-05	3.45E-05	1.15E-06	1.24E-04	1.03E-06
154	372055	757309	Offsite Worker	1.39E-02	6.34E-07	1.46E-02	7.32E-02	1.16E-02	5.50E-05	4.45E-05	4.45E-07	7.83E-03	1.31E-02	2.70E-04	4.50E-05	3.94E-05	1.31E-06	1.41E-04	1.18E-06
155	372055	757363	Residential	1.15E-02	5.21E-07	1.18E-02	5.91E-02	9.20E-03	4.38E-05	4.49E-05	4.49E-07	7.90E-03	1.32E-02	2.72E-04	4.53E-05	3.98E-05	1.33E-06	1.42E-04	1.19E-06
156	372055	757416	Offsite Worker	1.11E-02	5.04E-07	1.14E-02	5.70E-02	8.86E-03	4.22E-05	4.51E-05	4.51E-07	7.94E-03	1.32E-02	2.73E-04	4.55E-05	4.00E-05	1.33E-06	1.43E-04	1.19E-06
157	371952	757442	Offsite Worker	1.16E-02	5.27E-07	1.18E-02	5.91E-02	9.15E-03	4.36E-05	5.15E-05	5.15E-07	9.07E-03	1.51E-02	3.09E-04	5.16E-05	4.56E-05	1.52E-06	1.63E-04	1.36E-06
158	371950	757345	Offsite Worker	1.18E-02	5.35E-07	1.19E-02	5.97E-02	9.20E-03	4.38E-05	5.11E-05	5.11E-07	8.99E-03	1.50E-02	3.08E-04	5.13E-05	4.52E-05	1.51E-06	1.62E-04	1.35E-06
159	371864	757344	Offsite Worker	1.22E-02	5.54E-07	1.22E-02	6.12E-02	9.35E-03	4.45E-05	5.73E-05	5.73E-07	1.01E-02	1.68E-02	3.44E-04	5.73E-05	5.08E-05	1.69E-06	1.82E-04	1.52E-06
160	371790	757347	Offsite Worker	1.29E-02	5.85E-07	1.28E-02	6.41E-02	9.73E-03	4.63E-05	6.38E-05	6.38E-07	1.12E-02	1.87E-02	3.81E-04	6.35E-05	5.65E-05	1.88E-06	2.03E-04	1.69E-06
161	371708	757356	Offsite Worker	1.40E-02	6.36E-07	1.38E-02	6.91E-02	1.04E-02	4.97E-05	7.26E-05	7.26E-07	1.28E-02	2.13E-02	4.33E-04	7.22E-05	6.43E-05	2.14E-06	2.30E-04	1.92E-06
162	371615	757356	Offsite Worker	2.08E-02	9.46E-07	2.14E-02	1.07E-01	1.67E-02	7.96E-05	8.49E-05	8.49E-07	1.49E-02	2.49E-02	5.08E-04	8.47E-05	7.53E-05	2.51E-06	2.69E-04	2.25E-06
163	371523	757356	Offsite Worker	2.07E-02	9.41E-07	2.08E-02	1.04E-01	1.60E-02	7.60E-05	1.01E-04	1.01E-06	1.77E-02	2.95E-02	6.01E-04	1.00E-04	8.93E-05	2.98E-06	3.20E-04	2.66E-06
164	371430	757356	Offsite Worker	1.56E-02	7.08E-07	1.42E-02	7.08E-02	9.97E-03	4.75E-05	1.22E-04	1.22E-06	2.15E-02	3.58E-02	7.26E-04	1.21E-04	1.08E-04	3.61E-06	3.87E-04	3.23E-06
165	371338	757356	Offsite Worker	1.18E-02	5.37E-07	8.96E-03	4.48E-02	5.17E-03	2.46E-05	1.51E-04	1.51E-06	2.66E-02	4.43E-02	8.96E-04	1.49E-04	1.34E-04	4.47E-06	4.80E-04	4.00E-06
166	371245	757356	Offsite Worker	1.31E-02	5.98E-07	9.52E-03	4.76E-02	5.15E-03	2.45E-05	1.93E-04	1.93E-06	3.40E-02	5.67E-02	1.14E-03	1.90E-04	1.72E-04	5.72E-06	6.14E-04	5.12E-06
167	371153	757356	Offsite Worker	1.51E-02	6.86E-07	1.05E-02	5.26E-02	5.35E-03	2.55E-05	2.56E-04	2.56E-06	4.51E-02	7.52E-02	1.50E-03	2.51E-04	2.27E-04	7.58E-06	8.14E-04	6.78E-06
168	371061	757356	Offsite Worker	1.72E-02	7.83E-07	1.13E-02	5.66E-02	5.21E-03	2.48E-05	3.56E-04	3.56E-06	6.27E-02	1.04E-01	2.08E-03	3.46E-04	3.16E-04	1.05E-05	1.13E-03	9.42E-06
169	371005	757357	Offsite Worker	1.87E-02	8.49E-07	1.17E-02	5.87E-02	4.92E-03	2.34E-05	4.48E-04	4.48E-06	7.88E-02	1.31E-01	2.60E-03	4.34E-04	3.97E-04	1.32E-05	1.42E-03	1.18E-05
170	370998	757293	Offsite Worker	1.55E-02	7.03E-07	9.75E-03	4.88E-02	4.11E-03	1.96E-05	3.87E-04	3.87E-06	6.82E-02	1.14E-01	2.24E-03	3.73E-04	3.44E-04	1.15E-05	1.23E-03	1.02E-05
171	370998	757194	Offsite Worker	1.29E-03	5.88E-08	-4.91E-03	-2.46E-02	-7.35E-03	-3.50E-05	2.96E-04	2.96E-06	5.22E-02	8.69E-02	1.70E-03	2.83E-04	2.63E-04	8.76E-06	9.41E-04	7.84E-06
172	370998	757096	Offsite Worker	-5.32E-03	-2.42E-07	-1.12E-02	-5.62E-02	-1.20E-02	-5.72E-05	2.30E-04	2.30E-06	4.05E-02	6.74E-02	1.31E-03	2.18E-04	2.04E-04	6.79E-06	7.30E-04	6.08E-06
173	370998	756998	Offsite Worker	-5.39E-03	-2.45E-07	-1.03E-02	-5.13E-02	-1.07E-02	-5.07E-05	1.81E-04	1.81E-06	3.19E-02	5.32E-02	1.04E-03	1.73E-04	1.61E-04	5.35E-06	5.75E-04	4.80E-06
174	371057	756997	Offsite Worker	-5.29E-03	-2.41E-07	-9.80E-03	-4.90E-02	-1.01E-02	-4.80E-05	1.65E-04	1.65E-06	2.91E-02	4.84E-02	9.50E-04	1.58E-04	1.46E-04	4.88E-06	5.24E-04	4.37E-06
175	371153	756997	Offsite Worker	1.61E-02	7.32E-07	1.59E-02	7.94E-02	1.20E-02	5.71E-05	1.41E-04	1.41E-06	2.49E-02	4.15E-02	8.32E-04	1.39E-04	1.25E-04	4.18E-06	4.49E-04	3.74E-06
176	371249	756997	Offsite Worker	1.41E-02	6.42E-07	1.40E-02	7.01E-02	1.06E-02	5.05E-05	1.21E-04	1.21E-06	2.13E-02	3.55E-02	7.15E-04	1.19E-04	1.07E-04	3.57E-06	3.84E-04	3.20E-06
177	371345	756997	Offsite Worker	1.34E-02	6.08E-07	1.35E-02	6.75E-02	1.04E-02	4.93E-05	1.04E-04	1.04E-06	1.82E-02	3.04E-02	6.15E-04	1.03E-04	9.18E-05	3.06E-06	3.29E-04	2.74E-06

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

				XYLENE, TOTAL	XYLENE, TOTAL	ARSENIC	ARSENIC	CHLORINE	CHLORINE	COPPER	COPPER	MERCURY	MERCURY	NICKEL	NICKEL	VANADIUM	VANADIUM	SULFATES	SULFATES
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
178	371440	756997	Offsite Worker	1.35E-02	6.14E-07	1.40E-02	6.98E-02	1.09E-02	5.19E-05	8.95E-05	8.95E-07	1.57E-02	2.62E-02	5.33E-04	8.89E-05	7.93E-05	2.64E-06	2.84E-04	2.37E-06
179	371536	756997	Offsite Worker	1.42E-02	6.48E-07	1.51E-02	7.55E-02	1.20E-02	5.71E-05	7.76E-05	7.76E-07	1.37E-02	2.28E-02	4.65E-04	7.74E-05	6.88E-05	2.29E-06	2.46E-04	2.05E-06
180	371632	756997	Offsite Worker	1.54E-02	7.01E-07	1.65E-02	8.26E-02	1.32E-02	6.30E-05	6.78E-05	6.78E-07	1.19E-02	1.99E-02	4.08E-04	6.80E-05	6.01E-05	2.00E-06	2.15E-04	1.79E-06
181	371728	756997	Offsite Worker	3.23E-02	1.47E-06	3.64E-02	1.82E-01	3.01E-02	1.44E-04	5.97E-05	5.97E-07	1.05E-02	1.75E-02	3.60E-04	6.01E-05	5.29E-05	1.76E-06	1.89E-04	1.58E-06
182	371824	756997	Offsite Worker	2.27E-02	1.03E-06	2.51E-02	1.26E-01	2.06E-02	9.79E-05	5.29E-05	5.29E-07	9.31E-03	1.55E-02	3.21E-04	5.35E-05	4.69E-05	1.56E-06	1.68E-04	1.40E-06
183	371920	756997	Offsite Worker	1.03E-02	4.70E-07	1.06E-02	5.31E-02	8.25E-03	3.93E-05	4.72E-05	4.72E-07	8.31E-03	1.39E-02	2.87E-04	4.79E-05	4.18E-05	1.39E-06	1.50E-04	1.25E-06
184	372016	756997	Offsite Worker	1.17E-02	5.33E-07	1.23E-02	6.14E-02	9.68E-03	4.61E-05	4.24E-05	4.24E-07	7.46E-03	1.24E-02	2.59E-04	4.32E-05	3.75E-05	1.25E-06	1.35E-04	1.12E-06
185	372111	756997	Offsite Worker	1.31E-02	5.97E-07	1.40E-02	6.98E-02	1.11E-02	5.29E-05	3.83E-05	3.83E-07	6.74E-03	1.12E-02	2.35E-04	3.92E-05	3.39E-05	1.13E-06	1.22E-04	1.01E-06
186	372207	756997	Offsite Worker	1.45E-02	6.60E-07	1.56E-02	7.81E-02	1.25E-02	5.97E-05	3.48E-05	3.48E-07	6.12E-03	1.02E-02	2.15E-04	3.58E-05	3.08E-05	1.03E-06	1.10E-04	9.19E-07
187	372303	756997	Offsite Worker	1.59E-02	7.23E-07	1.73E-02	8.63E-02	1.39E-02	6.64E-05	3.17E-05	3.17E-07	5.58E-03	9.30E-03	1.97E-04	3.28E-05	2.81E-05	9.36E-07	1.01E-04	8.38E-07
188	372399	756997	Offsite Worker	1.72E-02	7.84E-07	1.89E-02	9.43E-02	1.53E-02	7.29E-05	2.90E-05	2.90E-07	5.11E-03	8.52E-03	1.83E-04	3.04E-05	2.57E-05	8.57E-07	9.21E-05	7.68E-07
189	372495	756997	Offsite Worker	1.85E-02	8.42E-07	2.04E-02	1.02E-01	1.66E-02	7.92E-05	2.67E-05	2.67E-07	4.70E-03	7.83E-03	1.66E-04	2.77E-05	2.36E-05	7.88E-07	8.47E-05	7.06E-07
190	372591	756997	Offsite Worker	1.98E-02	9.00E-07	2.19E-02	1.10E-01	1.79E-02	8.53E-05	2.46E-05	2.46E-07	4.34E-03	7.23E-03	1.56E-04	2.60E-05	2.18E-05	7.27E-07	7.82E-05	6.52E-07
191	372610	757063	Offsite Worker	1.61E-02	7.31E-07	1.75E-02	8.75E-02	1.42E-02	6.75E-05	2.46E-05	2.46E-07	4.33E-03	7.21E-03	1.55E-04	2.58E-05	2.18E-05	7.26E-07	7.80E-05	6.50E-07
192	372612	757132	Offsite Worker	1.26E-02	5.72E-07	1.34E-02	6.70E-02	1.07E-02	5.09E-05	2.48E-05	2.48E-07	4.37E-03	7.29E-03	1.56E-04	2.60E-05	2.20E-05	7.33E-07	7.88E-05	6.57E-07
193	372614	757201	Offsite Worker	9.79E-03	4.45E-07	1.02E-02	5.08E-02	7.95E-03	3.78E-05	2.51E-05	2.51E-07	4.41E-03	7.35E-03	1.57E-04	2.61E-05	2.22E-05	7.40E-07	7.95E-05	6.63E-07
194	372616	757270	Offsite Worker	1.44E-02	6.55E-07	1.57E-02	7.84E-02	1.27E-02	6.04E-05	2.52E-05	2.52E-07	4.44E-03	7.40E-03	1.57E-04	2.62E-05	2.23E-05	7.44E-07	8.00E-05	6.67E-07
195	372627	757351	Offsite Worker	2.64E-02	1.20E-06	2.98E-02	1.49E-01	2.46E-02	1.17E-04	2.52E-05	2.52E-07	4.43E-03	7.38E-03	1.57E-04	2.61E-05	2.23E-05	7.43E-07	7.98E-05	6.65E-07
196	372651	757422	Offsite Worker	2.50E-02	1.14E-06	2.81E-02	1.41E-01	2.33E-02	1.11E-04	2.47E-05	2.47E-07	4.35E-03	7.26E-03	1.54E-04	2.57E-05	2.19E-05	7.30E-07	7.85E-05	6.54E-07
197	372676	757494	Offsite Worker	2.32E-02	1.05E-06	2.59E-02	1.30E-01	2.14E-02	1.02E-04	2.43E-05	2.43E-07	4.27E-03	7.11E-03	1.51E-04	2.52E-05	2.15E-05	7.16E-07	7.70E-05	6.41E-07
198	372704	757569	Offsite Worker	2.14E-02	9.73E-07	2.39E-02	1.20E-01	1.97E-02	9.38E-05	2.37E-05	2.37E-07	4.17E-03	6.95E-03	1.48E-04	2.46E-05	2.10E-05	6.99E-07	7.51E-05	6.26E-07
199	372733	757645	Offsite Worker	1.78E-02	8.08E-07	1.96E-02	9.81E-02	1.60E-02	7.64E-05	2.31E-05	2.31E-07	4.06E-03	6.76E-03	1.44E-04	2.39E-05	2.04E-05	6.80E-07	7.31E-05	6.10E-07
200	372746	757702	Offsite Worker	1.47E-02	6.68E-07	1.60E-02	8.00E-02	1.29E-02	6.16E-05	2.27E-05	2.27E-07	4.00E-03	6.67E-03	1.42E-04	2.36E-05	2.01E-05	6.71E-07	7.21E-05	6.01E-07
201	372746	757768	Offsite Worker	1.32E-02	5.98E-07	1.42E-02	7.08E-02	1.14E-02	5.42E-05	2.26E-05	2.26E-07	3.98E-03	6.63E-03	1.34E-04	2.23E-05	2.00E-05	6.67E-07	7.17E-05	5.97E-07
202	372807	757781	School	1.32E-02	5.98E-07	1.42E-02	7.10E-02	1.14E-02	5.44E-05	2.15E-05	2.15E-07	3.79E-03	6.31E-03	1.30E-04	2.17E-05	1.90E-05	6.35E-07	6.82E-05	5.69E-07
203	372901	757782	School	1.29E-02	5.89E-07	1.40E-02	6.99E-02	1.13E-02	5.36E-05	2.00E-05	2.00E-07	3.53E-03	5.88E-03	1.26E-04	2.09E-05	1.77E-05	5.91E-07	6.36E-05	5.30E-07
204	372994	757783	Offsite Worker	1.27E-02	5.76E-07	1.37E-02	6.84E-02	1.10E-02	5.25E-05	1.87E-05	1.87E-07	3.30E-03	5.49E-03	1.18E-04	1.97E-05	1.66E-05	5.53E-07	5.94E-05	4.95E-07
205	373087	757783	Offsite Worker	1.20E-02	5.44E-07	1.29E-02	6.45E-02	1.04E-02	4.93E-05	1.76E-05	1.76E-07	3.09E-03	5.15E-03	1.11E-04	1.85E-05	1.55E-05	5.18E-07	5.57E-05	4.64E-07
206	373180	757784	Offsite Worker	1.12E-02	5.08E-07	1.20E-02	5.99E-02	9.60E-03	4.57E-05	1.65E-05	1.65E-07	2.90E-03	4.84E-03	1.05E-04	1.75E-05	1.46E-05	4.87E-07	5.23E-05	4.36E-07
207	373274	757785	Offsite Worker	9.89E-03	4.50E-07	1.05E-02	5.25E-02	8.35E-03	3.98E-05	1.55E-05	1.55E-07	2.73E-03	4.55E-03	9.90E-05	1.65E-05	1.37E-05	4.58E-07	4.92E-05	4.10E-07
208	373367	757786	Offsite Worker	8.26E-03	3.75E-07	8.60E-03	4.30E-02	6.75E-03	3.21E-05	1.46E-05	1.46E-07	2.58E-03	4.30E-03	9.38E-05	1.56E-05	1.30E-05	4.32E-07	4.65E-05	3.87E-07
209	373418	757742	Offsite Worker	6.57E-03	2.99E-07	6.64E-03	3.32E-02	5.10E-03	2.43E-05	1.42E-05	1.42E-07	2.51E-03	4.18E-03	9.14E-05	1.52E-05	1.26E-05	4.20E-07	4.52E-05	3.77E-07
210	373418	757653	Offsite Worker	6.03E-03	2.74E-07	6.04E-03	3.02E-02	4.61E-03	2.20E-05	1.43E-05	1.43E-07	2.52E-03	4.19E-03	9.19E-05	1.53E-05	1.27E-05	4.22E-07	4.54E-05	3.78E-07
211	373419	757564	Offsite Worker	6.50E-03	2.96E-07	6.59E-03	3.29E-02	5.07E-03	2.41E-05	1.43E-05	1.43E-07	2.52E-03	4.20E-03	9.21E-05	1.53E-05	1.27E-05	4.23E-07	4.54E-05	3.79E-07
212	373419	757475	Offsite Worker	7.82E-03	3.56E-07	8.12E-03	4.06E-02	6.36E-03	3.03E-05	1.43E-05	1.43E-07	2.52E-03	4.20E-03	9.22E-05	1.54E-05	1.27E-05	4.23E-07	4.54E-05	3.79E-07
213	373420	757386	Offsite Worker	1.01E-02	4.58E-07	1.08E-02	5.39E-02	8.62E-03	4.10E-05	1.43E-05	1.43E-07	2.52E-03	4.19E-03	9.21E-05	1.53E-05	1.27E-05	4.22E-07	4.54E-05	3.78E-07
214	373420	757297	Offsite Worker	1.30E-02	5.92E-07	1.43E-02	7.14E-02	1.16E-02	5.53E-05	1.46E-05	1.46E-07	2.58E-03	4.29E-03	9.39E-05	1.56E-05	1.29E-05	4.31E-07	4.64E-05	3.87E-07
215	373421	757207	Offsite Worker	1.65E-02	7.51E-07	1.85E-02	9.24E-02	1.52E-02	7.24E-05	1.49E-05	1.49E-07	2.63E-03	4.39E-03	9.56E-05	1.59E-05	1.32E-05	4.40E-07	4.74E-05	3.95E-07
216	373421	757118	Offsite Worker	2.06E-02	9.38E-07	2.32E-02	1.16E-01	1.92E-02	9.15E-05	1.44E-05	1.44E-07	2.54E-03	4.23E-03	9.23E-05	1.54E-05	1.27E-05	4.25E-07	4.57E-05	3.81E-07
217	373292	757117	Offsite Worker	1.99E-02	9.04E-07	2.23E-02	1.12E-01	1.84E-02	8.77E-05	1.52E-05	1.52E-07	2.68E-03	4.46E-03	9.81E-05	1.64E-05	1.35E-05	4.49E-07	4.83E-05	4.02E-07
218	373213	757118	Offsite Worker	1.92E-02	8.75E-07	2.15E-02	1.08E-01	1.77E-02	8.44E-05	1.60E-05	1.60E-07	2.82E-03	4.69E-03	1.03E-04	1.72E-05	1.42E-05	4.72E-07	5.08E-05	4.23E-07
219	373158	757066	Offsite Worker	2.16E-02	9.83E-07	2.43E-02	1.21E-01	2.00E-02	9.54E-05	1.65E-05	1.65E-07	2.90E-03	4.84E-03	1.06E-04	1.77E-05	1.46E-05	4.87E-07	5.23E-05	4.36E-07
220	373084	757026	Offsite Worker	2.34E-02	1.06E-06	2.63E-02	1.31E-01	2.17E-02	1.03E-04	1.72E-05	1.72E-07	3.03E-03	5.05E-03	1.11E-04	1.86E-05	1.53E-05	5.08E-07	5.47E-05	4.55E-07
221	373009	757011	Offsite Worker	2.36E-02	1.07E-06	2.66E-02	1.33E-01	2.19E-02	1.04E-04	1.81E-05	1.81E-07	3.18E-03	5.30E-03	1.17E-04	1.95E-05	1.60E-05	5.34E-07	5.74E-05	4.78E-07
222	372922	757009	Offsite Worker	2.29E-02	1.04E-06	2.57E-02	1.28E-01	2.12E-02	1.01E-04	1.92E-05	1.92E-07	3.38E-03	5.63E-03	1.24E-04	2.07E-05	1.70E-05	5.67E-07	6.09E-05	5.08E-07

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

				XYLENE, TOTAL	XYLENE, TOTAL	ARSENIC	ARSENIC	CHLORINE	CHLORINE	COPPER	COPPER	MERCURY	MERCURY	NICKEL	NICKEL	VANADIUM	VANADIUM	SULFATES	SULFATES
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
223	372835	757007	Offsite Worker	2.21E-02	1.00E-06	2.47E-02	1.23E-01	2.03E-02	9.68E-05	2.04E-05	2.04E-07	3.60E-03	6.00E-03	1.31E-04	2.19E-05	1.81E-05	6.03E-07	6.49E-05	5.41E-07
224	372747	757006	Offsite Worker	2.11E-02	9.61E-07	2.35E-02	1.18E-01	1.93E-02	9.21E-05	2.18E-05	2.18E-07	3.84E-03	6.40E-03	1.40E-04	2.33E-05	1.93E-05	6.44E-07	6.93E-05	5.77E-07
225	372660	757004	Offsite Worker	2.02E-02	9.19E-07	2.24E-02	1.12E-01	1.84E-02	8.75E-05	2.33E-05	2.33E-07	4.11E-03	6.85E-03	1.48E-04	2.47E-05	2.07E-05	6.89E-07	7.41E-05	6.17E-07
226	372651	757063	Offsite Worker	1.66E-02	7.53E-07	1.81E-02	9.04E-02	1.47E-02	6.99E-05	2.38E-05	2.38E-07	4.19E-03	6.98E-03	1.50E-04	2.50E-05	2.11E-05	7.02E-07	7.55E-05	6.29E-07
227	372629	756931	Offsite Worker	2.49E-02	1.13E-06	2.80E-02	1.40E-01	2.31E-02	1.10E-04	2.36E-05	2.36E-07	4.15E-03	6.91E-03	1.51E-04	2.51E-05	2.09E-05	6.95E-07	7.47E-05	6.23E-07
228	372631	756857	Offsite Worker	2.24E-02	1.02E-06	2.52E-02	1.26E-01	2.08E-02	9.89E-05	2.31E-05	2.31E-07	4.07E-03	6.78E-03	1.50E-04	2.49E-05	2.05E-05	6.82E-07	7.33E-05	6.11E-07
229	372634	756783	Offsite Worker	1.68E-02	7.62E-07	1.86E-02	9.32E-02	1.53E-02	7.28E-05	2.26E-05	2.26E-07	3.98E-03	6.63E-03	1.49E-04	2.48E-05	2.00E-05	6.67E-07	7.17E-05	5.98E-07
230	372702	756778	Offsite Worker	1.70E-02	7.74E-07	1.90E-02	9.48E-02	1.56E-02	7.41E-05	2.15E-05	2.15E-07	3.78E-03	6.29E-03	1.42E-04	2.36E-05	1.90E-05	6.33E-07	6.81E-05	5.67E-07
231	372756	756775	Offsite Worker	4.02E-02	1.83E-06	4.62E-02	2.31E-01	3.87E-02	1.84E-04	2.06E-05	2.06E-07	3.63E-03	6.05E-03	1.37E-04	2.28E-05	1.83E-05	6.09E-07	6.54E-05	5.45E-07
232	372729	756712	Offsite Worker	4.73E-02	2.15E-06	5.47E-02	2.73E-01	4.59E-02	2.19E-04	2.07E-05	2.07E-07	3.64E-03	6.07E-03	1.40E-04	2.33E-05	1.83E-05	6.10E-07	6.56E-05	5.47E-07
233	372703	756650	Offsite Worker	5.44E-02	2.47E-06	6.32E-02	3.16E-01	5.33E-02	2.54E-04	2.07E-05	2.07E-07	3.64E-03	6.07E-03	1.42E-04	2.37E-05	1.83E-05	6.11E-07	6.57E-05	5.47E-07
234	372677	756588	Offsite Worker	6.12E-02	2.78E-06	7.13E-02	3.57E-01	6.02E-02	2.87E-04	2.07E-05	2.07E-07	3.64E-03	6.06E-03	1.43E-04	2.39E-05	1.83E-05	6.10E-07	6.56E-05	5.47E-07
235	372619	756588	Offsite Worker	4.02E-02	1.83E-06	4.67E-02	2.33E-01	3.93E-02	1.87E-04	2.15E-05	2.15E-07	3.79E-03	6.31E-03	1.53E-04	2.54E-05	1.91E-05	6.35E-07	6.83E-05	5.69E-07
236	372622	756509	Offsite Worker	7.07E-02	3.21E-06	8.26E-02	4.13E-01	6.99E-02	3.33E-04	2.09E-05	2.09E-07	3.68E-03	6.13E-03	1.46E-04	2.43E-05	1.85E-05	6.17E-07	6.64E-05	5.53E-07
237	372700	756511	Offsite Worker	6.11E-02	2.78E-06	7.13E-02	3.56E-01	6.02E-02	2.87E-04	1.99E-05	1.99E-07	3.50E-03	5.83E-03	1.30E-04	2.16E-05	1.76E-05	5.86E-07	6.30E-05	5.25E-07
238	372789	756510	Offsite Worker	5.18E-02	2.36E-06	6.04E-02	3.02E-01	5.09E-02	2.43E-04	1.87E-05	1.87E-07	3.30E-03	5.49E-03	1.63E-04	2.71E-05	1.66E-05	5.53E-07	5.94E-05	4.95E-07
239	372871	756509	Offsite Worker	4.50E-02	2.04E-06	5.22E-02	2.61E-01	4.40E-02	2.10E-04	1.78E-05	1.78E-07	3.13E-03	5.21E-03	1.50E-04	2.50E-05	1.57E-05	5.24E-07	5.64E-05	4.70E-07
240	372871	756437	Offsite Worker	3.01E-02	1.37E-06	3.49E-02	1.74E-01	2.94E-02	1.40E-04	1.74E-05	1.74E-07	3.06E-03	5.10E-03	1.39E-04	2.31E-05	1.54E-05	5.13E-07	5.52E-05	4.60E-07
241	372970	756437	Offsite Worker	1.95E-02	8.87E-07	2.24E-02	1.12E-01	1.87E-02	8.90E-05	1.64E-05	1.64E-07	2.88E-03	4.81E-03	1.26E-04	2.11E-05	1.45E-05	4.84E-07	5.20E-05	4.33E-07
242	373069	756437	Offsite Worker	1.72E-02	7.84E-07	1.97E-02	9.83E-02	1.64E-02	7.80E-05	1.55E-05	1.55E-07	2.72E-03	4.54E-03	1.16E-04	1.94E-05	1.37E-05	4.56E-07	4.91E-05	4.09E-07
243	373168	756437	Offsite Worker	1.54E-02	7.02E-07	1.75E-02	8.75E-02	1.45E-02	6.92E-05	1.46E-05	1.46E-07	2.57E-03	4.29E-03	1.08E-04	1.79E-05	1.29E-05	4.31E-07	4.64E-05	3.86E-07
244	373267	756437	Offsite Worker	1.40E-02	6.36E-07	1.58E-02	7.89E-02	1.31E-02	6.22E-05	1.38E-05	1.38E-07	2.43E-03	4.06E-03	1.00E-04	1.67E-05	1.22E-05	4.08E-07	4.39E-05	3.66E-07
245	373412	756437	Offsite Worker	1.23E-02	5.59E-07	1.37E-02	6.87E-02	1.13E-02	5.39E-05	1.28E-05	1.28E-07	2.25E-03	3.76E-03	9.79E-05	1.63E-05	1.13E-05	3.78E-07	4.06E-05	3.39E-07
246	373409	756339	Offsite Worker	1.37E-02	6.23E-07	1.55E-02	7.76E-02	1.29E-02	6.13E-05	1.26E-05	1.26E-07	2.21E-03	3.69E-03	8.80E-05	1.47E-05	1.11E-05	3.71E-07	3.99E-05	3.32E-07
247	373406	756240	Offsite Worker	1.96E-02	8.89E-07	2.25E-02	1.13E-01	1.89E-02	9.00E-05	1.23E-05	1.23E-07	2.17E-03	3.61E-03	9.29E-05	1.55E-05	1.09E-05	3.63E-07	3.91E-05	3.25E-07
248	373403	756142	Offsite Worker	2.09E-02	9.51E-07	2.42E-02	1.21E-01	2.03E-02	9.66E-05	1.31E-05	1.31E-07	2.30E-03	3.83E-03	9.11E-05	1.52E-05	1.15E-05	3.83E-07	4.14E-05	3.45E-07
249	373400	756042	Offsite Worker	1.99E-02	9.03E-07	2.29E-02	1.15E-01	1.93E-02	9.17E-05	1.44E-05	1.44E-07	2.54E-03	4.23E-03	1.02E-04	1.70E-05	1.26E-05	4.20E-07	4.57E-05	3.81E-07
250	373397	755944	Offsite Worker	1.57E-02	7.12E-07	1.80E-02	9.01E-02	1.51E-02	7.19E-05	1.59E-05	1.59E-07	2.80E-03	4.66E-03	1.12E-04	1.87E-05	1.38E-05	4.61E-07	5.03E-05	4.20E-07
251	373393	755846	Offsite Worker	1.37E-02	6.22E-07	1.57E-02	7.85E-02	1.31E-02	6.25E-05	1.75E-05	1.75E-07	3.09E-03	5.14E-03	1.16E-04	1.93E-05	1.52E-05	5.05E-07	5.55E-05	4.62E-07
252	373390	755747	Offsite Worker	1.10E-02	4.98E-07	1.25E-02	6.24E-02	1.04E-02	4.95E-05	1.90E-05	1.90E-07	3.35E-03	5.58E-03	1.30E-04	2.17E-05	1.64E-05	5.46E-07	6.02E-05	5.01E-07
253	373309	755744	Offsite Worker	1.10E-02	5.02E-07	1.25E-02	6.24E-02	1.03E-02	4.93E-05	2.34E-05	2.34E-07	4.12E-03	6.87E-03	1.59E-04	2.64E-05	2.01E-05	6.68E-07	7.40E-05	6.17E-07
254	373229	755743	Offsite Worker	1.11E-02	5.06E-07	1.25E-02	6.23E-02	1.03E-02	4.89E-05	2.95E-05	2.95E-07	5.21E-03	8.68E-03	1.97E-04	3.29E-05	2.52E-05	8.40E-07	9.35E-05	7.79E-07
255	373143	755741	Offsite Worker	1.12E-02	5.09E-07	1.24E-02	6.18E-02	1.01E-02	4.80E-05	3.96E-05	3.96E-07	7.01E-03	1.17E-02	2.60E-04	4.33E-05	3.37E-05	1.12E-06	1.26E-04	1.05E-06
256	373143	755823	Offsite Worker	1.43E-02	6.50E-07	1.61E-02	8.04E-02	1.33E-02	6.33E-05	3.43E-05	3.43E-07	6.05E-03	1.01E-02	2.24E-04	3.73E-05	2.92E-05	9.73E-07	1.09E-04	9.05E-07
257	373143	755906	Offsite Worker	1.75E-02	7.96E-07	1.99E-02	9.96E-02	1.66E-02	7.89E-05	2.90E-05	2.90E-07	5.13E-03	8.55E-03	1.87E-04	3.12E-05	2.49E-05	8.29E-07	9.20E-05	7.67E-07
258	373065	755906	Offsite Worker	1.81E-02	8.25E-07	2.06E-02	1.03E-01	1.71E-02	8.13E-05	3.53E-05	3.53E-07	6.24E-03	1.04E-02	2.27E-04	3.79E-05	3.01E-05	1.00E-06	1.12E-04	9.33E-07
259	373065	755827	Offsite Worker	1.48E-02	6.73E-07	1.65E-02	8.25E-02	1.36E-02	6.46E-05	4.39E-05	4.39E-07	7.75E-03	1.29E-02	2.83E-04	4.71E-05	3.72E-05	1.24E-06	1.39E-04	1.16E-06
260	373068	755733	Offsite Worker	1.11E-02	5.06E-07	1.20E-02	6.00E-02	9.65E-03	4.59E-05	5.49E-05	5.49E-07	9.71E-03	1.62E-02	3.52E-04	5.86E-05	4.64E-05	1.55E-06	1.74E-04	1.45E-06
261	373007	755733	Offsite Worker	1.15E-02	5.24E-07	1.21E-02	6.03E-02	9.51E-03	4.53E-05	7.52E-05	7.52E-07	1.33E-02	2.22E-02	4.72E-04	7.86E-05	6.34E-05	2.11E-06	2.38E-04	1.99E-06
262	372941	755733	Offsite Worker	1.25E-02	5.70E-07	1.24E-02	6.21E-02	9.40E-03	4.48E-05	1.19E-04	1.19E-06	2.11E-02	3.52E-02	7.21E-04	1.20E-04	1.00E-04	3.34E-06	3.78E-04	3.15E-06
263	372941	755636	Offsite Worker	1.06E-02	4.81E-07	9.23E-03	4.61E-02	6.25E-03	2.98E-05	1.66E-04	1.66E-06	2.94E-02	4.89E-02	9.80E-04	1.63E-04	1.39E-04	4.63E-06	5.25E-04	4.38E-06
264	372941	755539	Offsite Worker	1.84E-02	8.36E-07	1.82E-02	9.11E-02	1.38E-02	6.57E-05	1.78E-04	1.78E-06	3.14E-02	5.24E-02	1.04E-03	1.73E-04	1.49E-04	4.96E-06	5.62E-04	4.69E-06
265	372941	755442	Offsite Worker	1.36E-02	6.17E-07	1.28E-02	6.42E-02	9.36E-03	4.46E-05	1.63E-04	1.63E-06	2.88E-02	4.80E-02	9.46E-04	1.58E-04	1.36E-04	4.54E-06	5.15E-04	4.29E-06
266	372913	755342	Offsite Worker	-1.16E-02	-5.29E-07	-1.59E-02	-7.96E-02	-1.46E-02	-6.96E-05	1.15E-04	1.15E-06	2.04E-02	3.40E-02	6.66E-04	1.11E-04	9.66E-05	3.22E-06	3.65E-04	3.04E-06

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

				XYLENE, TOTAL	XYLENE, TOTAL	ARSENIC	ARSENIC	CHLORINE	CHLORINE	COPPER	COPPER	MERCURY	MERCURY	NICKEL	NICKEL	VANADIUM	VANADIUM	SULFATES	SULFATES
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
267	372817	755346	Offsite Worker	-1.60E-02	-7.25E-07	-2.19E-02	-1.10E-01	-2.01E-02	-9.59E-05	1.62E-04	1.62E-06	2.86E-02	4.77E-02	9.32E-04	1.55E-04	1.36E-04	4.52E-06	5.13E-04	4.27E-06
268	372720	755349	Offsite Worker	-1.85E-02	-8.43E-07	-2.58E-02	-1.29E-01	-2.38E-02	-1.13E-04	2.04E-04	2.04E-06	3.61E-02	6.02E-02	1.17E-03	1.96E-04	1.71E-04	5.69E-06	6.46E-04	5.38E-06
269	372624	755352	Offsite Worker	-1.97E-02	-8.95E-07	-2.59E-02	-1.29E-01	-2.33E-02	-1.11E-04	1.41E-04	1.41E-06	2.50E-02	4.16E-02	8.12E-04	1.35E-04	1.18E-04	3.94E-06	4.47E-04	3.73E-06
270	372527	755349	Offsite Worker	-1.45E-02	-6.57E-07	-1.84E-02	-9.21E-02	-1.63E-02	-7.78E-05	7.27E-05	7.27E-07	1.29E-02	2.14E-02	4.18E-04	6.96E-05	6.13E-05	2.04E-06	2.30E-04	1.92E-06
271	372431	755353	Offsite Worker	-8.62E-03	-3.92E-07	-1.11E-02	-5.53E-02	-9.84E-03	-4.69E-05	4.67E-05	4.67E-07	8.26E-03	1.38E-02	2.68E-04	4.47E-05	3.97E-05	1.32E-06	1.48E-04	1.23E-06
272	372334	755356	Offsite Worker	-5.77E-03	-2.62E-07	-7.43E-03	-3.72E-02	-6.63E-03	-3.16E-05	3.29E-05	3.29E-07	5.80E-03	9.67E-03	1.89E-04	3.15E-05	2.81E-05	9.38E-07	1.04E-04	8.68E-07
273	372237	755359	Offsite Worker	-5.78E-03	-2.63E-07	-7.28E-03	-3.64E-02	-6.42E-03	-3.06E-05	2.46E-05	2.46E-07	4.34E-03	7.23E-03	1.51E-04	2.51E-05	2.13E-05	7.09E-07	7.80E-05	6.50E-07
274	372141	755362	Offsite Worker	-5.91E-03	-2.69E-07	-7.34E-03	-3.67E-02	-6.42E-03	-3.06E-05	1.93E-05	1.93E-07	3.40E-03	5.67E-03	1.23E-04	2.05E-05	1.69E-05	5.63E-07	6.12E-05	5.10E-07
275	372044	755366	Offsite Worker	-8.53E-03	-3.88E-07	-1.04E-02	-5.20E-02	-9.01E-03	-4.29E-05	1.63E-05	1.63E-07	2.87E-03	4.79E-03	1.02E-04	1.71E-05	1.45E-05	4.82E-07	5.18E-05	4.32E-07
276	371948	755369	Offsite Worker	-9.10E-03	-4.14E-07	-1.11E-02	-5.54E-02	-9.59E-03	-4.57E-05	1.69E-05	1.69E-07	2.98E-03	4.96E-03	1.02E-04	1.71E-05	1.50E-05	4.99E-07	5.37E-05	4.47E-07
277	371851	755372	Offsite Worker	-5.57E-03	-2.53E-07	-6.94E-03	-3.47E-02	-6.08E-03	-2.89E-05	1.75E-05	1.75E-07	3.08E-03	5.14E-03	1.11E-04	1.85E-05	1.55E-05	5.17E-07	5.56E-05	4.63E-07
278	371755	755375	Offsite Worker	-4.73E-03	-2.15E-07	-5.96E-03	-2.98E-02	-5.25E-03	-2.50E-05	1.81E-05	1.81E-07	3.19E-03	5.31E-03	1.13E-04	1.88E-05	1.60E-05	5.34E-07	5.74E-05	4.79E-07
279	371658	755378	Offsite Worker	-1.26E-03	-5.75E-08	-1.89E-03	-9.46E-03	-1.81E-03	-8.60E-06	1.87E-05	1.87E-07	3.29E-03	5.48E-03	1.16E-04	1.94E-05	1.65E-05	5.52E-07	5.93E-05	4.94E-07
280	371562	755382	Offsite Worker	-5.37E-03	-2.44E-07	-6.74E-03	-3.37E-02	-5.93E-03	-2.82E-05	1.93E-05	1.93E-07	3.39E-03	5.65E-03	1.20E-04	2.00E-05	1.71E-05	5.69E-07	6.12E-05	5.10E-07
281	371465	755385	Offsite Worker	-5.48E-03	-2.49E-07	-6.88E-03	-3.44E-02	-6.05E-03	-2.88E-05	1.98E-05	1.98E-07	3.49E-03	5.82E-03	1.23E-04	2.05E-05	1.76E-05	5.85E-07	6.29E-05	5.24E-07
282	371368	755388	Offsite Worker	-5.66E-03	-2.57E-07	-7.10E-03	-3.55E-02	-6.25E-03	-2.97E-05	2.04E-05	2.04E-07	3.58E-03	5.97E-03	1.26E-04	2.10E-05	1.80E-05	6.01E-07	6.46E-05	5.38E-07
283	371272	755391	Offsite Worker	-9.67E-04	-4.40E-08	-1.59E-03	-7.94E-03	-1.57E-03	-7.48E-06	2.08E-05	2.08E-07	3.67E-03	6.11E-03	1.29E-04	2.14E-05	1.85E-05	6.15E-07	6.61E-05	5.51E-07
284	371175	755395	Offsite Worker	1.95E-02	8.87E-07	2.25E-02	1.13E-01	1.89E-02	9.00E-05	2.13E-05	2.13E-07	3.75E-03	6.25E-03	1.31E-04	2.18E-05	1.89E-05	6.29E-07	6.76E-05	5.63E-07
285	371079	755398	Offsite Worker	1.63E-03	7.39E-08	1.45E-03	7.23E-03	9.98E-04	4.75E-06	2.17E-05	2.17E-07	3.82E-03	6.37E-03	1.32E-04	2.21E-05	1.92E-05	6.40E-07	6.89E-05	5.74E-07
286	371042	755478	Offsite Worker	1.62E-02	7.35E-07	1.85E-02	9.27E-02	1.55E-02	7.38E-05	2.32E-05	2.32E-07	4.09E-03	6.82E-03	1.43E-04	2.38E-05	2.06E-05	6.85E-07	7.37E-05	6.14E-07
287	371009	755538	Offsite Worker	2.14E-02	9.74E-07	2.47E-02	1.23E-01	2.07E-02	9.86E-05	2.45E-05	2.45E-07	4.31E-03	7.19E-03	1.51E-04	2.51E-05	2.17E-05	7.23E-07	7.78E-05	6.48E-07
288	370975	755597	Offsite Worker	2.27E-02	1.03E-06	2.62E-02	1.31E-01	2.20E-02	1.05E-04	2.59E-05	2.59E-07	4.56E-03	7.59E-03	1.60E-04	2.67E-05	2.29E-05	7.64E-07	8.21E-05	6.84E-07
289	370925	755597	Offsite Worker	2.29E-02	1.04E-06	2.64E-02	1.32E-01	2.21E-02	1.05E-04	2.61E-05	2.61E-07	4.59E-03	7.64E-03	1.60E-04	2.67E-05	2.31E-05	7.69E-07	8.27E-05	6.89E-07
290	370860	755547	Offsite Worker	2.21E-02	1.00E-06	2.54E-02	1.27E-01	2.13E-02	1.02E-04	2.51E-05	2.51E-07	4.42E-03	7.37E-03	1.54E-04	2.56E-05	2.22E-05	7.41E-07	7.97E-05	6.64E-07
291	370796	755497	Offsite Worker	-9.31E-03	-4.23E-07	-1.15E-02	-5.74E-02	-1.00E-02	-4.77E-05	2.42E-05	2.42E-07	4.26E-03	7.10E-03	1.45E-04	2.42E-05	2.14E-05	7.14E-07	7.68E-05	6.40E-07
292	370733	755428	Offsite Worker	-1.30E-02	-5.90E-07	-1.58E-02	-7.90E-02	-1.37E-02	-6.51E-05	2.29E-05	2.29E-07	4.04E-03	6.73E-03	1.32E-04	2.20E-05	2.03E-05	6.77E-07	7.28E-05	6.06E-07
293	370634	755428	Offsite Worker	1.46E-02	6.62E-07	1.66E-02	8.30E-02	1.38E-02	6.59E-05	2.30E-05	2.30E-07	4.04E-03	6.73E-03	1.28E-04	2.13E-05	2.03E-05	6.77E-07	7.28E-05	6.07E-07
294	370536	755428	Offsite Worker	2.48E-02	1.13E-06	2.87E-02	1.43E-01	2.41E-02	1.15E-04	2.29E-05	2.29E-07	4.03E-03	6.71E-03	1.23E-04	2.05E-05	2.03E-05	6.75E-07	7.26E-05	6.05E-07
295	370437	755428	Offsite Worker	2.22E-02	1.01E-06	2.55E-02	1.28E-01	2.14E-02	1.02E-04	2.27E-05	2.27E-07	4.00E-03	6.67E-03	1.39E-04	2.32E-05	2.01E-05	6.71E-07	7.21E-05	6.01E-07
296	370338	755427	Offsite Worker	-9.20E-03	-4.18E-07	-1.14E-02	-5.72E-02	-1.00E-02	-4.77E-05	2.25E-05	2.25E-07	3.96E-03	6.59E-03	1.48E-04	2.47E-05	1.99E-05	6.63E-07	7.13E-05	5.94E-07
297	370239	755427	Residential	-1.04E-03	-4.74E-08	-1.86E-03	-9.32E-03	-1.90E-03	-9.03E-06	2.22E-05	2.22E-07	3.90E-03	6.50E-03	1.56E-04	2.60E-05	1.96E-05	6.54E-07	7.04E-05	5.86E-07
298	370138	755427	Residential	-6.56E-02	-2.98E-06	-7.79E-02	-3.90E-01	-6.65E-02	-3.17E-04	2.18E-05	2.18E-07	3.83E-03	6.39E-03	1.51E-04	2.52E-05	1.93E-05	6.43E-07	6.91E-05	5.76E-07
299	370040	755427	Residential	-9.39E-02	-4.27E-06	-1.11E-01	-5.56E-01	-9.48E-02	-4.51E-04	2.13E-05	2.13E-07	3.76E-03	6.26E-03	1.49E-04	2.49E-05	1.89E-05	6.30E-07	6.77E-05	5.64E-07
300	369941	755426	Residential	-4.32E-03	-1.96E-07	-5.81E-03	-2.91E-02	-5.30E-03	-2.52E-05	2.08E-05	2.08E-07	3.67E-03	6.11E-03	1.40E-04	2.34E-05	1.84E-05	6.15E-07	6.61E-05	5.51E-07
301	369842	755426	Residential	-6.49E-03	-2.95E-07	-8.40E-03	-4.20E-02	-7.51E-03	-3.58E-05	2.03E-05	2.03E-07	3.57E-03	5.96E-03	1.35E-04	2.25E-05	1.80E-05	5.99E-07	6.44E-05	5.37E-07
302	369741	755435	Residential	-8.50E-03	-3.86E-07	-1.08E-02	-5.40E-02	-9.57E-03	-4.56E-05	1.98E-05	1.98E-07	3.49E-03	5.82E-03	1.33E-04	2.22E-05	1.76E-05	5.85E-07	6.30E-05	5.25E-07
303	369643	755434	Residential	2.08E-02	9.45E-07	2.36E-02	1.18E-01	1.97E-02	9.36E-05	1.92E-05	1.92E-07	3.38E-03	5.64E-03	1.26E-04	2.10E-05	1.70E-05	5.67E-07	6.10E-05	5.08E-07
304	369544	755434	Residential	1.57E-02	7.15E-07	1.76E-02	8.82E-02	1.46E-02	6.93E-05	1.86E-05	1.86E-07	3.28E-03	5.46E-03	1.24E-04	2.07E-05	1.65E-05	5.49E-07	5.91E-05	4.92E-07
305	369445	755434	Residential	8.13E-03	3.70E-07	8.65E-03	4.33E-02	6.90E-03	3.28E-05	1.80E-05	1.80E-07	3.17E-03	5.28E-03	1.20E-04	1.99E-05	1.59E-05	5.30E-07	5.71E-05	4.76E-07
306	369346	755434	Residential	-1.20E-03	-5.48E-08	-2.38E-03	-1.19E-02	-2.50E-03	-1.19E-05	1.74E-05	1.74E-07	3.05E-03	5.09E-03	1.16E-04	1.94E-05	1.54E-05	5.12E-07	5.51E-05	4.59E-07
307	369249	755442	Offsite Worker	-1.27E-02	-5.76E-07	-1.59E-02	-7.97E-02	-1.40E-02	-6.69E-05	1.68E-05	1.68E-07	2.96E-03	4.93E-03	1.18E-04	1.97E-05	1.49E-05	4.96E-07	5.33E-05	4.45E-07
308	369151	755442	Offsite Worker	-2.07E-02	-9.43E-07	-2.55E-02	-1.27E-01	-2.22E-02	-1.06E-04	1.62E-05	1.62E-07	2.85E-03	4.75E-03	1.16E-04	1.93E-05	1.43E-05	4.78E-07	5.14E-05	4.28E-07
309	369052	755442	Offsite Worker	2.28E-02	1.04E-06	2.58E-02	1.29E-01	2.13E-02	1.02E-04	1.56E-05	1.56E-07	2.74E-03	4.57E-03	1.12E-04	1.86E-05	1.38E-05	4.60E-07	4.94E-05	4.12E-07

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Construction TAC Concentrations

				XYLENE, TOTAL	XYLENE, TOTAL	ARSENIC	ARSENIC	CHLORINE	CHLORINE	COPPER	COPPER	MERCURY	MERCURY	NICKEL	NICKEL	VANADIUM	VANADIUM	SULFATES	SULFATES
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
310	368953	755441	Residential	7.09E-03	3.22E-07	7.17E-03	3.59E-02	5.52E-03	2.63E-05	1.50E-05	1.50E-07	2.64E-03	4.39E-03	1.07E-04	1.79E-05	1.33E-05	4.42E-07	4.75E-05	3.96E-07
311	368854	755441	Residential	-2.02E-02	-9.16E-07	-2.50E-02	-1.25E-01	-2.18E-02	-1.04E-04	1.44E-05	1.44E-07	2.53E-03	4.22E-03	1.04E-04	1.73E-05	1.27E-05	4.25E-07	4.57E-05	3.81E-07
312	368755	755441	Residential	-8.15E-03	-3.71E-07	-1.09E-02	-5.44E-02	-9.88E-03	-4.71E-05	1.44E-05	1.44E-07	2.53E-03	4.22E-03	1.03E-04	1.71E-05	1.27E-05	4.25E-07	4.56E-05	3.80E-07
313	368657	755441	Residential	-4.40E-03	-2.00E-07	-6.53E-03	-3.26E-02	-6.21E-03	-2.96E-05	1.51E-05	1.51E-07	2.65E-03	4.41E-03	1.06E-04	1.77E-05	1.33E-05	4.45E-07	4.78E-05	3.98E-07
314	368558	755440	Residential	-9.44E-03	-4.29E-07	-1.25E-02	-6.26E-02	-1.13E-02	-5.40E-05	1.57E-05	1.57E-07	2.77E-03	4.62E-03	1.09E-04	1.82E-05	1.39E-05	4.65E-07	4.99E-05	4.16E-07
315	368459	755440	Residential	-1.67E-03	-7.57E-08	-3.43E-03	-1.72E-02	-3.64E-03	-1.73E-05	1.64E-05	1.64E-07	2.89E-03	4.82E-03	1.13E-04	1.88E-05	1.46E-05	4.86E-07	5.22E-05	4.35E-07
316	368360	755440	Residential	-2.13E-02	-9.70E-07	-2.67E-02	-1.33E-01	-2.34E-02	-1.11E-04	1.71E-05	1.71E-07	3.02E-03	5.03E-03	1.16E-04	1.93E-05	1.52E-05	5.06E-07	5.44E-05	4.53E-07
317	368262	755439	Residential	-2.57E-02	-1.17E-06	-3.18E-02	-1.59E-01	-2.78E-02	-1.32E-04	1.78E-05	1.78E-07	3.13E-03	5.22E-03	1.19E-04	1.99E-05	1.58E-05	5.26E-07	5.65E-05	4.71E-07
318	368186	755427	Residential	-2.19E-02	-9.95E-07	-2.74E-02	-1.37E-01	-2.41E-02	-1.15E-04	1.81E-05	1.81E-07	3.19E-03	5.32E-03	1.21E-04	2.01E-05	1.61E-05	5.36E-07	5.76E-05	4.80E-07
319	368111	755414	Residential	-1.86E-02	-8.44E-07	-2.35E-02	-1.18E-01	-2.08E-02	-9.90E-05	1.84E-05	1.84E-07	3.24E-03	5.40E-03	1.22E-04	2.03E-05	1.63E-05	5.44E-07	5.84E-05	4.87E-07
320	368035	755402	Offsite Worker	-1.59E-02	-7.22E-07	-2.04E-02	-1.02E-01	-1.81E-02	-8.63E-05	1.87E-05	1.87E-07	3.28E-03	5.47E-03	1.23E-04	2.05E-05	1.65E-05	5.51E-07	5.92E-05	4.93E-07
321	367960	755389	Offsite Worker	-1.38E-02	-6.29E-07	-1.80E-02	-8.99E-02	-1.61E-02	-7.67E-05	1.88E-05	1.88E-07	3.31E-03	5.52E-03	1.23E-04	2.05E-05	1.67E-05	5.56E-07	5.98E-05	4.98E-07
322	367863	755390	Offsite Worker	-1.19E-02	-5.40E-07	-1.57E-02	-7.86E-02	-1.42E-02	-6.76E-05	1.93E-05	1.93E-07	3.39E-03	5.66E-03	1.25E-04	2.08E-05	1.71E-05	5.70E-07	6.12E-05	5.10E-07
323	367766	755392	Offsite Worker	-1.06E-02	-4.82E-07	-1.43E-02	-7.13E-02	-1.30E-02	-6.18E-05	1.97E-05	1.97E-07	3.47E-03	5.78E-03	1.28E-04	2.13E-05	1.75E-05	5.82E-07	6.25E-05	5.21E-07
324	367669	755393	Offsite Worker	-3.94E-03	-1.79E-07	-6.42E-03	-3.21E-02	-6.33E-03	-3.01E-05	2.00E-05	2.00E-07	3.52E-03	5.86E-03	1.29E-04	2.15E-05	1.77E-05	5.91E-07	6.34E-05	5.29E-07
325	367572	755394	Offsite Worker	1.26E-02	5.71E-07	1.30E-02	6.49E-02	1.01E-02	4.83E-05	2.02E-05	2.02E-07	3.56E-03	5.93E-03	1.30E-04	2.16E-05	1.79E-05	5.97E-07	6.41E-05	5.34E-07
326	367475	755395	Offsite Worker	1.23E-02	5.57E-07	1.26E-02	6.31E-02	9.83E-03	4.68E-05	2.03E-05	2.03E-07	3.58E-03	5.96E-03	1.30E-04	2.17E-05	1.80E-05	6.00E-07	6.45E-05	5.37E-07
327	370403	756882	On-Site Occupational	2.33E-02	1.06E-06	2.41E-02	1.20E-01	1.88E-02	8.95E-05	1.56E-04	1.56E-06	2.75E-02	4.58E-02	9.23E-04	1.54E-04	1.38E-04	4.60E-06	4.95E-04	4.13E-06
328	370646	757761	On-Site Occupational	6.66E-02	3.03E-06	4.86E-02	2.43E-01	2.66E-02	1.27E-04	1.36E-03	1.36E-05	2.39E-01	3.98E-01	7.80E-03	1.30E-03	1.21E-03	4.02E-05	4.31E-03	3.59E-05
329	370646	757761	On-Site Occupational	4.33E-02	1.97E-06	4.59E-02	2.29E-01	3.64E-02	1.73E-04	5.68E-05	5.68E-07	1.00E-02	1.67E-02	3.26E-04	5.44E-05	5.03E-05	1.68E-06	1.80E-04	1.50E-06
330	370646	757761	On-Site Occupational	2.08E-01	9.48E-06	1.29E-01	6.43E-01	5.17E-02	2.46E-04	1.42E-03	1.42E-05	2.49E-01	4.16E-01	8.14E-03	1.36E-03	1.26E-03	4.20E-05	4.50E-03	3.75E-05

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Attachment B.4

Operations – Acute Health Hazard Calculations

Table B.4-1: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR LOCATION	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE, TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
Commercial - Onsite																	
Maximum Onsite Concentration	-6.68E-03	-3.83E-03	-2.63E-03	-1.92E-02	-2.82E-03	0.00E+00	-4.83E-04	-1.00E-03	-2.20E-04	0.00E+00	0.00E+00	-1.03E-05	-1.24E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Commercial - Offsite																	
Maximum Offsite Concentration	4.63E-01	2.65E-01	1.82E-01	1.33E+00	1.96E-01	0.00E+00	3.35E-02	6.96E-02	1.53E-02	0.00E+00	0.00E+00	3.77E-05	4.52E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Minimum Offsite Concentration	-1.24E+00	-7.12E-01	-4.89E-01	-3.58E+00	-5.25E-01	0.00E+00	-8.98E-02	-1.87E-01	-4.10E-02	0.00E+00	0.00E+00	-1.87E-05	-2.24E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Average Offsite Concentration	-5.22E-02	-2.99E-02	-2.05E-02	-1.50E-01	-2.20E-02	0.00E+00	-3.77E-03	-7.84E-03	-1.72E-03	0.00E+00	0.00E+00	5.08E-07	6.09E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recreational																	
Maximum Offsite Concentration	7.32E-03	4.20E-03	2.88E-03	2.11E-02	3.09E-03	0.00E+00	5.30E-04	1.10E-03	2.42E-04	0.00E+00	0.00E+00	-3.34E-08	-4.01E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Minimum Offsite Concentration	-1.35E-01	-7.71E-02	-5.29E-02	-3.88E-01	-5.68E-02	0.00E+00	-9.73E-03	-2.02E-02	-4.44E-03	0.00E+00	0.00E+00	-3.02E-05	-3.62E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Average Offsite Concentration	-5.86E-02	-3.36E-02	-2.31E-02	-1.69E-01	-2.48E-02	0.00E+00	-4.24E-03	-8.81E-03	-1.93E-03	0.00E+00	0.00E+00	-5.39E-06	-6.47E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Residential																	
Maximum Offsite Concentration	2.13E-01	1.22E-01	8.39E-02	6.14E-01	9.01E-02	0.00E+00	1.54E-02	3.20E-02	7.04E-03	0.00E+00	0.00E+00	1.33E-05	1.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Minimum Offsite Concentration	-1.37E+00	-7.83E-01	-5.37E-01	-3.93E+00	-5.77E-01	0.00E+00	-9.87E-02	-2.05E-01	-4.51E-02	0.00E+00	0.00E+00	-1.96E-05	-2.35E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Average Offsite Concentration	-9.51E-02	-5.45E-02	-3.74E-02	-2.74E-01	-4.02E-02	0.00E+00	-6.88E-03	-1.43E-02	-3.14E-03	0.00E+00	0.00E+00	-9.97E-07	-1.20E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
School																	
Maximum Offsite Concentration	1.23E-02	7.06E-03	4.85E-03	3.55E-02	5.21E-03	0.00E+00	8.91E-04	1.85E-03	4.07E-04	0.00E+00	0.00E+00	6.32E-07	7.59E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Minimum Offsite Concentration	-4.01E-02	-2.30E-02	-1.58E-02	-1.16E-01	-1.69E-02	0.00E+00	-2.90E-03	-6.03E-03	-1.32E-03	0.00E+00	0.00E+00	-1.50E-05	-1.80E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Average Offsite Concentration	-5.78E-03	-3.31E-03	-2.27E-03	-1.67E-02	-2.44E-03	0.00E+00	-4.18E-04	-8.68E-04	-1.91E-04	0.00E+00	0.00E+00	-3.55E-06	-4.26E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CalEPA Acute REL	470	2.5	1300	55	28000	13000	21000	37000	22000	0.2	210	100	0.17	0.6	6	30	120
Commercial - Onsite																	
Maximum Onsite Acute Hazard	-1.42E-05	-1.53E-03	-2.02E-06	-3.50E-04	-1.01E-07	0.00E+00	-2.30E-08	-2.71E-08	-1.00E-08	0.00E+00	0.00E+00	-1.03E-07	-7.30E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Commercial - Offsite																	
Maximum Offsite Acute Hazard	9.85E-04	1.06E-01	1.40E-04	2.43E-02	6.99E-06	0.00E+00	1.60E-06	1.88E-06	6.95E-07	0.00E+00	0.00E+00	3.77E-07	2.66E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Minimum Offsite Acute Hazard	-2.64E-03	-2.85E-01	-3.76E-04	-6.51E-02	-1.87E-05	0.00E+00	-4.28E-06	-5.04E-06	-1.86E-06	0.00E+00	0.00E+00	-1.87E-07	-1.32E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Average Offsite Acute Hazard	-1.11E-04	-1.20E-02	-1.58E-05	-2.73E-03	-7.87E-07	0.00E+00	-1.80E-07	-2.12E-07	-7.83E-08	0.00E+00	0.00E+00	5.08E-09	3.59E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Recreational																	
Maximum Offsite Acute Hazard	1.56E-05	1.68E-03	2.22E-06	3.84E-04	1.10E-07	0.00E+00	2.52E-08	2.97E-08	1.10E-08	0.00E+00	0.00E+00	-3.34E-10	-2.36E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Minimum Offsite Acute Hazard	-2.86E-04	-3.08E-02	-4.07E-05	-7.05E-03	-2.03E-06	0.00E+00	-4.63E-07	-5.46E-07	-2.02E-07	0.00E+00	0.00E+00	-3.02E-07	-2.13E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Average Offsite Acute Hazard	-1.25E-04	-1.34E-02	-1.77E-05	-3.07E-03	-8.84E-07	0.00E+00	-2.02E-07	-2.38E-07	-8.79E-08	0.00E+00	0.00E+00	-5.39E-08	-3.81E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Residential																	
Maximum Offsite Acute Hazard	4.54E-04	4.89E-02	6.45E-05	1.12E-02	3.22E-06	0.00E+00	7.34E-07	8.66E-07	3.20E-07	0.00E+00	0.00E+00	1.33E-07	9.35E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Minimum Offsite Acute Hazard	-2.90E-03	-3.13E-01	-4.13E-04	-7.15E-02	-2.06E-05	0.00E+00	-4.70E-06	-5.54E-06	-2.05E-06	0.00E+00	0.00E+00	-1.96E-07	-1.38E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Average Offsite Acute Hazard	-2.02E-04	-2.18E-02	-2.88E-05	-4.98E-03	-1.44E-06	0.00E+00	-3.28E-07	-3.86E-07	-1.43E-07	0.00E+00	0.00E+00	-9.97E-09	-7.04E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
School																	
Maximum Offsite Acute Hazard	2.62E-05	2.83E-03	3.73E-06	6.46E-04	1.86E-07	0.00E+00	4.24E-08	5.01E-08	1.85E-08	0.00E+00	0.00E+00	6.32E-09	4.46E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Minimum Offsite Acute Hazard	-8.53E-05	-9.20E-03	-1.21E-05	-2.10E-03	-6.05E-07	0.00E+00	-1.38E-07	-1.63E-07	-6.02E-08	0.00E+00	0.00E+00	-1.50E-07	-1.06E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Average Offsite Acute Hazard	-1.23E-05	-1.33E-03	-1.75E-06	-3.03E-04	-8.72E-08	0.00E+00	-1.99E-08	-2.35E-08	-8.67E-09	0.00E+00	0.00E+00	-3.55E-08	-2.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., December 2014.
PREPARED BY: Ricondo & Associates, Inc., December 2014.

Table B.4-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE, TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
1	367379	755396	Recreational	-1.20E-02	-6.86E-03	-4.71E-03	-3.45E-02	-5.06E-03	0.00E+00	-2.03E-03	-8.66E-04	-1.80E-03	-3.95E-04	-4.65E-04	-3.95E-04	0.00E+00	0.00E+00	-3.34E-08	0.00E+00	0.00E+00
2	367340	755485	Recreational	-1.13E-02	-6.48E-03	-4.45E-03	-3.26E-02	-4.78E-03	0.00E+00	-1.92E-03	-8.18E-04	-1.70E-03	-3.73E-04	-4.40E-04	-3.73E-04	0.00E+00	0.00E+00	-5.25E-06	0.00E+00	0.00E+00
3	367301	755573	Recreational	-1.16E-01	-6.68E-02	-4.58E-02	-3.36E-01	-4.92E-02	0.00E+00	-1.98E-02	-8.42E-03	-1.75E-02	-3.84E-03	-4.53E-03	-3.84E-03	0.00E+00	0.00E+00	-5.08E-06	0.00E+00	0.00E+00
4	367263	755661	Recreational	-1.11E-01	-6.39E-02	-4.38E-02	-3.21E-01	-4.71E-02	0.00E+00	-1.89E-02	-8.06E-03	-1.67E-02	-3.68E-03	-4.33E-03	-3.68E-03	0.00E+00	0.00E+00	-4.70E-06	0.00E+00	0.00E+00
5	367224	755749	Recreational	-1.01E-01	-5.80E-02	-3.98E-02	-2.92E-01	-4.28E-02	0.00E+00	-1.72E-02	-7.32E-03	-1.52E-02	-3.34E-03	-3.93E-03	-3.34E-03	0.00E+00	0.00E+00	-4.17E-06	0.00E+00	0.00E+00
6	367186	755838	Recreational	-8.75E-02	-5.02E-02	-3.44E-02	-2.52E-01	-3.70E-02	0.00E+00	-1.49E-02	-6.33E-03	-1.31E-02	-2.89E-03	-3.40E-03	-2.89E-03	0.00E+00	0.00E+00	-3.54E-06	0.00E+00	0.00E+00
7	367147	755926	Recreational	-7.19E-02	-4.12E-02	-2.83E-02	-2.07E-01	-3.04E-02	0.00E+00	-1.22E-02	-5.20E-03	-1.08E-02	-2.37E-03	-2.79E-03	-2.37E-03	0.00E+00	0.00E+00	-2.87E-06	0.00E+00	0.00E+00
8	367109	756014	Recreational	-5.62E-02	-3.22E-02	-2.21E-02	-1.62E-01	-2.37E-02	0.00E+00	-9.55E-03	-4.06E-03	-8.44E-03	-1.85E-03	-2.18E-03	-1.85E-03	0.00E+00	0.00E+00	-2.24E-06	0.00E+00	0.00E+00
9	367070	756103	Recreational	-4.12E-02	-2.36E-02	-1.62E-02	-1.19E-01	-1.74E-02	0.00E+00	-7.00E-03	-2.98E-03	-6.19E-03	-1.36E-03	-1.60E-03	-1.36E-03	0.00E+00	0.00E+00	-1.64E-06	0.00E+00	0.00E+00
10	367032	756191	Recreational	-1.33E-01	-7.65E-02	-5.25E-02	-3.84E-01	-5.63E-02	0.00E+00	-2.27E-02	-9.65E-03	-2.00E-02	-4.40E-03	-5.18E-03	-4.40E-03	0.00E+00	0.00E+00	-1.10E-06	0.00E+00	0.00E+00
11	366993	756279	Recreational	-1.35E-01	-7.71E-02	-5.29E-02	-3.88E-01	-5.68E-02	0.00E+00	-2.29E-02	-9.73E-03	-2.02E-02	-4.44E-03	-5.23E-03	-4.44E-03	0.00E+00	0.00E+00	-5.36E-06	0.00E+00	0.00E+00
12	366954	756367	Recreational	-1.32E-01	-7.57E-02	-5.20E-02	-3.80E-01	-5.58E-02	0.00E+00	-2.24E-02	-9.55E-03	-1.98E-02	-4.36E-03	-5.13E-03	-4.36E-03	0.00E+00	0.00E+00	-5.65E-06	0.00E+00	0.00E+00
13	366916	756456	Recreational	-1.29E-01	-7.40E-02	-5.08E-02	-3.72E-01	-5.45E-02	0.00E+00	-2.19E-02	-9.34E-03	-1.94E-02	-4.26E-03	-5.02E-03	-4.26E-03	0.00E+00	0.00E+00	-5.65E-06	0.00E+00	0.00E+00
14	366877	756544	Recreational	-1.25E-01	-7.19E-02	-4.94E-02	-3.62E-01	-5.30E-02	0.00E+00	-2.13E-02	-9.08E-03	-1.89E-02	-4.14E-03	-4.88E-03	-4.14E-03	0.00E+00	0.00E+00	-5.63E-06	0.00E+00	0.00E+00
15	366839	756632	Recreational	-1.22E-01	-6.97E-02	-4.78E-02	-3.50E-01	-5.14E-02	0.00E+00	-2.07E-02	-8.79E-03	-1.83E-02	-4.01E-03	-4.72E-03	-4.01E-03	0.00E+00	0.00E+00	-5.64E-06	0.00E+00	0.00E+00
16	366800	756720	Recreational	-1.18E-01	-6.74E-02	-4.63E-02	-3.39E-01	-4.97E-02	0.00E+00	-2.00E-02	-8.50E-03	-1.77E-02	-3.88E-03	-4.57E-03	-3.88E-03	0.00E+00	0.00E+00	-5.69E-06	0.00E+00	0.00E+00
17	366762	756809	Recreational	-1.13E-01	-6.47E-02	-4.44E-02	-3.25E-01	-4.77E-02	0.00E+00	-1.92E-02	-8.17E-03	-1.70E-02	-3.73E-03	-4.39E-03	-3.73E-03	0.00E+00	0.00E+00	-1.21E-05	0.00E+00	0.00E+00
18	366723	756897	Recreational	-1.06E-01	-6.10E-02	-4.19E-02	-3.07E-01	-4.50E-02	0.00E+00	-1.81E-02	-7.70E-03	-1.60E-02	-3.51E-03	-4.14E-03	-3.51E-03	0.00E+00	0.00E+00	-2.48E-05	0.00E+00	0.00E+00
19	366685	756985	Recreational	-1.00E-01	-5.74E-02	-3.94E-02	-2.88E-01	-4.23E-02	0.00E+00	-1.70E-02	-7.24E-03	-1.50E-02	-3.30E-03	-3.89E-03	-3.30E-03	0.00E+00	0.00E+00	-3.02E-05	0.00E+00	0.00E+00
20	366646	757074	Recreational	-9.31E-02	-5.34E-02	-3.66E-02	-2.68E-01	-3.93E-02	0.00E+00	-1.58E-02	-6.73E-03	-1.40E-02	-3.07E-03	-3.62E-03	-3.07E-03	0.00E+00	0.00E+00	-2.57E-05	0.00E+00	0.00E+00
21	366607	757162	Recreational	-8.54E-02	-4.89E-02	-3.36E-02	-2.46E-01	-3.61E-02	0.00E+00	-1.45E-02	-6.17E-03	-1.28E-02	-2.82E-03	-3.32E-03	-2.82E-03	0.00E+00	0.00E+00	-1.35E-05	0.00E+00	0.00E+00
22	366569	757250	Recreational	-2.50E-02	-1.43E-02	-9.82E-03	-7.19E-02	-1.05E-02	0.00E+00	-4.24E-03	-1.80E-03	-3.75E-03	-8.24E-04	-9.70E-04	-8.24E-04	0.00E+00	0.00E+00	-1.17E-06	0.00E+00	0.00E+00
23	366530	757338	Recreational	-2.12E-02	-1.22E-02	-8.35E-03	-6.12E-02	-8.97E-03	0.00E+00	-3.61E-03	-1.54E-03	-3.19E-03	-7.01E-04	-8.25E-04	-7.01E-04	0.00E+00	0.00E+00	-1.10E-06	0.00E+00	0.00E+00
24	366492	757427	Recreational	-1.76E-02	-1.01E-02	-6.93E-03	-5.08E-02	-7.45E-03	0.00E+00	-2.99E-03	-1.27E-03	-2.65E-03	-5.82E-04	-6.85E-04	-5.82E-04	0.00E+00	0.00E+00	-1.01E-06	0.00E+00	0.00E+00
25	366453	757515	Recreational	3.85E-03	2.21E-03	1.52E-03	1.11E-02	1.63E-03	0.00E+00	6.55E-04	2.79E-04	5.79E-04	1.27E-04	1.50E-04	1.27E-04	0.00E+00	0.00E+00	-9.35E-07	0.00E+00	0.00E+00
26	366415	757603	Recreational	5.71E-03	3.27E-03	2.25E-03	1.65E-02	2.41E-03	0.00E+00	9.70E-04	4.13E-04	8.58E-04	1.88E-04	2.22E-04	1.88E-04	0.00E+00	0.00E+00	-8.28E-07	0.00E+00	0.00E+00
27	366376	757692	Recreational	7.32E-03	4.20E-03	2.88E-03	2.11E-02	3.09E-03	0.00E+00	1.24E-03	5.30E-04	1.10E-03	2.42E-04	2.84E-04	2.42E-04	0.00E+00	0.00E+00	-7.04E-07	0.00E+00	0.00E+00
28	366338	757780	Residential	9.18E-03	5.26E-03	3.61E-03	2.65E-02	3.88E-03	0.00E+00	1.56E-03	6.64E-04	1.38E-03	3.03E-04	3.57E-04	3.03E-04	0.00E+00	0.00E+00	-1.28E-06	0.00E+00	0.00E+00
29	366402	757746	Residential	8.74E-03	5.01E-03	3.44E-03	2.52E-02	3.69E-03	0.00E+00	1.49E-03	6.32E-04	1.31E-03	2.88E-04	3.40E-04	2.88E-04	0.00E+00	0.00E+00	-1.38E-06	0.00E+00	0.00E+00
30	366467	757713	Residential	8.42E-03	4.82E-03	3.31E-03	2.43E-02	3.56E-03	0.00E+00	1.43E-03	6.09E-04	1.26E-03	2.78E-04	3.27E-04	2.78E-04	0.00E+00	0.00E+00	-1.54E-06	0.00E+00	0.00E+00
31	366531	757679	Residential	8.67E-03	4.97E-03	3.41E-03	2.50E-02	3.66E-03	0.00E+00	1.47E-03	6.27E-04	1.30E-03	2.86E-04	3.37E-04	2.86E-04	0.00E+00	0.00E+00	-7.33E-07	0.00E+00	0.00E+00
32	366567	757773	Residential	1.12E-02	6.41E-03	4.40E-03	3.22E-02	4.73E-03	0.00E+00	1.90E-03	8.09E-04	1.68E-03	3.69E-04	4.35E-04	3.69E-04	0.00E+00	0.00E+00	-7.59E-07	0.00E+00	0.00E+00
33	366625	757758	Residential	1.17E-02	6.70E-03	4.60E-03	3.37E-02	4.94E-03	0.00E+00	1.99E-03	8.45E-04	1.76E-03	3.86E-04	4.54E-04	3.86E-04	0.00E+00	0.00E+00	-7.82E-07	0.00E+00	0.00E+00
34	366682	757744	Residential	1.22E-02	6.99E-03	4.80E-03	3.51E-02	5.15E-03	0.00E+00	2.07E-03	8.82E-04	1.83E-03	4.02E-04	4.74E-04	4.02E-04	0.00E+00	0.00E+00	-8.11E-07	0.00E+00	0.00E+00
35	366768	757788	Residential	1.47E-02	8.44E-03	5.79E-03	4.24E-02	6.22E-03	0.00E+00	2.50E-03	1.06E-03	2.21E-03	4.86E-04	5.72E-04	4.86E-04	0.00E+00	0.00E+00	-9.52E-07	0.00E+00	0.00E+00
36	366854	757833	Residential	1.70E-02	9.76E-03	6.70E-03	4.90E-02	7.19E-03	0.00E+00	2.89E-03	1.23E-03	2.56E-03	5.62E-04	6.61E-04	5.62E-04	0.00E+00	0.00E+00	-1.09E-06	0.00E+00	0.00E+00
37	366941	757877	Residential	1.97E-02	1.13E-02	7.76E-03	5.68E-02	8.34E-03	0.00E+00	3.35E-03	1.43E-03	2.96E-03	6.51E-04	7.67E-04	6.51E-04	0.00E+00	0.00E+00	-1.21E-06	0.00E+00	0.00E+00
38	367027	757922	Residential	2.25E-02	1.29E-02	8.84E-03	6.48E-02	9.50E-03	0.00E+00	3.82E-03	1.63E-03	3.38E-03	7.42E-04	8.73E-04	7.42E-04	0.00E+00	0.00E+00	-1.29E-06	0.00E+00	0.00E+00
39	367113	757966	Residential	2.50E-02	1.43E-02	9.83E-03	7.20E-02	1.06E-02	0.00E+00	4.24E-03	1.81E-03	3.75E-03	8.24E-04	9.70E-04	8.24E-04	0.00E+00	0.00E+00	-9.71E-07	0.00E+00	0.00E+00
40	367192	757916	Residential	2.55E-02	1.46E-02	1.00E-02	7.34E-02	1.08E-02	0.00E+00	4.33E-03	1.84E-03	3.83E-03	8.41E-04	9.90E-04	8.41E-04	0.00E+00	0.00E+00	-7.60E-07	0.00E+00	0.00E+00
41	367264	757916	Residential	2.69E-02	1.54E-02	1.06E-02	7.75E-02	1.14E-02	0.00E+00	4.57E-03	1.95E-03	4.04E-03	8.88E-04	1.04E-03	8.88E-04	0.00E+00	0.00E+00	-1.18E-06	0.00E+00	0.00E+00
42	367335	757916	Residential	-1.76E-02	-1.01E-02	-6.94E-03	-5.08E-02	-7.45E-03	0.00E+00	-3.00E-03	-1.28E-03	-2.65E-03	-5.82E-04	-6.85E-04	-5.82E-04	0.00E+00	0.00E+00	-1.19E-06	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.4-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE, TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
43	367343	757966	Residential	-1.84E-02	-1.05E-02	-7.23E-03	-5.30E-02	-7.76E-03	0.00E+00	-3.12E-03	-1.33E-03	-2.76E-03	-6.07E-04	-7.14E-04	-6.07E-04	0.00E+00	0.00E+00	-1.09E-06	0.00E+00	0.00E+00
44	367404	757995	Residential	-1.92E-02	-1.10E-02	-7.54E-03	-5.52E-02	-8.10E-03	0.00E+00	-3.26E-03	-1.39E-03	-2.88E-03	-6.33E-04	-7.45E-04	-6.33E-04	0.00E+00	0.00E+00	-9.79E-07	0.00E+00	0.00E+00
45	367465	758024	Residential	-2.05E-02	-1.18E-02	-8.07E-03	-5.91E-02	-8.66E-03	0.00E+00	-3.48E-03	-1.48E-03	-3.08E-03	-6.77E-04	-7.96E-04	-6.77E-04	0.00E+00	0.00E+00	-8.82E-07	0.00E+00	0.00E+00
46	367504	757948	School	-1.95E-02	-1.12E-02	-7.66E-03	-5.61E-02	-8.22E-03	0.00E+00	-3.31E-03	-1.41E-03	-2.92E-03	-6.42E-04	-7.56E-04	-6.42E-04	0.00E+00	0.00E+00	-1.16E-06	0.00E+00	0.00E+00
47	367544	757873	School	-1.66E-02	-9.54E-03	-6.55E-03	-4.80E-02	-7.03E-03	0.00E+00	-2.83E-03	-1.20E-03	-2.50E-03	-5.49E-04	-6.47E-04	-5.49E-04	0.00E+00	0.00E+00	-1.45E-06	0.00E+00	0.00E+00
48	367587	757909	School	-1.85E-02	-1.06E-02	-7.28E-03	-5.33E-02	-7.82E-03	0.00E+00	-3.15E-03	-1.34E-03	-2.78E-03	-6.11E-04	-7.19E-04	-6.11E-04	0.00E+00	0.00E+00	-1.39E-06	0.00E+00	0.00E+00
49	367623	757866	School	-1.70E-02	-9.77E-03	-6.71E-03	-4.91E-02	-7.20E-03	0.00E+00	-2.90E-03	-1.23E-03	-2.56E-03	-5.62E-04	-6.62E-04	-5.62E-04	0.00E+00	0.00E+00	-1.57E-06	0.00E+00	0.00E+00
50	367694	757866	School	-1.86E-02	-1.07E-02	-7.34E-03	-5.37E-02	-7.88E-03	0.00E+00	-3.17E-03	-1.35E-03	-2.80E-03	-6.15E-04	-7.24E-04	-6.15E-04	0.00E+00	0.00E+00	-1.66E-06	0.00E+00	0.00E+00
51	367716	757927	School	-2.30E-02	-1.32E-02	-9.03E-03	-6.61E-02	-9.70E-03	0.00E+00	-3.90E-03	-1.66E-03	-3.45E-03	-7.58E-04	-8.92E-04	-7.58E-04	0.00E+00	0.00E+00	-1.34E-06	0.00E+00	0.00E+00
52	367737	757988	School	5.11E-03	2.93E-03	2.01E-03	1.47E-02	2.16E-03	0.00E+00	8.68E-04	3.69E-04	7.68E-04	1.69E-04	1.98E-04	1.69E-04	0.00E+00	0.00E+00	-1.05E-06	0.00E+00	0.00E+00
53	367727	758067	School	2.22E-03	1.27E-03	8.73E-04	6.39E-03	9.37E-04	0.00E+00	3.77E-04	1.60E-04	3.33E-04	7.32E-05	8.62E-05	7.32E-05	0.00E+00	0.00E+00	-6.41E-07	0.00E+00	0.00E+00
54	367716	758146	School	9.18E-05	5.27E-05	3.61E-05	2.65E-04	3.88E-05	0.00E+00	1.56E-05	6.64E-06	1.38E-05	3.03E-06	3.57E-06	3.03E-06	0.00E+00	0.00E+00	-7.79E-07	0.00E+00	0.00E+00
55	367673	758189	Residential	-5.38E-04	-3.09E-04	-2.12E-04	-1.55E-03	-2.27E-04	0.00E+00	-9.15E-05	-3.89E-05	-8.09E-05	-1.78E-05	-2.09E-05	-1.78E-05	0.00E+00	0.00E+00	-8.13E-07	0.00E+00	0.00E+00
56	367723	758254	School	-3.41E-03	-1.95E-03	-1.34E-03	-9.82E-03	-1.44E-03	0.00E+00	-5.79E-04	-2.46E-04	-5.12E-04	-1.12E-04	-1.32E-04	-1.12E-04	0.00E+00	0.00E+00	-6.93E-07	0.00E+00	0.00E+00
57	367784	758221	School	-3.50E-03	-2.01E-03	-1.38E-03	-1.01E-02	-1.48E-03	0.00E+00	-5.95E-04	-2.53E-04	-5.26E-04	-1.16E-04	-1.36E-04	-1.16E-04	0.00E+00	0.00E+00	-6.35E-07	0.00E+00	0.00E+00
58	367845	758189	School	-3.88E-03	-2.23E-03	-1.53E-03	-1.12E-02	-1.64E-03	0.00E+00	-6.60E-04	-2.81E-04	-5.84E-04	-1.28E-04	-1.51E-04	-1.28E-04	0.00E+00	0.00E+00	-6.00E-07	0.00E+00	0.00E+00
59	367816	758096	Residential	3.77E-04	2.16E-04	1.48E-04	1.09E-03	1.59E-04	0.00E+00	6.41E-05	2.73E-05	5.67E-05	1.25E-05	1.47E-05	1.25E-05	0.00E+00	0.00E+00	-6.80E-07	0.00E+00	0.00E+00
60	367898	758066	Residential	-9.82E-04	-5.63E-04	-3.86E-04	-2.83E-03	-4.15E-04	0.00E+00	-1.67E-04	-7.10E-05	-1.48E-04	-3.24E-05	-3.81E-05	-3.24E-05	0.00E+00	0.00E+00	-5.99E-07	0.00E+00	0.00E+00
61	367980	758035	Residential	-1.99E-03	-1.14E-03	-7.85E-04	-5.75E-03	-8.43E-04	0.00E+00	-3.39E-04	-1.44E-04	-3.00E-04	-6.58E-05	-7.75E-05	-6.58E-05	0.00E+00	0.00E+00	-5.60E-07	0.00E+00	0.00E+00
62	368062	758005	Residential	-3.78E-03	-2.17E-03	-1.49E-03	-1.09E-02	-1.60E-03	0.00E+00	-6.43E-04	-2.74E-04	-5.69E-04	-1.25E-04	-1.47E-04	-1.25E-04	0.00E+00	0.00E+00	-5.28E-07	0.00E+00	0.00E+00
63	368144	757975	Residential	-6.61E-03	-3.79E-03	-2.60E-03	-1.90E-02	-2.79E-03	0.00E+00	-1.12E-03	-4.78E-04	-9.93E-04	-2.18E-04	-2.57E-04	-2.18E-04	0.00E+00	0.00E+00	-5.47E-07	0.00E+00	0.00E+00
64	368226	757945	Residential	-9.65E-03	-5.53E-03	-3.80E-03	-2.78E-02	-4.08E-03	0.00E+00	-1.64E-03	-6.98E-04	-1.45E-03	-3.19E-04	-3.75E-04	-3.19E-04	0.00E+00	0.00E+00	-6.13E-07	0.00E+00	0.00E+00
65	368301	757943	Residential	-1.36E-02	-7.80E-03	-5.35E-03	-3.92E-02	-5.75E-03	0.00E+00	-2.31E-03	-9.84E-04	-2.04E-03	-4.49E-04	-5.29E-04	-4.49E-04	0.00E+00	0.00E+00	-6.67E-07	0.00E+00	0.00E+00
66	368376	757941	Residential	-1.91E-02	-1.09E-02	-7.51E-03	-5.50E-02	-8.06E-03	0.00E+00	-3.24E-03	-1.38E-03	-2.87E-03	-6.30E-04	-7.42E-04	-6.30E-04	0.00E+00	0.00E+00	-7.77E-07	0.00E+00	0.00E+00
67	368452	757940	Residential	-2.51E-02	-1.44E-02	-9.88E-03	-7.23E-02	-1.06E-02	0.00E+00	-4.27E-03	-1.82E-03	-3.77E-03	-8.28E-04	-9.75E-04	-8.28E-04	0.00E+00	0.00E+00	-9.75E-07	0.00E+00	0.00E+00
68	368527	757938	Residential	-3.25E-02	-1.86E-02	-1.28E-02	-9.37E-02	-1.37E-02	0.00E+00	-5.53E-03	-2.35E-03	-4.89E-03	-1.07E-03	-1.26E-03	-1.07E-03	0.00E+00	0.00E+00	-1.14E-06	0.00E+00	0.00E+00
69	368563	757880	Residential	-3.27E-02	-1.87E-02	-1.29E-02	-9.41E-02	-1.38E-02	0.00E+00	-5.55E-03	-2.36E-03	-4.91E-03	-1.08E-03	-1.27E-03	-1.08E-03	0.00E+00	0.00E+00	-1.22E-06	0.00E+00	0.00E+00
70	368636	757926	Residential	-4.38E-02	-2.51E-02	-1.73E-02	-1.26E-01	-1.85E-02	0.00E+00	-7.45E-03	-3.17E-03	-6.59E-03	-1.45E-03	-1.70E-03	-1.45E-03	0.00E+00	0.00E+00	-1.38E-06	0.00E+00	0.00E+00
71	368709	757971	Residential	-5.51E-02	-3.16E-02	-2.17E-02	-1.59E-01	-2.33E-02	0.00E+00	-9.37E-03	-3.99E-03	-8.29E-03	-1.82E-03	-2.14E-03	-1.82E-03	0.00E+00	0.00E+00	-1.52E-06	0.00E+00	0.00E+00
72	368782	758017	Residential	-6.60E-02	-3.78E-02	-2.60E-02	-1.90E-01	-2.79E-02	0.00E+00	-1.12E-02	-4.78E-03	-9.92E-03	-2.18E-03	-2.57E-03	-2.18E-03	0.00E+00	0.00E+00	-1.67E-06	0.00E+00	0.00E+00
73	368855	758062	Residential	-7.61E-02	-4.36E-02	-2.99E-02	-2.19E-01	-3.21E-02	0.00E+00	-1.29E-02	-5.50E-03	-1.14E-02	-2.51E-03	-2.96E-03	-2.51E-03	0.00E+00	0.00E+00	-1.83E-06	0.00E+00	0.00E+00
74	368928	758108	Residential	-8.40E-02	-4.82E-02	-3.31E-02	-2.42E-01	-3.55E-02	0.00E+00	-1.43E-02	-6.08E-03	-1.26E-02	-2.77E-03	-3.27E-03	-2.77E-03	0.00E+00	0.00E+00	-1.94E-06	0.00E+00	0.00E+00
75	369001	758153	Residential	-4.23E-02	-2.42E-02	-1.66E-02	-1.22E-01	-1.79E-02	0.00E+00	-7.19E-03	-3.06E-03	-6.36E-03	-1.40E-03	-1.64E-03	-1.40E-03	0.00E+00	0.00E+00	-2.04E-06	0.00E+00	0.00E+00
76	369058	758074	Residential	1.15E-03	6.59E-04	4.52E-04	3.31E-03	4.86E-04	0.00E+00	1.95E-04	8.32E-05	1.73E-04	3.79E-05	4.47E-05	3.79E-05	0.00E+00	0.00E+00	-2.32E-06	0.00E+00	0.00E+00
77	369102	758103	Residential	5.80E-04	3.33E-04	2.28E-04	1.67E-03	2.45E-04	0.00E+00	9.86E-05	4.20E-05	8.72E-05	1.91E-05	2.25E-05	1.91E-05	0.00E+00	0.00E+00	-2.33E-06	0.00E+00	0.00E+00
78	369145	758132	Residential	-1.94E-04	-1.11E-04	-7.65E-05	-5.60E-04	-8.21E-05	0.00E+00	-3.30E-05	-1.41E-05	-2.92E-05	-6.42E-06	-7.55E-06	-6.42E-06	0.00E+00	0.00E+00	-2.29E-06	0.00E+00	0.00E+00
79	369200	758065	Residential	-7.62E-04	-4.37E-04	-3.00E-04	-2.19E-03	-3.22E-04	0.00E+00	-1.29E-04	-5.51E-05	-1.14E-04	-2.51E-05	-2.96E-05	-2.51E-05	0.00E+00	0.00E+00	-2.63E-06	0.00E+00	0.00E+00
80	369255	757998	Residential	-1.02E-03	-5.84E-04	-4.01E-04	-2.94E-03	-4.31E-04	0.00E+00	-1.73E-04	-7.37E-05	-1.53E-04	-3.36E-05	-3.96E-05	-3.36E-05	0.00E+00	0.00E+00	-3.01E-06	0.00E+00	0.00E+00
81	369310	757931	Residential	-1.61E-03	-9.21E-04	-6.32E-04	-4.63E-03	-6.79E-04	0.00E+00	-2.73E-04	-1.16E-04	-2.41E-04	-5.30E-05	-6.24E-05	-5.30E-05	0.00E+00	0.00E+00	-3.51E-06	0.00E+00	0.00E+00
82	369356	757981	Residential	-1.47E-03	-8.45E-04	-5.80E-04	-4.25E-03	-6.23E-04	0.00E+00	-2.50E-04	-1.07E-04	-2.21E-04	-4.86E-05	-5.73E-05	-4.86E-05	0.00E+00	0.00E+00	-3.25E-06	0.00E+00	0.00E+00
83	369403	758031	Residential	-1.04E-03	-5.97E-04	-4.10E-04	-3.00E-03	-4.40E-04	0.00E+00	-1.77E-04	-7.53E-05	-1.56E-04	-3.44E-05	-4.05E-05	-3.44E-05	0.00E+00	0.00E+00	-2.86E-06	0.00E+00	0.00E+00
84	369336	758100	Recreational	-1.19E-03	-6.83E-04	-4.69E-04	-3.43E-03	-5.04E-04	0.00E+00	-2.03E-04	-8.62E-05	-1.79E-04	-3.93E-05	-4.63E-05	-3.93E-05	0.00E+00	0.00E+00	-2.46E-06	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.4-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE, TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
85	369269	758170	Recreational	-8.53E-04	-4.89E-04	-3.36E-04	-2.46E-03	-3.60E-04	0.00E+00	-1.45E-04	-6.17E-05	-1.28E-04	-2.81E-05	-3.31E-05	-2.81E-05	0.00E+00	0.00E+00	-2.19E-06	0.00E+00	0.00E+00
86	369202	758239	Recreational	-3.73E-04	-2.14E-04	-1.47E-04	-1.07E-03	-1.58E-04	0.00E+00	-6.34E-05	-2.70E-05	-5.60E-05	-1.23E-05	-1.45E-05	-1.23E-05	0.00E+00	0.00E+00	-1.90E-06	0.00E+00	0.00E+00
87	369264	758285	Recreational	-4.60E-04	-2.64E-04	-1.81E-04	-1.33E-03	-1.94E-04	0.00E+00	-7.82E-05	-3.33E-05	-6.91E-05	-1.52E-05	-1.79E-05	-1.52E-05	0.00E+00	0.00E+00	-1.62E-06	0.00E+00	0.00E+00
88	369326	758330	Recreational	-5.03E-04	-2.88E-04	-1.98E-04	-1.45E-03	-2.12E-04	0.00E+00	-8.55E-05	-3.64E-05	-7.56E-05	-1.66E-05	-1.95E-05	-1.66E-05	0.00E+00	0.00E+00	-1.23E-06	0.00E+00	0.00E+00
89	369389	758376	Recreational	-3.22E-04	-1.85E-04	-1.27E-04	-9.28E-04	-1.36E-04	0.00E+00	-5.47E-05	-2.33E-05	-4.84E-05	-1.06E-05	-1.25E-05	-1.06E-05	0.00E+00	0.00E+00	-1.07E-06	0.00E+00	0.00E+00
90	369389	758462	Recreational	-1.13E-04	-6.49E-05	-4.45E-05	-3.26E-04	-4.78E-05	0.00E+00	-1.92E-05	-8.19E-06	-1.70E-05	-3.74E-06	-4.40E-06	-3.74E-06	0.00E+00	0.00E+00	-1.01E-06	0.00E+00	0.00E+00
91	369389	758548	Recreational	2.01E-04	1.15E-04	7.92E-05	5.80E-04	8.50E-05	0.00E+00	3.42E-05	1.46E-05	3.02E-05	6.64E-06	7.82E-06	6.64E-06	0.00E+00	0.00E+00	-1.01E-06	0.00E+00	0.00E+00
92	369389	758634	Residential	9.65E-05	5.53E-05	3.80E-05	2.78E-04	4.08E-05	0.00E+00	1.64E-05	6.98E-06	1.45E-05	3.19E-06	3.75E-06	3.19E-06	0.00E+00	0.00E+00	-1.04E-06	0.00E+00	0.00E+00
93	369469	758630	Residential	1.93E-04	1.10E-04	7.58E-05	5.55E-04	8.14E-05	0.00E+00	3.27E-05	1.39E-05	2.90E-05	6.36E-06	7.49E-06	6.36E-06	0.00E+00	0.00E+00	-1.15E-06	0.00E+00	0.00E+00
94	369549	758625	Residential	1.26E-03	7.22E-04	4.96E-04	3.63E-03	5.32E-04	0.00E+00	2.14E-04	9.11E-05	1.89E-04	4.16E-05	4.90E-05	4.16E-05	0.00E+00	0.00E+00	-1.27E-06	0.00E+00	0.00E+00
95	369630	758621	Residential	3.01E-03	1.72E-03	1.18E-03	8.66E-03	1.27E-03	0.00E+00	5.11E-04	2.17E-04	4.52E-04	9.92E-05	1.17E-04	9.92E-05	0.00E+00	0.00E+00	-1.41E-06	0.00E+00	0.00E+00
96	369710	758617	Residential	5.13E-03	2.94E-03	2.02E-03	1.48E-02	2.17E-03	0.00E+00	8.71E-04	3.71E-04	7.70E-04	1.69E-04	1.99E-04	1.69E-04	0.00E+00	0.00E+00	-1.50E-06	0.00E+00	0.00E+00
97	369791	758613	Residential	7.98E-03	4.57E-03	3.14E-03	2.30E-02	3.37E-03	0.00E+00	1.36E-03	5.77E-04	1.20E-03	2.63E-04	3.10E-04	2.63E-04	0.00E+00	0.00E+00	-1.60E-06	0.00E+00	0.00E+00
98	369791	758514	Residential	6.87E-03	3.94E-03	2.70E-03	1.98E-02	2.90E-03	0.00E+00	1.17E-03	4.97E-04	1.03E-03	2.27E-04	2.67E-04	2.27E-04	0.00E+00	0.00E+00	-1.81E-06	0.00E+00	0.00E+00
99	369791	758416	Residential	6.24E-03	3.58E-03	2.45E-03	1.80E-02	2.64E-03	0.00E+00	1.06E-03	4.51E-04	9.38E-04	2.06E-04	2.42E-04	2.06E-04	0.00E+00	0.00E+00	-1.98E-06	0.00E+00	0.00E+00
100	369791	758318	Residential	-9.94E-03	-5.70E-03	-3.91E-03	-2.87E-02	-4.20E-03	0.00E+00	-1.69E-03	-7.19E-04	-1.49E-03	-3.28E-04	-3.86E-04	-3.28E-04	0.00E+00	0.00E+00	-2.23E-06	0.00E+00	0.00E+00
101	369881	758318	Residential	8.93E-03	5.12E-03	3.51E-03	2.57E-02	3.77E-03	0.00E+00	1.52E-03	6.46E-04	1.34E-03	2.95E-04	3.47E-04	2.95E-04	0.00E+00	0.00E+00	-2.51E-06	0.00E+00	0.00E+00
102	369972	758318	Residential	1.43E-02	8.20E-03	5.63E-03	4.12E-02	6.04E-03	0.00E+00	2.43E-03	1.03E-03	2.15E-03	4.72E-04	5.56E-04	4.72E-04	0.00E+00	0.00E+00	-2.81E-06	0.00E+00	0.00E+00
103	370062	758318	Residential	2.34E-02	1.34E-02	9.19E-03	6.73E-02	9.87E-03	0.00E+00	3.97E-03	1.69E-03	3.51E-03	7.71E-04	9.07E-04	7.71E-04	0.00E+00	0.00E+00	-2.74E-06	0.00E+00	0.00E+00
104	370153	758318	Residential	1.06E-02	6.09E-03	4.18E-03	3.06E-02	4.49E-03	0.00E+00	1.80E-03	7.68E-04	1.60E-03	3.50E-04	4.13E-04	3.50E-04	0.00E+00	0.00E+00	-2.05E-06	0.00E+00	0.00E+00
105	370243	758318	Residential	1.05E-02	6.03E-03	4.14E-03	3.03E-02	4.44E-03	0.00E+00	1.79E-03	7.61E-04	1.58E-03	3.47E-04	4.09E-04	3.47E-04	0.00E+00	0.00E+00	-7.11E-06	0.00E+00	0.00E+00
106	370247	758254	School	1.14E-02	6.52E-03	4.47E-03	3.28E-02	4.80E-03	0.00E+00	1.93E-03	8.22E-04	1.71E-03	3.75E-04	4.42E-04	3.75E-04	0.00E+00	0.00E+00	-7.51E-06	0.00E+00	0.00E+00
107	370250	758189	School	1.23E-02	7.06E-03	4.85E-03	3.55E-02	5.21E-03	0.00E+00	2.09E-03	8.91E-04	1.85E-03	4.07E-04	4.79E-04	4.07E-04	0.00E+00	0.00E+00	-7.11E-06	0.00E+00	0.00E+00
108	370308	758196	School	1.06E-02	6.09E-03	4.18E-03	3.06E-02	4.48E-03	0.00E+00	1.80E-03	7.68E-04	1.60E-03	3.50E-04	4.12E-04	3.50E-04	0.00E+00	0.00E+00	-1.11E-05	0.00E+00	0.00E+00
109	370361	758236	School	7.87E-03	4.51E-03	3.10E-03	2.27E-02	3.33E-03	0.00E+00	1.34E-03	5.69E-04	1.18E-03	2.60E-04	3.06E-04	2.60E-04	0.00E+00	0.00E+00	-1.29E-05	0.00E+00	0.00E+00
110	370415	758275	School	5.66E-03	3.25E-03	2.23E-03	1.63E-02	2.39E-03	0.00E+00	9.62E-04	4.10E-04	8.51E-04	1.87E-04	2.20E-04	1.87E-04	0.00E+00	0.00E+00	-1.50E-05	0.00E+00	0.00E+00
111	370408	758347	Residential	6.25E-03	3.58E-03	2.46E-03	1.80E-02	2.64E-03	0.00E+00	1.06E-03	4.52E-04	9.39E-04	2.06E-04	2.43E-04	2.06E-04	0.00E+00	0.00E+00	-1.25E-05	0.00E+00	0.00E+00
112	370490	758344	Residential	4.65E-03	2.67E-03	1.83E-03	1.34E-02	1.96E-03	0.00E+00	7.90E-04	3.36E-04	6.99E-04	1.53E-04	1.81E-04	1.53E-04	0.00E+00	0.00E+00	-1.68E-05	0.00E+00	0.00E+00
113	370572	758341	Residential	4.07E-02	2.34E-02	1.60E-02	1.17E-01	1.72E-02	0.00E+00	6.92E-03	2.95E-03	6.12E-03	1.34E-03	1.58E-03	1.34E-03	0.00E+00	0.00E+00	-1.96E-05	0.00E+00	0.00E+00
114	370654	758338	Residential	1.07E-01	6.12E-02	4.20E-02	3.08E-01	4.51E-02	0.00E+00	1.81E-02	7.72E-03	1.60E-02	3.52E-03	4.15E-03	3.52E-03	0.00E+00	0.00E+00	-1.67E-05	0.00E+00	0.00E+00
115	370735	758335	Residential	6.22E-02	3.57E-02	2.45E-02	1.79E-01	2.63E-02	0.00E+00	1.06E-02	4.50E-03	9.35E-03	2.05E-03	2.42E-03	2.05E-03	0.00E+00	0.00E+00	-4.92E-06	0.00E+00	0.00E+00
116	370817	758333	Residential	8.87E-02	5.08E-02	3.49E-02	2.56E-01	3.75E-02	0.00E+00	1.51E-02	6.41E-03	1.33E-02	2.93E-03	3.45E-03	2.93E-03	0.00E+00	0.00E+00	1.33E-05	0.00E+00	0.00E+00
117	370814	758243	Offsite Worker	1.12E-01	6.44E-02	4.42E-02	3.24E-01	4.75E-02	0.00E+00	1.91E-02	8.13E-03	1.69E-02	3.71E-03	4.37E-03	3.71E-03	0.00E+00	0.00E+00	1.21E-05	0.00E+00	0.00E+00
118	370810	758153	Offsite Worker	8.00E-02	4.58E-02	3.15E-02	2.30E-01	3.38E-02	0.00E+00	1.36E-02	5.78E-03	1.20E-02	2.64E-03	3.11E-03	2.64E-03	0.00E+00	0.00E+00	1.30E-05	0.00E+00	0.00E+00
119	370807	758063	Offsite Worker	1.71E-02	9.82E-03	6.74E-03	4.94E-02	7.24E-03	0.00E+00	2.91E-03	1.24E-03	2.57E-03	5.65E-04	6.66E-04	5.65E-04	0.00E+00	0.00E+00	1.85E-05	0.00E+00	0.00E+00
120	370803	757974	Offsite Worker	6.10E-02	3.50E-02	2.40E-02	1.76E-01	2.58E-02	0.00E+00	1.04E-02	4.41E-03	9.16E-03	2.01E-03	2.37E-03	2.01E-03	0.00E+00	0.00E+00	3.39E-05	0.00E+00	0.00E+00
121	370835	757927	Offsite Worker	2.56E-01	1.47E-01	1.01E-01	7.38E-01	1.08E-01	0.00E+00	4.35E-02	1.85E-02	3.85E-02	8.45E-03	9.95E-03	8.45E-03	0.00E+00	0.00E+00	3.77E-05	0.00E+00	0.00E+00
122	370868	757880	Offsite Worker	4.05E-01	2.32E-01	1.59E-01	1.17E+00	1.71E-01	0.00E+00	6.89E-02	2.93E-02	6.09E-02	1.34E-02	1.57E-02	1.34E-02	0.00E+00	0.00E+00	9.67E-06	0.00E+00	0.00E+00
123	370921	757884	Offsite Worker	3.95E-01	2.27E-01	1.56E-01	1.14E+00	1.67E-01	0.00E+00	6.72E-02	2.86E-02	5.94E-02	1.30E-02	1.54E-02	1.30E-02	0.00E+00	0.00E+00	1.45E-05	0.00E+00	0.00E+00
124	370975	757887	Offsite Worker	3.70E-01	2.12E-01	1.46E-01	1.07E+00	1.56E-01	0.00E+00	6.29E-02	2.68E-02	5.56E-02	1.22E-02	1.44E-02	1.22E-02	0.00E+00	0.00E+00	1.76E-05	0.00E+00	0.00E+00
125	370975	757794	Offsite Worker	4.54E-01	2.60E-01	1.79E-01	1.31E+00	1.92E-01	0.00E+00	7.72E-02	3.29E-02	6.83E-02	1.50E-02	1.77E-02	1.50E-02	0.00E+00	0.00E+00	-1.87E-05	0.00E+00	0.00E+00
126	371026	757794	Offsite Worker	4.63E-01	2.65E-01	1.82E-01	1.33E+00	1.96E-01	0.00E+00	7.87E-02	3.35E-02	6.96E-02	1.53E-02	1.80E-02	1.53E-02	0.00E+00	0.00E+00	-1.47E-05	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.4-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE. TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
127	371076	757877	Offsite Worker	3.24E-01	1.86E-01	1.27E-01	9.33E-01	1.37E-01	0.00E+00	5.50E-02	2.34E-02	4.86E-02	1.07E-02	1.26E-02	1.07E-02	0.00E+00	0.00E+00	-7.84E-06	0.00E+00	0.00E+00
128	371126	757959	Offsite Worker	2.11E-01	1.21E-01	8.32E-02	6.09E-01	8.93E-02	0.00E+00	3.59E-02	1.53E-02	3.18E-02	6.98E-03	8.21E-03	6.98E-03	0.00E+00	0.00E+00	1.42E-05	0.00E+00	0.00E+00
129	371119	758031	Offsite Worker	2.36E-01	1.35E-01	9.28E-02	6.79E-01	9.96E-02	0.00E+00	4.01E-02	1.71E-02	3.54E-02	7.78E-03	9.16E-03	7.78E-03	0.00E+00	0.00E+00	8.94E-06	0.00E+00	0.00E+00
130	371183	758027	Residential	2.13E-01	1.22E-01	8.39E-02	6.14E-01	9.01E-02	0.00E+00	3.62E-02	1.54E-02	3.20E-02	7.04E-03	8.29E-03	7.04E-03	0.00E+00	0.00E+00	1.05E-05	0.00E+00	0.00E+00
131	371248	758024	Residential	1.36E-01	7.82E-02	5.37E-02	3.93E-01	5.77E-02	0.00E+00	2.32E-02	9.87E-03	2.05E-02	4.50E-03	5.30E-03	4.50E-03	0.00E+00	0.00E+00	1.14E-05	0.00E+00	0.00E+00
132	371326	758075	Residential	1.19E-01	6.80E-02	4.67E-02	3.42E-01	5.01E-02	0.00E+00	2.02E-02	8.58E-03	1.78E-02	3.91E-03	4.61E-03	3.91E-03	0.00E+00	0.00E+00	9.60E-06	0.00E+00	0.00E+00
133	371404	758127	Residential	1.04E-01	5.98E-02	4.10E-02	3.00E-01	4.40E-02	0.00E+00	1.77E-02	7.54E-03	1.57E-02	3.44E-03	4.05E-03	3.44E-03	0.00E+00	0.00E+00	8.22E-06	0.00E+00	0.00E+00
134	371481	758178	Residential	9.25E-02	5.30E-02	3.64E-02	2.67E-01	3.91E-02	0.00E+00	1.57E-02	6.69E-03	1.39E-02	3.05E-03	3.60E-03	3.05E-03	0.00E+00	0.00E+00	7.16E-06	0.00E+00	0.00E+00
135	371559	758230	Residential	8.28E-02	4.75E-02	3.26E-02	2.39E-01	3.50E-02	0.00E+00	1.41E-02	5.99E-03	1.24E-02	2.73E-03	3.22E-03	2.73E-03	0.00E+00	0.00E+00	6.06E-06	0.00E+00	0.00E+00
136	371637	758281	Residential	7.46E-02	4.28E-02	2.94E-02	2.15E-01	3.15E-02	0.00E+00	1.27E-02	5.40E-03	1.12E-02	2.46E-03	2.90E-03	2.46E-03	0.00E+00	0.00E+00	3.26E-06	0.00E+00	0.00E+00
137	371715	758333	Residential	6.76E-02	3.88E-02	2.66E-02	1.95E-01	2.86E-02	0.00E+00	1.15E-02	4.89E-03	1.02E-02	2.23E-03	2.63E-03	2.23E-03	0.00E+00	0.00E+00	1.64E-06	0.00E+00	0.00E+00
138	371769	758261	Residential	-6.20E-02	-3.56E-02	-2.44E-02	-1.79E-01	-2.62E-02	0.00E+00	-1.05E-02	-4.49E-03	-9.32E-03	-2.05E-03	-2.41E-03	-2.05E-03	0.00E+00	0.00E+00	6.06E-06	0.00E+00	0.00E+00
139	371822	758189	Residential	-1.03E-01	-5.93E-02	-4.07E-02	-2.98E-01	-4.37E-02	0.00E+00	-1.76E-02	-7.48E-03	-1.55E-02	-3.41E-03	-4.02E-03	-3.41E-03	0.00E+00	0.00E+00	6.87E-06	0.00E+00	0.00E+00
140	371894	758160	Residential	-1.43E-01	-8.22E-02	-5.65E-02	-4.13E-01	-6.06E-02	0.00E+00	-2.44E-02	-1.04E-02	-2.16E-02	-4.73E-03	-5.57E-03	-4.73E-03	0.00E+00	0.00E+00	-5.91E-06	0.00E+00	0.00E+00
141	371894	758081	Residential	1.46E-01	8.36E-02	5.74E-02	4.20E-01	6.16E-02	0.00E+00	2.48E-02	1.06E-02	2.19E-02	4.82E-03	5.67E-03	4.82E-03	0.00E+00	0.00E+00	-5.12E-06	0.00E+00	0.00E+00
142	371959	758074	Residential	1.39E-01	7.96E-02	5.47E-02	4.00E-01	5.87E-02	0.00E+00	2.36E-02	1.00E-02	2.09E-02	4.58E-03	5.40E-03	4.58E-03	0.00E+00	0.00E+00	-4.57E-06	0.00E+00	0.00E+00
143	371953	757977	Offsite Worker	1.45E-01	8.30E-02	5.70E-02	4.17E-01	6.12E-02	0.00E+00	2.46E-02	1.05E-02	2.18E-02	4.78E-03	5.63E-03	4.78E-03	0.00E+00	0.00E+00	-2.70E-06	0.00E+00	0.00E+00
144	371948	757880	Offsite Worker	1.45E-01	8.30E-02	5.70E-02	4.17E-01	6.12E-02	0.00E+00	2.46E-02	1.05E-02	2.18E-02	4.78E-03	5.62E-03	4.78E-03	0.00E+00	0.00E+00	-6.98E-07	0.00E+00	0.00E+00
145	371943	757783	Offsite Worker	1.38E-01	7.91E-02	5.43E-02	3.97E-01	5.83E-02	0.00E+00	2.34E-02	9.98E-03	2.07E-02	4.55E-03	5.36E-03	4.55E-03	0.00E+00	0.00E+00	6.66E-07	0.00E+00	0.00E+00
146	372016	757794	Offsite Worker	1.26E-01	7.24E-02	4.97E-02	3.64E-01	5.34E-02	0.00E+00	2.15E-02	9.13E-03	1.90E-02	4.17E-03	4.91E-03	4.17E-03	0.00E+00	0.00E+00	2.39E-07	0.00E+00	0.00E+00
147	372102	757791	Offsite Worker	1.13E-01	6.46E-02	4.44E-02	3.25E-01	4.76E-02	0.00E+00	1.92E-02	8.16E-03	1.69E-02	3.72E-03	4.38E-03	3.72E-03	0.00E+00	0.00E+00	-1.13E-07	0.00E+00	0.00E+00
148	372178	757760	Offsite Worker	9.84E-02	5.64E-02	3.87E-02	2.84E-01	4.16E-02	0.00E+00	1.67E-02	7.12E-03	1.48E-02	3.25E-03	3.82E-03	3.25E-03	0.00E+00	0.00E+00	-5.49E-07	0.00E+00	0.00E+00
149	372177	757670	Offsite Worker	-3.81E-02	-2.19E-02	-1.50E-02	-1.10E-01	-1.61E-02	0.00E+00	-6.48E-03	-2.76E-03	-5.73E-03	-1.26E-03	-1.48E-03	-1.26E-03	0.00E+00	0.00E+00	-7.03E-07	0.00E+00	0.00E+00
150	372176	757579	Offsite Worker	-5.55E-03	-3.18E-03	-2.19E-03	-1.60E-02	-2.35E-03	0.00E+00	-9.44E-04	-4.02E-04	-8.35E-04	-1.83E-04	-2.16E-04	-1.83E-04	0.00E+00	0.00E+00	-1.49E-06	0.00E+00	0.00E+00
151	372174	757489	Offsite Worker	-4.10E-03	-2.35E-03	-1.61E-03	-1.18E-02	-1.73E-03	0.00E+00	-6.96E-04	-2.96E-04	-6.16E-04	-1.35E-04	-1.59E-04	-1.35E-04	0.00E+00	0.00E+00	-1.21E-07	0.00E+00	0.00E+00
152	372173	757398	Offsite Worker	-4.02E-03	-2.31E-03	-1.58E-03	-1.16E-02	-1.70E-03	0.00E+00	-6.84E-04	-2.91E-04	-6.05E-04	-1.33E-04	-1.56E-04	-1.33E-04	0.00E+00	0.00E+00	-1.22E-07	0.00E+00	0.00E+00
153	372171	757308	Offsite Worker	3.20E-02	1.83E-02	1.26E-02	9.22E-02	1.35E-02	0.00E+00	5.44E-03	2.31E-03	4.81E-03	1.06E-03	1.24E-03	1.06E-03	0.00E+00	0.00E+00	-1.15E-07	0.00E+00	0.00E+00
154	372055	757309	Offsite Worker	-4.28E-03	-2.45E-03	-1.68E-03	-1.23E-02	-1.81E-03	0.00E+00	-7.28E-04	-3.10E-04	-6.43E-04	-1.41E-04	-1.66E-04	-1.41E-04	0.00E+00	0.00E+00	-1.31E-07	0.00E+00	0.00E+00
155	372055	757363	Residential	-4.41E-03	-2.53E-03	-1.73E-03	-1.27E-02	-1.86E-03	0.00E+00	-7.49E-04	-3.19E-04	-6.63E-04	-1.46E-04	-1.71E-04	-1.46E-04	0.00E+00	0.00E+00	-1.34E-07	0.00E+00	0.00E+00
156	372055	757416	Offsite Worker	-4.42E-03	-2.53E-03	-1.74E-03	-1.27E-02	-1.87E-03	0.00E+00	-7.51E-04	-3.20E-04	-6.64E-04	-1.46E-04	-1.72E-04	-1.46E-04	0.00E+00	0.00E+00	-1.34E-07	0.00E+00	0.00E+00
157	371952	757442	Offsite Worker	-4.53E-03	-2.60E-03	-1.78E-03	-1.31E-02	-1.92E-03	0.00E+00	-7.71E-04	-3.28E-04	-6.81E-04	-1.50E-04	-1.76E-04	-1.50E-04	0.00E+00	0.00E+00	-1.35E-07	0.00E+00	0.00E+00
158	371950	757345	Offsite Worker	-4.71E-03	-2.70E-03	-1.85E-03	-1.36E-02	-1.99E-03	0.00E+00	-8.00E-04	-3.41E-04	-7.08E-04	-1.55E-04	-1.83E-04	-1.55E-04	0.00E+00	0.00E+00	-1.44E-07	0.00E+00	0.00E+00
159	371864	757344	Offsite Worker	-4.93E-03	-2.82E-03	-1.94E-03	-1.42E-02	-2.08E-03	0.00E+00	-8.37E-04	-3.56E-04	-7.41E-04	-1.63E-04	-1.91E-04	-1.63E-04	0.00E+00	0.00E+00	-1.50E-07	0.00E+00	0.00E+00
160	371790	757347	Offsite Worker	-5.03E-03	-2.88E-03	-1.98E-03	-1.45E-02	-2.13E-03	0.00E+00	-8.55E-04	-3.64E-04	-7.56E-04	-1.66E-04	-1.95E-04	-1.66E-04	0.00E+00	0.00E+00	-1.54E-07	0.00E+00	0.00E+00
161	371708	757356	Offsite Worker	-5.01E-03	-2.87E-03	-1.97E-03	-1.45E-02	-2.12E-03	0.00E+00	-8.52E-04	-3.63E-04	-7.54E-04	-1.66E-04	-1.95E-04	-1.66E-04	0.00E+00	0.00E+00	2.67E-06	0.00E+00	0.00E+00
162	371615	757356	Offsite Worker	9.06E-02	5.20E-02	3.57E-02	2.61E-01	3.83E-02	0.00E+00	1.54E-02	6.56E-03	1.36E-02	2.99E-03	3.52E-03	2.99E-03	0.00E+00	0.00E+00	5.88E-06	0.00E+00	0.00E+00
163	371523	757356	Offsite Worker	1.04E-01	5.96E-02	4.09E-02	3.00E-01	4.39E-02	0.00E+00	1.77E-02	7.52E-03	1.56E-02	3.43E-03	4.04E-03	3.43E-03	0.00E+00	0.00E+00	6.59E-06	0.00E+00	0.00E+00
164	371430	757356	Offsite Worker	-3.61E-02	-2.07E-02	-1.42E-02	-1.04E-01	-1.53E-02	0.00E+00	-6.13E-03	-2.61E-03	-5.42E-03	-1.19E-03	-1.40E-03	-1.19E-03	0.00E+00	0.00E+00	7.44E-06	0.00E+00	0.00E+00
165	371338	757356	Offsite Worker	-6.15E-02	-3.52E-02	-2.42E-02	-1.77E-01	-2.60E-02	0.00E+00	-1.04E-02	-4.45E-03	-9.24E-03	-2.03E-03	-2.39E-03	-2.03E-03	0.00E+00	0.00E+00	8.48E-06	0.00E+00	0.00E+00
166	371245	757356	Offsite Worker	-5.71E-02	-3.27E-02	-2.25E-02	-1.65E-01	-2.41E-02	0.00E+00	-9.71E-03	-4.13E-03	-8.58E-03	-1.89E-03	-2.22E-03	-1.89E-03	0.00E+00	0.00E+00	9.70E-06	0.00E+00	0.00E+00
167	371153	757356	Offsite Worker	-5.32E-02	-3.05E-02	-2.09E-02	-1.53E-01	-2.25E-02	0.00E+00	-9.05E-03	-3.85E-03	-8.00E-03	-1.76E-03	-2.07E-03	-1.76E-03	0.00E+00	0.00E+00	1.10E-05	0.00E+00	0.00E+00
168	371061	757356	Offsite Worker	-4.62E-02	-2.65E-02	-1.82E-02	-1.33E-01	-1.95E-02	0.00E+00	-7.86E-03	-3.34E-03	-6.95E-03	-1.53E-03	-1.80E-03	-1.53E-03	0.00E+00	0.00E+00	1.25E-05	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.4-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE. TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
169	371005	757357	Offsite Worker	-3.92E-02	-2.25E-02	-1.54E-02	-1.13E-01	-1.66E-02	0.00E+00	-6.66E-03	-2.83E-03	-5.89E-03	-1.29E-03	-1.52E-03	-1.29E-03	0.00E+00	0.00E+00	1.36E-05	0.00E+00	0.00E+00
170	370998	757293	Offsite Worker	-1.25E-01	-7.17E-02	-4.92E-02	-3.61E-01	-5.29E-02	0.00E+00	-2.13E-02	-9.05E-03	-1.88E-02	-4.13E-03	-4.86E-03	-4.13E-03	0.00E+00	0.00E+00	2.49E-05	0.00E+00	0.00E+00
171	370998	757194	Offsite Worker	1.76E-02	1.01E-02	6.93E-03	5.07E-02	7.44E-03	0.00E+00	2.99E-03	1.27E-03	2.65E-03	5.81E-04	6.84E-04	5.81E-04	0.00E+00	0.00E+00	1.23E-05	0.00E+00	0.00E+00
172	370998	757096	Offsite Worker	1.71E-01	9.78E-02	6.71E-02	4.92E-01	7.21E-02	0.00E+00	2.90E-02	1.23E-02	2.56E-02	5.63E-03	6.63E-03	5.63E-03	0.00E+00	0.00E+00	4.22E-06	0.00E+00	0.00E+00
173	370998	756998	Offsite Worker	7.00E-02	4.01E-02	2.75E-02	2.02E-01	2.96E-02	0.00E+00	1.19E-02	5.06E-03	1.05E-02	2.31E-03	2.72E-03	2.31E-03	0.00E+00	0.00E+00	4.19E-07	0.00E+00	0.00E+00
174	371057	756997	Offsite Worker	8.80E-02	5.05E-02	3.46E-02	2.54E-01	3.72E-02	0.00E+00	1.50E-02	6.37E-03	1.32E-02	2.91E-03	3.42E-03	2.91E-03	0.00E+00	0.00E+00	1.37E-06	0.00E+00	0.00E+00
175	371153	756997	Offsite Worker	-7.94E-03	-4.55E-03	-3.12E-03	-2.29E-02	-3.35E-03	0.00E+00	-1.35E-03	-5.74E-04	-1.19E-03	-2.62E-04	-3.09E-04	-2.62E-04	0.00E+00	0.00E+00	-2.47E-07	0.00E+00	0.00E+00
176	371249	756997	Offsite Worker	-7.80E-03	-4.47E-03	-3.07E-03	-2.25E-02	-3.29E-03	0.00E+00	-1.32E-03	-5.64E-04	-1.17E-03	-2.57E-04	-3.03E-04	-2.57E-04	0.00E+00	0.00E+00	-2.43E-07	0.00E+00	0.00E+00
177	371345	756997	Offsite Worker	-7.36E-03	-4.22E-03	-2.90E-03	-2.12E-02	-3.11E-03	0.00E+00	-1.25E-03	-5.32E-04	-1.11E-03	-2.43E-04	-2.86E-04	-2.43E-04	0.00E+00	0.00E+00	-2.29E-07	0.00E+00	0.00E+00
178	371440	756997	Offsite Worker	-6.74E-03	-3.87E-03	-2.65E-03	-1.94E-02	-2.85E-03	0.00E+00	-1.15E-03	-4.88E-04	-1.01E-03	-2.23E-04	-2.62E-04	-2.23E-04	0.00E+00	0.00E+00	-2.07E-07	0.00E+00	0.00E+00
179	371536	756997	Offsite Worker	-6.03E-03	-3.46E-03	-2.37E-03	-1.74E-02	-2.55E-03	0.00E+00	-1.02E-03	-4.36E-04	-9.06E-04	-1.99E-04	-2.34E-04	-1.99E-04	0.00E+00	0.00E+00	-1.86E-07	0.00E+00	0.00E+00
180	371632	756997	Offsite Worker	-5.22E-03	-2.99E-03	-2.06E-03	-1.51E-02	-2.21E-03	0.00E+00	-8.88E-04	-3.78E-04	-7.85E-04	-1.72E-04	-2.03E-04	-1.72E-04	0.00E+00	0.00E+00	-1.64E-07	0.00E+00	0.00E+00
181	371728	756997	Offsite Worker	-4.42E-03	-2.53E-03	-1.74E-03	-1.27E-02	-1.87E-03	0.00E+00	-7.50E-04	-3.19E-04	-6.64E-04	-1.46E-04	-1.72E-04	-1.46E-04	0.00E+00	0.00E+00	-1.39E-07	0.00E+00	0.00E+00
182	371824	756997	Offsite Worker	-7.40E-02	-4.24E-02	-2.91E-02	-2.13E-01	-3.13E-02	0.00E+00	-1.26E-02	-5.35E-03	-1.11E-02	-2.44E-03	-2.88E-03	-2.44E-03	0.00E+00	0.00E+00	-1.17E-07	0.00E+00	0.00E+00
183	371920	756997	Offsite Worker	-7.46E-02	-4.28E-02	-2.94E-02	-2.15E-01	-3.15E-02	0.00E+00	-1.27E-02	-5.40E-03	-1.12E-02	-2.46E-03	-2.90E-03	-2.46E-03	0.00E+00	0.00E+00	-9.61E-08	0.00E+00	0.00E+00
184	372016	756997	Offsite Worker	-7.52E-02	-4.31E-02	-2.96E-02	-2.17E-01	-3.18E-02	0.00E+00	-1.28E-02	-5.44E-03	-1.13E-02	-2.48E-03	-2.92E-03	-2.48E-03	0.00E+00	0.00E+00	-7.83E-08	0.00E+00	0.00E+00
185	372111	756997	Offsite Worker	-7.57E-02	-4.34E-02	-2.98E-02	-2.18E-01	-3.20E-02	0.00E+00	-1.29E-02	-5.47E-03	-1.14E-02	-2.50E-03	-2.94E-03	-2.50E-03	0.00E+00	0.00E+00	-6.27E-08	0.00E+00	0.00E+00
186	372207	756997	Offsite Worker	-7.61E-02	-4.36E-02	-2.99E-02	-2.19E-01	-3.22E-02	0.00E+00	-1.29E-02	-5.50E-03	-1.14E-02	-2.51E-03	-2.96E-03	-2.51E-03	0.00E+00	0.00E+00	-5.12E-08	0.00E+00	0.00E+00
187	372303	756997	Offsite Worker	-7.66E-02	-4.39E-02	-3.02E-02	-2.21E-01	-3.24E-02	0.00E+00	-1.30E-02	-5.54E-03	-1.15E-02	-2.53E-03	-2.98E-03	-2.53E-03	0.00E+00	0.00E+00	-4.08E-08	0.00E+00	0.00E+00
188	372399	756997	Offsite Worker	-7.71E-02	-4.42E-02	-3.03E-02	-2.22E-01	-3.26E-02	0.00E+00	-1.31E-02	-5.58E-03	-1.16E-02	-2.54E-03	-3.00E-03	-2.54E-03	0.00E+00	0.00E+00	-6.41E-08	0.00E+00	0.00E+00
189	372495	756997	Offsite Worker	-7.76E-02	-4.45E-02	-3.05E-02	-2.24E-01	-3.28E-02	0.00E+00	-1.32E-02	-5.61E-03	-1.17E-02	-2.56E-03	-3.02E-03	-2.56E-03	0.00E+00	0.00E+00	-4.08E-08	0.00E+00	0.00E+00
190	372591	756997	Offsite Worker	-7.79E-02	-4.47E-02	-3.07E-02	-2.25E-01	-3.29E-02	0.00E+00	-1.32E-02	-5.64E-03	-1.17E-02	-2.57E-03	-3.03E-03	-2.57E-03	0.00E+00	0.00E+00	-2.87E-08	0.00E+00	0.00E+00
191	372610	757063	Offsite Worker	-7.45E-02	-4.27E-02	-2.93E-02	-2.15E-01	-3.15E-02	0.00E+00	-1.27E-02	-5.39E-03	-1.12E-02	-2.46E-03	-2.89E-03	-2.46E-03	0.00E+00	0.00E+00	-2.96E-08	0.00E+00	0.00E+00
192	372612	757132	Offsite Worker	-7.15E-02	-4.10E-02	-2.81E-02	-2.06E-01	-3.02E-02	0.00E+00	-1.22E-02	-5.17E-03	-1.07E-02	-2.36E-03	-2.78E-03	-2.36E-03	0.00E+00	0.00E+00	-3.67E-08	0.00E+00	0.00E+00
193	372614	757201	Offsite Worker	-6.88E-02	-3.94E-02	-2.71E-02	-1.98E-01	-2.91E-02	0.00E+00	-1.17E-02	-4.98E-03	-1.03E-02	-2.27E-03	-2.67E-03	-2.27E-03	0.00E+00	0.00E+00	-4.44E-08	0.00E+00	0.00E+00
194	372616	757270	Offsite Worker	-6.68E-02	-3.83E-02	-2.63E-02	-1.92E-01	-2.82E-02	0.00E+00	-1.13E-02	-4.83E-03	-1.00E-02	-2.20E-03	-2.59E-03	-2.20E-03	0.00E+00	0.00E+00	-5.26E-08	0.00E+00	0.00E+00
195	372627	757351	Offsite Worker	2.37E-03	1.36E-03	9.33E-04	6.83E-03	1.00E-03	0.00E+00	4.03E-04	1.72E-04	3.56E-04	7.83E-05	9.21E-05	7.83E-05	0.00E+00	0.00E+00	-6.41E-08	0.00E+00	0.00E+00
196	372651	757422	Offsite Worker	2.73E-02	1.56E-02	1.07E-02	7.86E-02	1.15E-02	0.00E+00	4.64E-03	1.97E-03	4.10E-03	9.01E-04	1.06E-03	9.01E-04	0.00E+00	0.00E+00	-7.17E-08	0.00E+00	0.00E+00
197	372676	757494	Offsite Worker	3.16E-02	1.81E-02	1.24E-02	9.11E-02	1.34E-02	0.00E+00	5.38E-03	2.29E-03	4.75E-03	1.04E-03	1.23E-03	1.04E-03	0.00E+00	0.00E+00	-7.80E-08	0.00E+00	0.00E+00
198	372704	757569	Offsite Worker	3.72E-02	2.13E-02	1.46E-02	1.07E-01	1.57E-02	0.00E+00	6.32E-03	2.69E-03	5.59E-03	1.23E-03	1.45E-03	1.23E-03	0.00E+00	0.00E+00	-8.08E-08	0.00E+00	0.00E+00
199	372733	757645	Offsite Worker	-2.16E-02	-1.24E-02	-8.50E-03	-6.22E-02	-9.12E-03	0.00E+00	-3.67E-03	-1.56E-03	-3.25E-03	-7.13E-04	-8.39E-04	-7.13E-04	0.00E+00	0.00E+00	-8.10E-08	0.00E+00	0.00E+00
200	372746	757702	Offsite Worker	-5.05E-02	-2.89E-02	-1.99E-02	-1.45E-01	-2.13E-02	0.00E+00	-8.58E-03	-3.65E-03	-7.59E-03	-1.67E-03	-1.96E-03	-1.67E-03	0.00E+00	0.00E+00	-8.19E-08	0.00E+00	0.00E+00
201	372746	757768	Offsite Worker	-4.91E-02	-2.82E-02	-1.93E-02	-1.42E-01	-2.08E-02	0.00E+00	-8.35E-03	-3.55E-03	-7.39E-03	-1.62E-03	-1.91E-03	-1.62E-03	0.00E+00	0.00E+00	-1.96E-06	0.00E+00	0.00E+00
202	372807	757781	School	-4.95E-02	-2.84E-02	-1.95E-02	-1.43E-01	-2.09E-02	0.00E+00	-8.41E-03	-3.58E-03	-7.44E-03	-1.63E-03	-1.92E-03	-1.63E-03	0.00E+00	0.00E+00	-1.88E-06	0.00E+00	0.00E+00
203	372901	757782	School	-4.97E-02	-2.85E-02	-1.95E-02	-1.43E-01	-2.10E-02	0.00E+00	-8.44E-03	-3.59E-03	-7.46E-03	-1.64E-03	-1.93E-03	-1.64E-03	0.00E+00	0.00E+00	-6.46E-08	0.00E+00	0.00E+00
204	372994	757783	Offsite Worker	-5.04E-02	-2.89E-02	-1.98E-02	-1.45E-01	-2.13E-02	0.00E+00	-8.56E-03	-3.64E-03	-7.57E-03	-1.66E-03	-1.96E-03	-1.66E-03	0.00E+00	0.00E+00	-6.82E-08	0.00E+00	0.00E+00
205	373087	757783	Offsite Worker	-5.08E-02	-2.91E-02	-2.00E-02	-1.46E-01	-2.15E-02	0.00E+00	-8.63E-03	-3.67E-03	-7.64E-03	-1.68E-03	-1.97E-03	-1.68E-03	0.00E+00	0.00E+00	-6.16E-08	0.00E+00	0.00E+00
206	373180	757784	Offsite Worker	-5.13E-02	-2.94E-02	-2.02E-02	-1.48E-01	-2.17E-02	0.00E+00	-8.72E-03	-3.71E-03	-7.71E-03	-1.69E-03	-1.99E-03	-1.69E-03	0.00E+00	0.00E+00	-5.80E-08	0.00E+00	0.00E+00
207	373274	757785	Offsite Worker	-5.11E-02	-2.93E-02	-2.01E-02	-1.47E-01	-2.16E-02	0.00E+00	-8.68E-03	-3.69E-03	-7.68E-03	-1.69E-03	-1.98E-03	-1.69E-03	0.00E+00	0.00E+00	-5.34E-08	0.00E+00	0.00E+00
208	373367	757786	Offsite Worker	-5.16E-02	-2.96E-02	-2.03E-02	-1.49E-01	-2.18E-02	0.00E+00	-8.77E-03	-3.73E-03	-7.75E-03	-1.70E-03	-2.00E-03	-1.70E-03	0.00E+00	0.00E+00	-4.90E-08	0.00E+00	0.00E+00
209	373418	757742	Offsite Worker	-5.29E-02	-3.03E-02	-2.08E-02	-1.52E-01	-2.24E-02	0.00E+00	-8.99E-03	-3.83E-03	-7.95E-03	-1.75E-03	-2.06E-03	-1.75E-03	0.00E+00	0.00E+00	-5.09E-08	0.00E+00	0.00E+00
210	373418	757653	Offsite Worker	-5.54E-02	-3.18E-02	-2.18E-02	-1.60E-01	-2.34E-02	0.00E+00	-9.42E-03	-4.01E-03	-8.33E-03	-1.83E-03	-2.15E-03	-1.83E-03	0.00E+00	0.00E+00	-4.90E-08	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.4-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE, TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
211	373419	757564	Offsite Worker	-5.88E-02	-3.37E-02	-2.31E-02	-1.70E-01	-2.49E-02	0.00E+00	-1.00E-02	-4.26E-03	-8.84E-03	-1.94E-03	-2.29E-03	-1.94E-03	0.00E+00	0.00E+00	-5.09E-08	0.00E+00	0.00E+00
212	373419	757475	Offsite Worker	-6.04E-02	-3.46E-02	-2.38E-02	-1.74E-01	-2.55E-02	0.00E+00	-1.03E-02	-4.37E-03	-9.07E-03	-1.99E-03	-2.35E-03	-1.99E-03	0.00E+00	0.00E+00	-5.97E-08	0.00E+00	0.00E+00
213	373420	757386	Offsite Worker	-6.34E-02	-3.63E-02	-2.49E-02	-1.83E-01	-2.68E-02	0.00E+00	-1.08E-02	-4.59E-03	-9.53E-03	-2.09E-03	-2.46E-03	-2.09E-03	0.00E+00	0.00E+00	-7.28E-08	0.00E+00	0.00E+00
214	373420	757297	Offsite Worker	-6.63E-02	-3.80E-02	-2.61E-02	-1.91E-01	-2.80E-02	0.00E+00	-1.13E-02	-4.79E-03	-9.96E-03	-2.19E-03	-2.58E-03	-2.19E-03	0.00E+00	0.00E+00	-8.93E-08	0.00E+00	0.00E+00
215	373421	757207	Offsite Worker	-6.92E-02	-3.96E-02	-2.72E-02	-1.99E-01	-2.92E-02	0.00E+00	-1.18E-02	-5.00E-03	-1.04E-02	-2.28E-03	-2.69E-03	-2.28E-03	0.00E+00	0.00E+00	-1.08E-07	0.00E+00	0.00E+00
216	373421	757118	Offsite Worker	-7.24E-02	-4.15E-02	-2.85E-02	-2.09E-01	-3.06E-02	0.00E+00	-1.23E-02	-5.24E-03	-1.09E-02	-2.39E-03	-2.81E-03	-2.39E-03	0.00E+00	0.00E+00	-1.16E-07	0.00E+00	0.00E+00
217	373292	757117	Offsite Worker	-7.28E-02	-4.17E-02	-2.86E-02	-2.10E-01	-3.08E-02	0.00E+00	-1.24E-02	-5.26E-03	-1.09E-02	-2.40E-03	-2.83E-03	-2.40E-03	0.00E+00	0.00E+00	-1.24E-07	0.00E+00	0.00E+00
218	373213	757118	Offsite Worker	-7.28E-02	-4.17E-02	-2.86E-02	-2.10E-01	-3.07E-02	0.00E+00	-1.24E-02	-5.26E-03	-1.09E-02	-2.40E-03	-2.83E-03	-2.40E-03	0.00E+00	0.00E+00	-1.19E-07	0.00E+00	0.00E+00
219	373158	757066	Offsite Worker	-7.48E-02	-4.29E-02	-2.94E-02	-2.16E-01	-3.16E-02	0.00E+00	-1.27E-02	-5.41E-03	-1.12E-02	-2.47E-03	-2.91E-03	-2.47E-03	0.00E+00	0.00E+00	-1.33E-07	0.00E+00	0.00E+00
220	373084	757026	Offsite Worker	-7.67E-02	-4.40E-02	-3.02E-02	-2.21E-01	-3.24E-02	0.00E+00	-1.30E-02	-5.55E-03	-1.15E-02	-2.53E-03	-2.98E-03	-2.53E-03	0.00E+00	0.00E+00	-1.41E-07	0.00E+00	0.00E+00
221	373009	757011	Offsite Worker	-7.74E-02	-4.44E-02	-3.05E-02	-2.23E-01	-3.27E-02	0.00E+00	-1.32E-02	-5.60E-03	-1.16E-02	-2.56E-03	-3.01E-03	-2.56E-03	0.00E+00	0.00E+00	-1.38E-07	0.00E+00	0.00E+00
222	372922	757009	Offsite Worker	-7.77E-02	-4.45E-02	-3.06E-02	-2.24E-01	-3.28E-02	0.00E+00	-1.32E-02	-5.62E-03	-1.17E-02	-2.56E-03	-3.02E-03	-2.56E-03	0.00E+00	0.00E+00	-1.16E-07	0.00E+00	0.00E+00
223	372835	757007	Offsite Worker	-7.78E-02	-4.46E-02	-3.06E-02	-2.24E-01	-3.29E-02	0.00E+00	-1.32E-02	-5.62E-03	-1.17E-02	-2.57E-03	-3.02E-03	-2.57E-03	0.00E+00	0.00E+00	-8.57E-08	0.00E+00	0.00E+00
224	372747	757006	Offsite Worker	-7.79E-02	-4.46E-02	-3.06E-02	-2.24E-01	-3.29E-02	0.00E+00	-1.32E-02	-5.63E-03	-1.17E-02	-2.57E-03	-3.03E-03	-2.57E-03	0.00E+00	0.00E+00	-5.69E-08	0.00E+00	0.00E+00
225	372660	757004	Offsite Worker	-7.79E-02	-4.46E-02	-3.06E-02	-2.24E-01	-3.29E-02	0.00E+00	-1.32E-02	-5.63E-03	-1.17E-02	-2.57E-03	-3.03E-03	-2.57E-03	0.00E+00	0.00E+00	-3.72E-08	0.00E+00	0.00E+00
226	372651	757063	Offsite Worker	-7.46E-02	-4.28E-02	-2.94E-02	-2.15E-01	-3.15E-02	0.00E+00	-1.27E-02	-5.40E-03	-1.12E-02	-2.46E-03	-2.90E-03	-2.46E-03	0.00E+00	0.00E+00	-3.09E-08	0.00E+00	0.00E+00
227	372629	756931	Offsite Worker	-6.11E-02	-3.50E-02	-2.40E-02	-1.76E-01	-2.58E-02	0.00E+00	-1.04E-02	-4.42E-03	-9.18E-03	-2.02E-03	-2.37E-03	-2.02E-03	0.00E+00	0.00E+00	-4.71E-08	0.00E+00	0.00E+00
228	372631	756857	Offsite Worker	-2.58E-02	-1.48E-02	-1.02E-02	-7.44E-02	-1.09E-02	0.00E+00	-4.39E-03	-1.87E-03	-3.88E-03	-8.52E-04	-1.00E-03	-8.52E-04	0.00E+00	0.00E+00	-9.28E-08	0.00E+00	0.00E+00
229	372634	756783	Offsite Worker	-2.85E-02	-1.63E-02	-1.12E-02	-8.21E-02	-1.20E-02	0.00E+00	-4.84E-03	-2.06E-03	-4.28E-03	-9.40E-04	-1.11E-03	-9.40E-04	0.00E+00	0.00E+00	-1.86E-07	0.00E+00	0.00E+00
230	372702	756778	Offsite Worker	-2.48E-02	-1.42E-02	-9.78E-03	-7.16E-02	-1.05E-02	0.00E+00	-4.22E-03	-1.80E-03	-3.73E-03	-8.20E-04	-9.66E-04	-8.20E-04	0.00E+00	0.00E+00	-2.41E-07	0.00E+00	0.00E+00
231	372756	756775	Offsite Worker	-2.19E-02	-1.26E-02	-8.61E-03	-6.31E-02	-9.25E-03	0.00E+00	-3.72E-03	-1.58E-03	-3.29E-03	-7.23E-04	-8.51E-04	-7.23E-04	0.00E+00	0.00E+00	-2.68E-07	0.00E+00	0.00E+00
232	372729	756712	Offsite Worker	-3.10E-02	-1.78E-02	-1.22E-02	-8.92E-02	-1.31E-02	0.00E+00	-5.26E-03	-2.24E-03	-4.65E-03	-1.02E-03	-1.20E-03	-1.02E-03	0.00E+00	0.00E+00	-3.44E-07	0.00E+00	0.00E+00
233	372703	756650	Offsite Worker	-9.95E-02	-5.71E-02	-3.92E-02	-2.87E-01	-4.21E-02	0.00E+00	-1.69E-02	-7.20E-03	-1.50E-02	-3.29E-03	-3.87E-03	-3.29E-03	0.00E+00	0.00E+00	-4.01E-07	0.00E+00	0.00E+00
234	372677	756588	Offsite Worker	-1.04E-01	-5.97E-02	-4.10E-02	-3.00E-01	-4.40E-02	0.00E+00	-1.77E-02	-7.53E-03	-1.57E-02	-3.44E-03	-4.05E-03	-3.44E-03	0.00E+00	0.00E+00	-4.22E-07	0.00E+00	0.00E+00
235	372619	756588	Offsite Worker	-3.14E-02	-1.80E-02	-1.24E-02	-9.05E-02	-1.33E-02	0.00E+00	-5.34E-03	-2.27E-03	-4.72E-03	-1.04E-03	-1.22E-03	-1.04E-03	0.00E+00	0.00E+00	-5.18E-07	0.00E+00	0.00E+00
236	372622	756509	Offsite Worker	-1.11E-01	-6.36E-02	-4.36E-02	-3.20E-01	-4.69E-02	0.00E+00	-1.88E-02	-8.02E-03	-1.67E-02	-3.66E-03	-4.31E-03	-3.66E-03	0.00E+00	0.00E+00	-3.88E-07	0.00E+00	0.00E+00
237	372700	756511	Offsite Worker	-1.07E-01	-6.14E-02	-4.21E-02	-3.09E-01	-4.52E-02	0.00E+00	-1.82E-02	-7.74E-03	-1.61E-02	-3.53E-03	-4.16E-03	-3.53E-03	0.00E+00	0.00E+00	-2.12E-07	0.00E+00	0.00E+00
238	372789	756510	Offsite Worker	-1.03E-01	-5.90E-02	-4.05E-02	-2.97E-01	-4.35E-02	0.00E+00	-1.75E-02	-7.45E-03	-1.55E-02	-3.40E-03	-4.00E-03	-3.40E-03	0.00E+00	0.00E+00	-4.63E-06	0.00E+00	0.00E+00
239	372871	756509	Offsite Worker	-9.91E-02	-5.68E-02	-3.90E-02	-2.85E-01	-4.19E-02	0.00E+00	-1.68E-02	-7.17E-03	-1.49E-02	-3.27E-03	-3.85E-03	-3.27E-03	0.00E+00	0.00E+00	-4.47E-06	0.00E+00	0.00E+00
240	372871	756437	Offsite Worker	-2.10E-02	-1.20E-02	-8.26E-03	-6.05E-02	-8.87E-03	0.00E+00	-3.57E-03	-1.52E-03	-3.15E-03	-6.93E-04	-8.15E-04	-6.93E-04	0.00E+00	0.00E+00	-4.36E-06	0.00E+00	0.00E+00
241	372970	756437	Offsite Worker	1.22E-02	7.01E-03	4.81E-03	3.52E-02	5.16E-03	0.00E+00	2.08E-03	8.84E-04	1.84E-03	4.03E-04	4.75E-04	4.03E-04	0.00E+00	0.00E+00	-4.14E-06	0.00E+00	0.00E+00
242	373069	756437	Offsite Worker	1.42E-02	8.12E-03	5.57E-03	4.08E-02	5.98E-03	0.00E+00	2.41E-03	1.02E-03	2.13E-03	4.67E-04	5.50E-04	4.67E-04	0.00E+00	0.00E+00	-3.93E-06	0.00E+00	0.00E+00
243	373168	756437	Offsite Worker	1.55E-02	8.87E-03	6.09E-03	4.46E-02	6.53E-03	0.00E+00	2.63E-03	1.12E-03	2.32E-03	5.10E-04	6.01E-04	5.10E-04	0.00E+00	0.00E+00	-3.74E-06	0.00E+00	0.00E+00
244	373267	756437	Offsite Worker	1.66E-02	9.50E-03	6.52E-03	4.78E-02	7.00E-03	0.00E+00	2.82E-03	1.20E-03	2.49E-03	5.47E-04	6.44E-04	5.47E-04	0.00E+00	0.00E+00	-3.56E-06	0.00E+00	0.00E+00
245	373412	756437	Offsite Worker	1.67E-02	9.59E-03	6.58E-03	4.82E-02	7.07E-03	0.00E+00	2.84E-03	1.21E-03	2.51E-03	5.52E-04	6.50E-04	5.52E-04	0.00E+00	0.00E+00	-3.29E-06	0.00E+00	0.00E+00
246	373409	756339	Offsite Worker	1.22E-02	6.98E-03	4.79E-03	3.51E-02	5.14E-03	0.00E+00	2.07E-03	8.80E-04	1.83E-03	4.02E-04	4.73E-04	4.02E-04	0.00E+00	0.00E+00	-2.37E-07	0.00E+00	0.00E+00
247	373406	756240	Offsite Worker	7.29E-03	4.18E-03	2.87E-03	2.10E-02	3.08E-03	0.00E+00	1.24E-03	5.27E-04	1.10E-03	2.41E-04	2.83E-04	2.41E-04	0.00E+00	0.00E+00	3.13E-07	0.00E+00	0.00E+00
248	373403	756142	Offsite Worker	4.90E-03	2.81E-03	1.93E-03	1.41E-02	2.07E-03	0.00E+00	8.33E-04	3.54E-04	7.37E-04	1.62E-04	1.90E-04	1.62E-04	0.00E+00	0.00E+00	7.04E-08	0.00E+00	0.00E+00
249	373400	756042	Offsite Worker	5.06E-03	2.90E-03	1.99E-03	1.46E-02	2.14E-03	0.00E+00	8.61E-04	3.66E-04	7.61E-04	1.67E-04	1.97E-04	1.67E-04	0.00E+00	0.00E+00	-9.61E-08	0.00E+00	0.00E+00
250	373397	755944	Offsite Worker	2.08E-03	1.19E-03	8.17E-04	5.98E-03	8.77E-04	0.00E+00	3.53E-04	1.50E-04	3.12E-04	6.85E-05	8.06E-05	6.85E-05	0.00E+00	0.00E+00	-1.82E-07	0.00E+00	0.00E+00
251	373393	755846	Offsite Worker	6.63E-04	3.80E-04	2.61E-04	1.91E-03	2.80E-04	0.00E+00	1.13E-04	4.80E-05	9.96E-05	2.19E-05	2.58E-05	2.19E-05	0.00E+00	0.00E+00	3.16E-07	0.00E+00	0.00E+00
252	373390	755747	Offsite Worker	-7.05E-05	-4.04E-05	-2.77E-05	-2.03E-04	-2.98E-05	0.00E+00	-1.20E-05	-5.10E-06	-1.06E-05	-2.33E-06	-2.74E-06	-2.33E-06	0.00E+00	0.00E+00	-8.49E-09	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.4-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE, TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
253	373309	755744	Offsite Worker	-2.40E-04	-1.38E-04	-9.45E-05	-6.92E-04	-1.01E-04	0.00E+00	-4.08E-05	-1.74E-05	-3.61E-05	-7.92E-06	-9.33E-06	-7.92E-06	0.00E+00	0.00E+00	-1.36E-07	0.00E+00	0.00E+00
254	373229	755743	Offsite Worker	-4.14E-04	-2.38E-04	-1.63E-04	-1.19E-03	-1.75E-04	0.00E+00	-7.04E-05	-3.00E-05	-6.23E-05	-1.37E-05	-1.61E-05	-1.37E-05	0.00E+00	0.00E+00	-2.35E-07	0.00E+00	0.00E+00
255	373143	755741	Offsite Worker	-3.74E-04	-2.14E-04	-1.47E-04	-1.08E-03	-1.58E-04	0.00E+00	-6.35E-05	-2.70E-05	-5.62E-05	-1.23E-05	-1.45E-05	-1.23E-05	0.00E+00	0.00E+00	-3.45E-07	0.00E+00	0.00E+00
256	373143	755823	Offsite Worker	-3.92E-04	-2.25E-04	-1.54E-04	-1.13E-03	-1.66E-04	0.00E+00	-6.66E-05	-2.84E-05	-5.89E-05	-1.29E-05	-1.52E-05	-1.29E-05	0.00E+00	0.00E+00	-1.68E-07	0.00E+00	0.00E+00
257	373143	755906	Offsite Worker	-3.83E-04	-2.20E-04	-1.51E-04	-1.10E-03	-1.62E-04	0.00E+00	-6.51E-05	-2.77E-05	-5.76E-05	-1.26E-05	-1.49E-05	-1.26E-05	0.00E+00	0.00E+00	8.84E-08	0.00E+00	0.00E+00
258	373065	755906	Offsite Worker	-4.09E-04	-2.35E-04	-1.61E-04	-1.18E-03	-1.73E-04	0.00E+00	-6.96E-05	-2.96E-05	-6.15E-05	-1.35E-05	-1.59E-05	-1.35E-05	0.00E+00	0.00E+00	-6.65E-08	0.00E+00	0.00E+00
259	373065	755827	Offsite Worker	-2.74E-04	-1.57E-04	-1.08E-04	-7.90E-04	-1.16E-04	0.00E+00	-4.66E-05	-1.98E-05	-4.12E-05	-9.05E-06	-1.07E-05	-9.05E-06	0.00E+00	0.00E+00	-2.76E-07	0.00E+00	0.00E+00
260	373068	755733	Offsite Worker	-4.87E-04	-2.79E-04	-1.92E-04	-1.40E-03	-2.06E-04	0.00E+00	-8.28E-05	-3.53E-05	-7.33E-05	-1.61E-05	-1.89E-05	-1.61E-05	0.00E+00	0.00E+00	-4.41E-07	0.00E+00	0.00E+00
261	373007	755733	Offsite Worker	-6.27E-04	-3.60E-04	-2.47E-04	-1.81E-03	-2.65E-04	0.00E+00	-1.07E-04	-4.54E-05	-9.42E-05	-2.07E-05	-2.44E-05	-2.07E-05	0.00E+00	0.00E+00	-5.01E-07	0.00E+00	0.00E+00
262	372941	755733	Offsite Worker	-7.69E-04	-4.41E-04	-3.03E-04	-2.22E-03	-3.25E-04	0.00E+00	-1.31E-04	-5.56E-05	-1.16E-04	-2.54E-05	-2.99E-05	-2.54E-05	0.00E+00	0.00E+00	1.28E-06	0.00E+00	0.00E+00
263	372941	755636	Offsite Worker	-1.42E-03	-8.16E-04	-5.60E-04	-4.10E-03	-6.01E-04	0.00E+00	-2.42E-04	-1.03E-04	-2.14E-04	-4.70E-05	-5.53E-05	-4.70E-05	0.00E+00	0.00E+00	1.10E-06	0.00E+00	0.00E+00
264	372941	755539	Offsite Worker	-7.13E-03	-4.09E-03	-2.81E-03	-2.06E-02	-3.01E-03	0.00E+00	-1.21E-03	-5.16E-04	-1.07E-03	-2.35E-04	-2.77E-04	-2.35E-04	0.00E+00	0.00E+00	9.31E-07	0.00E+00	0.00E+00
265	372941	755442	Offsite Worker	2.88E-02	1.65E-02	1.13E-02	8.31E-02	1.22E-02	0.00E+00	4.90E-03	2.09E-03	4.33E-03	9.52E-04	1.12E-03	9.52E-04	0.00E+00	0.00E+00	7.65E-07	0.00E+00	0.00E+00
266	372913	755342	Offsite Worker	1.48E-02	8.50E-03	5.83E-03	4.27E-02	6.26E-03	0.00E+00	2.52E-03	1.07E-03	2.23E-03	4.89E-04	5.76E-04	4.89E-04	0.00E+00	0.00E+00	5.88E-07	0.00E+00	0.00E+00
267	372817	755346	Offsite Worker	6.22E-03	3.57E-03	2.45E-03	1.79E-02	2.63E-03	0.00E+00	1.06E-03	4.50E-04	9.35E-04	2.05E-04	2.42E-04	2.05E-04	0.00E+00	0.00E+00	5.20E-07	0.00E+00	0.00E+00
268	372720	755349	Offsite Worker	-2.62E-03	-1.50E-03	-1.03E-03	-7.55E-03	-1.11E-03	0.00E+00	-4.45E-04	-1.89E-04	-3.94E-04	-8.64E-05	-1.02E-04	-8.64E-05	0.00E+00	0.00E+00	4.25E-07	0.00E+00	0.00E+00
269	372624	755352	Offsite Worker	-1.27E-02	-7.28E-03	-4.99E-03	-3.66E-02	-5.36E-03	0.00E+00	-2.16E-03	-9.18E-04	-1.91E-03	-4.19E-04	-4.93E-04	-4.19E-04	0.00E+00	0.00E+00	3.24E-07	0.00E+00	0.00E+00
270	372527	755349	Offsite Worker	-2.25E-02	-1.29E-02	-8.85E-03	-6.48E-02	-9.50E-03	0.00E+00	-3.82E-03	-1.63E-03	-3.38E-03	-7.42E-04	-8.74E-04	-7.42E-04	0.00E+00	0.00E+00	2.28E-07	0.00E+00	0.00E+00
271	372431	755353	Offsite Worker	-3.15E-02	-1.81E-02	-1.24E-02	-9.08E-02	-1.33E-02	0.00E+00	-5.35E-03	-2.28E-03	-4.73E-03	-1.04E-03	-1.22E-03	-1.04E-03	0.00E+00	0.00E+00	1.41E-07	0.00E+00	0.00E+00
272	372334	755356	Offsite Worker	-3.99E-02	-2.29E-02	-1.57E-02	-1.15E-01	-1.68E-02	0.00E+00	-6.78E-03	-2.88E-03	-5.99E-03	-1.32E-03	-1.55E-03	-1.32E-03	0.00E+00	0.00E+00	4.96E-08	0.00E+00	0.00E+00
273	372237	755359	Offsite Worker	-4.68E-02	-2.68E-02	-1.84E-02	-1.35E-01	-1.98E-02	0.00E+00	-7.95E-03	-3.38E-03	-7.03E-03	-1.54E-03	-1.82E-03	-1.54E-03	0.00E+00	0.00E+00	-4.57E-08	0.00E+00	0.00E+00
274	372141	755362	Offsite Worker	-5.27E-02	-3.02E-02	-2.08E-02	-1.52E-01	-2.23E-02	0.00E+00	-8.96E-03	-3.82E-03	-7.93E-03	-1.74E-03	-2.05E-03	-1.74E-03	0.00E+00	0.00E+00	-1.37E-07	0.00E+00	0.00E+00
275	372044	755366	Offsite Worker	6.50E-03	3.73E-03	2.56E-03	1.87E-02	2.75E-03	0.00E+00	1.10E-03	4.70E-04	9.77E-04	2.15E-04	2.53E-04	2.15E-04	0.00E+00	0.00E+00	-2.29E-07	0.00E+00	0.00E+00
276	371948	755369	Offsite Worker	3.75E-03	2.15E-03	1.47E-03	1.08E-02	1.58E-03	0.00E+00	6.37E-04	2.71E-04	5.63E-04	1.24E-04	1.46E-04	1.24E-04	0.00E+00	0.00E+00	-3.15E-07	0.00E+00	0.00E+00
277	371851	755372	Offsite Worker	-1.77E-02	-1.02E-02	-6.98E-03	-5.11E-02	-7.49E-03	0.00E+00	-3.01E-03	-1.28E-03	-2.67E-03	-5.85E-04	-6.89E-04	-5.85E-04	0.00E+00	0.00E+00	-3.91E-07	0.00E+00	0.00E+00
278	371755	755375	Offsite Worker	-6.67E-02	-3.82E-02	-2.62E-02	-1.92E-01	-2.82E-02	0.00E+00	-1.13E-02	-4.82E-03	-1.00E-02	-2.20E-03	-2.59E-03	-2.20E-03	0.00E+00	0.00E+00	-5.99E-07	0.00E+00	0.00E+00
279	371658	755378	Offsite Worker	-6.94E-02	-3.98E-02	-2.73E-02	-2.00E-01	-2.93E-02	0.00E+00	-1.18E-02	-5.02E-03	-1.04E-02	-2.29E-03	-2.70E-03	-2.29E-03	0.00E+00	0.00E+00	-3.89E-06	0.00E+00	0.00E+00
280	371562	755382	Offsite Worker	-7.20E-02	-4.13E-02	-2.83E-02	-2.08E-01	-3.04E-02	0.00E+00	-1.22E-02	-5.21E-03	-1.08E-02	-2.38E-03	-2.80E-03	-2.38E-03	0.00E+00	0.00E+00	-4.14E-06	0.00E+00	0.00E+00
281	371465	755385	Offsite Worker	-7.57E-02	-4.34E-02	-2.98E-02	-2.18E-01	-3.20E-02	0.00E+00	-1.29E-02	-5.48E-03	-1.14E-02	-2.50E-03	-2.94E-03	-2.50E-03	0.00E+00	0.00E+00	-4.28E-06	0.00E+00	0.00E+00
282	371368	755388	Offsite Worker	-8.08E-02	-4.63E-02	-3.18E-02	-2.33E-01	-3.41E-02	0.00E+00	-1.37E-02	-5.85E-03	-1.21E-02	-2.67E-03	-3.14E-03	-2.67E-03	0.00E+00	0.00E+00	-4.47E-06	0.00E+00	0.00E+00
283	371272	755391	Offsite Worker	-8.85E-02	-5.07E-02	-3.48E-02	-2.55E-01	-3.74E-02	0.00E+00	-1.50E-02	-6.40E-03	-1.33E-02	-2.92E-03	-3.44E-03	-2.92E-03	0.00E+00	0.00E+00	-4.81E-06	0.00E+00	0.00E+00
284	371175	755395	Offsite Worker	3.85E-03	2.21E-03	1.52E-03	1.11E-02	1.63E-03	0.00E+00	6.55E-04	2.79E-04	5.79E-04	1.27E-04	1.50E-04	1.27E-04	0.00E+00	0.00E+00	-5.30E-06	0.00E+00	0.00E+00
285	371079	755398	Offsite Worker	-1.16E-01	-6.67E-02	-4.58E-02	-3.35E-01	-4.92E-02	0.00E+00	-1.98E-02	-8.42E-03	-1.75E-02	-3.84E-03	-4.52E-03	-3.84E-03	0.00E+00	0.00E+00	-6.03E-06	0.00E+00	0.00E+00
286	371042	755478	Offsite Worker	-1.03E-01	-5.91E-02	-4.06E-02	-2.97E-01	-4.35E-02	0.00E+00	-1.75E-02	-7.45E-03	-1.55E-02	-3.40E-03	-4.00E-03	-3.40E-03	0.00E+00	0.00E+00	-5.48E-06	0.00E+00	0.00E+00
287	371009	755538	Offsite Worker	1.38E-03	7.94E-04	5.45E-04	3.99E-03	5.85E-04	0.00E+00	2.35E-04	1.00E-04	2.08E-04	4.57E-05	5.38E-05	4.57E-05	0.00E+00	0.00E+00	-5.11E-06	0.00E+00	0.00E+00
288	370975	755597	Offsite Worker	9.98E-04	5.72E-04	3.93E-04	2.88E-03	4.22E-04	0.00E+00	1.70E-04	7.22E-05	1.50E-04	3.29E-05	3.88E-05	3.29E-05	0.00E+00	0.00E+00	-4.80E-06	0.00E+00	0.00E+00
289	370925	755597	Offsite Worker	3.57E-04	2.04E-04	1.40E-04	1.03E-03	1.51E-04	0.00E+00	6.06E-05	2.58E-05	5.36E-05	1.18E-05	1.39E-05	1.18E-05	0.00E+00	0.00E+00	-5.04E-06	0.00E+00	0.00E+00
290	370860	755547	Offsite Worker	-5.94E-05	-3.40E-05	-2.34E-05	-1.71E-04	-2.51E-05	0.00E+00	-1.01E-05	-4.30E-06	-8.92E-06	-1.96E-06	-2.31E-06	-1.96E-06	0.00E+00	0.00E+00	-6.42E-06	0.00E+00	0.00E+00
291	370796	755497	Offsite Worker	-1.77E-01	-1.02E-01	-6.97E-02	-5.11E-01	-7.49E-02	0.00E+00	-3.01E-02	-1.28E-02	-2.66E-02	-5.85E-03	-6.89E-03	-5.85E-03	0.00E+00	0.00E+00	-8.75E-06	0.00E+00	0.00E+00
292	370733	755428	Offsite Worker	-2.38E-01	-1.37E-01	-9.38E-02	-6.87E-01	-1.01E-01	0.00E+00	-4.05E-02	-1.72E-02	-3.58E-02	-7.87E-03	-9.26E-03	-7.87E-03	0.00E+00	0.00E+00	-1.14E-05	0.00E+00	0.00E+00
293	370634	755428	Offsite Worker	-1.06E-01	-6.07E-02	-4.17E-02	-3.05E-01	-4.47E-02	0.00E+00	-1.80E-02	-7.66E-03	-1.59E-02	-3.49E-03	-4.11E-03	-3.49E-03	0.00E+00	0.00E+00	-1.33E-05	0.00E+00	0.00E+00
294	370536	755428	Offsite Worker	-2.01E-04	-1.15E-04	-7.92E-05	-5.80E-04	-8.50E-05	0.00E+00	-3.42E-05	-1.46E-05	-3.02E-05	-6.64E-06	-7.82E-06	-6.64E-06	0.00E+00	0.00E+00	-1.38E-05	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.4-2: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACROLEIN ($\mu g/m^3$)	BENZENE ($\mu g/m^3$)	FORMALDEHYDE ($\mu g/m^3$)	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ETHYL KETONE ($\mu g/m^3$)	STYRENE ($\mu g/m^3$)	TOLUENE ($\mu g/m^3$)	XYLENE. TOTAL ($\mu g/m^3$)	ARSENIC ($\mu g/m^3$)	CHLORINE ($\mu g/m^3$)	COPPER ($\mu g/m^3$)	MANGANESE ($\mu g/m^3$)	MERCURY ($\mu g/m^3$)	NICKEL ($\mu g/m^3$)	VANADIUM ($\mu g/m^3$)	SULFATES ($\mu g/m^3$)
295	370437	755428	Offsite Worker	-1.67E-04	-9.58E-05	-6.57E-05	-4.81E-04	-7.06E-05	0.00E+00	-2.84E-05	-1.21E-05	-2.51E-05	-5.51E-06	-6.49E-06	-5.51E-06	0.00E+00	0.00E+00	-1.24E-05	0.00E+00	0.00E+00
296	370338	755427	Offsite Worker	-6.57E-01	-3.77E-01	-2.59E-01	-1.89E+00	-2.78E-01	0.00E+00	-1.12E-01	-4.75E-02	-9.87E-02	-2.17E-02	-2.55E-02	-2.17E-02	0.00E+00	0.00E+00	-6.60E-06	0.00E+00	0.00E+00
297	370239	755427	Residential	3.46E-02	1.98E-02	1.36E-02	9.98E-02	1.46E-02	0.00E+00	5.88E-03	2.50E-03	5.20E-03	1.14E-03	1.35E-03	1.14E-03	0.00E+00	0.00E+00	-2.96E-07	0.00E+00	0.00E+00
298	370138	755427	Residential	-3.52E-03	-2.02E-03	-1.38E-03	-1.01E-02	-1.49E-03	0.00E+00	-5.98E-04	-2.54E-04	-5.29E-04	-1.16E-04	-1.37E-04	-1.16E-04	0.00E+00	0.00E+00	-5.65E-07	0.00E+00	0.00E+00
299	370040	755427	Residential	-2.95E-03	-1.69E-03	-1.16E-03	-8.50E-03	-1.25E-03	0.00E+00	-5.01E-04	-2.13E-04	-4.43E-04	-9.74E-05	-1.15E-04	-9.74E-05	0.00E+00	0.00E+00	-7.01E-07	0.00E+00	0.00E+00
300	369941	755426	Residential	8.28E-03	4.75E-03	3.26E-03	2.39E-02	3.50E-03	0.00E+00	1.41E-03	5.99E-04	1.24E-03	2.73E-04	3.22E-04	2.73E-04	0.00E+00	0.00E+00	-1.44E-06	0.00E+00	0.00E+00
301	369842	755426	Residential	2.78E-03	1.59E-03	1.09E-03	8.01E-03	1.17E-03	0.00E+00	4.72E-04	2.01E-04	4.18E-04	9.18E-05	1.08E-04	9.18E-05	0.00E+00	0.00E+00	-1.45E-06	0.00E+00	0.00E+00
302	369741	755435	Residential	-8.99E-04	-5.15E-04	-3.54E-04	-2.59E-03	-3.80E-04	0.00E+00	-1.53E-04	-6.50E-05	-1.35E-04	-2.97E-05	-3.49E-05	-2.97E-05	0.00E+00	0.00E+00	6.32E-07	0.00E+00	0.00E+00
303	369643	755434	Residential	-4.01E-02	-2.30E-02	-1.58E-02	-1.16E-01	-1.69E-02	0.00E+00	-6.82E-03	-2.90E-03	-6.03E-03	-1.32E-03	-1.56E-03	-1.32E-03	0.00E+00	0.00E+00	-1.51E-06	0.00E+00	0.00E+00
304	369544	755434	Residential	-3.16E-01	-1.81E-01	-1.24E-01	-9.10E-01	-1.33E-01	0.00E+00	-5.37E-02	-2.29E-02	-4.75E-02	-1.04E-02	-1.23E-02	-1.04E-02	0.00E+00	0.00E+00	2.55E-07	0.00E+00	0.00E+00
305	369445	755434	Residential	-5.46E-01	-3.13E-01	-2.15E-01	-1.57E+00	-2.31E-01	0.00E+00	-9.29E-02	-3.95E-02	-8.21E-02	-1.80E-02	-2.12E-02	-1.80E-02	0.00E+00	0.00E+00	2.60E-07	0.00E+00	0.00E+00
306	369346	755434	Residential	-6.84E-01	-3.92E-01	-2.69E-01	-1.97E+00	-2.89E-01	0.00E+00	-1.16E-01	-4.94E-02	-1.03E-01	-2.26E-02	-2.66E-02	-2.26E-02	0.00E+00	0.00E+00	2.87E-07	0.00E+00	0.00E+00
307	369249	755442	Offsite Worker	-8.72E-01	-5.00E-01	-3.43E-01	-2.51E+00	-3.68E-01	0.00E+00	-1.48E-01	-6.31E-02	-1.31E-01	-2.88E-02	-3.39E-02	-2.88E-02	0.00E+00	0.00E+00	2.96E-07	0.00E+00	0.00E+00
308	369151	755442	Offsite Worker	-1.01E+00	-5.77E-01	-3.96E-01	-2.90E+00	-4.25E-01	0.00E+00	-1.71E-01	-7.28E-02	-1.51E-01	-3.32E-02	-3.91E-02	-3.32E-02	0.00E+00	0.00E+00	1.76E-06	0.00E+00	0.00E+00
309	369052	755442	Offsite Worker	-8.40E-01	-4.82E-01	-3.31E-01	-2.42E+00	-3.55E-01	0.00E+00	-1.43E-01	-6.08E-02	-1.26E-01	-2.77E-02	-3.26E-02	-2.77E-02	0.00E+00	0.00E+00	1.62E-06	0.00E+00	0.00E+00
310	368953	755441	Residential	-1.37E+00	-7.83E-01	-5.37E-01	-3.93E+00	-5.77E-01	0.00E+00	-2.32E-01	-9.87E-02	-2.05E-01	-4.51E-02	-5.30E-02	-4.51E-02	0.00E+00	0.00E+00	1.36E-06	0.00E+00	0.00E+00
311	368854	755441	Residential	-9.98E-01	-5.72E-01	-3.93E-01	-2.87E+00	-4.21E-01	0.00E+00	-1.70E-01	-7.22E-02	-1.50E-01	-3.29E-02	-3.88E-02	-3.29E-02	0.00E+00	0.00E+00	9.19E-07	0.00E+00	0.00E+00
312	368755	755441	Residential	-5.37E-01	-3.08E-01	-2.11E-01	-1.55E+00	-2.27E-01	0.00E+00	-9.13E-02	-3.89E-02	-8.07E-02	-1.77E-02	-2.09E-02	-1.77E-02	0.00E+00	0.00E+00	4.20E-07	0.00E+00	0.00E+00
313	368657	755441	Residential	-3.81E-01	-2.19E-01	-1.50E-01	-1.10E+00	-1.61E-01	0.00E+00	-6.48E-02	-2.76E-02	-5.73E-02	-1.26E-02	-1.48E-02	-1.26E-02	0.00E+00	0.00E+00	5.48E-08	0.00E+00	0.00E+00
314	368558	755440	Residential	-4.98E-01	-2.86E-01	-1.96E-01	-1.44E+00	-2.11E-01	0.00E+00	-8.47E-02	-3.60E-02	-7.49E-02	-1.64E-02	-1.94E-02	-1.64E-02	0.00E+00	0.00E+00	-1.33E-07	0.00E+00	0.00E+00
315	368459	755440	Residential	-6.62E-01	-3.79E-01	-2.60E-01	-1.91E+00	-2.80E-01	0.00E+00	-1.12E-01	-4.79E-02	-9.94E-02	-2.18E-02	-2.57E-02	-2.18E-02	0.00E+00	0.00E+00	-1.86E-07	0.00E+00	0.00E+00
316	368360	755440	Residential	-8.25E-01	-4.73E-01	-3.25E-01	-2.38E+00	-3.49E-01	0.00E+00	-1.40E-01	-5.97E-02	-1.24E-01	-2.72E-02	-3.21E-02	-2.72E-02	0.00E+00	0.00E+00	-1.71E-07	0.00E+00	0.00E+00
317	368262	755439	Residential	-9.83E-01	-5.63E-01	-3.87E-01	-2.83E+00	-4.15E-01	0.00E+00	-1.67E-01	-7.11E-02	-1.48E-01	-3.24E-02	-3.82E-02	-3.24E-02	0.00E+00	0.00E+00	-1.44E-07	0.00E+00	0.00E+00
318	368186	755427	Residential	-1.09E+00	-6.25E-01	-4.29E-01	-3.14E+00	-4.60E-01	0.00E+00	-1.85E-01	-7.88E-02	-1.64E-01	-3.60E-02	-4.23E-02	-3.60E-02	0.00E+00	0.00E+00	-1.19E-07	0.00E+00	0.00E+00
319	368111	755414	Residential	-1.17E+00	-6.73E-01	-4.62E-01	-3.38E+00	-4.96E-01	0.00E+00	-2.00E-01	-8.49E-02	-1.76E-01	-3.87E-02	-4.56E-02	-3.87E-02	0.00E+00	0.00E+00	-9.97E-08	0.00E+00	0.00E+00
320	368035	755402	Offsite Worker	-1.24E+00	-7.12E-01	-4.89E-01	-3.58E+00	-5.25E-01	0.00E+00	-2.11E-01	-8.98E-02	-1.87E-01	-4.10E-02	-4.83E-02	-4.10E-02	0.00E+00	0.00E+00	-8.65E-08	0.00E+00	0.00E+00
321	367960	755389	Offsite Worker	-1.22E+00	-7.00E-01	-4.80E-01	-3.52E+00	-5.16E-01	0.00E+00	-2.07E-01	-8.83E-02	-1.83E-01	-4.03E-02	-4.74E-02	-4.03E-02	0.00E+00	0.00E+00	-8.60E-08	0.00E+00	0.00E+00
322	367863	755390	Offsite Worker	-1.14E+00	-6.55E-01	-4.49E-01	-3.29E+00	-4.83E-01	0.00E+00	-1.94E-01	-8.26E-02	-1.72E-01	-3.77E-02	-4.44E-02	-3.77E-02	0.00E+00	0.00E+00	-9.17E-08	0.00E+00	0.00E+00
323	367766	755392	Offsite Worker	-1.04E+00	-5.99E-01	-4.11E-01	-3.01E+00	-4.41E-01	0.00E+00	-1.78E-01	-7.56E-02	-1.57E-01	-3.45E-02	-4.06E-02	-3.45E-02	0.00E+00	0.00E+00	-1.43E-07	0.00E+00	0.00E+00
324	367669	755393	Offsite Worker	-5.56E-01	-3.19E-01	-2.19E-01	-1.60E+00	-2.35E-01	0.00E+00	-9.45E-02	-4.02E-02	-8.36E-02	-1.84E-02	-2.16E-02	-1.84E-02	0.00E+00	0.00E+00	-1.27E-07	0.00E+00	0.00E+00
325	367572	755394	Offsite Worker	-2.93E-02	-1.68E-02	-1.15E-02	-8.46E-02	-1.24E-02	0.00E+00	-4.99E-03	-2.12E-03	-4.41E-03	-9.69E-04	-1.14E-03	-9.69E-04	0.00E+00	0.00E+00	-9.83E-08	0.00E+00	0.00E+00
326	367475	755395	Offsite Worker	-1.29E-02	-7.39E-03	-5.07E-03	-3.71E-02	-5.44E-03	0.00E+00	-2.19E-03	-9.32E-04	-1.94E-03	-4.25E-04	-5.01E-04	-4.25E-04	0.00E+00	0.00E+00	-6.74E-08	0.00E+00	0.00E+00
327	370403	756882	On-Site Occupational	-6.68E-03	-3.83E-03	-2.63E-03	-1.92E-02	-2.82E-03	0.00E+00	-1.13E-03	-4.83E-04	-1.00E-03	-2.20E-04	-2.59E-04	-2.20E-04	0.00E+00	0.00E+00	-1.03E-05	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

				ACETALDEHYDE	ACETALDEHYDE	ACROLEIN	ACROLEIN	BENZENE	BENZENE	FORMALDEHYDE	FORMALDEHYDE	METHYL ALCOHOL	METHYL ALCOHOL	METHYL ETHYL KETONE	METHYL ETHYL KETONE	STYRENE	STYRENE	TOULENE	TOULENE
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
1	367379	755396	Recreational	-1.20E-02	-2.55E-05	-6.86E-03	-2.74E-03	-4.71E-03	-3.62E-06	-3.45E-02	-6.27E-04	-5.06E-03	-1.81E-07	0.00E+00	0.00E+00	-8.66E-04	-4.12E-08	-1.80E-03	-4.86E-08
2	367340	755485	Recreational	-1.13E-02	-2.41E-05	-6.48E-03	-2.59E-03	-4.45E-03	-3.42E-06	-3.26E-02	-5.93E-04	-4.78E-03	-1.71E-07	0.00E+00	0.00E+00	-8.18E-04	-3.90E-08	-1.70E-03	-4.59E-08
3	367301	755573	Recreational	-1.16E-01	-2.48E-04	-6.68E-02	-2.67E-02	-4.58E-02	-3.52E-05	-3.36E-01	-6.10E-03	-4.92E-02	-1.76E-06	0.00E+00	0.00E+00	-8.42E-03	-4.01E-07	-1.75E-02	-4.73E-07
4	367263	755661	Recreational	-1.11E-01	-2.37E-04	-6.39E-02	-2.55E-02	-4.38E-02	-3.37E-05	-3.21E-01	-5.84E-03	-4.71E-02	-1.68E-06	0.00E+00	0.00E+00	-8.06E-03	-3.84E-07	-1.67E-02	-4.52E-07
5	367224	755749	Recreational	-1.01E-01	-2.15E-04	-5.80E-02	-2.32E-02	-3.98E-02	-3.06E-05	-2.92E-01	-5.30E-03	-4.28E-02	-1.53E-06	0.00E+00	0.00E+00	-7.32E-03	-3.49E-07	-1.52E-02	-4.11E-07
6	367186	755838	Recreational	-8.75E-02	-1.86E-04	-5.02E-02	-2.01E-02	-3.44E-02	-2.65E-05	-2.52E-01	-4.58E-03	-3.70E-02	-1.32E-06	0.00E+00	0.00E+00	-6.33E-03	-3.01E-07	-1.31E-02	-3.55E-07
7	367147	755926	Recreational	-7.19E-02	-1.53E-04	-4.12E-02	-1.65E-02	-2.83E-02	-2.18E-05	-2.07E-01	-3.77E-03	-3.04E-02	-1.08E-06	0.00E+00	0.00E+00	-5.20E-03	-2.48E-07	-1.08E-02	-2.92E-07
8	367109	756014	Recreational	-5.62E-02	-1.20E-04	-3.22E-02	-1.29E-02	-2.21E-02	-1.70E-05	-1.62E-01	-2.94E-03	-2.37E-02	-8.48E-07	0.00E+00	0.00E+00	-4.06E-03	-1.94E-07	-8.44E-03	-2.28E-07
9	367070	756103	Recreational	-4.12E-02	-8.76E-05	-2.36E-02	-9.44E-03	-1.62E-02	-1.25E-05	-1.19E-01	-2.16E-03	-1.74E-02	-6.21E-07	0.00E+00	0.00E+00	-2.98E-03	-1.42E-07	-6.19E-03	-1.67E-07
10	367032	756191	Recreational	-1.33E-01	-2.84E-04	-7.65E-02	-3.06E-02	-5.25E-02	-4.04E-05	-3.84E-01	-6.99E-03	-5.63E-02	-2.01E-06	0.00E+00	0.00E+00	-9.65E-03	-4.59E-07	-2.00E-02	-5.42E-07
11	366993	756279	Recreational	-1.35E-01	-2.86E-04	-7.71E-02	-3.08E-02	-5.29E-02	-4.07E-05	-3.88E-01	-7.05E-03	-5.68E-02	-2.03E-06	0.00E+00	0.00E+00	-9.73E-03	-4.63E-07	-2.02E-02	-5.46E-07
12	366954	756367	Recreational	-1.32E-01	-2.81E-04	-7.57E-02	-3.03E-02	-5.20E-02	-4.00E-05	-3.80E-01	-6.92E-03	-5.58E-02	-1.99E-06	0.00E+00	0.00E+00	-9.55E-03	-4.55E-07	-1.98E-02	-5.36E-07
13	366916	756456	Recreational	-1.29E-01	-2.75E-04	-7.40E-02	-2.96E-02	-5.08E-02	-3.91E-05	-3.72E-01	-6.76E-03	-5.45E-02	-1.95E-06	0.00E+00	0.00E+00	-9.34E-03	-4.45E-07	-1.94E-02	-5.24E-07
14	366877	756544	Recreational	-1.25E-01	-2.67E-04	-7.19E-02	-2.88E-02	-4.94E-02	-3.80E-05	-3.62E-01	-6.57E-03	-5.30E-02	-1.89E-06	0.00E+00	0.00E+00	-9.08E-03	-4.32E-07	-1.89E-02	-5.10E-07
15	366839	756632	Recreational	-1.22E-01	-2.59E-04	-6.97E-02	-2.79E-02	-4.78E-02	-3.68E-05	-3.50E-01	-6.37E-03	-5.14E-02	-1.83E-06	0.00E+00	0.00E+00	-8.79E-03	-4.19E-07	-1.83E-02	-4.94E-07
16	366800	756720	Recreational	-1.18E-01	-2.50E-04	-6.74E-02	-2.70E-02	-4.63E-02	-3.56E-05	-3.39E-01	-6.16E-03	-4.97E-02	-1.77E-06	0.00E+00	0.00E+00	-8.50E-03	-4.05E-07	-1.77E-02	-4.77E-07
17	366762	756809	Recreational	-1.13E-01	-2.40E-04	-6.47E-02	-2.59E-02	-4.44E-02	-3.42E-05	-3.25E-01	-5.92E-03	-4.77E-02	-1.70E-06	0.00E+00	0.00E+00	-8.17E-03	-3.89E-07	-1.70E-02	-4.59E-07
18	366723	756897	Recreational	-1.06E-01	-2.27E-04	-6.10E-02	-2.44E-02	-4.19E-02	-3.22E-05	-3.07E-01	-5.58E-03	-4.50E-02	-1.61E-06	0.00E+00	0.00E+00	-7.70E-03	-3.67E-07	-1.60E-02	-4.32E-07
19	366685	756985	Recreational	-1.00E-01	-2.13E-04	-5.74E-02	-2.30E-02	-3.94E-02	-3.03E-05	-2.88E-01	-5.24E-03	-4.23E-02	-1.51E-06	0.00E+00	0.00E+00	-7.24E-03	-3.45E-07	-1.50E-02	-4.07E-07
20	366646	757074	Recreational	-9.31E-02	-1.98E-04	-5.34E-02	-2.13E-02	-3.66E-02	-2.82E-05	-2.68E-01	-4.88E-03	-3.93E-02	-1.40E-06	0.00E+00	0.00E+00	-6.73E-03	-3.21E-07	-1.40E-02	-3.78E-07
21	366607	757162	Recreational	-8.54E-02	-1.82E-04	-4.89E-02	-1.96E-02	-3.36E-02	-2.58E-05	-2.46E-01	-4.47E-03	-3.61E-02	-1.29E-06	0.00E+00	0.00E+00	-6.17E-03	-2.94E-07	-1.28E-02	-3.47E-07
22	366569	757250	Recreational	-2.50E-02	-5.31E-05	-1.43E-02	-5.72E-03	-9.82E-03	-7.55E-06	-7.19E-02	-1.31E-03	-1.05E-02	-3.77E-07	0.00E+00	0.00E+00	-1.80E-03	-8.60E-08	-3.75E-03	-1.01E-07
23	366530	757338	Recreational	-2.12E-02	-4.52E-05	-1.22E-02	-4.87E-03	-8.35E-03	-6.42E-06	-6.12E-02	-1.11E-03	-8.97E-03	-3.20E-07	0.00E+00	0.00E+00	-1.54E-03	-7.31E-08	-3.19E-03	-8.62E-08
24	366492	757427	Recreational	-1.76E-02	-3.75E-05	-1.01E-02	-4.04E-03	-6.93E-03	-5.33E-06	-5.08E-02	-9.23E-04	-7.45E-03	-2.66E-07	0.00E+00	0.00E+00	-1.27E-03	-6.07E-08	-2.65E-03	-7.16E-08
25	366453	757515	Recreational	3.85E-03	8.20E-06	2.21E-03	8.84E-04	1.52E-03	1.17E-06	1.11E-02	2.02E-04	1.63E-03	5.81E-08	0.00E+00	0.00E+00	2.79E-04	1.33E-08	5.79E-04	1.57E-08
26	366415	757603	Recreational	5.71E-03	1.21E-05	3.27E-03	1.31E-03	2.25E-03	1.73E-06	1.65E-02	2.99E-04	2.41E-03	8.62E-08	0.00E+00	0.00E+00	4.13E-04	1.97E-08	8.58E-04	2.32E-08
27	366376	757692	Recreational	7.32E-03	1.56E-05	4.20E-03	1.68E-03	2.88E-03	2.22E-06	2.11E-02	3.84E-04	3.09E-03	1.10E-07	0.00E+00	0.00E+00	5.30E-04	2.52E-08	1.10E-03	2.97E-08
28	366338	757780	Residential	9.18E-03	1.95E-05	5.26E-03	2.11E-03	3.61E-03	2.78E-06	2.65E-02	4.81E-04	3.88E-03	1.39E-07	0.00E+00	0.00E+00	6.64E-04	3.16E-08	1.38E-03	3.73E-08
29	366402	757746	Residential	8.74E-03	1.86E-05	5.01E-03	2.00E-03	3.44E-03	2.65E-06	2.52E-02	4.58E-04	3.69E-03	1.32E-07	0.00E+00	0.00E+00	6.32E-04	3.01E-08	1.31E-03	3.55E-08
30	366467	757713	Residential	8.42E-03	1.79E-05	4.82E-03	1.93E-03	3.31E-03	2.55E-06	2.43E-02	4.41E-04	3.56E-03	1.27E-07	0.00E+00	0.00E+00	6.09E-04	2.90E-08	1.26E-03	3.42E-08
31	366531	757679	Residential	8.67E-03	1.84E-05	4.97E-03	1.99E-03	3.41E-03	2.62E-06	2.50E-02	4.54E-04	3.66E-03	1.31E-07	0.00E+00	0.00E+00	6.27E-04	2.99E-08	1.30E-03	3.52E-08
32	366567	757773	Residential	1.12E-02	2.38E-05	6.41E-03	2.57E-03	4.40E-03	3.39E-06	3.22E-02	5.86E-04	4.73E-03	1.69E-07	0.00E+00	0.00E+00	8.09E-04	3.85E-08	1.68E-03	4.54E-08
33	366625	757758	Residential	1.17E-02	2.49E-05	6.70E-03	2.68E-03	4.60E-03	3.54E-06	3.37E-02	6.12E-04	4.94E-03	1.76E-07	0.00E+00	0.00E+00	8.45E-04	4.03E-08	1.76E-03	4.75E-08
34	366682	757744	Residential	1.22E-02	2.59E-05	6.99E-03	2.80E-03	4.80E-03	3.69E-06	3.51E-02	6.39E-04	5.15E-03	1.84E-07	0.00E+00	0.00E+00	8.82E-04	4.20E-08	1.83E-03	4.95E-08
35	366768	757788	Residential	1.47E-02	3.13E-05	8.44E-03	3.38E-03	5.79E-03	4.46E-06	4.24E-02	7.71E-04	6.22E-03	2.22E-07	0.00E+00	0.00E+00	1.06E-03	5.07E-08	2.21E-03	5.98E-08
36	366854	757833	Residential	1.70E-02	3.62E-05	9.76E-03	3.90E-03	6.70E-03	5.15E-06	4.90E-02	8.92E-04	7.19E-03	2.57E-07	0.00E+00	0.00E+00	1.23E-03	5.86E-08	2.56E-03	6.91E-08
37	366941	757877	Residential	1.97E-02	4.20E-05	1.13E-02	4.52E-03	7.76E-03	5.97E-06	5.68E-02	1.03E-03	8.34E-03	2.98E-07	0.00E+00	0.00E+00	1.43E-03	6.79E-08	2.96E-03	8.01E-08
38	367027	757922	Residential	2.25E-02	4.78E-05	1.29E-02	5.15E-03	8.84E-03	6.80E-06	6.48E-02	1.18E-03	9.50E-03	3.39E-07	0.00E+00	0.00E+00	1.63E-03	7.74E-08	3.38E-03	9.13E-08
39	367113	757966	Residential	2.50E-02	5.31E-05	1.43E-02	5.73E-03	9.83E-03	7.56E-06	7.20E-02	1.31E-03	1.06E-02	3.77E-07	0.00E+00	0.00E+00	1.81E-03	8.60E-08	3.75E-03	1.01E-07
40	367192	757916	Residential	2.55E-02	5.42E-05	1.46E-02	5.84E-03	1.00E-02	7.71E-06	7.34E-02	1.33E-03	1.08E-02	3.84E-07	0.00E+00	0.00E+00	1.84E-03	8.78E-08	3.83E-03	1.03E-07
41	367264	757916	Residential	2.69E-02	5.72E-05	1.54E-02	6.17E-03	1.06E-02	8.14E-06	7.75E-02	1.41E-03	1.14E-02	4.06E-07	0.00E+00	0.00E+00	1.95E-03	9.26E-08	4.04E-03	1.09E-07
42	367335	757916	Residential	-1.76E-02	-3.75E-05	-1.01E-02	-4.04E-03	-6.94E-03	-5.34E-06	-5.08E-02	-9.24E-04	-7.45E-03	-2.66E-07	0.00E+00	0.00E+00	-1.28E-03	-6.07E-08	-2.65E-03	-7.16E-08
43	367343	757966	Residential	-1.84E-02	-3.91E-05	-1.05E-02	-4.21E-03	-7.23E-03	-5.56E-06	-5.30E-02	-9.63E-04	-7.76E-03	-2.77E-07	0.00E+00	0.00E+00	-1.33E-03	-6.33E-08	-2.76E-03	-7.46E-08
44	367404	757995	Residential	-1.92E-02	-4.08E-05	-1.10E-02	-4.40E-03	-7.54E-03	-5.80E-06	-5.52E-02	-1.00E-03	-8.10E-03	-2.89E-07	0.00E+00	0.00E+00	-1.39E-03	-6.60E-08	-2.88E-03	-7.79E-08

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACETALDEHYDE ACUTE HAZARD	ACROLEIN ($\mu g/m^3$)	ACROLEIN ACUTE HAZARD	BENZENE ($\mu g/m^3$)	BENZENE ACUTE HAZARD	FORMALDEHYDE ($\mu g/m^3$)	FORMALDEHYDE ACUTE HAZARD	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ALCOHOL ACUTE HAZARD	METHYL ETHYL KETONE ($\mu g/m^3$)	METHYL ETHYL KETONE ACUTE HAZARD	STYRENE ($\mu g/m^3$)	STYRENE ACUTE HAZARD	TOULENE ($\mu g/m^3$)	TOULENE ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
45	367465	758024	Residential	-2.05E-02	-4.36E-05	-1.18E-02	-4.70E-03	-8.07E-03	-6.20E-06	-5.91E-02	-1.07E-03	-8.66E-03	-3.09E-07	0.00E+00	0.00E+00	-1.48E-03	-7.06E-08	-3.08E-03	-8.33E-08
46	367504	757948	School	-1.95E-02	-4.14E-05	-1.12E-02	-4.46E-03	-7.66E-03	-5.89E-06	-5.61E-02	-1.02E-03	-8.22E-03	-2.94E-07	0.00E+00	0.00E+00	-1.41E-03	-6.70E-08	-2.92E-03	-7.90E-08
47	367544	757873	School	-1.66E-02	-3.54E-05	-9.54E-03	-3.82E-03	-6.55E-03	-5.04E-06	-4.80E-02	-8.72E-04	-7.03E-03	-2.51E-07	0.00E+00	0.00E+00	-1.20E-03	-5.73E-08	-2.50E-03	-6.76E-08
48	367587	757909	School	-1.85E-02	-3.94E-05	-1.06E-02	-4.24E-03	-7.28E-03	-5.60E-06	-5.33E-02	-9.70E-04	-7.82E-03	-2.79E-07	0.00E+00	0.00E+00	-1.34E-03	-6.38E-08	-2.78E-03	-7.52E-08
49	367623	757866	School	-1.70E-02	-3.63E-05	-9.77E-03	-3.91E-03	-6.71E-03	-5.16E-06	-4.91E-02	-8.93E-04	-7.20E-03	-2.57E-07	0.00E+00	0.00E+00	-1.23E-03	-5.87E-08	-2.56E-03	-6.92E-08
50	367694	757866	School	-1.86E-02	-3.97E-05	-1.07E-02	-4.27E-03	-7.34E-03	-5.64E-06	-5.37E-02	-9.77E-04	-7.88E-03	-2.81E-07	0.00E+00	0.00E+00	-1.35E-03	-6.42E-08	-2.80E-03	-7.57E-08
51	367716	757927	School	-2.30E-02	-4.88E-05	-1.32E-02	-5.26E-03	-9.03E-03	-6.95E-06	-6.61E-02	-1.20E-03	-9.70E-03	-3.46E-07	0.00E+00	0.00E+00	-1.66E-03	-7.91E-08	-3.45E-03	-9.32E-08
52	367737	757988	School	5.11E-03	1.09E-05	2.93E-03	1.17E-03	2.01E-03	1.55E-06	1.47E-02	2.68E-04	2.16E-03	7.71E-08	0.00E+00	0.00E+00	3.69E-04	1.76E-08	7.68E-04	2.07E-08
53	367727	758067	School	2.22E-03	4.72E-06	1.27E-03	5.09E-04	8.73E-04	6.71E-07	6.39E-03	1.16E-04	9.37E-04	3.35E-08	0.00E+00	0.00E+00	1.60E-04	7.64E-09	3.33E-04	9.01E-09
54	367716	758146	School	9.18E-05	1.95E-07	5.27E-05	2.11E-05	3.61E-05	2.78E-08	2.65E-04	4.81E-06	3.88E-05	1.39E-09	0.00E+00	0.00E+00	6.64E-06	3.16E-10	1.38E-05	3.73E-10
55	367673	758189	Residential	-5.38E-04	-1.15E-06	-3.09E-04	-1.23E-04	-2.12E-04	-1.63E-07	-1.55E-03	-2.82E-05	-2.27E-04	-8.12E-09	0.00E+00	0.00E+00	-3.89E-05	-1.85E-09	-8.09E-05	-2.19E-09
56	367723	758254	School	-3.41E-03	-7.25E-06	-1.95E-03	-7.81E-04	-1.34E-03	-1.03E-06	-9.82E-03	-1.78E-04	-1.44E-03	-5.14E-08	0.00E+00	0.00E+00	-2.46E-04	-1.17E-08	-5.12E-04	-1.38E-08
57	367784	758221	School	-3.50E-03	-7.45E-06	-2.01E-03	-8.03E-04	-1.38E-03	-1.06E-06	-1.01E-02	-1.83E-04	-1.48E-03	-5.28E-08	0.00E+00	0.00E+00	-2.53E-04	-1.21E-08	-5.26E-04	-1.42E-08
58	367845	758189	School	-3.88E-03	-8.26E-06	-2.23E-03	-8.91E-04	-1.53E-03	-1.18E-06	-1.12E-02	-2.03E-04	-1.64E-03	-5.86E-08	0.00E+00	0.00E+00	-2.81E-04	-1.34E-08	-5.84E-04	-1.58E-08
59	367816	758096	Residential	3.77E-04	8.03E-07	2.16E-04	8.65E-05	1.48E-04	1.14E-07	1.09E-03	1.98E-05	1.59E-04	5.69E-09	0.00E+00	0.00E+00	2.73E-05	1.30E-09	5.67E-05	1.53E-09
60	367898	758066	Residential	-9.82E-04	-2.09E-06	-5.63E-04	-2.25E-04	-3.86E-04	-2.97E-07	-2.83E-03	-5.14E-05	-4.15E-04	-1.48E-08	0.00E+00	0.00E+00	-7.10E-05	-3.38E-09	-1.48E-04	-3.99E-09
61	367980	758035	Residential	-1.99E-03	-4.24E-06	-1.14E-03	-4.57E-04	-7.85E-04	-6.04E-07	-5.75E-03	-1.05E-04	-8.43E-04	-3.01E-08	0.00E+00	0.00E+00	-1.44E-04	-6.87E-09	-3.00E-04	-8.10E-09
62	368062	758005	Residential	-3.78E-03	-8.05E-06	-2.17E-03	-8.68E-04	-1.49E-03	-1.15E-06	-1.09E-02	-1.98E-04	-1.60E-03	-5.71E-08	0.00E+00	0.00E+00	-2.74E-04	-1.30E-08	-5.69E-04	-1.54E-08
63	368144	757975	Residential	-6.61E-03	-1.41E-05	-3.79E-03	-1.52E-03	-2.60E-03	-2.00E-06	-1.90E-02	-3.46E-04	-2.79E-03	-9.97E-08	0.00E+00	0.00E+00	-4.78E-04	-2.28E-08	-9.93E-04	-2.68E-08
64	368226	757945	Residential	-9.65E-03	-2.05E-05	-5.53E-03	-2.21E-03	-3.80E-03	-2.92E-06	-2.78E-02	-5.06E-04	-4.08E-03	-1.46E-07	0.00E+00	0.00E+00	-6.98E-04	-3.33E-08	-1.45E-03	-3.92E-08
65	368301	757943	Residential	-1.36E-02	-2.89E-05	-7.80E-03	-3.12E-03	-5.35E-03	-4.12E-06	-3.92E-02	-7.13E-04	-5.75E-03	-2.05E-07	0.00E+00	0.00E+00	-9.84E-04	-4.69E-08	-2.04E-03	-5.52E-08
66	368376	757941	Residential	-1.91E-02	-4.06E-05	-1.09E-02	-4.38E-03	-7.51E-03	-5.78E-06	-5.50E-02	-1.00E-03	-8.06E-03	-2.88E-07	0.00E+00	0.00E+00	-1.38E-03	-6.57E-08	-2.87E-03	-7.75E-08
67	368452	757940	Residential	-2.51E-02	-5.34E-05	-1.44E-02	-5.76E-03	-9.88E-03	-7.60E-06	-7.23E-02	-1.32E-03	-1.06E-02	-3.79E-07	0.00E+00	0.00E+00	-1.82E-03	-8.65E-08	-3.77E-03	-1.02E-07
68	368527	757938	Residential	-3.25E-02	-6.92E-05	-1.86E-02	-7.46E-03	-1.28E-02	-9.85E-06	-9.37E-02	-1.70E-03	-1.37E-02	-4.91E-07	0.00E+00	0.00E+00	-2.35E-03	-1.12E-07	-4.89E-03	-1.32E-07
69	368563	757880	Residential	-3.27E-02	-6.95E-05	-1.87E-02	-7.49E-03	-1.29E-02	-9.88E-06	-9.41E-02	-1.71E-03	-1.38E-02	-4.93E-07	0.00E+00	0.00E+00	-2.36E-03	-1.12E-07	-4.91E-03	-1.33E-07
70	368636	757926	Residential	-4.38E-02	-9.33E-05	-2.51E-02	-1.01E-02	-1.73E-02	-1.33E-05	-1.26E-01	-2.30E-03	-1.85E-02	-6.62E-07	0.00E+00	0.00E+00	-3.17E-03	-1.51E-07	-6.59E-03	-1.78E-07
71	368709	757971	Residential	-5.51E-02	-1.17E-04	-3.16E-02	-1.26E-02	-2.17E-02	-1.67E-05	-1.59E-01	-2.89E-03	-2.33E-02	-8.32E-07	0.00E+00	0.00E+00	-3.99E-03	-1.90E-07	-8.29E-03	-2.24E-07
72	368782	758017	Residential	-6.60E-02	-1.40E-04	-3.78E-02	-1.51E-02	-2.60E-02	-2.00E-05	-1.90E-01	-3.46E-03	-2.79E-02	-9.96E-07	0.00E+00	0.00E+00	-4.78E-03	-2.27E-07	-9.92E-03	-2.68E-07
73	368855	758062	Residential	-7.61E-02	-1.62E-04	-4.36E-02	-1.74E-02	-2.99E-02	-2.30E-05	-2.19E-01	-3.99E-03	-3.21E-02	-1.15E-06	0.00E+00	0.00E+00	-5.50E-03	-2.62E-07	-1.14E-02	-3.09E-07
74	368928	758108	Residential	-8.40E-02	-1.79E-04	-4.82E-02	-1.93E-02	-3.31E-02	-2.54E-05	-2.42E-01	-4.40E-03	-3.55E-02	-1.27E-06	0.00E+00	0.00E+00	-6.08E-03	-2.89E-07	-1.26E-02	-3.41E-07
75	369001	758153	Residential	-4.23E-02	-9.00E-05	-2.42E-02	-9.70E-03	-1.66E-02	-1.28E-05	-1.22E-01	-2.22E-03	-1.79E-02	-6.38E-07	0.00E+00	0.00E+00	-3.06E-03	-1.46E-07	-6.36E-03	-1.72E-07
76	369058	758074	Residential	1.15E-03	2.45E-06	6.59E-04	2.64E-04	4.52E-04	3.48E-07	3.31E-03	6.02E-05	4.86E-04	1.73E-08	0.00E+00	0.00E+00	8.32E-05	3.96E-09	1.73E-04	4.67E-09
77	369102	758103	Residential	5.80E-04	1.23E-06	3.33E-04	1.33E-04	2.28E-04	1.76E-07	1.67E-03	3.04E-05	2.45E-04	8.75E-09	0.00E+00	0.00E+00	4.20E-05	2.00E-09	8.72E-05	2.36E-09
78	369145	758132	Residential	-1.94E-04	-4.14E-07	-1.11E-04	-4.46E-05	-7.65E-05	-5.88E-08	-5.60E-04	-1.02E-05	-8.21E-05	-2.93E-09	0.00E+00	0.00E+00	-1.41E-05	-6.69E-10	-2.92E-05	-7.89E-10
79	369200	758065	Residential	-7.62E-04	-1.62E-06	-4.37E-04	-1.75E-04	-3.00E-04	-2.31E-07	-2.19E-03	-3.99E-05	-3.22E-04	-1.15E-08	0.00E+00	0.00E+00	-5.51E-05	-2.62E-09	-1.14E-04	-3.09E-09
80	369255	757998	Residential	-1.02E-03	-2.17E-06	-5.84E-04	-2.34E-04	-4.01E-04	-3.09E-07	-2.94E-03	-5.34E-05	-4.31E-04	-1.54E-08	0.00E+00	0.00E+00	-7.37E-05	-3.51E-09	-1.53E-04	-4.14E-09
81	369310	757931	Residential	-1.61E-03	-3.42E-06	-9.21E-04	-3.68E-04	-6.32E-04	-4.86E-07	-4.63E-03	-8.42E-05	-6.79E-04	-2.42E-08	0.00E+00	0.00E+00	-1.16E-04	-5.53E-09	-2.41E-04	-6.52E-09
82	369356	757981	Residential	-1.47E-03	-3.14E-06	-8.45E-04	-3.38E-04	-5.80E-04	-4.46E-07	-4.25E-03	-7.72E-05	-6.23E-04	-2.22E-08	0.00E+00	0.00E+00	-1.07E-04	-5.08E-09	-2.21E-04	-5.99E-09
83	369403	758031	Residential	-1.04E-03	-2.22E-06	-5.97E-04	-2.39E-04	-4.10E-04	-3.15E-07	-3.00E-03	-5.45E-05	-4.40E-04	-1.57E-08	0.00E+00	0.00E+00	-7.53E-05	-3.59E-09	-1.56E-04	-4.23E-09
84	369336	758100	Recreational	-1.19E-03	-2.54E-06	-6.83E-04	-2.73E-04	-4.69E-04	-3.61E-07	-3.43E-03	-6.24E-05	-5.04E-04	-1.80E-08	0.00E+00	0.00E+00	-8.62E-05	-4.11E-09	-1.79E-04	-4.84E-09
85	369269	758170	Recreational	-8.53E-04	-1.81E-06	-4.89E-04	-1.96E-04	-3.36E-04	-2.58E-07	-2.46E-03	-4.47E-05	-3.60E-04	-1.29E-08	0.00E+00	0.00E+00	-6.17E-05	-2.94E-09	-1.28E-04	-3.46E-09
86	369202	758239	Recreational	-3.73E-04	-7.94E-07	-2.14E-04	-8.55E-05	-1.47E-04	-1.13E-07	-1.07E-03	-1.95E-05	-1.58E-04	-5.63E-09	0.00E+00	0.00E+00	-2.70E-05	-1.28E-09	-5.60E-05	-1.51E-09
87	369264	758285	Recreational	-4.60E-04	-9.79E-07	-2.64E-04	-1.06E-04	-1.81E-04	-1.39E-07	-1.33E-03	-2.41E-05	-1.94E-04	-6.94E-09	0.00E+00	0.00E+00	-3.33E-05	-1.58E-09	-6.91E-05	-1.87E-09
88	369326	758330	Recreational	-5.03E-04	-1.07E-06	-2.88E-04	-1.15E-04	-1.98E-04	-1.52E-07	-1.45E-03	-2.63E-05	-2.12E-04	-7.59E-09	0.00E+00	0.00E+00	-3.64E-05	-1.73E-09	-7.56E-05	-2.04E-09

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

				ACETALDEHYDE	ACETALDEHYDE	ACROLEIN	ACROLEIN	BENZENE	BENZENE	FORMALDEHYDE	FORMALDEHYDE	METHYL ALCOHOL	METHYL ALCOHOL	METHYL ETHYL KETONE	METHYL ETHYL KETONE	STYRENE	STYRENE	TOULENE	TOULENE
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
89	369389	758376	Recreational	-3.22E-04	-6.85E-07	-1.85E-04	-7.39E-05	-1.27E-04	-9.75E-08	-9.28E-04	-1.69E-05	-1.36E-04	-4.86E-09	0.00E+00	0.00E+00	-2.33E-05	-1.11E-09	-4.84E-05	-1.31E-09
90	369389	758462	Recreational	-1.13E-04	-2.41E-07	-6.49E-05	-2.60E-05	-4.45E-05	-3.43E-08	-3.26E-04	-5.93E-06	-4.78E-05	-1.71E-09	0.00E+00	0.00E+00	-8.19E-06	-3.90E-10	-1.70E-05	-4.60E-10
91	369389	758548	Recreational	2.01E-04	4.28E-07	1.15E-04	4.61E-05	7.92E-05	6.09E-08	5.80E-04	1.05E-05	8.50E-05	3.04E-09	0.00E+00	0.00E+00	1.46E-05	6.93E-10	3.02E-05	8.17E-10
92	369389	758634	Residential	9.65E-05	2.05E-07	5.53E-05	2.21E-05	3.80E-05	2.92E-08	2.78E-04	5.06E-06	4.08E-05	1.46E-09	0.00E+00	0.00E+00	6.98E-06	3.33E-10	1.45E-05	3.92E-10
93	369469	758630	Residential	1.93E-04	4.10E-07	1.10E-04	4.42E-05	7.58E-05	5.83E-08	5.55E-04	1.01E-05	8.14E-05	2.91E-09	0.00E+00	0.00E+00	1.39E-05	6.64E-10	2.90E-05	7.83E-10
94	369549	758625	Residential	1.26E-03	2.68E-06	7.22E-04	2.89E-04	4.96E-04	3.81E-07	3.63E-03	6.60E-05	5.32E-04	1.90E-08	0.00E+00	0.00E+00	9.11E-05	4.34E-09	1.89E-04	5.12E-09
95	369630	758621	Residential	3.01E-03	6.39E-06	1.72E-03	6.89E-04	1.18E-03	9.10E-07	8.66E-03	1.57E-04	1.27E-03	4.54E-08	0.00E+00	0.00E+00	2.17E-04	1.04E-08	4.52E-04	1.22E-08
96	369710	758617	Residential	5.13E-03	1.09E-05	2.94E-03	1.18E-03	2.02E-03	1.55E-06	1.48E-02	2.69E-04	2.17E-03	7.73E-08	0.00E+00	0.00E+00	3.71E-04	1.77E-08	7.70E-04	2.08E-08
97	369791	758613	Residential	7.98E-03	1.70E-05	4.57E-03	1.83E-03	3.14E-03	2.41E-06	2.30E-02	4.18E-04	3.37E-03	1.20E-07	0.00E+00	0.00E+00	5.77E-04	2.75E-08	1.20E-03	3.24E-08
98	369791	758514	Residential	6.87E-03	1.46E-05	3.94E-03	1.58E-03	2.70E-03	2.08E-06	1.98E-02	3.60E-04	2.90E-03	1.04E-07	0.00E+00	0.00E+00	4.97E-04	2.37E-08	1.03E-03	2.79E-08
99	369791	758416	Residential	6.24E-03	1.33E-05	3.58E-03	1.43E-03	2.45E-03	1.89E-06	1.80E-02	3.27E-04	2.64E-03	9.41E-08	0.00E+00	0.00E+00	4.51E-04	2.15E-08	9.38E-04	2.53E-08
100	369791	758318	Residential	-9.94E-03	-2.12E-05	-5.70E-03	-2.28E-03	-3.91E-03	-3.01E-06	-2.87E-02	-5.21E-04	-4.20E-03	-1.50E-07	0.00E+00	0.00E+00	-7.19E-04	-3.43E-08	-1.49E-03	-4.04E-08
101	369881	758318	Residential	8.93E-03	1.90E-05	5.12E-03	2.05E-03	3.51E-03	2.70E-06	2.57E-02	4.68E-04	3.77E-03	1.35E-07	0.00E+00	0.00E+00	6.46E-04	3.08E-08	1.34E-03	3.63E-08
102	369972	758318	Residential	1.43E-02	3.04E-05	8.20E-03	3.28E-03	5.63E-03	4.33E-06	4.12E-02	7.49E-04	6.04E-03	2.16E-07	0.00E+00	0.00E+00	1.03E-03	4.92E-08	2.15E-03	5.81E-08
103	370062	758318	Residential	2.34E-02	4.97E-05	1.34E-02	5.35E-03	9.19E-03	7.07E-06	6.73E-02	1.22E-03	9.87E-03	3.52E-07	0.00E+00	0.00E+00	1.69E-03	8.04E-08	3.51E-03	9.48E-08
104	370153	758318	Residential	1.06E-02	2.26E-05	6.09E-03	2.43E-03	4.18E-03	3.21E-06	3.06E-02	5.56E-04	4.49E-03	1.60E-07	0.00E+00	0.00E+00	7.68E-04	3.66E-08	1.60E-03	4.31E-08
105	370243	758318	Residential	1.05E-02	2.24E-05	6.03E-03	2.41E-03	4.14E-03	3.18E-06	3.03E-02	5.51E-04	4.44E-03	1.59E-07	0.00E+00	0.00E+00	7.61E-04	3.62E-08	1.58E-03	4.27E-08
106	370247	758254	School	1.14E-02	2.42E-05	6.52E-03	2.61E-03	4.47E-03	3.44E-06	3.28E-02	5.96E-04	4.80E-03	1.72E-07	0.00E+00	0.00E+00	8.22E-04	3.92E-08	1.71E-03	4.62E-08
107	370250	758189	School	1.23E-02	2.62E-05	7.06E-03	2.83E-03	4.85E-03	3.73E-06	3.55E-02	6.46E-04	5.21E-03	1.86E-07	0.00E+00	0.00E+00	8.91E-04	4.24E-08	1.85E-03	5.01E-08
108	370308	758196	School	1.06E-02	2.26E-05	6.09E-03	2.43E-03	4.18E-03	3.21E-06	3.06E-02	5.56E-04	4.48E-03	1.60E-07	0.00E+00	0.00E+00	7.68E-04	3.66E-08	1.60E-03	4.31E-08
109	370361	758236	School	7.87E-03	1.67E-05	4.51E-03	1.80E-03	3.10E-03	2.38E-06	2.27E-02	4.12E-04	3.33E-03	1.19E-07	0.00E+00	0.00E+00	5.69E-04	2.71E-08	1.18E-03	3.20E-08
110	370415	758275	School	5.66E-03	1.20E-05	3.25E-03	1.30E-03	2.23E-03	1.71E-06	1.63E-02	2.97E-04	2.39E-03	8.54E-08	0.00E+00	0.00E+00	4.10E-04	1.95E-08	8.51E-04	2.30E-08
111	370408	758347	Residential	6.25E-03	1.33E-05	3.58E-03	1.43E-03	2.46E-03	1.89E-06	1.80E-02	3.27E-04	2.64E-03	9.43E-08	0.00E+00	0.00E+00	4.52E-04	2.15E-08	9.39E-04	2.54E-08
112	370490	758344	Residential	4.65E-03	9.89E-06	2.67E-03	1.07E-03	1.83E-03	1.41E-06	1.34E-02	2.44E-04	1.96E-03	7.02E-08	0.00E+00	0.00E+00	3.36E-04	1.60E-08	6.99E-04	1.89E-08
113	370572	758341	Residential	4.07E-02	8.67E-05	2.34E-02	9.34E-03	1.60E-02	1.23E-05	1.17E-01	2.13E-03	1.72E-02	6.15E-07	0.00E+00	0.00E+00	2.95E-03	1.40E-07	6.12E-03	1.65E-07
114	370654	758338	Residential	1.07E-01	2.27E-04	6.12E-02	2.45E-02	4.20E-02	3.23E-05	3.08E-01	5.59E-03	4.51E-02	1.61E-06	0.00E+00	0.00E+00	7.72E-03	3.68E-07	1.60E-02	4.34E-07
115	370735	758335	Residential	6.22E-02	1.32E-04	3.57E-02	1.43E-02	2.45E-02	1.88E-05	1.79E-01	3.26E-03	2.63E-02	9.39E-07	0.00E+00	0.00E+00	4.50E-03	2.14E-07	9.35E-03	2.53E-07
116	370817	758333	Residential	8.87E-02	1.89E-04	5.08E-02	2.03E-02	3.49E-02	2.68E-05	2.56E-01	4.65E-03	3.75E-02	1.34E-06	0.00E+00	0.00E+00	6.41E-03	3.05E-07	1.33E-02	3.60E-07
117	370814	758243	Offsite Worker	1.12E-01	2.39E-04	6.44E-02	2.58E-02	4.42E-02	3.40E-05	3.24E-01	5.89E-03	4.75E-02	1.70E-06	0.00E+00	0.00E+00	8.13E-03	3.87E-07	1.69E-02	4.56E-07
118	370810	758153	Offsite Worker	8.00E-02	1.70E-04	4.58E-02	1.83E-02	3.15E-02	2.42E-05	2.30E-01	4.19E-03	3.38E-02	1.21E-06	0.00E+00	0.00E+00	5.78E-03	2.75E-07	1.20E-02	3.25E-07
119	370807	758063	Offsite Worker	1.71E-02	3.65E-05	9.82E-03	3.93E-03	6.74E-03	5.19E-06	4.94E-02	8.98E-04	7.24E-03	2.59E-07	0.00E+00	0.00E+00	1.24E-03	5.90E-08	2.57E-03	6.96E-08
120	370803	757974	Offsite Worker	6.10E-02	1.30E-04	3.50E-02	1.40E-02	2.40E-02	1.85E-05	1.76E-01	3.19E-03	2.58E-02	9.20E-07	0.00E+00	0.00E+00	4.41E-03	2.10E-07	9.16E-03	2.48E-07
121	370835	757927	Offsite Worker	2.56E-01	5.45E-04	1.47E-01	5.87E-02	1.01E-01	7.75E-05	7.38E-01	1.34E-02	1.08E-01	3.87E-06	0.00E+00	0.00E+00	1.85E-02	8.82E-07	3.85E-02	1.04E-06
122	370868	757880	Offsite Worker	4.05E-01	8.62E-04	2.32E-01	9.29E-02	1.59E-01	1.23E-04	1.17E+00	2.12E-02	1.71E-01	6.11E-06	0.00E+00	0.00E+00	2.93E-02	1.40E-06	6.09E-02	1.65E-06
123	370921	757884	Offsite Worker	3.95E-01	8.41E-04	2.27E-01	9.06E-02	1.56E-01	1.20E-04	1.14E+00	2.07E-02	1.67E-01	5.96E-06	0.00E+00	0.00E+00	2.86E-02	1.36E-06	5.94E-02	1.61E-06
124	370975	757887	Offsite Worker	3.70E-01	7.88E-04	2.12E-01	8.49E-02	1.46E-01	1.12E-04	1.07E+00	1.94E-02	1.56E-01	5.59E-06	0.00E+00	0.00E+00	2.68E-02	1.28E-06	5.56E-02	1.50E-06
125	370975	757794	Offsite Worker	4.54E-01	9.67E-04	2.60E-01	1.04E-01	1.79E-01	1.38E-04	1.31E+00	2.38E-02	1.92E-01	6.86E-06	0.00E+00	0.00E+00	3.29E-02	1.56E-06	6.83E-02	1.85E-06
126	371026	757794	Offsite Worker	4.63E-01	9.85E-04	2.65E-01	1.06E-01	1.82E-01	1.40E-04	1.33E+00	2.43E-02	1.96E-01	6.99E-06	0.00E+00	0.00E+00	3.35E-02	1.60E-06	6.96E-02	1.88E-06
127	371076	757877	Offsite Worker	3.24E-01	6.89E-04	1.86E-01	7.42E-02	1.27E-01	9.80E-05	9.33E-01	1.70E-02	1.37E-01	4.88E-06	0.00E+00	0.00E+00	2.34E-02	1.11E-06	4.86E-02	1.31E-06
128	371126	757959	Offsite Worker	2.11E-01	4.50E-04	1.21E-01	4.85E-02	8.32E-02	6.40E-05	6.09E-01	1.11E-02	8.93E-02	3.19E-06	0.00E+00	0.00E+00	1.53E-02	7.28E-07	3.18E-02	8.59E-07
129	371119	758031	Offsite Worker	2.36E-01	5.02E-04	1.35E-01	5.41E-02	9.28E-02	7.14E-05	6.79E-01	1.24E-02	9.96E-02	3.56E-06	0.00E+00	0.00E+00	1.71E-02	8.12E-07	3.54E-02	9.57E-07
130	371183	758027	Residential	2.13E-01	4.54E-04	1.22E-01	4.89E-02	8.39E-02	6.45E-05	6.14E-01	1.12E-02	9.01E-02	3.22E-06	0.00E+00	0.00E+00	1.54E-02	7.34E-07	3.20E-02	8.66E-07
131	371248	758024	Residential	1.36E-01	2.90E-04	7.82E-02	3.13E-02	5.37E-02	4.13E-05	3.93E-01	7.15E-03	5.77E-02	2.06E-06	0.00E+00	0.00E+00	9.87E-03	4.70E-07	2.05E-02	5.54E-07
132	371326	758075	Residential	1.19E-01	2.52E-04	6.80E-02	2.72E-02	4.67E-02	3.59E-05	3.42E-01	6.21E-03	5.01E-02	1.79E-06	0.00E+00	0.00E+00	8.58E-03	4.08E-07	1.78E-02	4.82E-07

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

				ACETALDEHYDE	ACETALDEHYDE	ACROLEIN	ACROLEIN	BENZENE	BENZENE	FORMALDEHYDE	FORMALDEHYDE	METHYL ALCOHOL	METHYL ALCOHOL	METHYL ETHYL KETONE	METHYL ETHYL KETONE	STYRENE	STYRENE	TOULENE	TOULENE
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
133	371404	758127	Residential	1.04E-01	2.22E-04	5.98E-02	2.39E-02	4.10E-02	3.15E-05	3.00E-01	5.46E-03	4.40E-02	1.57E-06	0.00E+00	0.00E+00	7.54E-03	3.59E-07	1.57E-02	4.23E-07
134	371481	758178	Residential	9.25E-02	1.97E-04	5.30E-02	2.12E-02	3.64E-02	2.80E-05	2.67E-01	4.85E-03	3.91E-02	1.40E-06	0.00E+00	0.00E+00	6.69E-03	3.19E-07	1.39E-02	3.76E-07
135	371559	758230	Residential	8.28E-02	1.76E-04	4.75E-02	1.90E-02	3.26E-02	2.51E-05	2.39E-01	4.34E-03	3.50E-02	1.25E-06	0.00E+00	0.00E+00	5.99E-03	2.85E-07	1.24E-02	3.36E-07
136	371637	758281	Residential	7.46E-02	1.59E-04	4.28E-02	1.71E-02	2.94E-02	2.26E-05	2.15E-01	3.91E-03	3.15E-02	1.13E-06	0.00E+00	0.00E+00	5.40E-03	2.57E-07	1.12E-02	3.03E-07
137	371715	758333	Residential	6.76E-02	1.44E-04	3.88E-02	1.55E-02	2.66E-02	2.05E-05	1.95E-01	3.54E-03	2.86E-02	1.02E-06	0.00E+00	0.00E+00	4.89E-03	2.33E-07	1.02E-02	2.75E-07
138	371769	758261	Residential	-6.20E-02	-1.32E-04	-3.56E-02	-1.42E-02	-2.44E-02	-1.88E-05	-1.79E-01	-3.25E-03	-2.62E-02	-9.36E-07	0.00E+00	0.00E+00	-4.49E-03	-2.14E-07	-9.32E-03	-2.52E-07
139	371822	758189	Residential	-1.03E-01	-2.20E-04	-5.93E-02	-2.37E-02	-4.07E-02	-3.13E-05	-2.98E-01	-5.42E-03	-4.37E-02	-1.56E-06	0.00E+00	0.00E+00	-7.48E-03	-3.56E-07	-1.55E-02	-4.20E-07
140	371894	758160	Residential	-1.43E-01	-3.05E-04	-8.22E-02	-3.29E-02	-5.65E-02	-4.34E-05	-4.13E-01	-7.52E-03	-6.06E-02	-2.16E-06	0.00E+00	0.00E+00	-1.04E-02	-4.94E-07	-2.16E-02	-5.83E-07
141	371894	758081	Residential	1.46E-01	3.10E-04	8.36E-02	3.35E-02	5.74E-02	4.42E-05	4.20E-01	7.64E-03	6.16E-02	2.20E-06	0.00E+00	0.00E+00	1.06E-02	5.03E-07	2.19E-02	5.93E-07
142	371959	758074	Residential	1.39E-01	2.96E-04	7.96E-02	3.19E-02	5.47E-02	4.20E-05	4.00E-01	7.28E-03	5.87E-02	2.10E-06	0.00E+00	0.00E+00	1.00E-02	4.78E-07	2.09E-02	5.64E-07
143	371953	757977	Offsite Worker	1.45E-01	3.08E-04	8.30E-02	3.32E-02	5.70E-02	4.38E-05	4.17E-01	7.58E-03	6.12E-02	2.18E-06	0.00E+00	0.00E+00	1.05E-02	4.99E-07	2.18E-02	5.88E-07
144	371948	757880	Offsite Worker	1.45E-01	3.08E-04	8.30E-02	3.32E-02	5.70E-02	4.38E-05	4.17E-01	7.58E-03	6.12E-02	2.18E-06	0.00E+00	0.00E+00	1.05E-02	4.99E-07	2.18E-02	5.88E-07
145	371943	757783	Offsite Worker	1.38E-01	2.93E-04	7.91E-02	3.16E-02	5.43E-02	4.17E-05	3.97E-01	7.23E-03	5.83E-02	2.08E-06	0.00E+00	0.00E+00	9.98E-03	4.75E-07	2.07E-02	5.60E-07
146	372016	757794	Offsite Worker	1.26E-01	2.69E-04	7.24E-02	2.90E-02	4.97E-02	3.82E-05	3.64E-01	6.62E-03	5.34E-02	1.91E-06	0.00E+00	0.00E+00	9.13E-03	4.35E-07	1.90E-02	5.13E-07
147	372102	757791	Offsite Worker	1.13E-01	2.40E-04	6.46E-02	2.59E-02	4.44E-02	3.41E-05	3.25E-01	5.91E-03	4.76E-02	1.70E-06	0.00E+00	0.00E+00	8.16E-03	3.88E-07	1.69E-02	4.58E-07
148	372178	757760	Offsite Worker	9.84E-02	2.09E-04	5.64E-02	2.26E-02	3.87E-02	2.98E-05	2.84E-01	5.16E-03	4.16E-02	1.49E-06	0.00E+00	0.00E+00	7.12E-03	3.39E-07	1.48E-02	4.00E-07
149	372177	757670	Offsite Worker	-3.81E-02	-8.12E-05	-2.19E-02	-8.75E-03	-1.50E-02	-1.15E-05	-1.10E-01	-2.00E-03	-1.61E-02	-5.76E-07	0.00E+00	0.00E+00	-2.76E-03	-1.31E-07	-5.73E-03	-1.55E-07
150	372176	757579	Offsite Worker	-5.55E-03	-1.18E-05	-3.18E-03	-1.27E-03	-2.19E-03	-1.68E-06	-1.60E-02	-2.91E-04	-2.35E-03	-8.38E-08	0.00E+00	0.00E+00	-4.02E-04	-1.91E-08	-8.35E-04	-2.26E-08
151	372174	757489	Offsite Worker	-4.10E-03	-8.72E-06	-2.35E-03	-9.40E-04	-1.61E-03	-1.24E-06	-1.18E-02	-2.15E-04	-1.73E-03	-6.18E-08	0.00E+00	0.00E+00	-2.96E-04	-1.41E-08	-6.16E-04	-1.66E-08
152	372173	757398	Offsite Worker	-4.02E-03	-8.56E-06	-2.31E-03	-9.22E-04	-1.58E-03	-1.22E-06	-1.16E-02	-2.11E-04	-1.70E-03	-6.07E-08	0.00E+00	0.00E+00	-2.91E-04	-1.39E-08	-6.05E-04	-1.63E-08
153	372171	757308	Offsite Worker	3.20E-02	6.81E-05	1.83E-02	7.34E-03	1.26E-02	9.69E-06	9.22E-02	1.68E-03	1.35E-02	4.83E-07	0.00E+00	0.00E+00	2.31E-03	1.10E-07	4.81E-03	1.30E-07
154	372055	757309	Offsite Worker	-4.28E-03	-9.11E-06	-2.45E-03	-9.82E-04	-1.68E-03	-1.30E-06	-1.23E-02	-2.24E-04	-1.81E-03	-6.46E-08	0.00E+00	0.00E+00	-3.10E-04	-1.47E-08	-6.43E-04	-1.74E-08
155	372055	757363	Residential	-4.41E-03	-9.38E-06	-2.53E-03	-1.01E-03	-1.73E-03	-1.33E-06	-1.27E-02	-2.31E-04	-1.86E-03	-6.65E-08	0.00E+00	0.00E+00	-3.19E-04	-1.52E-08	-6.63E-04	-1.79E-08
156	372055	757416	Offsite Worker	-4.42E-03	-9.40E-06	-2.53E-03	-1.01E-03	-1.74E-03	-1.34E-06	-1.27E-02	-2.32E-04	-1.87E-03	-6.67E-08	0.00E+00	0.00E+00	-3.20E-04	-1.52E-08	-6.64E-04	-1.79E-08
157	371952	757442	Offsite Worker	-4.53E-03	-9.65E-06	-2.60E-03	-1.04E-03	-1.78E-03	-1.37E-06	-1.31E-02	-2.38E-04	-1.92E-03	-6.84E-08	0.00E+00	0.00E+00	-3.28E-04	-1.56E-08	-6.81E-04	-1.84E-08
158	371950	757345	Offsite Worker	-4.71E-03	-1.00E-05	-2.70E-03	-1.08E-03	-1.85E-03	-1.43E-06	-1.36E-02	-2.47E-04	-1.99E-03	-7.11E-08	0.00E+00	0.00E+00	-3.41E-04	-1.62E-08	-7.08E-04	-1.91E-08
159	371864	757344	Offsite Worker	-4.93E-03	-1.05E-05	-2.82E-03	-1.13E-03	-1.94E-03	-1.49E-06	-1.42E-02	-2.58E-04	-2.08E-03	-7.44E-08	0.00E+00	0.00E+00	-3.56E-04	-1.70E-08	-7.41E-04	-2.00E-08
160	371790	757347	Offsite Worker	-5.03E-03	-1.07E-05	-2.88E-03	-1.15E-03	-1.98E-03	-1.52E-06	-1.45E-02	-2.64E-04	-2.13E-03	-7.59E-08	0.00E+00	0.00E+00	-3.64E-04	-1.73E-08	-7.56E-04	-2.04E-08
161	371708	757356	Offsite Worker	-5.01E-03	-1.07E-05	-2.87E-03	-1.15E-03	-1.97E-03	-1.52E-06	-1.45E-02	-2.63E-04	-2.12E-03	-7.57E-08	0.00E+00	0.00E+00	-3.63E-04	-1.73E-08	-7.54E-04	-2.04E-08
162	371615	757356	Offsite Worker	9.06E-02	1.93E-04	5.20E-02	2.08E-02	3.57E-02	2.74E-05	2.61E-01	4.75E-03	3.83E-02	1.37E-06	0.00E+00	0.00E+00	6.56E-03	3.12E-07	1.36E-02	3.68E-07
163	371523	757356	Offsite Worker	1.04E-01	2.21E-04	5.96E-02	2.38E-02	4.09E-02	3.15E-05	3.00E-01	5.45E-03	4.39E-02	1.57E-06	0.00E+00	0.00E+00	7.52E-03	3.58E-07	1.56E-02	4.22E-07
164	371430	757356	Offsite Worker	-3.61E-02	-7.68E-05	-2.07E-02	-8.28E-03	-1.42E-02	-1.09E-05	-1.04E-01	-1.89E-03	-1.53E-02	-5.45E-07	0.00E+00	0.00E+00	-2.61E-03	-1.24E-07	-5.42E-03	-1.47E-07
165	371338	757356	Offsite Worker	-6.15E-02	-1.31E-04	-3.52E-02	-1.41E-02	-2.42E-02	-1.86E-05	-1.77E-01	-3.22E-03	-2.60E-02	-9.28E-07	0.00E+00	0.00E+00	-4.45E-03	-2.12E-07	-9.24E-03	-2.50E-07
166	371245	757356	Offsite Worker	-5.71E-02	-1.22E-04	-3.27E-02	-1.31E-02	-2.25E-02	-1.73E-05	-1.65E-01	-2.99E-03	-2.41E-02	-8.62E-07	0.00E+00	0.00E+00	-4.13E-03	-1.97E-07	-8.58E-03	-2.32E-07
167	371153	757356	Offsite Worker	-5.32E-02	-1.13E-04	-3.05E-02	-1.22E-02	-2.09E-02	-1.61E-05	-1.53E-01	-2.79E-03	-2.25E-02	-8.03E-07	0.00E+00	0.00E+00	-3.85E-03	-1.83E-07	-8.00E-03	-2.16E-07
168	371061	757356	Offsite Worker	-4.62E-02	-9.84E-05	-2.65E-02	-1.06E-02	-1.82E-02	-1.40E-05	-1.33E-01	-2.42E-03	-1.95E-02	-6.98E-07	0.00E+00	0.00E+00	-3.34E-03	-1.59E-07	-6.95E-03	-1.88E-07
169	371005	757357	Offsite Worker	-3.92E-02	-8.34E-05	-2.25E-02	-8.98E-03	-1.54E-02	-1.19E-05	-1.13E-01	-2.05E-03	-1.66E-02	-5.91E-07	0.00E+00	0.00E+00	-2.83E-03	-1.35E-07	-5.89E-03	-1.59E-07
170	370998	757293	Offsite Worker	-1.25E-01	-2.66E-04	-7.17E-02	-2.87E-02	-4.92E-02	-3.79E-05	-3.61E-01	-6.55E-03	-5.29E-02	-1.89E-06	0.00E+00	0.00E+00	-9.05E-03	-4.31E-07	-1.88E-02	-5.08E-07
171	370998	757194	Offsite Worker	1.76E-02	3.75E-05	1.01E-02	4.04E-03	6.93E-03	5.33E-06	5.07E-02	9.23E-04	7.44E-03	2.66E-07	0.00E+00	0.00E+00	1.27E-03	6.07E-08	2.65E-03	7.15E-08
172	370998	757096	Offsite Worker	1.71E-01	3.63E-04	9.78E-02	3.91E-02	6.71E-02	5.17E-05	4.92E-01	8.94E-03	7.21E-02	2.58E-06	0.00E+00	0.00E+00	1.23E-02	5.88E-07	2.56E-02	6.93E-07
173	370998	756998	Offsite Worker	7.00E-02	1.49E-04	4.01E-02	1.61E-02	2.75E-02	2.12E-05	2.02E-01	3.67E-03	2.96E-02	1.06E-06	0.00E+00	0.00E+00	5.06E-03	2.41E-07	1.05E-02	2.84E-07
174	371057	756997	Offsite Worker	8.80E-02	1.87E-04	5.05E-02	2.02E-02	3.46E-02	2.67E-05	2.54E-01	4.61E-03	3.72E-02	1.33E-06	0.00E+00	0.00E+00	6.37E-03	3.03E-07	1.32E-02	3.58E-07
175	371153	756997	Offsite Worker	-7.94E-03	-1.69E-05	-4.55E-03	-1.82E-03	-3.12E-03	-2.40E-06	-2.29E-02	-4.16E-04	-3.35E-03	-1.20E-07	0.00E+00	0.00E+00	-5.74E-04	-2.73E-08	-1.19E-03	-3.23E-08
176	371249	756997	Offsite Worker	-7.80E-03	-1.66E-05	-4.47E-03	-1.79E-03	-3.07E-03	-2.36E-06	-2.25E-02	-4.08E-04	-3.29E-03	-1.18E-07	0.00E+00	0.00E+00	-5.64E-04	-2.68E-08	-1.17E-03	-3.17E-08
177	371345	756997	Offsite Worker	-7.36E-03	-1.57E-05	-4.22E-03	-1.69E-03	-2.90E-03	-2.23E-06	-2.12E-02	-3.86E-04	-3.11E-03	-1.11E-07	0.00E+00	0.00E+00	-5.32E-04	-2.53E-08	-1.11E-03	-2.99E-08

NOTE: µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	ACETALDEHYDE ($\mu g/m^3$)	ACETALDEHYDE ACUTE HAZARD	ACROLEIN ($\mu g/m^3$)	ACROLEIN ACUTE HAZARD	BENZENE ($\mu g/m^3$)	BENZENE ACUTE HAZARD	FORMALDEHYDE ($\mu g/m^3$)	FORMALDEHYDE ACUTE HAZARD	METHYL ALCOHOL ($\mu g/m^3$)	METHYL ALCOHOL ACUTE HAZARD	METHYL ETHYL KETONE ($\mu g/m^3$)	METHYL ETHYL KETONE ACUTE HAZARD	STYRENE ($\mu g/m^3$)	STYRENE ACUTE HAZARD	TOULENE ($\mu g/m^3$)	TOULENE ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
178	371440	756997	Offsite Worker	-6.74E-03	-1.43E-05	-3.87E-03	-1.55E-03	-2.65E-03	-2.04E-06	-1.94E-02	-3.53E-04	-2.85E-03	-1.02E-07	0.00E+00	0.00E+00	-4.88E-04	-2.32E-08	-1.01E-03	-2.74E-08
179	371536	756997	Offsite Worker	-6.03E-03	-1.28E-05	-3.46E-03	-1.38E-03	-2.37E-03	-1.83E-06	-1.74E-02	-3.16E-04	-2.55E-03	-9.10E-08	0.00E+00	0.00E+00	-4.36E-04	-2.08E-08	-9.06E-04	-2.45E-08
180	371632	756997	Offsite Worker	-5.22E-03	-1.11E-05	-2.99E-03	-1.20E-03	-2.06E-03	-1.58E-06	-1.51E-02	-2.74E-04	-2.21E-03	-7.88E-08	0.00E+00	0.00E+00	-3.78E-04	-1.80E-08	-7.85E-04	-2.12E-08
181	371728	756997	Offsite Worker	-4.42E-03	-9.39E-06	-2.53E-03	-1.01E-03	-1.74E-03	-1.34E-06	-1.27E-02	-2.31E-04	-1.87E-03	-6.66E-08	0.00E+00	0.00E+00	-3.19E-04	-1.52E-08	-6.64E-04	-1.79E-08
182	371824	756997	Offsite Worker	-7.40E-02	-1.57E-04	-4.24E-02	-1.70E-02	-2.91E-02	-2.24E-05	-2.13E-01	-3.88E-03	-3.13E-02	-1.12E-06	0.00E+00	0.00E+00	-5.35E-03	-2.55E-07	-1.11E-02	-3.01E-07
183	371920	756997	Offsite Worker	-7.46E-02	-1.59E-04	-4.28E-02	-1.71E-02	-2.94E-02	-2.26E-05	-2.15E-01	-3.91E-03	-3.15E-02	-1.13E-06	0.00E+00	0.00E+00	-5.40E-03	-2.57E-07	-1.12E-02	-3.03E-07
184	372016	756997	Offsite Worker	-7.52E-02	-1.60E-04	-4.31E-02	-1.72E-02	-2.96E-02	-2.28E-05	-2.17E-01	-3.94E-03	-3.18E-02	-1.13E-06	0.00E+00	0.00E+00	-5.44E-03	-2.59E-07	-1.13E-02	-3.05E-07
185	372111	756997	Offsite Worker	-7.57E-02	-1.61E-04	-4.34E-02	-1.74E-02	-2.98E-02	-2.29E-05	-2.18E-01	-3.96E-03	-3.20E-02	-1.14E-06	0.00E+00	0.00E+00	-5.47E-03	-2.61E-07	-1.14E-02	-3.07E-07
186	372207	756997	Offsite Worker	-7.61E-02	-1.62E-04	-4.36E-02	-1.75E-02	-2.99E-02	-2.30E-05	-2.19E-01	-3.99E-03	-3.22E-02	-1.15E-06	0.00E+00	0.00E+00	-5.50E-03	-2.62E-07	-1.14E-02	-3.09E-07
187	372303	756997	Offsite Worker	-7.66E-02	-1.63E-04	-4.39E-02	-1.76E-02	-3.02E-02	-2.32E-05	-2.21E-01	-4.01E-03	-3.24E-02	-1.16E-06	0.00E+00	0.00E+00	-5.54E-03	-2.64E-07	-1.15E-02	-3.11E-07
188	372399	756997	Offsite Worker	-7.71E-02	-1.64E-04	-4.42E-02	-1.77E-02	-3.03E-02	-2.33E-05	-2.22E-01	-4.04E-03	-3.26E-02	-1.16E-06	0.00E+00	0.00E+00	-5.58E-03	-2.65E-07	-1.16E-02	-3.13E-07
189	372495	756997	Offsite Worker	-7.76E-02	-1.65E-04	-4.45E-02	-1.78E-02	-3.05E-02	-2.35E-05	-2.24E-01	-4.07E-03	-3.28E-02	-1.17E-06	0.00E+00	0.00E+00	-5.61E-03	-2.67E-07	-1.17E-02	-3.15E-07
190	372591	756997	Offsite Worker	-7.79E-02	-1.66E-04	-4.47E-02	-1.79E-02	-3.07E-02	-2.36E-05	-2.25E-01	-4.08E-03	-3.29E-02	-1.18E-06	0.00E+00	0.00E+00	-5.64E-03	-2.68E-07	-1.17E-02	-3.17E-07
191	372610	757063	Offsite Worker	-7.45E-02	-1.58E-04	-4.27E-02	-1.71E-02	-2.93E-02	-2.25E-05	-2.15E-01	-3.90E-03	-3.15E-02	-1.12E-06	0.00E+00	0.00E+00	-5.39E-03	-2.56E-07	-1.12E-02	-3.02E-07
192	372612	757132	Offsite Worker	-7.15E-02	-1.52E-04	-4.10E-02	-1.64E-02	-2.81E-02	-2.17E-05	-2.06E-01	-3.75E-03	-3.02E-02	-1.08E-06	0.00E+00	0.00E+00	-5.17E-03	-2.46E-07	-1.07E-02	-2.91E-07
193	372614	757201	Offsite Worker	-6.88E-02	-1.46E-04	-3.94E-02	-1.58E-02	-2.71E-02	-2.08E-05	-1.98E-01	-3.61E-03	-2.91E-02	-1.04E-06	0.00E+00	0.00E+00	-4.98E-03	-2.37E-07	-1.03E-02	-2.79E-07
194	372616	757270	Offsite Worker	-6.68E-02	-1.42E-04	-3.83E-02	-1.53E-02	-2.63E-02	-2.02E-05	-1.92E-01	-3.50E-03	-2.82E-02	-1.01E-06	0.00E+00	0.00E+00	-4.83E-03	-2.30E-07	-1.00E-02	-2.71E-07
195	372627	757351	Offsite Worker	2.37E-03	5.05E-06	1.36E-03	5.44E-04	9.33E-04	7.18E-07	6.83E-03	1.24E-04	1.00E-03	3.58E-08	0.00E+00	0.00E+00	1.72E-04	8.17E-09	3.56E-04	9.63E-09
196	372651	757422	Offsite Worker	2.73E-02	5.81E-05	1.56E-02	6.26E-03	1.07E-02	8.26E-06	7.86E-02	1.43E-03	1.15E-02	4.12E-07	0.00E+00	0.00E+00	1.97E-03	9.40E-08	4.10E-03	1.11E-07
197	372676	757494	Offsite Worker	3.16E-02	6.73E-05	1.81E-02	7.25E-03	1.24E-02	9.57E-06	9.11E-02	1.66E-03	1.34E-02	4.77E-07	0.00E+00	0.00E+00	2.29E-03	1.09E-07	4.75E-03	1.28E-07
198	372704	757569	Offsite Worker	3.72E-02	7.91E-05	2.13E-02	8.53E-03	1.46E-02	1.13E-05	1.07E-01	1.95E-03	1.57E-02	5.61E-07	0.00E+00	0.00E+00	2.69E-03	1.28E-07	5.59E-03	1.51E-07
199	372733	757645	Offsite Worker	-2.16E-02	-4.59E-05	-1.24E-02	-4.95E-03	-8.50E-03	-6.54E-06	-6.22E-02	-1.13E-03	-9.12E-03	-3.26E-07	0.00E+00	0.00E+00	-1.56E-03	-7.44E-08	-3.25E-03	-8.77E-08
200	372746	757702	Offsite Worker	-5.05E-02	-1.07E-04	-2.89E-02	-1.16E-02	-1.99E-02	-1.53E-05	-1.45E-01	-2.64E-03	-2.13E-02	-7.62E-07	0.00E+00	0.00E+00	-3.65E-03	-1.74E-07	-7.59E-03	-2.05E-07
201	372746	757768	Offsite Worker	-4.91E-02	-1.05E-04	-2.82E-02	-1.13E-02	-1.93E-02	-1.49E-05	-1.42E-01	-2.57E-03	-2.08E-02	-7.42E-07	0.00E+00	0.00E+00	-3.55E-03	-1.69E-07	-7.39E-03	-2.00E-07
202	372807	757781	School	-4.95E-02	-1.05E-04	-2.84E-02	-1.13E-02	-1.95E-02	-1.50E-05	-1.43E-01	-2.59E-03	-2.09E-02	-7.47E-07	0.00E+00	0.00E+00	-3.58E-03	-1.70E-07	-7.44E-03	-2.01E-07
203	372901	757782	School	-4.97E-02	-1.06E-04	-2.85E-02	-1.14E-02	-1.95E-02	-1.50E-05	-1.43E-01	-2.60E-03	-2.10E-02	-7.49E-07	0.00E+00	0.00E+00	-3.59E-03	-1.71E-07	-7.46E-03	-2.02E-07
204	372994	757783	Offsite Worker	-5.04E-02	-1.07E-04	-2.89E-02	-1.15E-02	-1.98E-02	-1.52E-05	-1.45E-01	-2.64E-03	-2.13E-02	-7.60E-07	0.00E+00	0.00E+00	-3.64E-03	-1.73E-07	-7.57E-03	-2.05E-07
205	373087	757783	Offsite Worker	-5.08E-02	-1.08E-04	-2.91E-02	-1.17E-02	-2.00E-02	-1.54E-05	-1.46E-01	-2.66E-03	-2.15E-02	-7.67E-07	0.00E+00	0.00E+00	-3.67E-03	-1.75E-07	-7.64E-03	-2.06E-07
206	373180	757784	Offsite Worker	-5.13E-02	-1.09E-04	-2.94E-02	-1.18E-02	-2.02E-02	-1.55E-05	-1.48E-01	-2.69E-03	-2.17E-02	-7.74E-07	0.00E+00	0.00E+00	-3.71E-03	-1.77E-07	-7.71E-03	-2.08E-07
207	373274	757785	Offsite Worker	-5.11E-02	-1.09E-04	-2.93E-02	-1.17E-02	-2.01E-02	-1.55E-05	-1.47E-01	-2.68E-03	-2.16E-02	-7.71E-07	0.00E+00	0.00E+00	-3.69E-03	-1.76E-07	-7.68E-03	-2.07E-07
208	373367	757786	Offsite Worker	-5.16E-02	-1.10E-04	-2.96E-02	-1.18E-02	-2.03E-02	-1.56E-05	-1.49E-01	-2.70E-03	-2.18E-02	-7.79E-07	0.00E+00	0.00E+00	-3.73E-03	-1.78E-07	-7.75E-03	-2.10E-07
209	373418	757742	Offsite Worker	-5.29E-02	-1.13E-04	-3.03E-02	-1.21E-02	-2.08E-02	-1.60E-05	-1.52E-01	-2.77E-03	-2.24E-02	-7.99E-07	0.00E+00	0.00E+00	-3.83E-03	-1.82E-07	-7.95E-03	-2.15E-07
210	373418	757653	Offsite Worker	-5.54E-02	-1.18E-04	-3.18E-02	-1.27E-02	-2.18E-02	-1.68E-05	-1.60E-01	-2.90E-03	-2.34E-02	-8.36E-07	0.00E+00	0.00E+00	-4.01E-03	-1.91E-07	-8.33E-03	-2.25E-07
211	373419	757564	Offsite Worker	-5.88E-02	-1.25E-04	-3.37E-02	-1.35E-02	-2.31E-02	-1.78E-05	-1.70E-01	-3.08E-03	-2.49E-02	-8.88E-07	0.00E+00	0.00E+00	-4.26E-03	-2.03E-07	-8.84E-03	-2.39E-07
212	373419	757475	Offsite Worker	-6.04E-02	-1.28E-04	-3.46E-02	-1.38E-02	-2.38E-02	-1.83E-05	-1.74E-01	-3.16E-03	-2.55E-02	-9.11E-07	0.00E+00	0.00E+00	-4.37E-03	-2.08E-07	-9.07E-03	-2.45E-07
213	373420	757386	Offsite Worker	-6.34E-02	-1.35E-04	-3.63E-02	-1.45E-02	-2.49E-02	-1.92E-05	-1.83E-01	-3.32E-03	-2.68E-02	-9.57E-07	0.00E+00	0.00E+00	-4.59E-03	-2.18E-07	-9.53E-03	-2.57E-07
214	373420	757297	Offsite Worker	-6.63E-02	-1.41E-04	-3.80E-02	-1.52E-02	-2.61E-02	-2.01E-05	-1.91E-01	-3.47E-03	-2.80E-02	-1.00E-06	0.00E+00	0.00E+00	-4.79E-03	-2.28E-07	-9.96E-03	-2.69E-07
215	373421	757207	Offsite Worker	-6.92E-02	-1.47E-04	-3.96E-02	-1.59E-02	-2.72E-02	-2.09E-05	-1.99E-01	-3.62E-03	-2.92E-02	-1.04E-06	0.00E+00	0.00E+00	-5.00E-03	-2.38E-07	-1.04E-02	-2.81E-07
216	373421	757118	Offsite Worker	-7.24E-02	-1.54E-04	-4.15E-02	-1.66E-02	-2.85E-02	-2.19E-05	-2.09E-01	-3.79E-03	-3.06E-02	-1.09E-06	0.00E+00	0.00E+00	-5.24E-03	-2.49E-07	-1.09E-02	-2.94E-07
217	373292	757117	Offsite Worker	-7.28E-02	-1.55E-04	-4.17E-02	-1.67E-02	-2.86E-02	-2.20E-05	-2.10E-01	-3.81E-03	-3.08E-02	-1.10E-06	0.00E+00	0.00E+00	-5.26E-03	-2.51E-07	-1.09E-02	-2.96E-07
218	373213	757118	Offsite Worker	-7.28E-02	-1.55E-04	-4.17E-02	-1.67E-02	-2.86E-02	-2.20E-05	-2.10E-01	-3.81E-03	-3.07E-02	-1.10E-06	0.00E+00	0.00E+00	-5.26E-03	-2.51E-07	-1.09E-02	-2.96E-07
219	373158	757066	Offsite Worker	-7.48E-02	-1.59E-04	-4.29E-02	-1.72E-02	-2.94E-02	-2.26E-05	-2.16E-01	-3.92E-03	-3.16E-02	-1.13E-06	0.00E+00	0.00E+00	-5.41E-03	-2.58E-07	-1.12E-02	-3.04E-07
220	373084	757026	Offsite Worker	-7.67E-02	-1.63E-04	-4.40E-02	-1.76E-02	-3.02E-02	-2.32E-05	-2.21E-01	-4.02E-03	-3.24E-02	-1.16E-06	0.00E+00	0.00E+00	-5.55E-03	-2.64E-07	-1.15E-02	-3.12E-07
221	373009	757011	Offsite Worker	-7.74E-02	-1.65E-04	-4.44E-02	-1.78E-02	-3.05E-02	-2.34E-05	-2.23E-01	-4.06E-03	-3.27E-02	-1.17E-06	0.00E+00	0.00E+00	-5.60E-03	-2.67E-07	-1.16E-02	-3.15E-07
222	372922	757009	Offsite Worker	-7.77E-02	-1.65E-04	-4.45E-02	-1.78E-02	-3.06E-02	-2.35E-05	-2.24E-01	-4.07E-03	-3.28E-02	-1.17E-06	0.00E+00	0.00E+00	-5.62E-03	-2.67E-07	-1.17E-02	-3.15E-07

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

				ACETALDEHYDE	ACETALDEHYDE	ACROLEIN	ACROLEIN	BENZENE	BENZENE	FORMALDEHYDE	FORMALDEHYDE	METHYL ALCOHOL	METHYL ALCOHOL	METHYL ETHYL KETONE	METHYL ETHYL KETONE	STYRENE	STYRENE	TOULENE	TOULENE
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
223	372835	757007	Offsite Worker	-7.78E-02	-1.65E-04	-4.46E-02	-1.78E-02	-3.06E-02	-2.35E-05	-2.24E-01	-4.07E-03	-3.29E-02	-1.17E-06	0.00E+00	0.00E+00	-5.62E-03	-2.68E-07	-1.17E-02	-3.16E-07
224	372747	757006	Offsite Worker	-7.79E-02	-1.66E-04	-4.46E-02	-1.79E-02	-3.06E-02	-2.36E-05	-2.24E-01	-4.08E-03	-3.29E-02	-1.17E-06	0.00E+00	0.00E+00	-5.63E-03	-2.68E-07	-1.17E-02	-3.16E-07
225	372660	757004	Offsite Worker	-7.79E-02	-1.66E-04	-4.46E-02	-1.79E-02	-3.06E-02	-2.36E-05	-2.24E-01	-4.08E-03	-3.29E-02	-1.17E-06	0.00E+00	0.00E+00	-5.63E-03	-2.68E-07	-1.17E-02	-3.16E-07
226	372651	757063	Offsite Worker	-7.46E-02	-1.59E-04	-4.28E-02	-1.71E-02	-2.94E-02	-2.26E-05	-2.15E-01	-3.91E-03	-3.15E-02	-1.13E-06	0.00E+00	0.00E+00	-5.40E-03	-2.57E-07	-1.12E-02	-3.03E-07
227	372629	756931	Offsite Worker	-6.11E-02	-1.30E-04	-3.50E-02	-1.40E-02	-2.40E-02	-1.85E-05	-1.76E-01	-3.20E-03	-2.58E-02	-9.22E-07	0.00E+00	0.00E+00	-4.42E-03	-2.10E-07	-9.18E-03	-2.48E-07
228	372631	756857	Offsite Worker	-2.58E-02	-5.50E-05	-1.48E-02	-5.92E-03	-1.02E-02	-7.82E-06	-7.44E-02	-1.35E-03	-1.09E-02	-3.90E-07	0.00E+00	0.00E+00	-1.87E-03	-8.90E-08	-3.88E-03	-1.05E-07
229	372634	756783	Offsite Worker	-2.85E-02	-6.06E-05	-1.63E-02	-6.53E-03	-1.12E-02	-8.63E-06	-8.21E-02	-1.49E-03	-1.20E-02	-4.30E-07	0.00E+00	0.00E+00	-2.06E-03	-9.81E-08	-4.28E-03	-1.16E-07
230	372702	756778	Offsite Worker	-2.48E-02	-5.29E-05	-1.42E-02	-5.70E-03	-9.78E-03	-7.52E-06	-7.16E-02	-1.30E-03	-1.05E-02	-3.75E-07	0.00E+00	0.00E+00	-1.80E-03	-8.56E-08	-3.73E-03	-1.01E-07
231	372756	756775	Offsite Worker	-2.19E-02	-4.66E-05	-1.26E-02	-5.02E-03	-8.61E-03	-6.63E-06	-6.31E-02	-1.15E-03	-9.25E-03	-3.30E-07	0.00E+00	0.00E+00	-1.58E-03	-7.54E-08	-3.29E-03	-8.89E-08
232	372729	756712	Offsite Worker	-3.10E-02	-6.59E-05	-1.78E-02	-7.10E-03	-1.22E-02	-9.37E-06	-8.92E-02	-1.62E-03	-1.31E-02	-4.67E-07	0.00E+00	0.00E+00	-2.24E-03	-1.07E-07	-4.65E-03	-1.26E-07
233	372703	756650	Offsite Worker	-9.95E-02	-2.12E-04	-5.71E-02	-2.28E-02	-3.92E-02	-3.01E-05	-2.87E-01	-5.21E-03	-4.21E-02	-1.50E-06	0.00E+00	0.00E+00	-7.20E-03	-3.43E-07	-1.50E-02	-4.04E-07
234	372677	756588	Offsite Worker	-1.04E-01	-2.22E-04	-5.97E-02	-2.39E-02	-4.10E-02	-3.15E-05	-3.00E-01	-5.46E-03	-4.40E-02	-1.57E-06	0.00E+00	0.00E+00	-7.53E-03	-3.59E-07	-1.57E-02	-4.23E-07
235	372619	756588	Offsite Worker	-3.14E-02	-6.68E-05	-1.80E-02	-7.20E-03	-1.24E-02	-9.50E-06	-9.05E-02	-1.64E-03	-1.33E-02	-4.74E-07	0.00E+00	0.00E+00	-2.27E-03	-1.08E-07	-4.72E-03	-1.28E-07
236	372622	756509	Offsite Worker	-1.11E-01	-2.36E-04	-6.36E-02	-2.54E-02	-4.36E-02	-3.36E-05	-3.20E-01	-5.81E-03	-4.69E-02	-1.67E-06	0.00E+00	0.00E+00	-8.02E-03	-3.82E-07	-1.67E-02	-4.50E-07
237	372700	756511	Offsite Worker	-1.07E-01	-2.28E-04	-6.14E-02	-2.46E-02	-4.21E-02	-3.24E-05	-3.09E-01	-5.61E-03	-4.52E-02	-1.62E-06	0.00E+00	0.00E+00	-7.74E-03	-3.69E-07	-1.61E-02	-4.35E-07
238	372789	756510	Offsite Worker	-1.03E-01	-2.19E-04	-5.90E-02	-2.36E-02	-4.05E-02	-3.12E-05	-2.97E-01	-5.40E-03	-4.35E-02	-1.55E-06	0.00E+00	0.00E+00	-7.45E-03	-3.55E-07	-1.55E-02	-4.18E-07
239	372871	756509	Offsite Worker	-9.91E-02	-2.11E-04	-5.68E-02	-2.27E-02	-3.90E-02	-3.00E-05	-2.85E-01	-5.19E-03	-4.19E-02	-1.50E-06	0.00E+00	0.00E+00	-7.17E-03	-3.41E-07	-1.49E-02	-4.02E-07
240	372871	756437	Offsite Worker	-2.10E-02	-4.46E-05	-1.20E-02	-4.81E-03	-8.26E-03	-6.35E-06	-6.05E-02	-1.10E-03	-8.87E-03	-3.17E-07	0.00E+00	0.00E+00	-1.52E-03	-7.23E-08	-3.15E-03	-8.52E-08
241	372970	756437	Offsite Worker	1.22E-02	2.60E-05	7.01E-03	2.80E-03	4.81E-03	3.70E-06	3.52E-02	6.40E-04	5.16E-03	1.84E-07	0.00E+00	0.00E+00	8.84E-04	4.21E-08	1.84E-03	4.96E-08
242	373069	756437	Offsite Worker	1.42E-02	3.01E-05	8.12E-03	3.25E-03	5.57E-03	4.29E-06	4.08E-02	7.42E-04	5.98E-03	2.14E-07	0.00E+00	0.00E+00	1.02E-03	4.88E-08	2.13E-03	5.75E-08
243	373168	756437	Offsite Worker	1.55E-02	3.29E-05	8.87E-03	3.55E-03	6.09E-03	4.68E-06	4.46E-02	8.10E-04	6.53E-03	2.33E-07	0.00E+00	0.00E+00	1.12E-03	5.33E-08	2.32E-03	6.28E-08
244	373267	756437	Offsite Worker	1.66E-02	3.53E-05	9.50E-03	3.80E-03	6.52E-03	5.02E-06	4.78E-02	8.68E-04	7.00E-03	2.50E-07	0.00E+00	0.00E+00	1.20E-03	5.71E-08	2.49E-03	6.73E-08
245	373412	756437	Offsite Worker	1.67E-02	3.56E-05	9.59E-03	3.84E-03	6.58E-03	5.07E-06	4.82E-02	8.77E-04	7.07E-03	2.53E-07	0.00E+00	0.00E+00	1.21E-03	5.76E-08	2.51E-03	6.80E-08
246	373409	756339	Offsite Worker	1.22E-02	2.59E-05	6.98E-03	2.79E-03	4.79E-03	3.68E-06	3.51E-02	6.38E-04	5.14E-03	1.84E-07	0.00E+00	0.00E+00	8.80E-04	4.19E-08	1.83E-03	4.94E-08
247	373406	756240	Offsite Worker	7.29E-03	1.55E-05	4.18E-03	1.67E-03	2.87E-03	2.21E-06	2.10E-02	3.82E-04	3.08E-03	1.10E-07	0.00E+00	0.00E+00	5.27E-04	2.51E-08	1.10E-03	2.96E-08
248	373403	756142	Offsite Worker	4.90E-03	1.04E-05	2.81E-03	1.12E-03	1.93E-03	1.48E-06	1.41E-02	2.57E-04	2.07E-03	7.40E-08	0.00E+00	0.00E+00	3.54E-04	1.69E-08	7.37E-04	1.99E-08
249	373400	756042	Offsite Worker	5.06E-03	1.08E-05	2.90E-03	1.16E-03	1.99E-03	1.53E-06	1.46E-02	2.65E-04	2.14E-03	7.64E-08	0.00E+00	0.00E+00	3.66E-04	1.74E-08	7.61E-04	2.06E-08
250	373397	755944	Offsite Worker	2.08E-03	4.42E-06	1.19E-03	4.76E-04	8.17E-04	6.28E-07	5.98E-03	1.09E-04	8.77E-04	3.13E-08	0.00E+00	0.00E+00	1.50E-04	7.15E-09	3.12E-04	8.43E-09
251	373393	755846	Offsite Worker	6.63E-04	1.41E-06	3.80E-04	1.52E-04	2.61E-04	2.01E-07	1.91E-03	3.47E-05	2.80E-04	1.00E-08	0.00E+00	0.00E+00	4.80E-05	2.28E-09	9.96E-05	2.69E-09
252	373390	755747	Offsite Worker	-7.05E-05	-1.50E-07	-4.04E-05	-1.62E-05	-2.77E-05	-2.13E-08	-2.03E-04	-3.69E-06	-2.98E-05	-1.06E-09	0.00E+00	0.00E+00	-5.10E-06	-2.43E-10	-1.06E-05	-2.86E-10
253	373309	755744	Offsite Worker	-2.40E-04	-5.11E-07	-1.38E-04	-5.51E-05	-9.45E-05	-7.27E-08	-6.92E-04	-1.26E-05	-1.01E-04	-3.62E-09	0.00E+00	0.00E+00	-1.74E-05	-8.27E-10	-3.61E-05	-9.75E-10
254	373229	755743	Offsite Worker	-4.14E-04	-8.82E-07	-2.38E-04	-9.50E-05	-1.63E-04	-1.25E-07	-1.19E-03	-2.17E-05	-1.75E-04	-6.25E-09	0.00E+00	0.00E+00	-3.00E-05	-1.43E-09	-6.23E-05	-1.68E-09
255	373143	755741	Offsite Worker	-3.74E-04	-7.95E-07	-2.14E-04	-8.57E-05	-1.47E-04	-1.13E-07	-1.08E-03	-1.96E-05	-1.58E-04	-5.64E-09	0.00E+00	0.00E+00	-2.70E-05	-1.29E-09	-5.62E-05	-1.52E-09
256	373143	755823	Offsite Worker	-3.92E-04	-8.34E-07	-2.25E-04	-8.99E-05	-1.54E-04	-1.19E-07	-1.13E-03	-2.05E-05	-1.66E-04	-5.92E-09	0.00E+00	0.00E+00	-2.84E-05	-1.35E-09	-5.89E-05	-1.59E-09
257	373143	755906	Offsite Worker	-3.83E-04	-8.15E-07	-2.20E-04	-8.79E-05	-1.51E-04	-1.16E-07	-1.10E-03	-2.01E-05	-1.62E-04	-5.78E-09	0.00E+00	0.00E+00	-2.77E-05	-1.32E-09	-5.76E-05	-1.56E-09
258	373065	755906	Offsite Worker	-4.09E-04	-8.71E-07	-2.35E-04	-9.38E-05	-1.61E-04	-1.24E-07	-1.18E-03	-2.14E-05	-1.73E-04	-6.18E-09	0.00E+00	0.00E+00	-2.96E-05	-1.41E-09	-6.15E-05	-1.66E-09
259	373065	755827	Offsite Worker	-2.74E-04	-5.84E-07	-1.57E-04	-6.29E-05	-1.08E-04	-8.30E-08	-7.90E-04	-1.44E-05	-1.16E-04	-4.14E-09	0.00E+00	0.00E+00	-1.98E-05	-9.45E-10	-4.12E-05	-1.11E-09
260	373068	755733	Offsite Worker	-4.87E-04	-1.04E-06	-2.79E-04	-1.12E-04	-1.92E-04	-1.48E-07	-1.40E-03	-2.55E-05	-2.06E-04	-7.36E-09	0.00E+00	0.00E+00	-3.53E-05	-1.68E-09	-7.33E-05	-1.98E-09
261	373007	755733	Offsite Worker	-6.27E-04	-1.33E-06	-3.60E-04	-1.44E-04	-2.47E-04	-1.90E-07	-1.81E-03	-3.29E-05	-2.65E-04	-9.46E-09	0.00E+00	0.00E+00	-4.54E-05	-2.16E-09	-9.42E-05	-2.55E-09
262	372941	755733	Offsite Worker	-7.69E-04	-1.64E-06	-4.41E-04	-1.76E-04	-3.03E-04	-2.33E-07	-2.22E-03	-4.03E-05	-3.25E-04	-1.16E-08	0.00E+00	0.00E+00	-5.56E-05	-2.65E-09	-1.16E-04	-3.12E-09
263	372941	755636	Offsite Worker	-1.42E-03	-3.03E-06	-8.16E-04	-3.26E-04	-5.60E-04	-4.31E-07	-4.10E-03	-7.45E-05	-6.01E-04	-2.15E-08	0.00E+00	0.00E+00	-1.03E-04	-4.90E-09	-2.14E-04	-5.78E-09
264	372941	755539	Offsite Worker	-7.13E-03	-1.52E-05	-4.09E-03	-1.64E-03	-2.81E-03	-2.16E-06	-2.06E-02	-3.74E-04	-3.01E-03	-1.08E-07	0.00E+00	0.00E+00	-5.16E-04	-2.46E-08	-1.07E-03	-2.90E-08
265	372941	755442	Offsite Worker	2.88E-02	6.14E-05	1.65E-02	6.61E-03	1.13E-02	8.73E-06	8.31E-02	1.51E-03	1.22E-02	4.35E-07	0.00E+00	0.00E+00	2.09E-03	9.93E-08	4.33E-03	1.17E-07
266	372913	755342	Offsite Worker	1.48E-02	3.15E-05	8.50E-03	3.40E-03	5.83E-03	4.49E-06	4.27E-02	7.77E-04	6.26E-03	2.24E-07	0.00E+00	0.00E+00	1.07E-03	5.10E-08	2.23E-03	6.02E-08

NOTE: µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

				ACETALDEHYDE	ACETALDEHYDE	ACROLEIN	ACROLEIN	BENZENE	BENZENE	FORMALDEHYDE	FORMALDEHYDE	METHYL ALCOHOL	METHYL ALCOHOL	METHYL ETHYL KETONE	METHYL ETHYL KETONE	STYRENE	STYRENE	TOULENE	TOULENE
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
267	372817	755346	Offsite Worker	6.22E-03	1.32E-05	3.57E-03	1.43E-03	2.45E-03	1.88E-06	1.79E-02	3.26E-04	2.63E-03	9.38E-08	0.00E+00	0.00E+00	4.50E-04	2.14E-08	9.35E-04	2.53E-08
268	372720	755349	Offsite Worker	-2.62E-03	-5.57E-06	-1.50E-03	-6.00E-04	-1.03E-03	-7.93E-07	-7.55E-03	-1.37E-04	-1.11E-03	-3.95E-08	0.00E+00	0.00E+00	-1.89E-04	-9.02E-09	-3.94E-04	-1.06E-08
269	372624	755352	Offsite Worker	-1.27E-02	-2.70E-05	-7.28E-03	-2.91E-03	-4.99E-03	-3.84E-06	-3.66E-02	-6.65E-04	-5.36E-03	-1.92E-07	0.00E+00	0.00E+00	-9.18E-04	-4.37E-08	-1.91E-03	-5.16E-08
270	372527	755349	Offsite Worker	-2.25E-02	-4.78E-05	-1.29E-02	-5.15E-03	-8.85E-03	-6.80E-06	-6.48E-02	-1.18E-03	-9.50E-03	-3.39E-07	0.00E+00	0.00E+00	-1.63E-03	-7.74E-08	-3.38E-03	-9.13E-08
271	372431	755353	Offsite Worker	-3.15E-02	-6.70E-05	-1.81E-02	-7.22E-03	-1.24E-02	-9.53E-06	-9.08E-02	-1.65E-03	-1.33E-02	-4.75E-07	0.00E+00	0.00E+00	-2.28E-03	-1.08E-07	-4.73E-03	-1.28E-07
272	372334	755356	Offsite Worker	-3.99E-02	-8.48E-05	-2.29E-02	-9.14E-03	-1.57E-02	-1.21E-05	-1.15E-01	-2.09E-03	-1.68E-02	-6.02E-07	0.00E+00	0.00E+00	-2.88E-03	-1.37E-07	-5.99E-03	-1.62E-07
273	372237	755359	Offsite Worker	-4.68E-02	-9.95E-05	-2.68E-02	-1.07E-02	-1.84E-02	-1.42E-05	-1.35E-01	-2.45E-03	-1.98E-02	-7.06E-07	0.00E+00	0.00E+00	-3.38E-03	-1.61E-07	-7.03E-03	-1.90E-07
274	372141	755362	Offsite Worker	-5.27E-02	-1.12E-04	-3.02E-02	-1.21E-02	-2.08E-02	-1.60E-05	-1.52E-01	-2.76E-03	-2.23E-02	-7.96E-07	0.00E+00	0.00E+00	-3.82E-03	-1.82E-07	-7.93E-03	-2.14E-07
275	372044	755366	Offsite Worker	6.50E-03	1.38E-05	3.73E-03	1.49E-03	2.56E-03	1.97E-06	1.87E-02	3.41E-04	2.75E-03	9.81E-08	0.00E+00	0.00E+00	4.70E-04	2.24E-08	9.77E-04	2.64E-08
276	371948	755369	Offsite Worker	3.75E-03	7.97E-06	2.15E-03	8.59E-04	1.47E-03	1.13E-06	1.08E-02	1.96E-04	1.58E-03	5.65E-08	0.00E+00	0.00E+00	2.71E-04	1.29E-08	5.63E-04	1.52E-08
277	371851	755372	Offsite Worker	-1.77E-02	-3.77E-05	-1.02E-02	-4.07E-03	-6.98E-03	-5.37E-06	-5.11E-02	-9.29E-04	-7.49E-03	-2.68E-07	0.00E+00	0.00E+00	-1.28E-03	-6.11E-08	-2.67E-03	-7.20E-08
278	371755	755375	Offsite Worker	-6.67E-02	-1.42E-04	-3.82E-02	-1.53E-02	-2.62E-02	-2.02E-05	-1.92E-01	-3.49E-03	-2.82E-02	-1.01E-06	0.00E+00	0.00E+00	-4.82E-03	-2.30E-07	-1.00E-02	-2.71E-07
279	371658	755378	Offsite Worker	-6.94E-02	-1.48E-04	-3.98E-02	-1.59E-02	-2.73E-02	-2.10E-05	-2.00E-01	-3.64E-03	-2.93E-02	-1.05E-06	0.00E+00	0.00E+00	-5.02E-03	-2.39E-07	-1.04E-02	-2.82E-07
280	371562	755382	Offsite Worker	-7.20E-02	-1.53E-04	-4.13E-02	-1.65E-02	-2.83E-02	-2.18E-05	-2.08E-01	-3.77E-03	-3.04E-02	-1.09E-06	0.00E+00	0.00E+00	-5.21E-03	-2.48E-07	-1.08E-02	-2.93E-07
281	371465	755385	Offsite Worker	-7.57E-02	-1.61E-04	-4.34E-02	-1.74E-02	-2.98E-02	-2.29E-05	-2.18E-01	-3.97E-03	-3.20E-02	-1.14E-06	0.00E+00	0.00E+00	-5.48E-03	-2.61E-07	-1.14E-02	-3.07E-07
282	371368	755388	Offsite Worker	-8.08E-02	-1.72E-04	-4.63E-02	-1.85E-02	-3.18E-02	-2.45E-05	-2.33E-01	-4.23E-03	-3.41E-02	-1.22E-06	0.00E+00	0.00E+00	-5.85E-03	-2.78E-07	-1.21E-02	-3.28E-07
283	371272	755391	Offsite Worker	-8.85E-02	-1.88E-04	-5.07E-02	-2.03E-02	-3.48E-02	-2.68E-05	-2.55E-01	-4.64E-03	-3.74E-02	-1.34E-06	0.00E+00	0.00E+00	-6.40E-03	-3.05E-07	-1.33E-02	-3.59E-07
284	371175	755395	Offsite Worker	3.85E-03	8.20E-06	2.21E-03	8.84E-04	1.52E-03	1.17E-06	1.11E-02	2.02E-04	1.63E-03	5.82E-08	0.00E+00	0.00E+00	2.79E-04	1.33E-08	5.79E-04	1.57E-08
285	371079	755398	Offsite Worker	-1.16E-01	-2.48E-04	-6.67E-02	-2.67E-02	-4.58E-02	-3.52E-05	-3.35E-01	-6.10E-03	-4.92E-02	-1.76E-06	0.00E+00	0.00E+00	-8.42E-03	-4.01E-07	-1.75E-02	-4.73E-07
286	371042	755478	Offsite Worker	-1.03E-01	-2.19E-04	-5.91E-02	-2.36E-02	-4.06E-02	-3.12E-05	-2.97E-01	-5.40E-03	-4.35E-02	-1.56E-06	0.00E+00	0.00E+00	-7.45E-03	-3.55E-07	-1.55E-02	-4.19E-07
287	371009	755538	Offsite Worker	1.38E-03	2.95E-06	7.94E-04	3.18E-04	5.45E-04	4.19E-07	3.99E-03	7.26E-05	5.85E-04	2.09E-08	0.00E+00	0.00E+00	1.00E-04	4.77E-09	2.08E-04	5.63E-09
288	370975	755597	Offsite Worker	9.98E-04	2.12E-06	5.72E-04	2.29E-04	3.93E-04	3.02E-07	2.88E-03	5.23E-05	4.22E-04	1.51E-08	0.00E+00	0.00E+00	7.22E-05	3.44E-09	1.50E-04	4.05E-09
289	370925	755597	Offsite Worker	3.57E-04	7.59E-07	2.04E-04	8.18E-05	1.40E-04	1.08E-07	1.03E-03	1.87E-05	1.51E-04	5.38E-09	0.00E+00	0.00E+00	2.58E-05	1.23E-09	5.36E-05	1.45E-09
290	370860	755547	Offsite Worker	-5.94E-05	-1.26E-07	-3.40E-05	-1.36E-05	-2.34E-05	-1.80E-08	-1.71E-04	-3.11E-06	-2.51E-05	-8.96E-10	0.00E+00	0.00E+00	-4.30E-06	-2.05E-10	-8.92E-06	-2.41E-10
291	370796	755497	Offsite Worker	-1.77E-01	-3.77E-04	-1.02E-01	-4.06E-02	-6.97E-02	-5.37E-05	-5.11E-01	-9.29E-03	-7.49E-02	-2.67E-06	0.00E+00	0.00E+00	-1.28E-02	-6.11E-07	-2.66E-02	-7.20E-07
292	370733	755428	Offsite Worker	-2.38E-01	-5.07E-04	-1.37E-01	-5.47E-02	-9.38E-02	-7.22E-05	-6.87E-01	-1.25E-02	-1.01E-01	-3.60E-06	0.00E+00	0.00E+00	-1.72E-02	-8.21E-07	-3.58E-02	-9.68E-07
293	370634	755428	Offsite Worker	-1.06E-01	-2.25E-04	-6.07E-02	-2.43E-02	-4.17E-02	-3.20E-05	-3.05E-01	-5.55E-03	-4.47E-02	-1.60E-06	0.00E+00	0.00E+00	-7.66E-03	-3.65E-07	-1.59E-02	-4.30E-07
294	370536	755428	Offsite Worker	-2.01E-04	-4.28E-07	-1.15E-04	-4.61E-05	-7.92E-05	-6.09E-08	-5.80E-04	-1.05E-05	-8.50E-05	-3.04E-09	0.00E+00	0.00E+00	-1.46E-05	-6.93E-10	-3.02E-05	-8.17E-10
295	370437	755428	Offsite Worker	-1.67E-04	-3.55E-07	-9.58E-05	-3.83E-05	-6.57E-05	-5.06E-08	-4.81E-04	-8.75E-06	-7.06E-05	-2.52E-09	0.00E+00	0.00E+00	-1.21E-05	-5.75E-10	-2.51E-05	-6.78E-10
296	370338	755427	Offsite Worker	-6.57E-01	-1.40E-03	-3.77E-01	-1.51E-01	-2.59E-01	-1.99E-04	-1.89E+00	-3.44E-02	-2.78E-01	-9.91E-06	0.00E+00	0.00E+00	-4.75E-02	-2.26E-06	-9.87E-02	-2.67E-06
297	370239	755427	Residential	3.46E-02	7.37E-05	1.98E-02	7.94E-03	1.36E-02	1.05E-05	9.98E-02	1.81E-03	1.46E-02	5.22E-07	0.00E+00	0.00E+00	2.50E-03	1.19E-07	5.20E-03	1.41E-07
298	370138	755427	Residential	-3.52E-03	-7.48E-06	-2.02E-03	-8.07E-04	-1.38E-03	-1.06E-06	-1.01E-02	-1.84E-04	-1.49E-03	-5.31E-08	0.00E+00	0.00E+00	-2.54E-04	-1.21E-08	-5.29E-04	-1.43E-08
299	370040	755427	Residential	-2.95E-03	-6.28E-06	-1.69E-03	-6.76E-04	-1.16E-03	-8.93E-07	-8.50E-03	-1.55E-04	-1.25E-03	-4.45E-08	0.00E+00	0.00E+00	-2.13E-04	-1.02E-08	-4.43E-04	-1.20E-08
300	369941	755426	Residential	8.28E-03	1.76E-05	4.75E-03	1.90E-03	3.26E-03	2.51E-06	2.39E-02	4.34E-04	3.50E-03	1.25E-07	0.00E+00	0.00E+00	5.99E-04	2.85E-08	1.24E-03	3.36E-08
301	369842	755426	Residential	2.78E-03	5.92E-06	1.59E-03	6.38E-04	1.09E-03	8.42E-07	8.01E-03	1.46E-04	1.17E-03	4.20E-08	0.00E+00	0.00E+00	2.01E-04	9.58E-09	4.18E-04	1.13E-08
302	369741	755435	Residential	-8.99E-04	-1.91E-06	-5.15E-04	-2.06E-04	-3.54E-04	-2.72E-07	-2.59E-03	-4.71E-05	-3.80E-04	-1.36E-08	0.00E+00	0.00E+00	-6.50E-05	-3.10E-09	-1.35E-04	-3.65E-09
303	369643	755434	Residential	-4.01E-02	-8.53E-05	-2.30E-02	-9.20E-03	-1.58E-02	-1.21E-05	-1.16E-01	-2.10E-03	-1.69E-02	-6.05E-07	0.00E+00	0.00E+00	-2.90E-03	-1.38E-07	-6.03E-03	-1.63E-07
304	369544	755434	Residential	-3.16E-01	-6.72E-04	-1.81E-01	-7.25E-02	-1.24E-01	-9.56E-05	-9.10E-01	-1.66E-02	-1.33E-01	-4.77E-06	0.00E+00	0.00E+00	-2.29E-02	-1.09E-06	-4.75E-02	-1.28E-06
305	369445	755434	Residential	-5.46E-01	-1.16E-03	-3.13E-01	-1.25E-01	-2.15E-01	-1.65E-04	-1.57E+00	-2.86E-02	-2.31E-01	-8.24E-06	0.00E+00	0.00E+00	-3.95E-02	-1.88E-06	-8.21E-02	-2.22E-06
306	369346	755434	Residential	-6.84E-01	-1.45E-03	-3.92E-01	-1.57E-01	-2.69E-01	-2.07E-04	-1.97E+00	-3.58E-02	-2.89E-01	-1.03E-05	0.00E+00	0.00E+00	-4.94E-02	-2.35E-06	-1.03E-01	-2.78E-06
307	369249	755442	Offsite Worker	-8.72E-01	-1.86E-03	-5.00E-01	-2.00E-01	-3.43E-01	-2.64E-04	-2.51E+00	-4.57E-02	-3.68E-01	-1.32E-05	0.00E+00	0.00E+00	-6.31E-02	-3.00E-06	-1.31E-01	-3.54E-06
308	369151	755442	Offsite Worker	-1.01E+00	-2.14E-03	-5.77E-01	-2.31E-01	-3.96E-01	-3.05E-04	-2.90E+00	-5.27E-02	-4.25E-01	-1.52E-05	0.00E+00	0.00E+00	-7.28E-02	-3.47E-06	-1.51E-01	-4.09E-06
309	369052	755442	Offsite Worker	-8.40E-01	-1.79E-03	-4.82E-01	-1.93E-01	-3.31E-01	-2.54E-04	-2.42E+00	-4.40E-02	-3.55E-01	-1.27E-05	0.00E+00	0.00E+00	-6.08E-02	-2.89E-06	-1.26E-01	-3.41E-06

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

				ACETALDEHYDE	ACETALDEHYDE	ACROLEIN	ACROLEIN	BENZENE	BENZENE	FORMALDEHYDE	FORMALDEHYDE	METHYL ALCOHOL	METHYL ALCOHOL	METHYL ETHYL KETONE	METHYL ETHYL KETONE	STYRENE	STYRENE	TOULENE	TOULENE
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD	(µg/m^3)	ACUTE HAZARD
			CalEPA Acute REL		470		2.5		1300		55		28000		13000		21000		37000
310	368953	755441	Residential	-1.37E+00	-2.90E-03	-7.83E-01	-3.13E-01	-5.37E-01	-4.13E-04	-3.93E+00	-7.15E-02	-5.77E-01	-2.06E-05	0.00E+00	0.00E+00	-9.87E-02	-4.70E-06	-2.05E-01	-5.54E-06
311	368854	755441	Residential	-9.98E-01	-2.12E-03	-5.72E-01	-2.29E-01	-3.93E-01	-3.02E-04	-2.87E+00	-5.23E-02	-4.21E-01	-1.51E-05	0.00E+00	0.00E+00	-7.22E-02	-3.44E-06	-1.50E-01	-4.05E-06
312	368755	755441	Residential	-5.37E-01	-1.14E-03	-3.08E-01	-1.23E-01	-2.11E-01	-1.63E-04	-1.55E+00	-2.81E-02	-2.27E-01	-8.11E-06	0.00E+00	0.00E+00	-3.89E-02	-1.85E-06	-8.07E-02	-2.18E-06
313	368657	755441	Residential	-3.81E-01	-8.11E-04	-2.19E-01	-8.75E-02	-1.50E-01	-1.15E-04	-1.10E+00	-2.00E-02	-1.61E-01	-5.75E-06	0.00E+00	0.00E+00	-2.76E-02	-1.31E-06	-5.73E-02	-1.55E-06
314	368558	755440	Residential	-4.98E-01	-1.06E-03	-2.86E-01	-1.14E-01	-1.96E-01	-1.51E-04	-1.44E+00	-2.61E-02	-2.11E-01	-7.52E-06	0.00E+00	0.00E+00	-3.60E-02	-1.72E-06	-7.49E-02	-2.02E-06
315	368459	755440	Residential	-6.62E-01	-1.41E-03	-3.79E-01	-1.52E-01	-2.60E-01	-2.00E-04	-1.91E+00	-3.47E-02	-2.80E-01	-9.98E-06	0.00E+00	0.00E+00	-4.79E-02	-2.28E-06	-9.94E-02	-2.69E-06
316	368360	755440	Residential	-8.25E-01	-1.76E-03	-4.73E-01	-1.89E-01	-3.25E-01	-2.50E-04	-2.38E+00	-4.32E-02	-3.49E-01	-1.25E-05	0.00E+00	0.00E+00	-5.97E-02	-2.84E-06	-1.24E-01	-3.35E-06
317	368262	755439	Residential	-9.83E-01	-2.09E-03	-5.63E-01	-2.25E-01	-3.87E-01	-2.97E-04	-2.83E+00	-5.15E-02	-4.15E-01	-1.48E-05	0.00E+00	0.00E+00	-7.11E-02	-3.38E-06	-1.48E-01	-3.99E-06
318	368186	755427	Residential	-1.09E+00	-2.32E-03	-6.25E-01	-2.50E-01	-4.29E-01	-3.30E-04	-3.14E+00	-5.71E-02	-4.60E-01	-1.64E-05	0.00E+00	0.00E+00	-7.88E-02	-3.75E-06	-1.64E-01	-4.43E-06
319	368111	755414	Residential	-1.17E+00	-2.50E-03	-6.73E-01	-2.69E-01	-4.62E-01	-3.55E-04	-3.38E+00	-6.15E-02	-4.96E-01	-1.77E-05	0.00E+00	0.00E+00	-8.49E-02	-4.04E-06	-1.76E-01	-4.77E-06
320	368035	755402	Offsite Worker	-1.24E+00	-2.64E-03	-7.12E-01	-2.85E-01	-4.89E-01	-3.76E-04	-3.58E+00	-6.51E-02	-5.25E-01	-1.87E-05	0.00E+00	0.00E+00	-8.98E-02	-4.28E-06	-1.87E-01	-5.04E-06
321	367960	755389	Offsite Worker	-1.22E+00	-2.60E-03	-7.00E-01	-2.80E-01	-4.80E-01	-3.70E-04	-3.52E+00	-6.40E-02	-5.16E-01	-1.84E-05	0.00E+00	0.00E+00	-8.83E-02	-4.21E-06	-1.83E-01	-4.96E-06
322	367863	755390	Offsite Worker	-1.14E+00	-2.43E-03	-6.55E-01	-2.62E-01	-4.49E-01	-3.46E-04	-3.29E+00	-5.98E-02	-4.83E-01	-1.72E-05	0.00E+00	0.00E+00	-8.26E-02	-3.93E-06	-1.72E-01	-4.64E-06
323	367766	755392	Offsite Worker	-1.04E+00	-2.22E-03	-5.99E-01	-2.40E-01	-4.11E-01	-3.16E-04	-3.01E+00	-5.47E-02	-4.41E-01	-1.58E-05	0.00E+00	0.00E+00	-7.56E-02	-3.60E-06	-1.57E-01	-4.24E-06
324	367669	755393	Offsite Worker	-5.56E-01	-1.18E-03	-3.19E-01	-1.28E-01	-2.19E-01	-1.68E-04	-1.60E+00	-2.91E-02	-2.35E-01	-8.39E-06	0.00E+00	0.00E+00	-4.02E-02	-1.92E-06	-8.36E-02	-2.26E-06
325	367572	755394	Offsite Worker	-2.93E-02	-6.24E-05	-1.68E-02	-6.73E-03	-1.15E-02	-8.88E-06	-8.46E-02	-1.54E-03	-1.24E-02	-4.43E-07	0.00E+00	0.00E+00	-2.12E-03	-1.01E-07	-4.41E-03	-1.19E-07
326	367475	755395	Offsite Worker	-1.29E-02	-2.74E-05	-7.39E-03	-2.95E-03	-5.07E-03	-3.90E-06	-3.71E-02	-6.75E-04	-5.44E-03	-1.94E-07	0.00E+00	0.00E+00	-9.32E-04	-4.44E-08	-1.94E-03	-5.23E-08
327	370400	756850	On-Site Occupational	-6.68E-03	-1.42E-05	-3.83E-03	-1.53E-03	-2.63E-03	-2.02E-06	-1.92E-02	-3.50E-04	-2.82E-03	-1.01E-07	0.00E+00	0.00E+00	-4.83E-04	-2.30E-08	-1.00E-03	-2.71E-08

NOTE: µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	XYLENE, TOTAL ($\mu g/m^3$)	XYLENE, TOTAL ACUTE HAZARD	ARSENIC ($\mu g/m^3$)	ARSENIC ACUTE HAZARD	CHLORINE ($\mu g/m^3$)	CHLORINE ACUTE HAZARD	COPPER ($\mu g/m^3$)	COPPER ACUTE HAZARD	MERCURY ($\mu g/m^3$)	MERCURY ACUTE HAZARD	NICKEL ($\mu g/m^3$)	NICKEL ACUTE HAZARD	VANADIUM ($\mu g/m^3$)	VANADIUM ACUTE HAZARD	SULFATES ($\mu g/m^3$)	SULFATES ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
1	367379	755396	Recreational	-3.95E-04	-1.80E-08	-4.65E-04	-2.33E-03	-3.95E-04	-1.88E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.34E-08	-5.57E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	367340	755485	Recreational	-3.73E-04	-1.70E-08	-4.40E-04	-2.20E-03	-3.73E-04	-1.78E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.25E-06	-8.75E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	367301	755573	Recreational	-3.84E-03	-1.75E-07	-4.53E-03	-2.26E-02	-3.84E-03	-1.83E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.08E-06	-8.47E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4	367263	755661	Recreational	-3.68E-03	-1.67E-07	-4.33E-03	-2.16E-02	-3.68E-03	-1.75E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.70E-06	-7.84E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5	367224	755749	Recreational	-3.34E-03	-1.52E-07	-3.93E-03	-1.97E-02	-3.34E-03	-1.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.17E-06	-6.95E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6	367186	755838	Recreational	-2.89E-03	-1.31E-07	-3.40E-03	-1.70E-02	-2.89E-03	-1.38E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.54E-06	-5.91E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7	367147	755926	Recreational	-2.37E-03	-1.08E-07	-2.79E-03	-1.40E-02	-2.37E-03	-1.13E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.87E-06	-4.79E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8	367109	756014	Recreational	-1.85E-03	-8.43E-08	-2.18E-03	-1.09E-02	-1.85E-03	-8.83E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.24E-06	-3.74E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9	367070	756103	Recreational	-1.36E-03	-6.18E-08	-1.60E-03	-8.00E-03	-1.36E-03	-6.47E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.64E-06	-2.73E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10	367032	756191	Recreational	-4.40E-03	-2.00E-07	-5.18E-03	-2.59E-02	-4.40E-03	-2.10E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.10E-06	-1.84E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
11	366993	756279	Recreational	-4.44E-03	-2.02E-07	-5.23E-03	-2.61E-02	-4.44E-03	-2.11E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.36E-06	-8.93E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12	366954	756367	Recreational	-4.36E-03	-1.98E-07	-5.13E-03	-2.57E-02	-4.36E-03	-2.08E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.65E-06	-9.42E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
13	366916	756456	Recreational	-4.26E-03	-1.94E-07	-5.02E-03	-2.51E-02	-4.26E-03	-2.03E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.65E-06	-9.41E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
14	366877	756544	Recreational	-4.14E-03	-1.88E-07	-4.88E-03	-2.44E-02	-4.14E-03	-1.97E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.63E-06	-9.38E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
15	366839	756632	Recreational	-4.01E-03	-1.82E-07	-4.72E-03	-2.36E-02	-4.01E-03	-1.91E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.64E-06	-9.41E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
16	366800	756720	Recreational	-3.88E-03	-1.76E-07	-4.57E-03	-2.28E-02	-3.88E-03	-1.85E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.69E-06	-9.48E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
17	366762	756809	Recreational	-3.73E-03	-1.69E-07	-4.39E-03	-2.19E-02	-3.73E-03	-1.77E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.21E-05	-2.02E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	366723	756897	Recreational	-3.51E-03	-1.60E-07	-4.14E-03	-2.07E-02	-3.51E-03	-1.67E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.48E-05	-4.13E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	366685	756985	Recreational	-3.30E-03	-1.50E-07	-3.89E-03	-1.94E-02	-3.30E-03	-1.57E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.02E-05	-5.03E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	366646	757074	Recreational	-3.07E-03	-1.40E-07	-3.62E-03	-1.81E-02	-3.07E-03	-1.46E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.57E-05	-4.28E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
21	366607	757162	Recreational	-2.82E-03	-1.28E-07	-3.32E-03	-1.66E-02	-2.82E-03	-1.34E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.35E-05	-2.25E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22	366569	757250	Recreational	-8.24E-04	-3.74E-08	-9.70E-04	-4.85E-03	-8.24E-04	-3.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.17E-06	-1.95E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
23	366530	757338	Recreational	-7.01E-04	-3.18E-08	-8.25E-04	-4.12E-03	-7.01E-04	-3.34E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.10E-06	-1.83E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
24	366492	757427	Recreational	-5.82E-04	-2.64E-08	-6.85E-04	-3.42E-03	-5.82E-04	-2.77E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.01E-06	-1.69E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
25	366453	757515	Recreational	1.27E-04	5.78E-09	1.50E-04	7.49E-04	1.27E-04	6.06E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.35E-07	-1.56E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
26	366415	757603	Recreational	1.88E-04	8.57E-09	2.22E-04	1.11E-03	1.88E-04	8.97E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.28E-07	-1.38E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27	366376	757692	Recreational	2.42E-04	1.10E-08	2.84E-04	1.42E-03	2.42E-04	1.15E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.04E-07	-1.17E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
28	366338	757780	Residential	3.03E-04	1.38E-08	3.57E-04	1.78E-03	3.03E-04	1.44E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.28E-06	-2.13E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	366402	757746	Residential	2.88E-04	1.31E-08	3.40E-04	1.70E-03	2.88E-04	1.37E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.38E-06	-2.30E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
30	366467	757713	Residential	2.78E-04	1.26E-08	3.27E-04	1.64E-03	2.78E-04	1.32E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.54E-06	-2.57E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
31	366531	757679	Residential	2.86E-04	1.30E-08	3.37E-04	1.68E-03	2.86E-04	1.36E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.33E-07	-1.22E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
32	366567	757773	Residential	3.69E-04	1.68E-08	4.35E-04	2.17E-03	3.69E-04	1.76E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.59E-07	-1.26E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
33	366625	757758	Residential	3.86E-04	1.75E-08	4.54E-04	2.27E-03	3.86E-04	1.84E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.82E-07	-1.30E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
34	366682	757744	Residential	4.02E-04	1.83E-08	4.74E-04	2.37E-03	4.02E-04	1.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.11E-07	-1.35E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
35	366768	757788	Residential	4.86E-04	2.21E-08	5.72E-04	2.86E-03	4.86E-04	2.31E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.52E-07	-1.59E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
36	366854	757833	Residential	5.62E-04	2.55E-08	6.61E-04	3.31E-03	5.62E-04	2.67E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.09E-06	-1.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
37	366941	757877	Residential	6.51E-04	2.96E-08	7.67E-04	3.83E-03	6.51E-04	3.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.21E-06	-2.02E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	367027	757922	Residential	7.42E-04	3.37E-08	8.73E-04	4.37E-03	7.42E-04	3.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.29E-06	-2.15E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
39	367113	757966	Residential	8.24E-04	3.75E-08	9.70E-04	4.85E-03	8.24E-04	3.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.71E-07	-1.62E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
40	367192	757916	Residential	8.41E-04	3.82E-08	9.90E-04	4.95E-03	8.41E-04	4.00E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.60E-07	-1.27E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
41	367264	757916	Residential	8.88E-04	4.03E-08	1.04E-03	5.22E-03	8.88E-04	4.23E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.18E-06	-1.97E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
42	367335	757916	Residential	-5.82E-04	-2.65E-08	-6.85E-04	-3.43E-03	-5.82E-04	-2.77E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.19E-06	-1.98E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
43	367343	757966	Residential	-6.07E-04	-2.76E-08	-7.14E-04	-3.57E-03	-6.07E-04	-2.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.09E-06	-1.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
44	367404	757995	Residential	-6.33E-04	-2.88E-08	-7.45E-04	-3.72E-03	-6.33E-04	-3.01E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.79E-07	-1.63E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

				XYLENE, TOTAL	XYLENE, TOTAL	ARSENIC	ARSENIC	CHLORINE	CHLORINE	COPPER	COPPER	MERCURY	MERCURY	NICKEL	NICKEL	VANADIUM	VANADIUM	SULFATES	SULFATES
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
45	367465	758024	Residential	-6.77E-04	-3.08E-08	-7.96E-04	-3.98E-03	-6.77E-04	-3.22E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.82E-07	-1.47E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
46	367504	757948	School	-6.42E-04	-2.92E-08	-7.56E-04	-3.78E-03	-6.42E-04	-3.06E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.16E-06	-1.94E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
47	367544	757873	School	-5.49E-04	-2.50E-08	-6.47E-04	-3.23E-03	-5.49E-04	-2.62E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.45E-06	-2.42E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
48	367587	757909	School	-6.11E-04	-2.78E-08	-7.19E-04	-3.60E-03	-6.11E-04	-2.91E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.39E-06	-2.32E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
49	367623	757866	School	-5.62E-04	-2.56E-08	-6.62E-04	-3.31E-03	-5.62E-04	-2.68E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.57E-06	-2.61E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
50	367694	757866	School	-6.15E-04	-2.80E-08	-7.24E-04	-3.62E-03	-6.15E-04	-2.93E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.66E-06	-2.77E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
51	367716	757927	School	-7.58E-04	-3.44E-08	-8.92E-04	-4.46E-03	-7.58E-04	-3.61E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.34E-06	-2.24E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
52	367737	757988	School	1.69E-04	7.66E-09	1.98E-04	9.92E-04	1.69E-04	8.03E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.05E-06	-1.75E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
53	367727	758067	School	7.32E-05	3.33E-09	8.62E-05	4.31E-04	7.32E-05	3.49E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.41E-07	-1.07E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
54	367716	758146	School	3.03E-06	1.38E-10	3.57E-06	1.78E-05	3.03E-06	1.44E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.79E-07	-1.30E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
55	367673	758189	Residential	-1.78E-05	-8.08E-10	-2.09E-05	-1.05E-04	-1.78E-05	-8.46E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.13E-07	-1.35E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
56	367723	758254	School	-1.12E-04	-5.11E-09	-1.32E-04	-6.62E-04	-1.12E-04	-5.35E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.93E-07	-1.16E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57	367784	758221	School	-1.16E-04	-5.25E-09	-1.36E-04	-6.80E-04	-1.16E-04	-5.50E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.35E-07	-1.06E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	367845	758189	School	-1.28E-04	-5.83E-09	-1.51E-04	-7.55E-04	-1.28E-04	-6.10E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.00E-07	-1.00E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
59	367816	758096	Residential	1.25E-05	5.66E-10	1.47E-05	7.33E-05	1.25E-05	5.93E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.80E-07	-1.13E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
60	367898	758066	Residential	-3.24E-05	-1.47E-09	-3.81E-05	-1.91E-04	-3.24E-05	-1.54E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.99E-07	-9.98E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
61	367980	758035	Residential	-6.58E-05	-2.99E-09	-7.75E-05	-3.88E-04	-6.58E-05	-3.13E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.60E-07	-9.34E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
62	368062	758005	Residential	-1.25E-04	-5.68E-09	-1.47E-04	-7.35E-04	-1.25E-04	-5.95E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.28E-07	-8.79E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
63	368144	757975	Residential	-2.18E-04	-9.91E-09	-2.57E-04	-1.28E-03	-2.18E-04	-1.04E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.47E-07	-9.11E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
64	368226	757945	Residential	-3.19E-04	-1.45E-08	-3.75E-04	-1.88E-03	-3.19E-04	-1.52E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.13E-07	-1.02E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
65	368301	757943	Residential	-4.49E-04	-2.04E-08	-5.29E-04	-2.64E-03	-4.49E-04	-2.14E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.67E-07	-1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
66	368376	757941	Residential	-6.30E-04	-2.86E-08	-7.42E-04	-3.71E-03	-6.30E-04	-3.00E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.77E-07	-1.29E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
67	368452	757940	Residential	-8.28E-04	-3.77E-08	-9.75E-04	-4.88E-03	-8.28E-04	-3.94E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.75E-07	-1.62E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
68	368527	757938	Residential	-1.07E-03	-4.88E-08	-1.26E-03	-6.32E-03	-1.07E-03	-5.11E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.14E-06	-1.90E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
69	368563	757880	Residential	-1.08E-03	-4.90E-08	-1.27E-03	-6.34E-03	-1.08E-03	-5.13E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.22E-06	-2.03E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
70	368636	757926	Residential	-1.45E-03	-6.58E-08	-1.70E-03	-8.52E-03	-1.45E-03	-6.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.38E-06	-2.29E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	368709	757971	Residential	-1.82E-03	-8.27E-08	-2.14E-03	-1.07E-02	-1.82E-03	-8.67E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.52E-06	-2.53E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
72	368782	758017	Residential	-2.18E-03	-9.90E-08	-2.57E-03	-1.28E-02	-2.18E-03	-1.04E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.67E-06	-2.79E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
73	368855	758062	Residential	-2.51E-03	-1.14E-07	-2.96E-03	-1.48E-02	-2.51E-03	-1.20E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.83E-06	-3.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
74	368928	758108	Residential	-2.77E-03	-1.26E-07	-3.27E-03	-1.63E-02	-2.77E-03	-1.32E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.94E-06	-3.24E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
75	369001	758153	Residential	-1.40E-03	-6.34E-08	-1.64E-03	-8.22E-03	-1.40E-03	-6.65E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.04E-06	-3.41E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
76	369058	758074	Residential	3.79E-05	1.72E-09	4.47E-05	2.23E-04	3.79E-05	1.81E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.32E-06	-3.87E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
77	369102	758103	Residential	1.91E-05	8.70E-10	2.25E-05	1.13E-04	1.91E-05	9.12E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.33E-06	-3.88E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
78	369145	758132	Residential	-6.42E-06	-2.92E-10	-7.55E-06	-3.78E-05	-6.42E-06	-3.05E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.29E-06	-3.81E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
79	369200	758065	Residential	-2.51E-05	-1.14E-09	-2.96E-05	-1.48E-04	-2.51E-05	-1.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.63E-06	-4.39E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80	369255	757998	Residential	-3.36E-05	-1.53E-09	-3.96E-05	-1.98E-04	-3.36E-05	-1.60E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.01E-06	-5.01E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	369310	757931	Residential	-5.30E-05	-2.41E-09	-6.24E-05	-3.12E-04	-5.30E-05	-2.52E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.51E-06	-5.85E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
82	369356	757981	Residential	-4.86E-05	-2.21E-09	-5.73E-05	-2.86E-04	-4.86E-05	-2.32E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.25E-06	-5.41E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
83	369403	758031	Residential	-3.44E-05	-1.56E-09	-4.05E-05	-2.02E-04	-3.44E-05	-1.64E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.86E-06	-4.76E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
84	369336	758100	Recreational	-3.93E-05	-1.79E-09	-4.63E-05	-2.32E-04	-3.93E-05	-1.87E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.46E-06	-4.10E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
85	369269	758170	Recreational	-2.81E-05	-1.28E-09	-3.31E-05	-1.66E-04	-2.81E-05	-1.34E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.19E-06	-3.66E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
86	369202	758239	Recreational	-1.23E-05	-5.60E-10	-1.45E-05	-7.25E-05	-1.23E-05	-5.86E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.90E-06	-3.16E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
87	369264	758285	Recreational	-1.52E-05	-6.90E-10	-1.79E-05	-8.94E-05	-1.52E-05	-7.23E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.62E-06	-2.71E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
88	369326	758330	Recreational	-1.66E-05	-7.54E-10	-1.95E-05	-9.77E-05	-1.66E-05	-7.90E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.23E-06	-2.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

				XYLENE, TOTAL	XYLENE, TOTAL	ARSENIC	ARSENIC	CHLORINE	CHLORINE	COPPER	COPPER	MERCURY	MERCURY	NICKEL	NICKEL	VANADIUM	VANADIUM	SULFATES	SULFATES
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
89	369389	758376	Recreational	-1.06E-05	-4.83E-10	-1.25E-05	-6.26E-05	-1.06E-05	-5.06E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.07E-06	-1.79E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
90	369389	758462	Recreational	-3.74E-06	-1.70E-10	-4.40E-06	-2.20E-05	-3.74E-06	-1.78E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.01E-06	-1.68E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
91	369389	758548	Recreational	6.64E-06	3.02E-10	7.82E-06	3.91E-05	6.64E-06	3.16E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.01E-06	-1.69E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
92	369389	758634	Residential	3.19E-06	1.45E-10	3.75E-06	1.88E-05	3.19E-06	1.52E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.04E-06	-1.73E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
93	369469	758630	Residential	6.36E-06	2.89E-10	7.49E-06	3.74E-05	6.36E-06	3.03E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.15E-06	-1.92E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
94	369549	758625	Residential	4.16E-05	1.89E-09	4.90E-05	2.45E-04	4.16E-05	1.98E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.27E-06	-2.12E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
95	369630	758621	Residential	9.92E-05	4.51E-09	1.17E-04	5.84E-04	9.92E-05	4.72E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.41E-06	-2.34E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
96	369710	758617	Residential	1.69E-04	7.69E-09	1.99E-04	9.96E-04	1.69E-04	8.06E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.50E-06	-2.50E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
97	369791	758613	Residential	2.63E-04	1.20E-08	3.10E-04	1.55E-03	2.63E-04	1.25E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.60E-06	-2.67E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
98	369791	758514	Residential	2.27E-04	1.03E-08	2.67E-04	1.34E-03	2.27E-04	1.08E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.81E-06	-3.01E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
99	369791	758416	Residential	2.06E-04	9.36E-09	2.42E-04	1.21E-03	2.06E-04	9.81E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.98E-06	-3.31E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
100	369791	758318	Residential	-3.28E-04	-1.49E-08	-3.86E-04	-1.93E-03	-3.28E-04	-1.56E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.23E-06	-3.72E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
101	369881	758318	Residential	2.95E-04	1.34E-08	3.47E-04	1.73E-03	2.95E-04	1.40E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.51E-06	-4.19E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
102	369972	758318	Residential	4.72E-04	2.14E-08	5.56E-04	2.78E-03	4.72E-04	2.25E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.81E-06	-4.68E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
103	370062	758318	Residential	7.71E-04	3.50E-08	9.07E-04	4.54E-03	7.71E-04	3.67E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.74E-06	-4.57E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
104	370153	758318	Residential	3.50E-04	1.59E-08	4.13E-04	2.06E-03	3.50E-04	1.67E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.05E-06	-3.41E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
105	370243	758318	Residential	3.47E-04	1.58E-08	4.09E-04	2.04E-03	3.47E-04	1.65E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.11E-06	-1.18E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
106	370247	758254	School	3.75E-04	1.71E-08	4.42E-04	2.21E-03	3.75E-04	1.79E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.51E-06	-1.25E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
107	370250	758189	School	4.07E-04	1.85E-08	4.79E-04	2.39E-03	4.07E-04	1.94E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.11E-06	-1.19E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
108	370308	758196	School	3.50E-04	1.59E-08	4.12E-04	2.06E-03	3.50E-04	1.67E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.11E-05	-1.85E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
109	370361	758236	School	2.60E-04	1.18E-08	3.06E-04	1.53E-03	2.60E-04	1.24E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.29E-05	-2.14E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
110	370415	758275	School	1.87E-04	8.49E-09	2.20E-04	1.10E-03	1.87E-04	8.90E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.50E-05	-2.50E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
111	370408	758347	Residential	2.06E-04	9.37E-09	2.43E-04	1.21E-03	2.06E-04	9.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.25E-05	-2.08E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
112	370490	758344	Residential	1.53E-04	6.98E-09	1.81E-04	9.03E-04	1.53E-04	7.31E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.68E-05	-2.80E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
113	370572	758341	Residential	1.34E-03	6.11E-08	1.58E-03	7.91E-03	1.34E-03	6.40E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.96E-05	-3.27E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
114	370654	758338	Residential	3.52E-03	1.60E-07	4.15E-03	2.07E-02	3.52E-03	1.68E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.67E-05	-2.78E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
115	370735	758335	Residential	2.05E-03	9.34E-08	2.42E-03	1.21E-02	2.05E-03	9.78E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.92E-06	-8.21E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
116	370817	758333	Residential	2.93E-03	1.33E-07	3.45E-03	1.72E-02	2.93E-03	1.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-05	2.21E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
117	370814	758243	Offsite Worker	3.71E-03	1.69E-07	4.37E-03	2.18E-02	3.71E-03	1.77E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-05	2.01E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
118	370810	758153	Offsite Worker	2.64E-03	1.20E-07	3.11E-03	1.55E-02	2.64E-03	1.26E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-05	2.16E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
119	370807	758063	Offsite Worker	5.65E-04	2.57E-08	6.66E-04	3.33E-03	5.65E-04	2.69E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-05	3.09E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
120	370803	757974	Offsite Worker	2.01E-03	9.15E-08	2.37E-03	1.18E-02	2.01E-03	9.58E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.39E-05	5.66E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
121	370835	757927	Offsite Worker	8.45E-03	3.84E-07	9.95E-03	4.98E-02	8.45E-03	4.03E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.77E-05	6.28E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
122	370868	757880	Offsite Worker	1.34E-02	6.08E-07	1.57E-02	7.87E-02	1.34E-02	6.37E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.67E-06	1.61E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
123	370921	757884	Offsite Worker	1.30E-02	5.93E-07	1.54E-02	7.68E-02	1.30E-02	6.21E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-05	2.41E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
124	370975	757887	Offsite Worker	1.22E-02	5.55E-07	1.44E-02	7.19E-02	1.22E-02	5.82E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-05	2.93E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
125	370975	757794	Offsite Worker	1.50E-02	6.82E-07	1.77E-02	8.83E-02	1.50E-02	7.14E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.87E-05	-3.11E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
126	371026	757794	Offsite Worker	1.53E-02	6.95E-07	1.80E-02	9.00E-02	1.53E-02	7.28E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.47E-05	-2.45E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
127	371076	757877	Offsite Worker	1.07E-02	4.86E-07	1.26E-02	6.29E-02	1.07E-02	5.09E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.84E-06	-1.31E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
128	371126	757959	Offsite Worker	6.98E-03	3.17E-07	8.21E-03	4.11E-02	6.98E-03	3.32E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.42E-05	2.37E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
129	371119	758031	Offsite Worker	7.78E-03	3.54E-07	9.16E-03	4.58E-02	7.78E-03	3.71E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.94E-06	1.49E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
130	371183	758027	Residential	7.04E-03	3.20E-07	8.29E-03	4.14E-02	7.04E-03	3.35E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-05	1.75E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
131	371248	758024	Residential	4.50E-03	2.05E-07	5.30E-03	2.65E-02	4.50E-03	2.14E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-05	1.90E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
132	371326	758075	Residential	3.91E-03	1.78E-07	4.61E-03	2.30E-02	3.91E-03	1.86E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.60E-06	1.60E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	XYLENE, TOTAL ($\mu g/m^3$)	XYLENE, TOTAL ACUTE HAZARD	ARSENIC ($\mu g/m^3$)	ARSENIC ACUTE HAZARD	CHLORINE ($\mu g/m^3$)	CHLORINE ACUTE HAZARD	COPPER ($\mu g/m^3$)	COPPER ACUTE HAZARD	MERCURY ($\mu g/m^3$)	MERCURY ACUTE HAZARD	NICKEL ($\mu g/m^3$)	NICKEL ACUTE HAZARD	VANADIUM ($\mu g/m^3$)	VANADIUM ACUTE HAZARD	SULFATES ($\mu g/m^3$)	SULFATES ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
133	371404	758127	Residential	3.44E-03	1.56E-07	4.05E-03	2.03E-02	3.44E-03	1.64E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.22E-06	1.37E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
134	371481	758178	Residential	3.05E-03	1.39E-07	3.60E-03	1.80E-02	3.05E-03	1.45E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.16E-06	1.19E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
135	371559	758230	Residential	2.73E-03	1.24E-07	3.22E-03	1.61E-02	2.73E-03	1.30E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.06E-06	1.01E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
136	371637	758281	Residential	2.46E-03	1.12E-07	2.90E-03	1.45E-02	2.46E-03	1.17E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.26E-06	5.43E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
137	371715	758333	Residential	2.23E-03	1.01E-07	2.63E-03	1.31E-02	2.23E-03	1.06E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-06	2.73E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
138	371769	758261	Residential	-2.05E-03	-9.31E-08	-2.41E-03	-1.21E-02	-2.05E-03	-9.75E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.06E-06	1.01E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
139	371822	758189	Residential	-3.41E-03	-1.55E-07	-4.02E-03	-2.01E-02	-3.41E-03	-1.63E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.87E-06	1.15E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
140	371894	758160	Residential	-4.73E-03	-2.15E-07	-5.57E-03	-2.79E-02	-4.73E-03	-2.25E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.91E-06	-9.85E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
141	371894	758081	Residential	4.82E-03	2.19E-07	5.67E-03	2.83E-02	4.82E-03	2.29E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.12E-06	-8.54E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
142	371959	758074	Residential	4.58E-03	2.08E-07	5.40E-03	2.70E-02	4.58E-03	2.18E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.57E-06	-7.61E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
143	371953	757977	Offsite Worker	4.78E-03	2.17E-07	5.63E-03	2.81E-02	4.78E-03	2.28E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.70E-06	-4.50E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
144	371948	757880	Offsite Worker	4.78E-03	2.17E-07	5.62E-03	2.81E-02	4.78E-03	2.27E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.98E-07	-1.16E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
145	371943	757783	Offsite Worker	4.55E-03	2.07E-07	5.36E-03	2.68E-02	4.55E-03	2.17E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.66E-07	1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
146	372016	757794	Offsite Worker	4.17E-03	1.89E-07	4.91E-03	2.45E-02	4.17E-03	1.98E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.39E-07	3.98E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
147	372102	757791	Offsite Worker	3.72E-03	1.69E-07	4.38E-03	2.19E-02	3.72E-03	1.77E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.13E-07	-1.89E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
148	372178	757760	Offsite Worker	3.25E-03	1.48E-07	3.82E-03	1.91E-02	3.25E-03	1.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.49E-07	-9.15E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
149	372177	757670	Offsite Worker	-1.26E-03	-5.72E-08	-1.48E-03	-7.41E-03	-1.26E-03	-6.00E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.03E-07	-1.17E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
150	372176	757579	Offsite Worker	-1.83E-04	-8.33E-09	-2.16E-04	-1.08E-03	-1.83E-04	-8.73E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.49E-06	-2.48E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
151	372174	757489	Offsite Worker	-1.35E-04	-6.15E-09	-1.59E-04	-7.96E-04	-1.35E-04	-6.44E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.21E-07	-2.02E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
152	372173	757398	Offsite Worker	-1.33E-04	-6.04E-09	-1.56E-04	-7.82E-04	-1.33E-04	-6.32E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.22E-07	-2.03E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
153	372171	757308	Offsite Worker	1.06E-03	4.80E-08	1.24E-03	6.22E-03	1.06E-03	5.03E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.15E-07	-1.92E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
154	372055	757309	Offsite Worker	-1.41E-04	-6.42E-09	-1.66E-04	-8.32E-04	-1.41E-04	-6.73E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.31E-07	-2.18E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
155	372055	757363	Residential	-1.46E-04	-6.61E-09	-1.71E-04	-8.57E-04	-1.46E-04	-6.93E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.34E-07	-2.24E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
156	372055	757416	Offsite Worker	-1.46E-04	-6.63E-09	-1.72E-04	-8.59E-04	-1.46E-04	-6.95E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.34E-07	-2.23E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
157	371952	757442	Offsite Worker	-1.50E-04	-6.80E-09	-1.76E-04	-8.81E-04	-1.50E-04	-7.13E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.35E-07	-2.25E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
158	371950	757345	Offsite Worker	-1.55E-04	-7.06E-09	-1.83E-04	-9.15E-04	-1.55E-04	-7.40E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.44E-07	-2.40E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
159	371864	757344	Offsite Worker	-1.63E-04	-7.39E-09	-1.91E-04	-9.57E-04	-1.63E-04	-7.74E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.50E-07	-2.50E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
160	371790	757347	Offsite Worker	-1.66E-04	-7.55E-09	-1.95E-04	-9.77E-04	-1.66E-04	-7.90E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.54E-07	-2.56E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
161	371708	757356	Offsite Worker	-1.66E-04	-7.52E-09	-1.95E-04	-9.74E-04	-1.66E-04	-7.88E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-06	4.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
162	371615	757356	Offsite Worker	2.99E-03	1.36E-07	3.52E-03	1.76E-02	2.99E-03	1.42E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.88E-06	9.80E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
163	371523	757356	Offsite Worker	3.43E-03	1.56E-07	4.04E-03	2.02E-02	3.43E-03	1.63E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.59E-06	1.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
164	371430	757356	Offsite Worker	-1.19E-03	-5.42E-08	-1.40E-03	-7.01E-03	-1.19E-03	-5.67E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.44E-06	1.24E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
165	371338	757356	Offsite Worker	-2.03E-03	-9.22E-08	-2.39E-03	-1.19E-02	-2.03E-03	-9.66E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.48E-06	1.41E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
166	371245	757356	Offsite Worker	-1.89E-03	-8.57E-08	-2.22E-03	-1.11E-02	-1.89E-03	-8.98E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.70E-06	1.62E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
167	371153	757356	Offsite Worker	-1.76E-03	-7.98E-08	-2.07E-03	-1.03E-02	-1.76E-03	-8.37E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-05	1.83E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
168	371061	757356	Offsite Worker	-1.53E-03	-6.94E-08	-1.80E-03	-8.98E-03	-1.53E-03	-7.27E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-05	2.08E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
169	371005	757357	Offsite Worker	-1.29E-03	-5.88E-08	-1.52E-03	-7.61E-03	-1.29E-03	-6.16E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-05	2.27E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
170	370998	757293	Offsite Worker	-4.13E-03	-1.88E-07	-4.86E-03	-2.43E-02	-4.13E-03	-1.97E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-05	4.15E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
171	370998	757194	Offsite Worker	5.81E-04	2.64E-08	6.84E-04	3.42E-03	5.81E-04	2.77E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-05	2.05E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
172	370998	757096	Offsite Worker	5.63E-03	2.56E-07	6.63E-03	3.32E-02	5.63E-03	2.68E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.22E-06	7.03E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
173	370998	756998	Offsite Worker	2.31E-03	1.05E-07	2.72E-03	1.36E-02	2.31E-03	1.10E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.19E-07	6.99E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
174	371057	756997	Offsite Worker	2.91E-03	1.32E-07	3.42E-03	1.71E-02	2.91E-03	1.38E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-06	2.28E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
175	371153	756997	Offsite Worker	-2.62E-04	-1.19E-08	-3.09E-04	-1.54E-03	-2.62E-04	-1.25E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.47E-07	-4.12E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
176	371249	756997	Offsite Worker	-2.57E-04	-1.17E-08	-3.03E-04	-1.51E-03	-2.57E-04	-1.23E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.43E-07	-4.04E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
177	371345	756997	Offsite Worker	-2.43E-04	-1.10E-08	-2.86E-04	-1.43E-03	-2.43E-04	-1.16E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.29E-07	-3.81E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

				XYLENE, TOTAL	XYLENE, TOTAL	ARSENIC	ARSENIC	CHLORINE	CHLORINE	COPPER	COPPER	MERCURY	MERCURY	NICKEL	NICKEL	VANADIUM	VANADIUM	SULFATES	SULFATES
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
178	371440	756997	Offsite Worker	-2.23E-04	-1.01E-08	-2.62E-04	-1.31E-03	-2.23E-04	-1.06E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.07E-07	-3.45E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
179	371536	756997	Offsite Worker	-1.99E-04	-9.05E-09	-2.34E-04	-1.17E-03	-1.99E-04	-9.48E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.86E-07	-3.10E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
180	371632	756997	Offsite Worker	-1.72E-04	-7.84E-09	-2.03E-04	-1.01E-03	-1.72E-04	-8.21E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.64E-07	-2.73E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
181	371728	756997	Offsite Worker	-1.46E-04	-6.62E-09	-1.72E-04	-8.58E-04	-1.46E-04	-6.94E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.39E-07	-2.31E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
182	371824	756997	Offsite Worker	-2.44E-03	-1.11E-07	-2.88E-03	-1.44E-02	-2.44E-03	-1.16E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.17E-07	-1.95E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
183	371920	756997	Offsite Worker	-2.46E-03	-1.12E-07	-2.90E-03	-1.45E-02	-2.46E-03	-1.17E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.61E-08	-1.60E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
184	372016	756997	Offsite Worker	-2.48E-03	-1.13E-07	-2.92E-03	-1.46E-02	-2.48E-03	-1.18E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.83E-08	-1.31E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
185	372111	756997	Offsite Worker	-2.50E-03	-1.14E-07	-2.94E-03	-1.47E-02	-2.50E-03	-1.19E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.27E-08	-1.04E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
186	372207	756997	Offsite Worker	-2.51E-03	-1.14E-07	-2.96E-03	-1.48E-02	-2.51E-03	-1.20E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.12E-08	-8.53E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
187	372303	756997	Offsite Worker	-2.53E-03	-1.15E-07	-2.98E-03	-1.49E-02	-2.53E-03	-1.20E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.08E-08	-6.80E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
188	372399	756997	Offsite Worker	-2.54E-03	-1.16E-07	-3.00E-03	-1.50E-02	-2.54E-03	-1.21E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.41E-08	-1.07E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
189	372495	756997	Offsite Worker	-2.56E-03	-1.16E-07	-3.02E-03	-1.51E-02	-2.56E-03	-1.22E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.08E-08	-6.80E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
190	372591	756997	Offsite Worker	-2.57E-03	-1.17E-07	-3.03E-03	-1.51E-02	-2.57E-03	-1.22E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.87E-08	-4.79E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
191	372610	757063	Offsite Worker	-2.46E-03	-1.12E-07	-2.89E-03	-1.45E-02	-2.46E-03	-1.17E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.96E-08	-4.93E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
192	372612	757132	Offsite Worker	-2.36E-03	-1.07E-07	-2.78E-03	-1.39E-02	-2.36E-03	-1.12E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.67E-08	-6.11E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
193	372614	757201	Offsite Worker	-2.27E-03	-1.03E-07	-2.67E-03	-1.34E-02	-2.27E-03	-1.08E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.44E-08	-7.39E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
194	372616	757270	Offsite Worker	-2.20E-03	-1.00E-07	-2.59E-03	-1.30E-02	-2.20E-03	-1.05E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.26E-08	-8.76E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
195	372627	757351	Offsite Worker	7.83E-05	3.56E-09	9.21E-05	4.61E-04	7.83E-05	3.73E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.41E-08	-1.07E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
196	372651	757422	Offsite Worker	9.01E-04	4.09E-08	1.06E-03	5.30E-03	9.01E-04	4.29E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.17E-08	-1.20E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
197	372676	757494	Offsite Worker	1.04E-03	4.75E-08	1.23E-03	6.15E-03	1.04E-03	4.97E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.80E-08	-1.30E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
198	372704	757569	Offsite Worker	1.23E-03	5.58E-08	1.45E-03	7.23E-03	1.23E-03	5.85E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.08E-08	-1.35E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
199	372733	757645	Offsite Worker	-7.13E-04	-3.24E-08	-8.39E-04	-4.20E-03	-7.13E-04	-3.39E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.10E-08	-1.35E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
200	372746	757702	Offsite Worker	-1.67E-03	-7.57E-08	-1.96E-03	-9.81E-03	-1.67E-03	-7.93E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.19E-08	-1.36E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
201	372746	757768	Offsite Worker	-1.62E-03	-7.37E-08	-1.91E-03	-9.55E-03	-1.62E-03	-7.72E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.96E-06	-3.27E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
202	372807	757781	School	-1.63E-03	-7.42E-08	-1.92E-03	-9.61E-03	-1.63E-03	-7.78E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.88E-06	-3.13E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
203	372901	757782	School	-1.64E-03	-7.45E-08	-1.93E-03	-9.65E-03	-1.64E-03	-7.80E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.46E-08	-1.08E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
204	372994	757783	Offsite Worker	-1.66E-03	-7.56E-08	-1.96E-03	-9.79E-03	-1.66E-03	-7.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.82E-08	-1.14E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
205	373087	757783	Offsite Worker	-1.68E-03	-7.62E-08	-1.97E-03	-9.87E-03	-1.68E-03	-7.99E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.16E-08	-1.03E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
206	373180	757784	Offsite Worker	-1.69E-03	-7.70E-08	-1.99E-03	-9.97E-03	-1.69E-03	-8.07E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.80E-08	-9.67E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
207	373274	757785	Offsite Worker	-1.69E-03	-7.66E-08	-1.98E-03	-9.92E-03	-1.69E-03	-8.03E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.34E-08	-8.90E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
208	373367	757786	Offsite Worker	-1.70E-03	-7.74E-08	-2.00E-03	-1.00E-02	-1.70E-03	-8.11E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.90E-08	-8.17E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
209	373418	757742	Offsite Worker	-1.75E-03	-7.94E-08	-2.06E-03	-1.03E-02	-1.75E-03	-8.32E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.09E-08	-8.49E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
210	373418	757653	Offsite Worker	-1.83E-03	-8.31E-08	-2.15E-03	-1.08E-02	-1.83E-03	-8.71E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.90E-08	-8.17E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
211	373419	757564	Offsite Worker	-1.94E-03	-8.83E-08	-2.29E-03	-1.14E-02	-1.94E-03	-9.25E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.09E-08	-8.49E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
212	373419	757475	Offsite Worker	-1.99E-03	-9.06E-08	-2.35E-03	-1.17E-02	-1.99E-03	-9.49E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.97E-08	-9.95E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
213	373420	757386	Offsite Worker	-2.09E-03	-9.51E-08	-2.46E-03	-1.23E-02	-2.09E-03	-9.96E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.28E-08	-1.21E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
214	373420	757297	Offsite Worker	-2.19E-03	-9.94E-08	-2.58E-03	-1.29E-02	-2.19E-03	-1.04E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.93E-08	-1.49E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
215	373421	757207	Offsite Worker	-2.28E-03	-1.04E-07	-2.69E-03	-1.34E-02	-2.28E-03	-1.09E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.08E-07	-1.79E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
216	373421	757118	Offsite Worker	-2.39E-03	-1.09E-07	-2.81E-03	-1.41E-02	-2.39E-03	-1.14E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.16E-07	-1.93E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
217	373292	757117	Offsite Worker	-2.40E-03	-1.09E-07	-2.83E-03	-1.41E-02	-2.40E-03	-1.14E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.24E-07	-2.07E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
218	373213	757118	Offsite Worker	-2.40E-03	-1.09E-07	-2.83E-03	-1.41E-02	-2.40E-03	-1.14E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.19E-07	-1.98E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
219	373158	757066	Offsite Worker	-2.47E-03	-1.12E-07	-2.91E-03	-1.45E-02	-2.47E-03	-1.18E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.33E-07	-2.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
220	373084	757026	Offsite Worker	-2.53E-03	-1.15E-07	-2.98E-03	-1.49E-02	-2.53E-03	-1.21E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.41E-07	-2.35E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
221	373009	757011	Offsite Worker	-2.56E-03	-1.16E-07	-3.01E-03	-1.50E-02	-2.56E-03	-1.22E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.38E-07	-2.30E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
222	372922	757009	Offsite Worker	-2.56E-03	-1.16E-07	-3.02E-03	-1.51E-02	-2.56E-03	-1.22E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.16E-07	-1.94E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

				XYLENE, TOTAL	XYLENE, TOTAL	ARSENIC	ARSENIC	CHLORINE	CHLORINE	COPPER	COPPER	MERCURY	MERCURY	NICKEL	NICKEL	VANADIUM	VANADIUM	SULFATES	SULFATES
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
223	372835	757007	Offsite Worker	-2.57E-03	-1.17E-07	-3.02E-03	-1.51E-02	-2.57E-03	-1.22E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.57E-08	-1.43E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
224	372747	757006	Offsite Worker	-2.57E-03	-1.17E-07	-3.03E-03	-1.51E-02	-2.57E-03	-1.22E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.69E-08	-9.49E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
225	372660	757004	Offsite Worker	-2.57E-03	-1.17E-07	-3.03E-03	-1.51E-02	-2.57E-03	-1.22E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.72E-08	-6.21E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
226	372651	757063	Offsite Worker	-2.46E-03	-1.12E-07	-2.90E-03	-1.45E-02	-2.46E-03	-1.17E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.09E-08	-5.16E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
227	372629	756931	Offsite Worker	-2.02E-03	-9.17E-08	-2.37E-03	-1.19E-02	-2.02E-03	-9.60E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.71E-08	-7.85E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
228	372631	756857	Offsite Worker	-8.52E-04	-3.87E-08	-1.00E-03	-5.02E-03	-8.52E-04	-4.06E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.28E-08	-1.55E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
229	372634	756783	Offsite Worker	-9.40E-04	-4.27E-08	-1.11E-03	-5.54E-03	-9.40E-04	-4.48E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.86E-07	-3.09E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
230	372702	756778	Offsite Worker	-8.20E-04	-3.73E-08	-9.66E-04	-4.83E-03	-8.20E-04	-3.91E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.41E-07	-4.02E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
231	372756	756775	Offsite Worker	-7.23E-04	-3.28E-08	-8.51E-04	-4.25E-03	-7.23E-04	-3.44E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.68E-07	-4.46E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
232	372729	756712	Offsite Worker	-1.02E-03	-4.65E-08	-1.20E-03	-6.02E-03	-1.02E-03	-4.87E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.44E-07	-5.73E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
233	372703	756650	Offsite Worker	-3.29E-03	-1.49E-07	-3.87E-03	-1.93E-02	-3.29E-03	-1.56E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.01E-07	-6.69E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
234	372677	756588	Offsite Worker	-3.44E-03	-1.56E-07	-4.05E-03	-2.02E-02	-3.44E-03	-1.64E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.22E-07	-7.03E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
235	372619	756588	Offsite Worker	-1.04E-03	-4.71E-08	-1.22E-03	-6.10E-03	-1.04E-03	-4.93E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.18E-07	-8.63E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
236	372622	756509	Offsite Worker	-3.66E-03	-1.66E-07	-4.31E-03	-2.15E-02	-3.66E-03	-1.74E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.88E-07	-6.47E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
237	372700	756511	Offsite Worker	-3.53E-03	-1.61E-07	-4.16E-03	-2.08E-02	-3.53E-03	-1.68E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.12E-07	-3.53E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
238	372789	756510	Offsite Worker	-3.40E-03	-1.55E-07	-4.00E-03	-2.00E-02	-3.40E-03	-1.62E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.63E-06	-7.71E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
239	372871	756509	Offsite Worker	-3.27E-03	-1.49E-07	-3.85E-03	-1.92E-02	-3.27E-03	-1.56E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.47E-06	-7.46E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
240	372871	756437	Offsite Worker	-6.93E-04	-3.15E-08	-8.15E-04	-4.08E-03	-6.93E-04	-3.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.36E-06	-7.26E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
241	372970	756437	Offsite Worker	4.03E-04	1.83E-08	4.75E-04	2.37E-03	4.03E-04	1.92E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.14E-06	-6.90E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
242	373069	756437	Offsite Worker	4.67E-04	2.12E-08	5.50E-04	2.75E-03	4.67E-04	2.23E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.93E-06	-6.55E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
243	373168	756437	Offsite Worker	5.10E-04	2.32E-08	6.01E-04	3.00E-03	5.10E-04	2.43E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.74E-06	-6.23E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
244	373267	756437	Offsite Worker	5.47E-04	2.49E-08	6.44E-04	3.22E-03	5.47E-04	2.60E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.56E-06	-5.93E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
245	373412	756437	Offsite Worker	5.52E-04	2.51E-08	6.50E-04	3.25E-03	5.52E-04	2.63E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.29E-06	-5.48E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
246	373409	756339	Offsite Worker	4.02E-04	1.83E-08	4.73E-04	2.36E-03	4.02E-04	1.91E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.37E-07	-3.96E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
247	373406	756240	Offsite Worker	2.41E-04	1.09E-08	2.83E-04	1.42E-03	2.41E-04	1.15E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.13E-07	5.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
248	373403	756142	Offsite Worker	1.62E-04	7.35E-09	1.90E-04	9.52E-04	1.62E-04	7.70E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.04E-08	1.17E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
249	373400	756042	Offsite Worker	1.67E-04	7.60E-09	1.97E-04	9.84E-04	1.67E-04	7.96E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.61E-08	-1.60E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
250	373397	755944	Offsite Worker	6.85E-05	3.11E-09	8.06E-05	4.03E-04	6.85E-05	3.26E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.82E-07	-3.03E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
251	373393	755846	Offsite Worker	2.19E-05	9.95E-10	2.58E-05	1.29E-04	2.19E-05	1.04E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.16E-07	5.26E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
252	373390	755747	Offsite Worker	-2.33E-06	-1.06E-10	-2.74E-06	-1.37E-05	-2.33E-06	-1.11E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.49E-09	-1.41E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
253	373309	755744	Offsite Worker	-7.92E-06	-3.60E-10	-9.33E-06	-4.66E-05	-7.92E-06	-3.77E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.36E-07	-2.26E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
254	373229	755743	Offsite Worker	-1.37E-05	-6.22E-10	-1.61E-05	-8.05E-05	-1.37E-05	-6.51E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.35E-07	-3.92E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
255	373143	755741	Offsite Worker	-1.23E-05	-5.61E-10	-1.45E-05	-7.26E-05	-1.23E-05	-5.87E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.45E-07	-5.75E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
256	373143	755823	Offsite Worker	-1.29E-05	-5.88E-10	-1.52E-05	-7.62E-05	-1.29E-05	-6.16E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.68E-07	-2.80E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
257	373143	755906	Offsite Worker	-1.26E-05	-5.75E-10	-1.49E-05	-7.45E-05	-1.26E-05	-6.02E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.84E-08	1.47E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
258	373065	755906	Offsite Worker	-1.35E-05	-6.14E-10	-1.59E-05	-7.95E-05	-1.35E-05	-6.43E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.65E-08	-1.11E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
259	373065	755827	Offsite Worker	-9.05E-06	-4.11E-10	-1.07E-05	-5.33E-05	-9.05E-06	-4.31E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.76E-07	-4.60E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
260	373068	755733	Offsite Worker	-1.61E-05	-7.31E-10	-1.89E-05	-9.47E-05	-1.61E-05	-7.66E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.41E-07	-7.34E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
261	373007	755733	Offsite Worker	-2.07E-05	-9.41E-10	-2.44E-05	-1.22E-04	-2.07E-05	-9.86E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.01E-07	-8.35E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
262	372941	755733	Offsite Worker	-2.54E-05	-1.15E-09	-2.99E-05	-1.49E-04	-2.54E-05	-1.21E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-06	2.13E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
263	372941	755636	Offsite Worker	-4.70E-05	-2.13E-09	-5.53E-05	-2.76E-04	-4.70E-05	-2.24E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-06	1.84E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
264	372941	755539	Offsite Worker	-2.35E-04	-1.07E-08	-2.77E-04	-1.39E-03	-2.35E-04	-1.12E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.31E-07	1.55E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
265	372941	755442	Offsite Worker	9.52E-04	4.33E-08	1.12E-03	5.60E-03	9.52E-04	4.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.65E-07	1.28E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
266	372913	755342	Offsite Worker	4.89E-04	2.22E-08	5.76E-04	2.88E-03	4.89E-04	2.33E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.88E-07	9.80E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	XYLENE, TOTAL ($\mu g/m^3$)	XYLENE, TOTAL ACUTE HAZARD	ARSENIC ($\mu g/m^3$)	ARSENIC ACUTE HAZARD	CHLORINE ($\mu g/m^3$)	CHLORINE ACUTE HAZARD	COPPER ($\mu g/m^3$)	COPPER ACUTE HAZARD	MERCURY ($\mu g/m^3$)	MERCURY ACUTE HAZARD	NICKEL ($\mu g/m^3$)	NICKEL ACUTE HAZARD	VANADIUM ($\mu g/m^3$)	VANADIUM ACUTE HAZARD	SULFATES ($\mu g/m^3$)	SULFATES ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
267	372817	755346	Offsite Worker	2.05E-04	9.33E-09	2.42E-04	1.21E-03	2.05E-04	9.77E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.20E-07	8.67E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
268	372720	755349	Offsite Worker	-8.64E-05	-3.93E-09	-1.02E-04	-5.09E-04	-8.64E-05	-4.12E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.25E-07	7.08E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
269	372624	755352	Offsite Worker	-4.19E-04	-1.90E-08	-4.93E-04	-2.47E-03	-4.19E-04	-1.99E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.24E-07	5.40E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
270	372527	755349	Offsite Worker	-7.42E-04	-3.37E-08	-8.74E-04	-4.37E-03	-7.42E-04	-3.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.28E-07	3.81E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
271	372431	755353	Offsite Worker	-1.04E-03	-4.73E-08	-1.22E-03	-6.12E-03	-1.04E-03	-4.95E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-07	2.35E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
272	372334	755356	Offsite Worker	-1.32E-03	-5.98E-08	-1.55E-03	-7.75E-03	-1.32E-03	-6.27E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.96E-08	8.26E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
273	372237	755359	Offsite Worker	-1.54E-03	-7.02E-08	-1.82E-03	-9.09E-03	-1.54E-03	-7.35E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.57E-08	-7.62E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
274	372141	755362	Offsite Worker	-1.74E-03	-7.91E-08	-2.05E-03	-1.02E-02	-1.74E-03	-8.29E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.37E-07	-2.28E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
275	372044	755366	Offsite Worker	2.15E-04	9.75E-09	2.53E-04	1.26E-03	2.15E-04	1.02E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.29E-07	-3.82E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
276	371948	755369	Offsite Worker	1.24E-04	5.62E-09	1.46E-04	7.28E-04	1.24E-04	5.89E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.15E-07	-5.25E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
277	371851	755372	Offsite Worker	-5.85E-04	-2.66E-08	-6.89E-04	-3.45E-03	-5.85E-04	-2.79E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.91E-07	-6.52E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
278	371755	755375	Offsite Worker	-2.20E-03	-1.00E-07	-2.59E-03	-1.30E-02	-2.20E-03	-1.05E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.99E-07	-9.98E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
279	371658	755378	Offsite Worker	-2.29E-03	-1.04E-07	-2.70E-03	-1.35E-02	-2.29E-03	-1.09E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.89E-06	-6.48E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
280	371562	755382	Offsite Worker	-2.38E-03	-1.08E-07	-2.80E-03	-1.40E-02	-2.38E-03	-1.13E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.14E-06	-6.91E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
281	371465	755385	Offsite Worker	-2.50E-03	-1.14E-07	-2.94E-03	-1.47E-02	-2.50E-03	-1.19E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.28E-06	-7.13E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
282	371368	755388	Offsite Worker	-2.67E-03	-1.21E-07	-3.14E-03	-1.57E-02	-2.67E-03	-1.27E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.47E-06	-7.46E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
283	371272	755391	Offsite Worker	-2.92E-03	-1.33E-07	-3.44E-03	-1.72E-02	-2.92E-03	-1.39E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.81E-06	-8.02E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
284	371175	755395	Offsite Worker	1.27E-04	5.78E-09	1.50E-04	7.49E-04	1.27E-04	6.06E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.30E-06	-8.84E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
285	371079	755398	Offsite Worker	-3.84E-03	-1.75E-07	-4.52E-03	-2.26E-02	-3.84E-03	-1.83E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.03E-06	-1.01E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
286	371042	755478	Offsite Worker	-3.40E-03	-1.55E-07	-4.00E-03	-2.00E-02	-3.40E-03	-1.62E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.48E-06	-9.13E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
287	371009	755538	Offsite Worker	4.57E-05	2.08E-09	5.38E-05	2.69E-04	4.57E-05	2.18E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.11E-06	-8.52E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
288	370975	755597	Offsite Worker	3.29E-05	1.50E-09	3.88E-05	1.94E-04	3.29E-05	1.57E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.80E-06	-7.99E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
289	370925	755597	Offsite Worker	1.18E-05	5.35E-10	1.39E-05	6.93E-05	1.18E-05	5.61E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.04E-06	-8.40E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
290	370860	755547	Offsite Worker	-1.96E-06	-8.91E-11	-2.31E-06	-1.15E-05	-1.96E-06	-9.33E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.42E-06	-1.07E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
291	370796	755497	Offsite Worker	-5.85E-03	-2.66E-07	-6.89E-03	-3.44E-02	-5.85E-03	-2.79E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.75E-06	-1.46E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
292	370733	755428	Offsite Worker	-7.87E-03	-3.58E-07	-9.26E-03	-4.63E-02	-7.87E-03	-3.75E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.14E-05	-1.90E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
293	370634	755428	Offsite Worker	-3.49E-03	-1.59E-07	-4.11E-03	-2.06E-02	-3.49E-03	-1.66E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.33E-05	-2.21E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
294	370536	755428	Offsite Worker	-6.64E-06	-3.02E-10	-7.82E-06	-3.91E-05	-6.64E-06	-3.16E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.38E-05	-2.31E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
295	370437	755428	Offsite Worker	-5.51E-06	-2.51E-10	-6.49E-06	-3.25E-05	-5.51E-06	-2.63E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.24E-05	-2.07E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
296	370338	755427	Offsite Worker	-2.17E-02	-9.86E-07	-2.55E-02	-1.28E-01	-2.17E-02	-1.03E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.60E-06	-1.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
297	370239	755427	Residential	1.14E-03	5.19E-08	1.35E-03	6.73E-03	1.14E-03	5.44E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.96E-07	-4.93E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
298	370138	755427	Residential	-1.16E-04	-5.28E-09	-1.37E-04	-6.83E-04	-1.16E-04	-5.53E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.65E-07	-9.41E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
299	370040	755427	Residential	-9.74E-05	-4.43E-09	-1.15E-04	-5.73E-04	-9.74E-05	-4.64E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-7.01E-07	-1.17E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
300	369941	755426	Residential	2.73E-04	1.24E-08	3.22E-04	1.61E-03	2.73E-04	1.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.44E-06	-2.40E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
301	369842	755426	Residential	9.18E-05	4.17E-09	1.08E-04	5.40E-04	9.18E-05	4.37E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.45E-06	-2.42E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
302	369741	755435	Residential	-2.97E-05	-1.35E-09	-3.49E-05	-1.75E-04	-2.97E-05	-1.41E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.32E-07	1.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
303	369643	755434	Residential	-1.32E-03	-6.02E-08	-1.56E-03	-7.79E-03	-1.32E-03	-6.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.51E-06	-2.52E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
304	369544	755434	Residential	-1.04E-02	-4.74E-07	-1.23E-02	-6.14E-02	-1.04E-02	-4.97E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.55E-07	4.24E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
305	369445	755434	Residential	-1.80E-02	-8.20E-07	-2.12E-02	-1.06E-01	-1.80E-02	-8.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-07	4.33E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
306	369346	755434	Residential	-2.26E-02	-1.03E-06	-2.66E-02	-1.33E-01	-2.26E-02	-1.07E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-07	4.79E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
307	369249	755442	Offsite Worker	-2.88E-02	-1.31E-06	-3.39E-02	-1.69E-01	-2.88E-02	-1.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.96E-07	4.93E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
308	369151	755442	Offsite Worker	-3.32E-02	-1.51E-06	-3.91E-02	-1.96E-01	-3.32E-02	-1.58E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-06	2.93E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
309	369052	755442	Offsite Worker	-2.77E-02	-1.26E-06	-3.26E-02	-1.63E-01	-2.77E-02	-1.32E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-06	2.70E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.3-3: Summary of Incremental Acute Hazard Indices for LAX Runway 6R-24L Runway Safety Area and Associated Improvements Project for On-Site Workers and Off-Site Receptors Operational TAC Concentrations

				XYLENE, TOTAL	XYLENE, TOTAL	ARSENIC	ARSENIC	CHLORINE	CHLORINE	COPPER	COPPER	MERCURY	MERCURY	NICKEL	NICKEL	VANADIUM	VANADIUM	SULFATES	SULFATES
RECEPTOR NUMBER	X	Y	RECEPTOR TYPE	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD	($\mu g/m^3$)	ACUTE HAZARD
			CalEPA Acute REL		22000		0.2		210		100		0.6		6		30		120
310	368953	755441	Residential	-4.51E-02	-2.05E-06	-5.30E-02	-2.65E-01	-4.51E-02	-2.15E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-06	2.27E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
311	368854	755441	Residential	-3.29E-02	-1.50E-06	-3.88E-02	-1.94E-01	-3.29E-02	-1.57E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.19E-07	1.53E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
312	368755	755441	Residential	-1.77E-02	-8.06E-07	-2.09E-02	-1.04E-01	-1.77E-02	-8.44E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.20E-07	7.00E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
313	368657	755441	Residential	-1.26E-02	-5.72E-07	-1.48E-02	-7.41E-02	-1.26E-02	-5.99E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.48E-08	9.13E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
314	368558	755440	Residential	-1.64E-02	-7.47E-07	-1.94E-02	-9.68E-02	-1.64E-02	-7.83E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.33E-07	-2.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
315	368459	755440	Residential	-2.18E-02	-9.93E-07	-2.57E-02	-1.29E-01	-2.18E-02	-1.04E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.86E-07	-3.09E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
316	368360	755440	Residential	-2.72E-02	-1.24E-06	-3.21E-02	-1.60E-01	-2.72E-02	-1.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.71E-07	-2.84E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
317	368262	755439	Residential	-3.24E-02	-1.47E-06	-3.82E-02	-1.91E-01	-3.24E-02	-1.54E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.44E-07	-2.40E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
318	368186	755427	Residential	-3.60E-02	-1.63E-06	-4.23E-02	-2.12E-01	-3.60E-02	-1.71E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.19E-07	-1.98E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
319	368111	755414	Residential	-3.87E-02	-1.76E-06	-4.56E-02	-2.28E-01	-3.87E-02	-1.85E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.97E-08	-1.66E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
320	368035	755402	Offsite Worker	-4.10E-02	-1.86E-06	-4.83E-02	-2.41E-01	-4.10E-02	-1.95E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.65E-08	-1.44E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
321	367960	755389	Offsite Worker	-4.03E-02	-1.83E-06	-4.74E-02	-2.37E-01	-4.03E-02	-1.92E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.60E-08	-1.43E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
322	367863	755390	Offsite Worker	-3.77E-02	-1.71E-06	-4.44E-02	-2.22E-01	-3.77E-02	-1.80E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.17E-08	-1.53E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
323	367766	755392	Offsite Worker	-3.45E-02	-1.57E-06	-4.06E-02	-2.03E-01	-3.45E-02	-1.64E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.43E-07	-2.39E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
324	367669	755393	Offsite Worker	-1.84E-02	-8.35E-07	-2.16E-02	-1.08E-01	-1.84E-02	-8.74E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.27E-07	-2.11E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
325	367572	755394	Offsite Worker	-9.69E-04	-4.40E-08	-1.14E-03	-5.70E-03	-9.69E-04	-4.61E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.83E-08	-1.64E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
326	367475	755395	Offsite Worker	-4.25E-04	-1.93E-08	-5.01E-04	-2.50E-03	-4.25E-04	-2.03E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.74E-08	-1.12E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
327	370400	756850	On-Site Occupational	-2.20E-04	-1.00E-08	-2.59E-04	-1.30E-03	-2.20E-04	-1.05E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.03E-05	-1.72E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NOTE: $\mu g/m^3$ = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., January 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Attachment B.5

Construction – Cancer Risk and Chronic Non-Cancer Health Hazard Calculations for Adjusted Construction Emissions (RAGS Part F)

Table B.5-1: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – 1-year Exposure (Based on Peak Location of Residential Cancer Risks)

EXPOSURE PARAMETERS	RESIDENTIAL CHILD	SCHOOL CHILD	RESIDENTIAL ADULT
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	1 (years)	1 (years)	1 (years)
Averaging Time (non-carcinogenic)	8760 (hrs)	8760 (hrs)	8760 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F INHALATION EQUATIONS
EC= (CA x ET xED)/(AT)
Risk=IURxEC
Hazard Quotient=EC/Rfc Where: EC = Exposure Concentration CA = Concentration in Air ET = Exposure Time EF = Exposure Frequency

	TOXICITY CRITERIA					CANCER RISKS			HAZARD QUOTIENTS		
TAC	LOCATION WITH MAX RISK (µg/m^3)	EPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	CalEPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	EPA CHRONIC INHALATION (µg/m^3)	CalEPA CHRONIC INHALATION RFC (µg/m^3)	CANCER RISK TO CHILD RESIDENT	CANCER RISK TO SCHOOL CHILD	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT CHILD RESIDENT	HAZARD QUOTIENT SCHOOL CHILD	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	4.10E-03	2.20E-06	2.70E-06	9.00E+00	1.40E+02	1.52E-10	2.89E-11	1.52E-10	2.81E-05	5.35E-06	2.81E-05
Acrolein	-1.80E-03	N/A	N/A	2.00E-02	3.50E-01	NC	NC	NC	-4.93E-03	-9.39E-04	-4.93E-03
Benzene	7.08E-04	7.80E-06	2.90E-05	3.00E+01	6.00E+01	2.81E-10	5.36E-11	2.81E-10	1.13E-05	2.16E-06	1.13E-05
1,3-Butadiene	-1.13E-03	3.00E-05	1.70E-04	2.00E+00	2.00E+01	-2.64E-09	-5.03E-10	-2.64E-09	-5.44E-05	-1.04E-05	-5.44E-05
Ethylbenzene	1.73E-04	2.50E-06	2.50E-06	1.00E+03	2.00E+03	5.91E-12	1.13E-12	5.91E-12	8.28E-08	1.58E-08	8.28E-08
Formaldehyde	5.25E-03	1.30E-05	6.00E-06	9.80E+00	9.00E+00	4.31E-10	8.21E-11	4.31E-10	5.59E-04	1.06E-04	5.59E-04
Hexane, n-	1.59E-04	N/A	N/A	7.00E+02	7.00E+03	NC	NC	NC	2.18E-08	4.16E-09	2.18E-08
Methanol	-1.39E-03	N/A	N/A	4.00E+03	4.00E+03	NC	NC	NC	-3.33E-07	-6.35E-08	-3.33E-07
Methyl ethyl ketone	1.50E-03	N/A	N/A	5.00E+03	N/A	NC	NC	NC	NC	NC	NC
Naphthalene	-3.39E-04	N/A	3.40E-05	3.00E+00	9.00E+00	-1.58E-10	-3.01E-11	-1.58E-10	-3.62E-05	-6.89E-06	-3.62E-05
Propylene	-9.32E-04	N/A	N/A	3.00E+03	3.00E+03	NC	NC	NC	-2.98E-07	-5.68E-08	-2.98E-07
Styrene	-1.84E-04	N/A	N/A	1.00E+03	9.00E+02	NC	NC	NC	-1.96E-07	-3.74E-08	-1.96E-07
Toluene	9.90E-04	N/A	N/A	5.00E+03	3.00E+02	NC	NC	NC	3.16E-06	6.03E-07	3.16E-06
Xylene (total)	1.06E-03	N/A	N/A	1.00E+02	7.00E+02	NC	NC	NC	1.45E-06	2.76E-07	1.45E-06
Diesel PM	1.96E-02	N/A	3.00E-04	5.00E+00	5.00E+00	8.05E-08	1.53E-08	8.05E-08	3.76E-03	7.16E-04	3.76E-03
Arsenic	5.34E-06	4.30E-03	3.30E-03	1.50E-02	1.50E-02	2.41E-10	4.60E-11	2.41E-10	3.41E-04	6.50E-05	3.41E-04
Cadmium	9.30E-06	1.80E-03	4.20E-03	1.00E-02	2.00E-02	5.35E-10	1.02E-10	5.35E-10	4.46E-04	8.49E-05	4.46E-04
Chlorine	9.35E-04	N/A	N/A	1.50E-01	2.00E-01	NC	NC	NC	4.48E-03	8.54E-04	4.48E-03
Chromium (VI)	2.86E-06	1.20E-02	1.50E-01	1.00E-01	2.00E-01	5.89E-09	1.12E-09	5.89E-09	1.37E-05	2.62E-06	1.37E-05
Copper	3.06E-05	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Lead	1.54E-04	N/A	1.20E-05	N/A	N/A	2.53E-11	4.82E-12	2.53E-11	NC	NC	NC
Manganese	2.52E-04	N/A	N/A	5.00E-02	9.00E-02	NC	NC	NC	2.68E-03	5.11E-04	2.68E-03
Mercury	4.96E-06	N/A	N/A	3.00E-01	3.00E-02	NC	NC	NC	1.58E-04	3.02E-05	1.58E-04
Nickel	1.70E-05	N/A	2.60E-04	9.00E-02	1.40E-02	6.04E-11	1.15E-11	6.04E-11	1.16E-03	2.21E-04	1.16E-03
Selenium	8.51E-07	N/A	N/A	2.00E+01	2.00E+01	NC	NC	NC	4.08E-08	7.77E-09	4.08E-08
Silicon	5.33E-02	N/A	N/A	3.00E+00	3.00E+00	NC	NC	NC	1.70E-02	3.25E-03	1.70E-02
Sulfates	1.63E-03	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Vanadium	2.32E-05	8.30E-03	N/A	1.00E-01	N/A	NC	NC	NC	NC	NC	NC
					TOTAL:	8.54E-08	1.63E-08	8.54E-08	0.0257	0.0049	0.0257

NOTES: Residential Maximum Grid No. Receptor 130; N/A - Not Available; NC = Not Calculated; µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., March 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.5-2: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – 1-year Exposure (Based on Peak Location of Residential Hazards)

EXPOSURE PARAMETERS	RESIDENTIAL CHILD	SCHOOL CHILD	RESIDENTIAL ADULT
Exposure Time	24 (hrs/day)	8 (hrs/day)	24 (hrs/day)
Exposure Frequency	350 (days/year)	200 (days/year)	350 (days/year)
Exposure Duration	1 (years)	1 (years)	1 (years)
Averaging Time (non-carcinogenic)	8760 (hrs)	8760 (hrs)	8760 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)	613200 (hrs)	613200 (hrs)

RAGS F INHALATION EQUATIONS
EC= (CA x ET xED)/(AT)
Risk=IURxEC
Hazard Quotient=EC/Rfc Where: EC = Exposure Concentration CA = Concentration in Air ET = Exposure Time EF = Exposure Frequency

	TOXICITY CRITERIA					CANCER RISKS			HAZARD QUOTIENTS		
TAC	LOCATION WITH MAX RISK (µg/m^3)	EPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	CalEPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	EPA CHRONIC INHALATION (µg/m^3)	CalEPA CHRONIC INHALATION RFC (µg/m^3)	CANCER RISK TO CHILD RESIDENT	CANCER RISK TO SCHOOL CHILD	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT CHILD RESIDENT	HAZARD QUOTIENT SCHOOL CHILD	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	2.95E-03	2.20E-06	2.70E-06	9.00E+00	1.40E+02	6.54E-10	1.25E-10	7.63E-09	2.02E-05	3.85E-06	2.02E-05
Acrolein	1.34E-03	N/A	N/A	2.00E-02	3.50E-01	NC	NC	NC	3.67E-03	6.99E-04	3.67E-03
Benzene	1.08E-03	7.80E-06	2.90E-05	3.00E+01	6.00E+01	2.58E-09	4.92E-10	3.01E-08	1.73E-05	3.30E-06	1.73E-05
1,3-Butadiene	9.31E-04	3.00E-05	1.70E-04	2.00E+00	2.00E+01	1.30E-08	2.48E-09	1.52E-07	4.47E-05	8.51E-06	4.47E-05
Ethylbenzene	1.21E-04	2.50E-06	2.50E-06	1.00E+03	2.00E+03	2.48E-11	4.72E-12	2.89E-10	5.78E-08	1.10E-08	5.78E-08
Formaldehyde	7.94E-03	1.30E-05	6.00E-06	9.80E+00	9.00E+00	3.92E-09	7.46E-10	4.57E-08	8.46E-04	1.61E-04	8.46E-04
Hexane, n-	1.35E-05	N/A	N/A	7.00E+02	7.00E+03	NC	NC	NC	1.85E-09	3.52E-10	1.85E-09
Methanol	9.82E-04	N/A	N/A	4.00E+03	4.00E+03	NC	NC	NC	2.35E-07	4.48E-08	2.35E-07
Methyl ethyl ketone	1.27E-04	N/A	N/A	5.00E+03	N/A	NC	NC	NC	NC	NC	NC
Naphthalene	3.01E-04	N/A	3.40E-05	3.00E+00	9.00E+00	8.40E-10	1.60E-10	9.80E-09	3.20E-05	6.10E-06	3.20E-05
Propylene	2.68E-03	N/A	N/A	3.00E+03	3.00E+03	NC	NC	NC	8.57E-07	1.63E-07	8.57E-07
Styrene	1.73E-04	N/A	N/A	1.00E+03	9.00E+02	NC	NC	NC	1.84E-07	3.50E-08	1.84E-07
Toluene	4.75E-04	N/A	N/A	5.00E+03	3.00E+02	NC	NC	NC	1.52E-06	2.89E-07	1.52E-06
Xylene (total)	8.94E-05	N/A	N/A	1.00E+02	7.00E+02	NC	NC	NC	1.22E-07	2.33E-08	1.22E-07
Diesel PM	9.30E-04	N/A	3.00E-04	5.00E+00	5.00E+00	2.29E-08	4.37E-09	2.68E-07	1.78E-04	3.40E-05	1.78E-04
Arsenic	3.24E-07	4.30E-03	3.30E-03	1.50E-02	1.50E-02	8.78E-11	1.67E-11	1.02E-09	2.07E-05	3.94E-06	2.07E-05
Cadmium	5.56E-07	1.80E-03	4.20E-03	1.00E-02	2.00E-02	1.92E-10	3.65E-11	2.24E-09	2.66E-05	5.07E-06	2.66E-05
Chlorine	5.68E-05	N/A	N/A	1.50E-01	2.00E-01	NC	NC	NC	2.72E-04	5.19E-05	2.72E-04
Chromium (VI)	3.31E-07	1.20E-02	1.50E-01	1.00E-01	2.00E-01	4.09E-09	7.78E-10	4.77E-08	1.59E-06	3.03E-07	1.59E-06
Copper	2.46E-06	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Lead	1.07E-05	N/A	1.20E-05	N/A	N/A	1.05E-11	2.01E-12	1.23E-10	NC	NC	NC
Manganese	1.60E-05	N/A	N/A	5.00E-02	9.00E-02	NC	NC	NC	1.71E-04	3.26E-05	1.71E-04
Mercury	2.94E-07	N/A	N/A	3.00E-01	3.00E-02	NC	NC	NC	9.39E-06	1.79E-06	9.39E-06
Nickel	1.03E-06	N/A	2.60E-04	9.00E-02	1.40E-02	2.20E-11	4.18E-12	2.56E-10	7.04E-05	1.34E-05	7.04E-05
Selenium	4.92E-08	N/A	N/A	2.00E+01	2.00E+01	NC	NC	NC	2.36E-09	4.49E-10	2.36E-09
Silicon	3.25E-03	N/A	N/A	3.00E+00	3.00E+00	NC	NC	NC	1.04E-03	1.98E-04	1.04E-03
Sulfates	9.46E-05	N/A	N/A	N/A	N/A	NC	NC	NC	NC	NC	NC
Vanadium	2.32E-05	8.30E-03	N/A	1.00E-01	N/A	NC	NC	NC	NC	NC	NC
					TOTAL:	4.84E-08	9.21E-09	5.64E-07	0.0064	0.0012	0.0064

NOTES: Residential Maximum Grid No. Receptor 155; N/A - Not Available; NC = Not Calculated; µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., March 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.5-3: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – 1-year Exposure (Based on Peak Location of Commercial Cancer Risks)

EXPOSURE PARAMETERS	ADULT WORKER
Exposure Time	24 (hrs/day)
Exposure Frequency	350 (days/year)
Exposure Duration	1 (years)
Averaging Time (non-carcinogenic)	8760 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)

RAGS F INHALATION EQUATIONS

EC= (CA x ET xED)/(AT)

Risk=IURxEC

Hazard Quotient=EC/Rfc
Where:
EC = Exposure Concentration
CA = Concentration in Air
ET = Exposure Time
EF = Exposure Frequency

	TOXICITY CRITERIA					CANCER RISKS	HAZARD QUOTIENTS
TAC	LOCATION WITH MAX RISK (µg/m^3)	EPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	CalEPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	EPA CHRONIC INHALATION RFC (µg/m^3)	CalEPA CHRONIC INHALATION RFC (µg/m^3)	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	4.41E-02	2.20E-06	2.70E-06	9.00E+00	1.40E+02	1.63E-09	3.02E-04
Acrolein	1.18E-02	N/A	N/A	2.00E-02	3.50E-01	NC	3.23E-02
Benzene	1.44E-02	7.80E-06	2.90E-05	3.00E+01	6.00E+01	5.72E-09	2.30E-04
1,3-Butadiene	8.46E-03	3.00E-05	1.70E-04	2.00E+00	2.00E+01	1.97E-08	4.06E-04
Ethylbenzene	1.81E-03	2.50E-06	2.50E-06	1.00E+03	2.00E+03	6.21E-11	8.69E-07
Formaldehyde	1.06E-01	1.30E-05	6.00E-06	9.80E+00	9.00E+00	8.68E-09	1.13E-02
Hexane, n-	5.18E-04	N/A	N/A	7.00E+02	7.00E+03	NC	7.09E-08
Methanol	8.48E-03	N/A	N/A	4.00E+03	4.00E+03	NC	2.03E-06
Methyl ethyl ketone	4.87E-03	N/A	N/A	5.00E+03	N/A	NC	NC
Naphthalene	2.79E-03	N/A	3.40E-05	3.00E+00	9.00E+00	1.30E-09	2.97E-04
Propylene	2.96E-02	N/A	N/A	3.00E+03	3.00E+03	NC	9.46E-06
Styrene	1.63E-03	N/A	N/A	1.00E+03	9.00E+02	NC	1.73E-06
Toluene	7.84E-03	N/A	N/A	5.00E+03	3.00E+02	NC	2.50E-05
Xylene (total)	3.43E-03	N/A	N/A	1.00E+02	7.00E+02	NC	4.70E-06
Diesel PM	6.79E-02	N/A	3.00E-04	5.00E+00	5.00E+00	2.79E-07	1.30E-02
Arsenic	1.62E-05	4.30E-03	3.30E-03	1.50E-02	1.50E-02	7.34E-10	1.04E-03
Cadmium	2.85E-05	1.80E-03	4.20E-03	1.00E-02	2.00E-02	1.64E-09	1.37E-03
Chlorine	2.84E-03	N/A	N/A	1.50E-01	2.00E-01	NC	1.36E-02
Chromium (VI)	9.34E-06	1.20E-02	1.50E-01	1.00E-01	2.00E-01	1.92E-08	4.48E-05
Copper	9.55E-05	N/A	N/A	N/A	N/A	NC	NC
Lead	4.72E-04	N/A	1.20E-05	N/A	N/A	7.76E-11	NC
Manganese	7.67E-04	N/A	N/A	5.00E-02	9.00E-02	NC	8.17E-03
Mercury	1.53E-05	N/A	N/A	3.00E-01	3.00E-02	NC	4.88E-04
Nickel	5.16E-05	N/A	2.60E-04	9.00E-02	1.40E-02	1.84E-10	3.54E-03
Selenium	2.67E-06	N/A	N/A	2.00E+01	2.00E+01	NC	1.28E-07
Silicon	1.62E-01	N/A	N/A	3.00E+00	3.00E+00	NC	5.17E-02
Sulfates	5.09E-03	N/A	N/A	N/A	N/A	NC	NC
Vanadium	2.21E-04	8.30E-03	N/A	1.00E-01	N/A	NC	NC
					TOTAL:	3.38E-07	0.1378

NOTES: Residential Maximum Grid No. Receptor 169; N/A - Not Available; NC = Not Calculated; µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., March 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

Table B.5-4: RAGS F Risk Calculation for Runway 6R-24L Runway Safety Area and Associated Improvements Project, Incremental Construction – 1-year Exposure (Based on Peak Location of Commercial Hazards)

EXPOSURE PARAMETERS	ADULT WORKER
Exposure Time	24 (hrs/day)
Exposure Frequency	350 (days/year)
Exposure Duration	1 (years)
Averaging Time (non-carcinogenic)	8760 (hrs)
Averaging Time (carcinogenic)	613200 (hrs)

RAGS F INHALATION EQUATIONS

EC= (CA x ET xED)/(AT)

Risk=IURxEC

Hazard Quotient=EC/Rfc
Where:
EC = Exposure Concentration
CA = Concentration in Air
ET = Exposure Time
EF = Exposure Frequency

	TOXICITY CRITERIA					CANCER RISKS	HAZARD QUOTIENTS
TAC	LOCATION WITH MAX RISK (µg/m^3)	EPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	CalEPA INHALATION UNIT RISK (µg/m^3)$^{-1}$	EPA CHRONIC INHALATION RFC (µg/m^3)	CalEPA CHRONIC INHALATION RFC (µg/m^3)	CANCER RISK TO ADULT RESIDENT	HAZARD QUOTIENT ADULT RESIDENT
Acetaldehyde	6.33E-02	2.20E-06	2.70E-06	9.00E+00	1.40E+02	9.37E-08	4.34E-04
Acrolein	3.62E-02	N/A	N/A	2.00E-02	3.50E-01	NC	9.93E-02
Benzene	2.49E-02	7.80E-06	2.90E-05	3.00E+01	6.00E+01	3.96E-07	3.98E-04
1,3-Butadiene	2.50E-02	3.00E-05	1.70E-04	2.00E+00	2.00E+01	2.32E-06	1.20E-03
Ethylbenzene	2.58E-03	2.50E-06	2.50E-06	1.00E+03	2.00E+03	3.53E-09	1.24E-06
Formaldehyde	1.82E-01	1.30E-05	6.00E-06	9.80E+00	9.00E+00	6.00E-07	1.94E-02
Hexane, n-	3.19E-06	N/A	N/A	7.00E+02	7.00E+03	NC	4.37E-10
Methanol	2.67E-02	N/A	N/A	4.00E+03	4.00E+03	NC	6.40E-06
Methyl ethyl ketone	3.00E-05	N/A	N/A	5.00E+03	N/A	NC	NC
Naphthalene	8.00E-03	N/A	3.40E-05	3.00E+00	9.00E+00	1.49E-07	8.53E-04
Propylene	6.71E-02	N/A	N/A	3.00E+03	3.00E+03	NC	2.15E-05
Styrene	4.57E-03	N/A	N/A	1.00E+03	9.00E+02	NC	4.87E-06
Toluene	9.53E-03	N/A	N/A	5.00E+03	3.00E+02	NC	3.05E-05
Xylene (total)	2.11E-05	N/A	N/A	1.00E+02	7.00E+02	NC	2.89E-08
Diesel PM	2.80E-04	N/A	3.00E-04	5.00E+00	5.00E+00	4.60E-08	5.37E-05
Arsenic	1.37E-07	4.30E-03	3.30E-03	1.50E-02	1.50E-02	2.48E-10	8.76E-06
Cadmium	2.32E-07	1.80E-03	4.20E-03	1.00E-02	2.00E-02	5.33E-10	1.11E-05
Chlorine	2.41E-05	N/A	N/A	1.50E-01	2.00E-01	NC	1.16E-04
Chromium (VI)	8.57E-07	1.20E-02	1.50E-01	1.00E-01	2.00E-01	7.05E-08	4.11E-06
Copper	3.80E-06	N/A	N/A	N/A	N/A	NC	NC
Lead	1.06E-05	N/A	1.20E-05	N/A	N/A	6.97E-11	NC
Manganese	1.01E-05	N/A	N/A	5.00E-02	9.00E-02	NC	1.08E-04
Mercury	1.21E-07	N/A	N/A	3.00E-01	3.00E-02	NC	3.88E-06
Nickel	4.35E-07	N/A	2.60E-04	9.00E-02	1.40E-02	6.19E-11	2.98E-05
Selenium	1.98E-08	N/A	N/A	2.00E+01	2.00E+01	NC	9.47E-10
Silicon	1.38E-03	N/A	N/A	3.00E+00	3.00E+00	NC	4.41E-04
Sulfates	3.82E-05	N/A	N/A	N/A	N/A	NC	NC
Vanadium	1.88E-06	8.30E-03	N/A	1.00E-01	N/A	NC	NC
					TOTAL:	3.68E-06	0.1224

NOTES: Residential Maximum Grid No. Receptor 236; N/A - Not Available; NC = Not Calculated; µg/m^3 = micrograms per cubic meter
SOURCE: Ricondo & Associates, Inc., December 2014.
PREPARED BY: Ricondo & Associates, Inc., December 2014.

Appendix C

Biological Assessment

Biological Assessment
Los Angeles International Airport
Proposed Runway 6R-24L Runway Safety Area Improvements Project

Prepared for:
LOS ANGELES WORLD AIRPORTS
1 World Way
Los Angeles, California 90045

Prepared by:
SAPPHOS ENVIRONMENTAL, INC.
430 North Halstead Street
Pasadena, California 91107

Screen Check: March 3, 2015

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Appendices

1.0 INTRODUCTION

The Los Angeles World Airports (LAWA) is planning Runway Safety Area (RSA) improvements and associated improvements of the Runway 6R-24L RSA at Los Angeles International Airport (LAX). Sapphos Environmental, Inc. previously prepared a Biological Assessment examining the biological resources for Runway 6R-24L and 6L-24R. However, improvements identified in that project did not bring Runway 6R-24L RSA into full compliance with Federal Aviation Administration (FAA) design standards. The proposed Runway 6R-24L Safety Area Improvements Project (proposed project) is being undertaken by LAWA in response to the requirements of *The Transportation, Treasury, Housing and Urban Development, the Judiciary, The District of Columbia, and Independent Agencies Appropriations Act* (Public Law 109-115),[1] which states that all RSAs at 14 Code of Federal Regulations (CFR) Part 139 airports[2] must meet FAA design standards by December 31, 2015.

1.1 Purpose and Need of the Biological Assessment

The RSA improvements under consideration by LAWA are subject to review and approval by the FAA; therefore, the RSA improvements constitute a proposed action pursuant to the National Environmental Policy Act (NEPA) (40 CFR 1508.18), requiring the consideration of the potential to affect federally proposed and listed threatened or endangered plant and wildlife species that have the potential to be present within the direct or indirect impact area (study area) of the proposed action. This Biological Assessment is to be used in fulfillment of FAA's responsibilities under Section 7(a)(2) of the federal Endangered Species Act (ESA) (16 USC 1536[c]). The objectives of this Biological Assessment are to evaluate the potential effects of the proposed action to be undertaken by FAA on proposed and listed species, to determine whether such species are likely to be adversely affected by the action, to evaluate cumulative effects on other state or federally designated sensitive species, and to determine whether formal consultation is required.

1.2 Location

LAX is located in the southwestern portion of Los Angeles County, adjacent to Dockweiler State Beach, and approximately 0.6 miles inland from the Pacific Ocean and 14 miles southwest of downtown Los Angeles (Figure 1.2-1, *Regional Location Map*). Reference point coordinates for the airport are 33° 56′ north latitude by 118° 24′ west longitude. The LAX airfield is entirely located in the City of Los Angeles, County of Los Angeles, California, as depicted on Figure 1.2-2, *Local Vicinity Map*. It is located entirely within the U.S. Geological Survey (USGS) 7.5-Minute Series, Venice, California, Topographic Quadrangle, Range 15 West and Township 2 South. The airfield is located east of Pershing Drive and is separated from the State Beach and Santa Monica Bay by the Los Angeles/El Segundo Dunes. LAX encompasses approximately 3,351 acres with a field elevation of 126 feet above mean sea level (msl). LAX constitutes a large industrial district presently made up of four runways; domestic and international terminals; cargo areas; administrative and support facilities; and limited open space, including 307 acres of Los Angeles/El Segundo Dunes. Up to 180.95 acres would be used for access, egress, staging, and construction activities during construction of the proposed project. Of the 180.95 acres that could be affected

[1] *The Transportation, Treasury, Housing and Urban Development, the Judiciary, The District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), November 30, 2005.

[2] 14 Code of Federal Regulations (CFR) Part 139 airports are U.S. airports that are certified by FAA to allow commercial passenger aircraft operations.

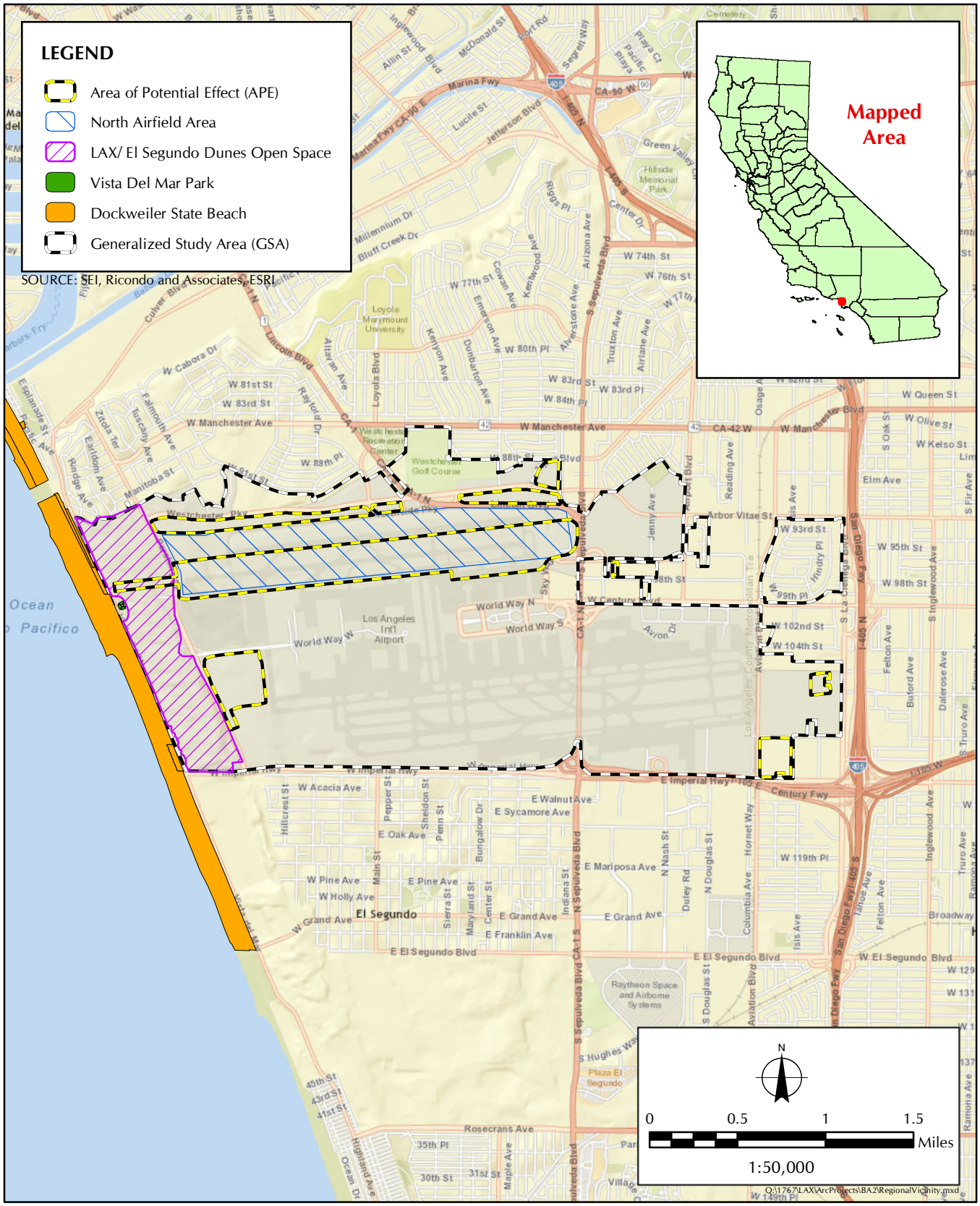


FIGURE 1.2-1

Regional Location Map

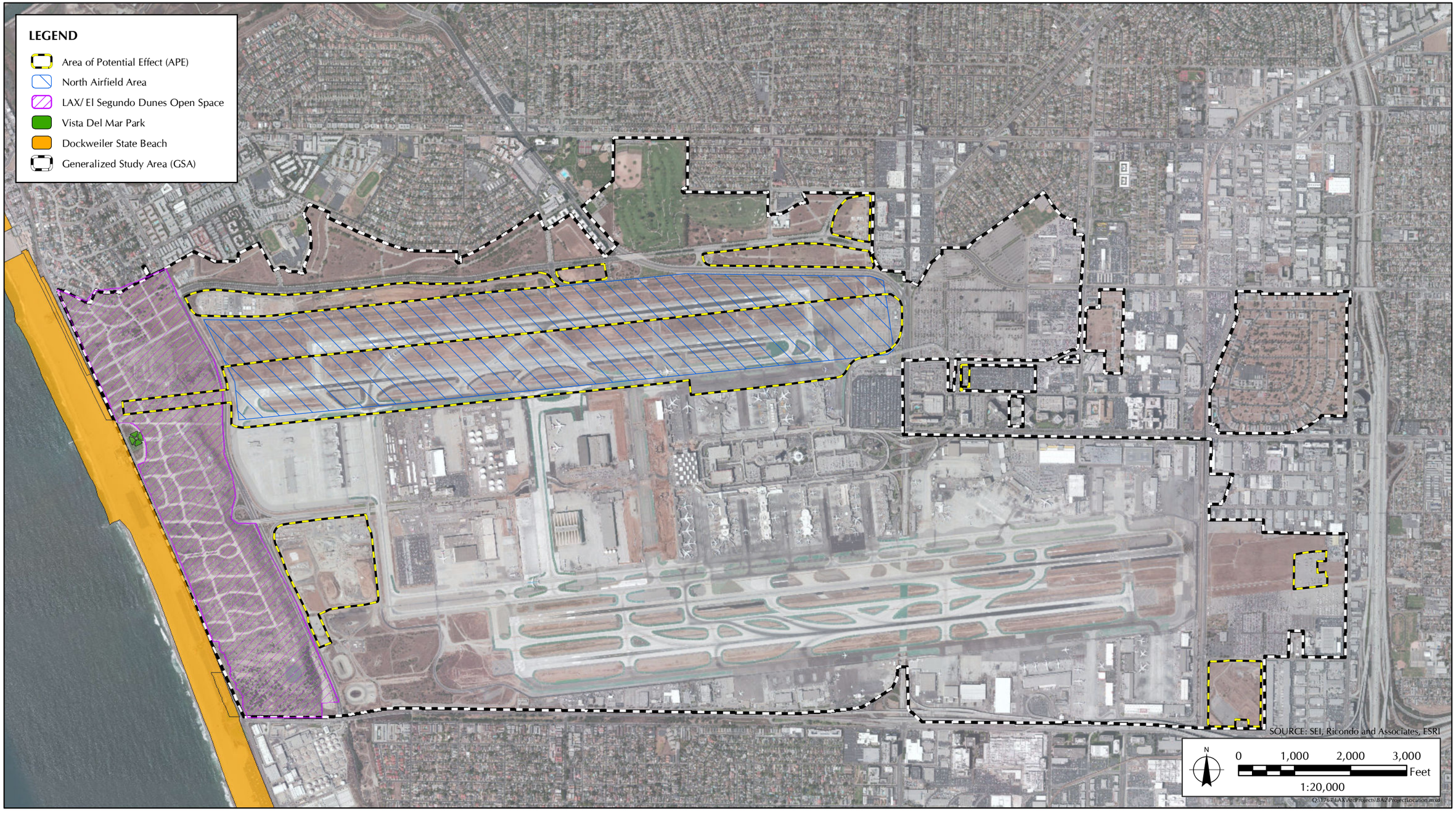


FIGURE 1.2-2
Local Vicinity Map

during construction, up to 180.21 acres would be temporarily impacted and 0.74 acre would be permanently dedicated to the proposed project (Figure 1.2-3, *Runway 6R-24L RSA Improvements*).

1.3 Scope of Biological Assessment

The scope of the Biological Assessment is to evaluate the potential impacts of the proposed project at LAX on federally listed species and species proposed for listing as threatened and endangered species pursuant to the ESA. This Biological Assessment also takes into consideration proposed and designated critical habitat for federally listed species. Direct, indirect, and cumulative impacts resulting from construction, operation, and maintenance of the proposed project were evaluated for all federally listed species and species proposed for listing as threatened and endangered species potentially occurring at LAX. Impacts on other federally, state, or locally designated sensitive species were evaluated to determine if implementation of the proposed project could catalyze the need for federal listing of a species.

1.4 Species Considered

The list of species to be considered in this Biological Assessment was based on the results of a comprehensive literature review, discussion with knowledgeable individuals, field surveys, and a review of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB).[3]

1.5 Findings and Conclusions

As a result of the literature review, surveys were undertaken to assess the potential for the proposed project to affect 22 federally listed endangered, threatened, or candidate species with the potential to occur within the study area. Of the 22 species, 12 are plant species and were determined to be absent in the study area as a result of habitat assessment and focused surveys (Appendix A, *Other Sensitive Plant Species*).

The remaining 10 of the 22 are wildlife species. One of the 10 wildlife species, coastal California gnatcatcher (*Polioptila californica californica*), was determined to be potentially present in the study area because of the presence of marginally suitable nesting habitat for the species within the location for the proposed project. The remaining nine (9) wildlife species, including the El Segundo blue butterfly (*Euphilotes battoides allyni*), were determined to be absent in the study area because there is no suitable habitat for the species within the location for the proposed project.

Occupied habitat for El Segundo blue butterfly and coastal California gnatcatcher is located in open space, administered by LAWA, west of Pershing Drive in the El Segundo Blue Butterfly Habitat Restoration Area, approximately 0.1 miles south of the location of the study area. The El Segundo blue butterfly's host plant, coast buckwheat (*Eriogonum parvifolium*), was not observed within the study area and coastal California gnatcatcher were not observed within the study area during 2013 protocol surveys.

[3] California Department of Fish and Wildlife. 2014. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

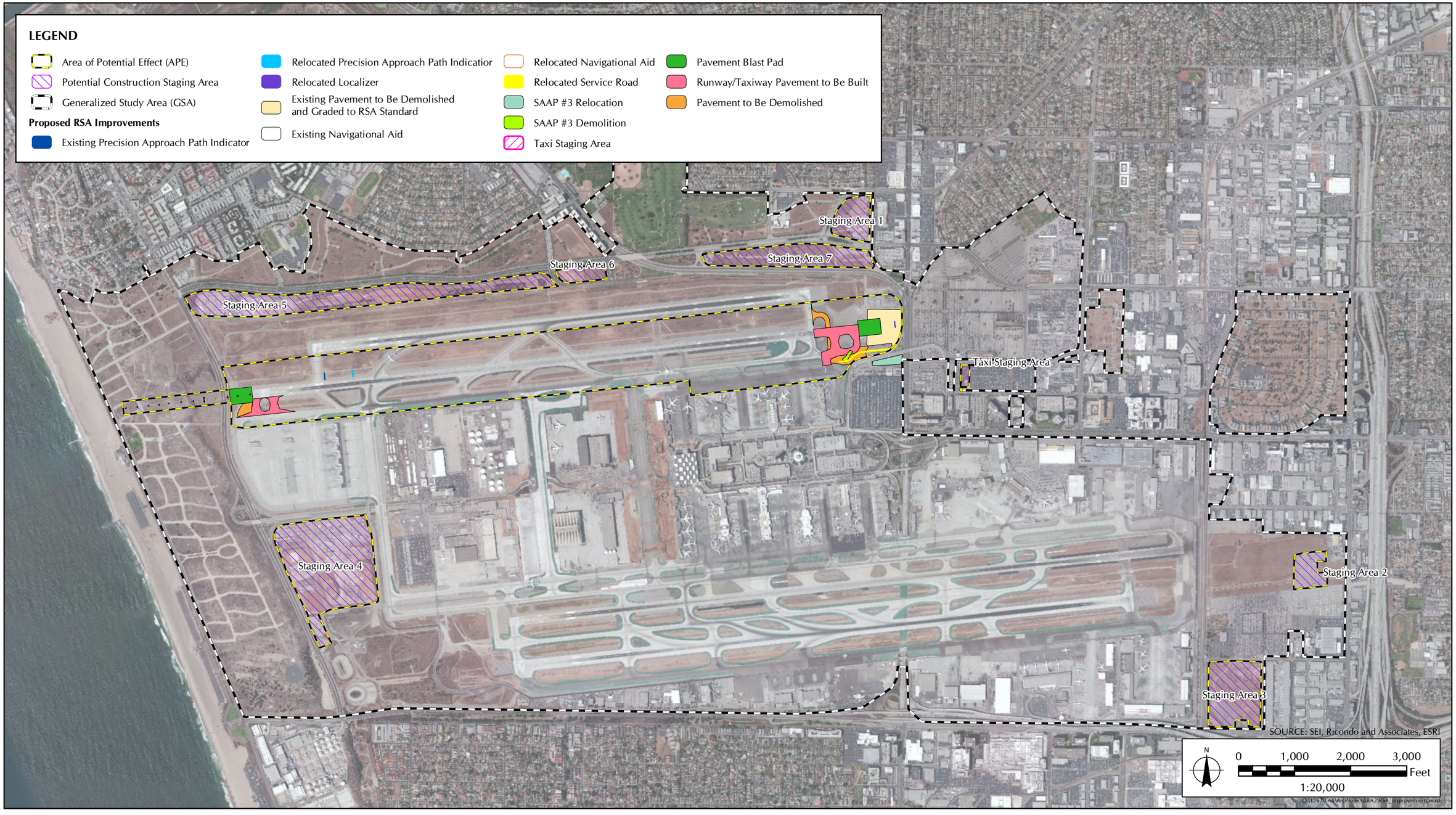


FIGURE 1.2-3

Runway 6R-24L RSA Improvements

Although El Segundo blue butterfly and coastal California were not observed in the study area, they may be affected if present at the time when construction activities are initiated and warrant the consideration of recommendations to ensure that they are avoided during the construction phase of the proposed project. Once construction of the proposed project is completed, there would be no effect on the El Segundo blue butterfly and minimal to no effect on coastal California gnatcatcher during the operations and maintenance phases of the proposed project due to the lack of potentially suitable habitat or presence of marginally suitable habitat within the area. The remaining eight (8) wildlife species were determined to be absent in the study area as a result of habitat assessment and focused surveys (Appendix B, *Other Sensitive Wildlife Species*).

There is one state-designated sensitive plant community, Silver Dune Lupine–Mock Heather Scrub (Southern Dune Scrub), in the study area. It is located in the portion of the study area west of Pershing Drive in the Los Angeles / El Segundo Dunes. Of the 8.46 acres of Silver Dune Lupine–Mock Heather Scrub within the study area, less than 0.01 acre will be permanently impacted and up to 0.12 acre will be temporarily impacted.

Two special status plant species were observed within the study area: Lewis' evening primrose (*Camissoniopsis lewisii*) and south coast branching phacelia *(Phacelia ramosissima* var. *austrolitoralis*). Although the study area does not include areas that are typically considered to be suitable habitat for the Lewis' evening primrose, the species was observed within disturbed / annual brome grassland, which accounts for 114.38 acres of the study area. There are 8.46 acres of suitable habitat in the form of Silver Dune Lupine–Mock Heather Scrub for the south coast branching phacelia within the study area. Although not afforded federal status pursuant to the federal Endangered Species Act, or state status under the California Endangered Species Act, these two plant species are designated as List 3 on the California Native Plant Society List of Rare and Endangered Plants. List 3 plants are those for which the California Native Plant Society has determined that additional information is needed.

One special status wildlife species, burrowing owl (*Athene cunicularia*), was observed in the study area at the northwestern-most staging area near the intersection of Northside Parkway and Westchester Parkway. The burrow associated with this observation will be avoided during construction activities. There are 155.93 acres of suitable habitat within the study area. Although not afforded federal status pursuant to the federal ESA, the CDFW has designated burrowing owl as a Species of Special Concern, and it is afforded additional protection pursuant to the Migratory Bird Treaty Act.

A pair of red foxes (*Vulpes vulpes*) along with their burrow was observed on the southeastern-most portion of the study area, which is located at the corner of Aviation Boulevard and Imperial Highway. Although a non-native species and not afforded federal status pursuant to the federal Endangered Species Act or state status pursuant to the California Department of Fish and Wildlife, the red fox is still afforded protection pursuant to the fur-bearing mammals act (California Fish and Game Code §4000–4012). LAWA will consult with the U.S. Department of Agriculture (USDA) Wildlife Services to manage red fox.

2.0 PROJECT DESCRIPTION

The study area consists of the paved Runway 6R-24L and shoulder areas, and includes taxiways and service roadways separated by unpaved sections of maintained grass and low scrub vegetation. The eastern portion of the study area includes two on-airport parking areas utilized for the staging of construction vehicles and other equipment used at LAX, a partially graveled area, and a grassy area at the east end of Runway 24R (Figure 1.2-2). This area also includes the Air Operations Area (AOA) fence and a service road (El Manor Drive, previously a residential street), both of which are located on airport property and are closed to the public. The western portion of the study area includes Medium Intensity Approach Lighting System with Runway Alignment Indicator (MALSR) instrumentation, associated with Runway 6R-24L, positioned on coastal dunes west of the runway.

LAWA is proposing to improve the RSA of Runway 6R-24L at LAX in response to *The Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act* (Public Law 109-115).[4] This act requires completion of RSA improvements by airport sponsors that hold a certificate under Title 14, CFR, Part 139, Certification and Operations: Land Airports Serving Certain Air Carriers; these improvements must comply with FAA design standards by December 31, 2015.

The components of the proposed project are:

Runway 6R

- Shift Runway 6R endpoint approximately 200 feet to the east; existing landing threshold would be shifted 420 feet to the east, resulting in an approximate 550-foot displaced threshold
  - Construct a blast pad 400 feet long and 280 feet wide
  - Construct retaining wall and add fill graded to RSA standards
  - Shift existing connector Taxiways E16 and E17 to the east
  - Construct new and rehabilitate existing runway and taxiway pavement, modify airfield signage, lighting, and markings
  - Relocate navigational aids, including the glide slope antenna, and precision approach path indicators (PAPI)
  - Abandon two approach light system (MALSR) stations and shift light stations to the east to coincide with existing light station locations

Runway 24L

- Shift Runway 24L endpoint by construction approximately 800 feet of new runway pavement to the east; landing threshold will remain in current location and pavement will be marked as a displaced threshold:
  - Shift Taxiway E endpoint approximately 500 feet to the east with 400-foot separation from the runway
  - Remove existing Taxiway E7 including the existing loop westbound that joins Taxiway V between Runways 24L and 24R
  - Construct new connector Taxiways E7 and E6

[4] *The Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), 30 November 2005.

- Construct new and rehabilitate existing runway and taxiway pavement, modify airfield signage, lighting and markings
- Relocate the existing ILS localizer antenna to the east
- Demolish and relocate existing Secure Area Access Post (SAAP) #3
- Protect in place existing storm sewer
- Relocate Air Operations Area (AOA) fence
- Construct 400-foot long jet blast pad; and
- Relocate taxicab holding/staging area and associated buildings

- Implement declared distances
- Extend and realign existing vehicle service road(s) south of Taxiway E, which will require closure of Alverstone Drive and Davidson Drive, as well as adjacent parking lot; remove and grade pavement within RSA

Shift Runway 6R End. Construction of the proposed project will require a shift of the Runway 6R end by approximately 200 feet to the east. The shift of the runway also requires shifts to taxiways, allowing aircraft to enter and exit the runway, and shifts to aircraft navigational aids that are fixed by function in relation to the runway threshold. LAWA proposes to remove existing Taxiways E16 and E17 that provide access to the existing end of Runway 6R and construct new taxiway connectors E16 and E17 to provide access to the shifted end of Runway 6R (Figure 1.2-2). The runway and taxiway lightings and markings associated with the end of Runway 6R will need to be modified to reflect the shift in the Runway 6R threshold. The shift in the Runway 6R threshold will require the relocation of portions of the instrument landing system (ILS) and approach lighting system, namely the glide slope antenna, PAPI, and MALSR.

MALSR. Construction activities for the proposed improvements, mainly modifications of the MALSR system, would occur in areas west of the runway, within the Los Angeles Airport/El Segundo Dunes, and north of the El Segundo blue butterfly occupied habitat. The required improvements would be designed to minimize disturbance of the Los Angeles Airport/El Segundo Dunes and are anticipated to include the following:

- Remove two approach light system (MALSR) stations and shift of light stations to the east coincident with existing light station locations to accommodate the proposed relocated runway end and approximate 550 foot displaced threshold;
  - The two western-most stations, including concrete pads and underground ducts, would be removed. Towers, lights and equipment control boxes and concrete pads would be removed. Concrete pads would be excavated and areas would be restored to natural habitat;
  - Relocate the "1,000-foot light bar" (supported by three separate towers) to a location immediately east of Pershing Drive (outside of the coastal zone). The northern and southern concrete pads which currently support the "1,000-foot light bar" would be excavated, removed and restored to native habitat. The central pad would be retained in order to support a new single-pole light station tower at this location; and
  - Pending funding approval, FAA will replace the entire approach light system (towers, lights and equipment control boxes) for Runway 6R. To the extent possible, FAA will utilize the existing concrete pads. However, FAA will need to replace the existing concrete support pads at three light stations, FAA has determined that only one light station will require an expansion of the existing concrete pad by approximately 1 square feet to provide foundation for a flasher control box.

Shift Runway 24L End. To maintain the existing runway length for departures (10,285 feet), LAWA proposes to shift the Runway 24L end by approximately 800 feet to the east, but in order to maintain the existing touchdown point on Runway 24R in the existing location, LAWA will also implement a displaced threshold of approximately 800 feet. The shift of the runway end results in the requirement to shift taxiways, allowing aircraft to enter and exit the runway, and to shift aircraft navigational aids that are fixed by function in relation to the runway threshold. The endpoint of Taxiway E will also be shifted 500 feet to the east. LAWA proposes to remove existing Taxiway E7 located east of the existing end of Runway 24L and construct new taxiway E7 and E6 (Figure 1.2-2). The taxiway lightings and markings associated with the end of Runway 24L will need to be modified to reflect the shift in the Runway 24L threshold. The shift in Taxiway E would impact the existing SAAP #3, which would fall within the Taxiway Object Free Area (TOFA). This will require the relocation of SAAP #3 which will remain in the general area, but details of the ultimate SAAP #3 site are dependent on the final design (Figure 1.2-2). With the eastern shift in the Runway 24L end and associated RSA, the Runway 6R ILS localizer also needs to be shifted to the east. The approach light system for Runway 24L will require modification and will be a combination of in-pavement fixtures and elevated fixtures.

Declared Distances. Declared distances are "the distances the airport operator declares available and suitable for satisfying an aircraft's takeoff run, takeoff distance, accelerate-stop distance, and landing distance requirements."[5] The FAA defines four types of declared distances: the Take-Off Run Available (TORA), the Take-Off Distance Available (TODA), the Accelerate-Stop Distance Available (ASDA), and the Landing Distance Available (LDA).[6] Aircraft operators use these declared distances, along with weather data, aircraft performance characteristics, and market segments for flight planning, including the determination of payload and range restrictions. Pilots and airplane operators' performance engineers need this information for calculating their allowable takeoff and landing weights and speeds.[7] Essentially, declared distances represent the maximum runway distances available to safely takeoff or reject a takeoff (TORA, TODA, and ASDA), or to land (LDA). Shortening the usable runway length would allow for the full RSA dimensions to be available in the event of an aircraft's excursion from the runway during an overrun, undershoot, or veer-off.

Service Roads. Portions of service roads currently located within the 6R-24L RSA would be relocated or realigned in order to meet RSA standards and to ensure that service vehicles operate outside of the RSA. An existing vehicle service road located southeast of Taxiway E would be relocated and realigned east around the shifted RSA. This would require closure of LAWA-owned Alverstone Drive and Davidson Drive (which are closed to the public), as well as the taxicab staging lot. It is assumed that the existing pavement located within the shifted RSA will need to be demolished and the area graded to meet RSA grading standards. The AOA fence would need to be relocated along the southeastern portion of the north runway complex in order to accommodate the realigned service roads described above. The AOA fence realignment is depicted on Figure 1.2-2.

[5] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.

[6] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.

[7] U.S. Department of Transportation, Federal Aviation Administration, CERTALERT, *Reporting Declared Distances to Aeronautical Information Services*, March 6, 2009.

The realignment of service roads and the AOA fence outside the RSA along the eastern side of the north runway complex, along with the relocated Runway 6R ILS Localizer, would make it necessary to close the taxi and shuttle staging area, located east of Runway 6R-24L. This parking area is located inside the LAX property boundary, east of Alverstone Drive, and is used for taxi and shuttle staging; it is not open to the public. This parking area totals approximately 95,500 square feet in area and contains paved surface parking; the pavement would be demolished and graded to RSA standards (Figure 1.2-2). The taxicab holding lot would be relocated to an existing LAWA-owned parking lot located between West 96th Street and West 98th Street, approximately 200 feet east of Vicksburg Avenue.

Construction Staging Areas. Construction staging areas would be necessary due to the limited space available for storage of materials and equipment within the airfield area. Locations of the potential construction staging areas for this project are illustrated in Figure 1.2-2. Only a portion of these construction staging areas would be used during construction of the proposed project. However, specific construction staging areas for this proposed project have not been determined at the present time; therefore, all potential staging areas are being considered in this analysis. Construction staging areas would be located in previously disturbed areas and would result in minimal ground disturbance.

2.1 Surrounding Land Uses and Constraints

LAX is bounded on the north by the communities of Westchester and Playa del Rey; on the south by Imperial Highway, the City of El Segundo, and the community of Del Aire in unincorporated Los Angeles County; on the east by Aviation Boulevard, the City of Inglewood, and the community of Lennox in unincorporated Los Angeles County; on the west by Vista del Mar Street, Dockweiler State Beach, and the Santa Monica Bay.

The communities surrounding LAX constitute a diverse mix of land uses. The predominant land use is residential to the north and primarily commercial/industrial to the east. In general, this tends to be low-density, single-family residential development, supported by a full range of neighborhood and regional commercial and institutional uses. There are large areas of mixed single-family and multifamily uses in the City of Hawthorne and the unincorporated County area known as Lennox. Concentrations of multifamily residential areas are located in the Cities of El Segundo and Inglewood and the southwestern portion of Westchester and the Playa del Rey area of the City of Los Angeles. Commercial uses generally occur as strip development along the major streets. Industrial uses are clustered adjacent to LAX, particularly within the City of El Segundo. Industrial and public land uses are scattered throughout the entire area.

Below are the primary communities surrounding LAX by area:

North/Northeast:

- The City of Los Angeles encompasses 302,596 acres with a 2010 resident population of 3,792,627.
- The Westchester / Playa del Rey area of the City of Los Angeles directly borders LAX property to the north, west, and east. This area encompasses 9,281 acres with a 2010 resident population of 60,000.

South/Southeast/Southwest:

- The City of El Segundo is located adjacent to the southern boundary of LAX. El Segundo encompasses 3,495 acres with a 2010 resident population of 16,654.

- The City of Hawthorne is located approximately 1 mile southeast of LAX. Hawthorne encompasses 2,752 acres with a 2010 resident population of 84,293.

- Del Aire is an unincorporated area of Los Angeles County located directly south of LAX, east of Aviation Boulevard, between the City of El Segundo to the west and south and the City of Hawthorne to the east. Del Aire encompasses 530 acres with a 2010 resident population of 10,001.

- The City of Los Angeles operates two facilities in the area to the south and southwest of LAX: the Hyperion Sewage Treatment Plant located immediately south of the Restoration Area and the Los Angeles Department of Water and Power Scattergood Generating Station. In addition, a Southern California Edison generating station and a coastal portion of the Chevron refinery are located in this area.

East:

- The City of Inglewood is located adjacent to the east boundary of LAX, partially beneath the flight approach paths for LAX. Inglewood encompasses 5,664 acres with a 2010 resident population of 109,673.

- Lennox is an unincorporated area of Los Angeles County located directly east of the LAX south runway complex. Lennox encompasses 800 acres with a 2010 resident population of 22,753.

West/Dunes/Coast:

- West and southwest of LAX, most of the coastline is occupied by the City of Los Angeles. Immediately to the west of the LAX airfield and west of Pershing Drive lies the 307-acre Los Angeles/El Segundo Dunes area. The El Segundo Blue Butterfly Habitat Restoration Area (Restoration Area) makes up approximately 200 acres of the Los Angeles/El Segundo Dunes area (the southern two-thirds), serving as habitat for the federally listed endangered El Segundo blue butterfly (*Euphilotes battoides allyni*) and its host food plant, coast buckwheat (*Eriogonum parvifolium*).[8,9] The remaining 100 acres are north of the Restoration Area and are zoned for a restricted open space land use (nature preserve and accessory uses only). Dockweiler State Beach, located directly west of LAX along the Pacific Ocean, is a 3.7-linear-mile, 288-acre, sandy beach with public use amenities. Built improvements include 1,440 parking spaces on 19 acres of paved lots; a 118-space, 5-acre, recreational vehicle (RV) park; 12 restrooms; playground equipment;

[8] United States Fish and Wildlife Service. 1977. *Proposed Determination of Critical Habitat for Six Butterflies and Two Plants*. Washington D.C. Available at http://ecos.fws.gov/docs/federal_register/fr11.pdf

[9] United States Fish and Wildlife Service. 1998. *Recovery Plan for the El Segundo Blue Butterfly (Euphilotes battoides allyni)*. Washington D.C. Available at http://www.fws.gov/ecos/ajax/docs/recovery_plan/980928d.pdf

volleyball courts; bicycle path; picnic area; concession stand; and lifeguard facilities.

3.0 STUDY METHODS

3.1 Database Searches

Prior to conducting the field survey, database and literature searches were performed to inform the survey. Database searches were conducted to compile a list of sensitive plants and wildlife with the potential to be present within the study area. A search was conducted of the CNDDB and the California Native Plant Society (CNPS) Online Inventory for the USGS 7.5-minute series topographic quadrangle in which the study area is located (Venice), as well as those that are adjacent to the study area (Beverly Hills, Hollywood, Inglewood, Torrance, and Redondo Beach) to determine reported occurrences of rare, threatened, and endangered species.[10,11] Previously recorded species, as taken from the LAX Master Plan, LAX Specific Plan Amendment Study (SPAS), and Runway 6L-24R and Runway 6R-24L Runway Safety Area and Associated Improvements Project EIR, were included in the compiled list.[12,13,14,15] This list of species was evaluated with respect to the habitats present at the study area. Species not expected to occur at the property were identified on the list of species to be evaluated, and the remainder were considered to be potentially present. Critical habitat data, as determined by the U.S. Fish and Wildlife Service (USFWS), were searched to determine the proximity of critical habitat to the study area.[16] *The Jepson Manual* was consulted for detailed biological, distributional, and phenological information, and was used as a standard for nomenclature.[17]

3.2 Plant Communities

The evaluation of plant communities was undertaken in a two-phase effort consisting of a preliminary in-house mapping effort, followed by verification and refinement of plant community mapping in the field. The description of plant communities followed the classification system provided in *A Manual of California Vegetation*.[18] Botanical names and common names followed *The Jepson Manual*. The field verification was conducted by a team of two biologists, a wildlife

[10] California Department of Fish and Wildlife. 2013. Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database. Sacramento, CA. Available at http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[11] California Native Plant Society. 2013. *Inventory of Rare and Endangered Plants*, online ed., version 8-02. Sacramento, CA. Available at: http://www.rareplants.cnps.org/

[12] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[13] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Final EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[14] Los Angeles World Airports. 2012. *Los Angeles International Airport Specific Plan Amendment Study Project – Mitigation Monitoring and Reporting Program*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[15] United States Department of Transportation, Federal Aviation Administration and City of Los Angeles, Los Angeles World Airports. 2004. *LAX Master Plan EIS/EIR*. Available at: http://www.ourlax.org/pub_finalMP.aspx

[16] United States Fish and Wildlife Service. 2013. Critical Habitat Mapper. Washington D.C. Available at http://criticalhabitat.fws.gov/crithab/flex/crithabMapper.jsp?

[17] Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, eds. 2012. *The Jepson Manual: Vascular Plants of California,* 2nd Ed. Berkeley, CA: University of California Press.

[18] Sawyer, J.O., T. Keeler-Wolf and J.M. Evans. 2009. *A Manual of California Vegetation,* 2nd Ed. Sacramento, CA: California Native Plant Society.

biologist and a botanist, and supported by a geographic information systems (GIS) specialist on May 8, June 14, December 18, 2013, and August 21, 2014. During plant community mapping, existing roads and other man-made facilities were mapped as developed.

3.3 Special Status Plant Surveys

Concurrent with the field verification of the plant community map, a special status plant survey was conducted along project elements to determine the presence or absence of individuals and habitat potentially suitable for supporting the target special-status plant species identified through the CNDDB and CNPS search and literature review. The habitat assessment served as the tool for identification of areas within the study area with the potential to support sensitive and non-status occurring plant species. During field visits, observations of special-status plant species were recorded on aerial photographs and the locations recorded on global positioning system (GPS) units. The results of the field mapping were incorporated into the plant community map and special status map using GIS. An inventory of all plant species observed was compiled into the floral compendia (Attachment A-1).

3.4 General Wildlife Surveys

General wildlife surveys were conducted on May 8, June 17, December 18, 2013, and August 21, 2014, between the hours of 7:00 a.m. and 3:00 p.m. within the study area. Weather conditions ranged from cloudy to partially sunny, with temperatures ranging from 58 degrees to 76 degrees Fahrenheit. The field surveys were conducted by a botanical specialist and a wildlife biologist. Survey personnel were experienced in the undertaking of biological field surveys and knowledgeable of the identification and ecology of target sensitive species. The biological resources surveys were conducted by walking all accessible areas anticipated to be affected by the proposed project. Surveyed areas were limited to non-paved areas (Figure 3.4-1, *2013 Survey Area*). The survey area was identified to assess all areas that could be potentially affected by the proposed project. Because the study area includes an active Aircraft Movement Area with frequent arrivals of turbojet aircraft on Runway 6R-24L and taxiing on the taxiways, several portions of the study area could not be thoroughly inspected during the surveys; instead, these areas were surveyed by sight with the naked eye as well as binoculars. All plants and wildlife encountered during the surveys were identified to the lowest taxonomic level possible, including that level necessary for a sensitive species determination. An inventory of all wildlife species observed was compiled into the faunal compendia (attached in Attachment B-1).

The survey team was equipped with a GPS unit for mapping the location of any potential sensitive biological resource. If observed, any sensitive species encountered was immediately mapped as a point. The location points were later digitized onto a GIS overlay to produce a map of the distribution of sensitive species observations. Observation data were recorded on California Native Species Field Survey Forms to be submitted to the CNDDB upon completion of the final survey report. Representative photographs were taken of each sensitive species encountered.

Several field guides were carried for reference during the survey, including *The Jepson Manual*, the *Sibley Guide to Birds*, and *Field Guide to Amphibians and Reptiles of California*.[19,20] Additional

[19] Sibley, D.A. *The Sibley Guide to Birds*. 2000. Alfred A. Knopf. New York, NY.

[20] Stebbins, R.C. and S.M. McGinnis. 2012. *Field Guide to Amphibians and Reptiles of California Revised Edition*. University of California Press. Berkeley, CA.

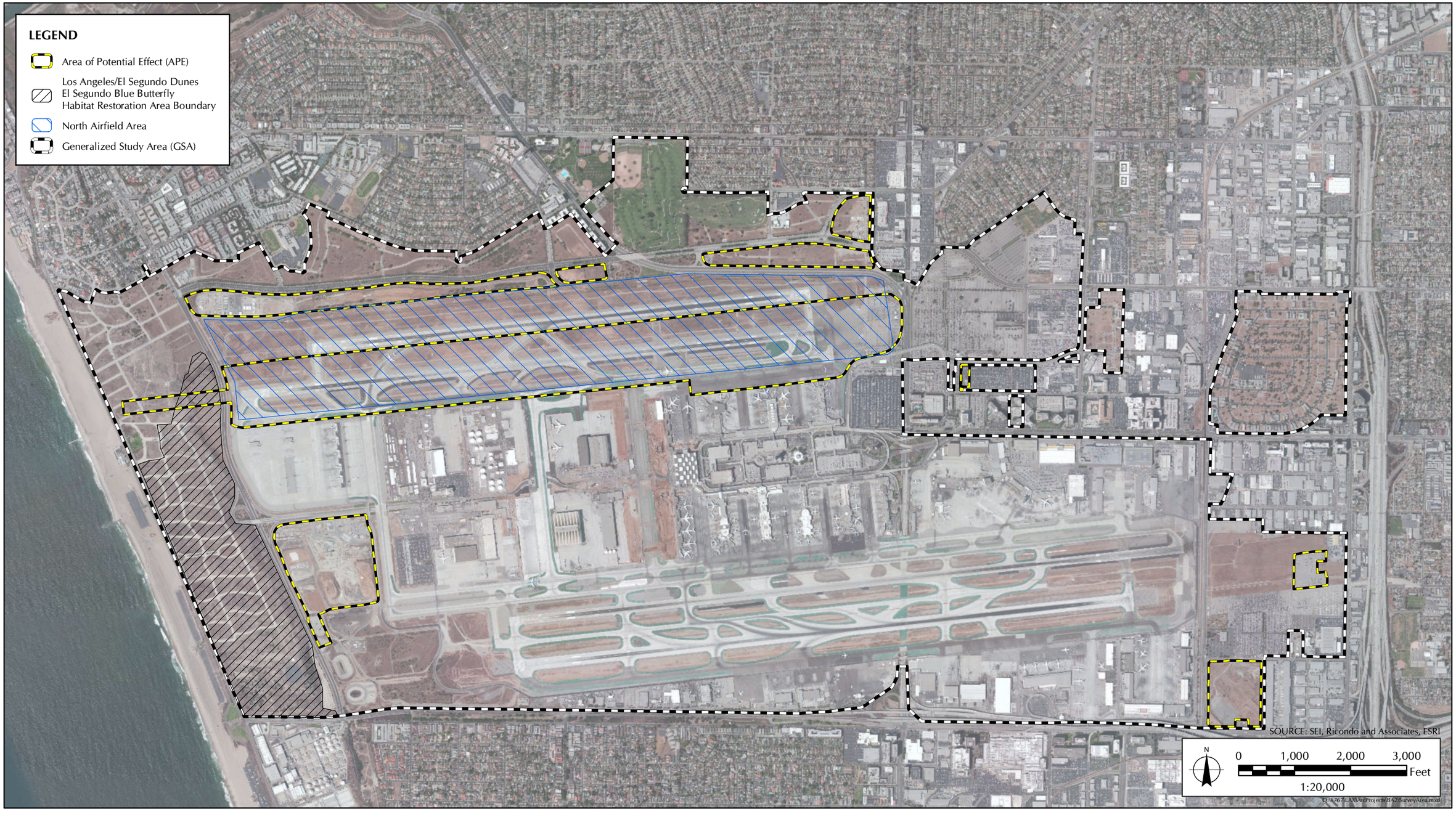


FIGURE 3.4-1
2013 Survey Area

guides used to help identify observed wildlife species included the *National Audubon Society Field Guide to North American Mammals* and the *National Audubon Society Field Guide to North American Reptiles and Amphibians*.[21,22]

3.5 Wetlands and Waters of the United States

USGS topographical maps and National Wetlands Inventory (NWI) maps were reviewed to identify areas potentially subject to the jurisdiction of U.S. Army Corps of Engineers (USACOE), Regional Water Quality Control Board (RWQCB), and CDFW.[23] Features identified as blue-line drainages on the topographical maps or wetland features on the NWI were analyzed for jurisdiction by the USACOE under Section 404 of the Clean Water Act and for jurisdiction by the CDFW under Section 1600 of the State Fish and Game Code.

[21] Whitaker, J.O. *National Audubon Society Field Guide to North American Mammals*. 2005. Alfred A. Knopf. New York, NY.

[22] Whitaker, J.O. *National Audubon Society Field Guide to North American Reptiles and Amphibians*. 1998. Alfred A. Knopf. New York, NY.

[23] United States Fish and Wildlife Service. 2013. *National Wetlands Inventory*. Washington D.C. Available at http://www.fws.gov/wetlands/

4.0 EXISTING CONDITIONS

4.1 Los Angeles International Airport

LAX is located along the western margin of the Los Angeles Basin where the coastal plain approaches the Pacific Ocean. Historical land uses of the area were predominantly agricultural. In the early 1920s, the Bennett Rancho farmed soybeans on a 640-acre field, which was later leased by William M. Mines for use as an aircraft landing strip, which became known as Los Angeles Airport in 1941. Today, LAX constitutes a large industrial district presently made up of four parallel runways; domestic and international terminals; cargo areas; administrative and support facilities; and limited open space, including the 307-acre Los Angeles/El Segundo Dunes.

4.1.1 Study Area

The north Airfield Area, specifically Runway 6R-24L, is where most of the proposed project activities are proposed to occur. The study area is a highly developed area consisting of a paved runway, several paved taxiways and roads, dirt roads, and several semi-natural unpaved areas. Paved areas are frequently used by aircraft and support vehicles. Unpaved areas are located between runways and taxiways with larger unpaved areas occurring to the west and north of Runway 6R-24L, as well as in between the two runways and areas west of Pershing Drive. All unpaved areas within the north Airfield Area are annually or semiannually subject to wildlife hazards maintenance activities that include mowing, trimming, discing, and other vegetation removal procedures. Additional staging areas are located outside the north Airfield Area and consist of semi-natural unpaved areas, paved roads, and paved parking lots.

Up to 180.95 acres would be used for access, egress, staging and construction activities during construction of the Runway 6R-24L RSA improvements. Of the 180.95 acres that could be affected during construction, up to 180.21 acres would be temporarily impacted, and 0.74 acres would be permanently dedicated to the proposed project (Figure 1.2-3, *Runway 6R-24L RSA Improvements*).

4.2 Los Angeles/El Segundo Dunes

The 307-acre site known today as the Los Angeles/El Segundo Dunes housed 822 residences between 1945 and 1964, at which time they were included in the areas to be acquired by the Airport due to noise impacts. The site was once an extensive complex of coastal dune, coastal sage, coastal prairie, and coastal strand habitat fringing the Santa Monica Bay. Windblown sand deposits extend inland from the coast for up to 4 miles and underlie much of current LAX. These sandy deposits form soils quite distinct from the surrounding clay and silt-derived soils of the coastal plain and adjacent slopes. The sand dune system itself historically was known to support a distinctive flora, and the sand-derived soils inland from the dunes apparently supported a largely herbaceous grassland community. Distinctive fauna known to inhabit the dunes include the El Segundo blue butterfly (*Euphilotes battoides allyni*) and coastal California gnatcatcher (*Polioptila californica californica*) (Figure 4.2-1, *Occupied Habitat for El Segundo Blue Butterfly and Coastal California Gnatcatcher*).

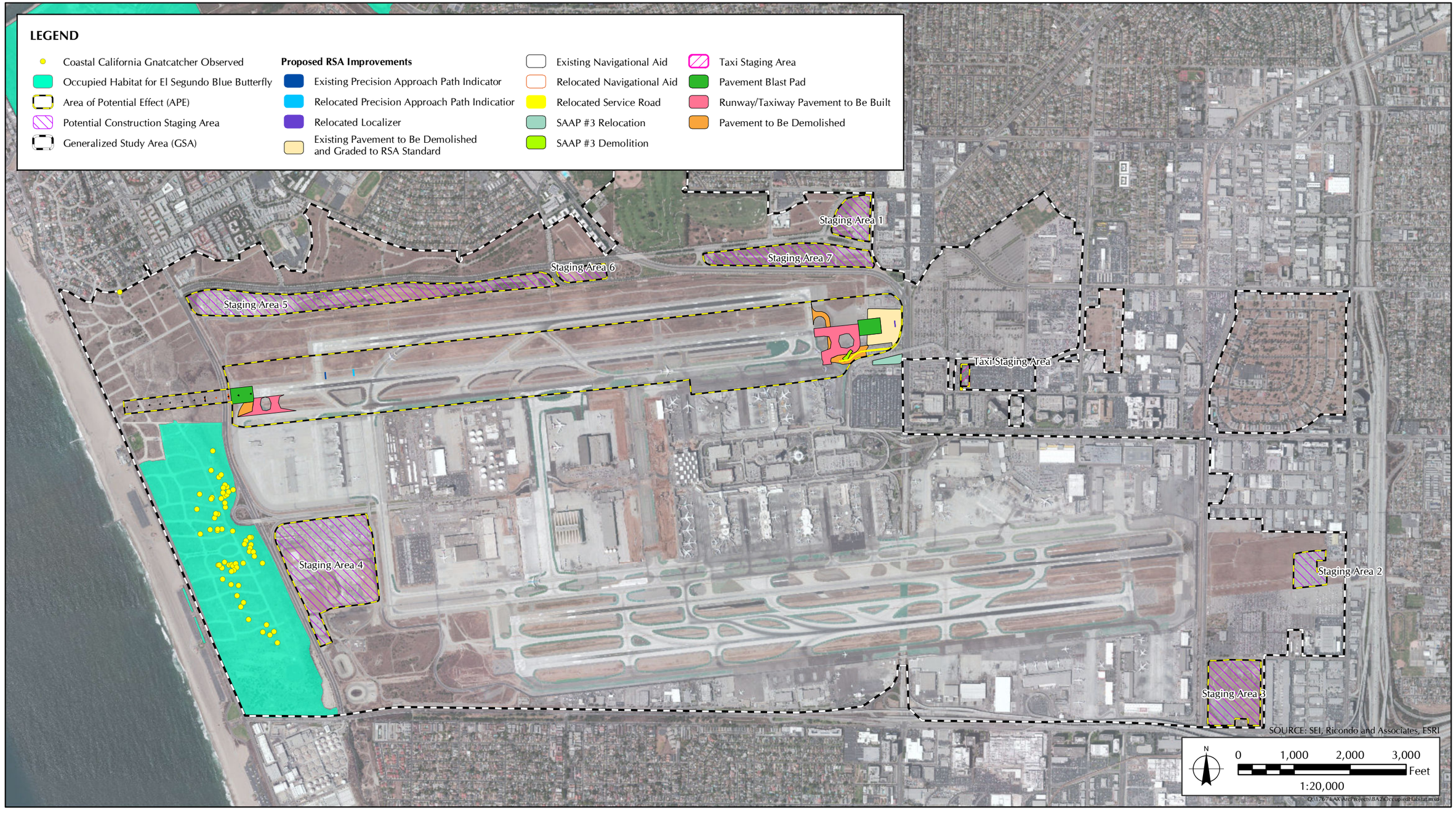


FIGURE 4.2-1

Occupied Habitat for El Segundo Blue Butterfly and Coastal California Gnatcatcher

In 1976, Los Angeles County designated the El Segundo Dunes as a Significant Ecological Area (SEA No. 28) and revised the Los Angeles County General Plan.[24] Two independent studies of El Segundo blue butterfly populations were performed in 1984, both indicating serious and deteriorating habitat conditions. After completion of detailed biological inventories and analysis in 1989,[25] the City adopted the concept and boundaries of the 200-acre El Segundo Blue Butterfly Habitat Restoration Area and initiated revisions to the Airport Dunes Specific Plan in 1991, indicating the habitat restoration area south of Ocean Vista Boulevard and a northern 100-acre parcel for a proposed golf course or other recreational uses (City of Los Angeles Ordinance No. 167940). The Airport Dunes Specific Plan was not approved by the California Coastal Commission, which required additional information before the approval could take place. Before this occurred, the City of Los Angeles protected the remaining 100 acres of the Los Angeles/El Segundo Dunes by restricting its use to nature preserve and accessory uses only (City of Los Angeles Ordinance No. 169767), thereby creating a contiguous 307-acre coastal dunes nature preserve.

The Los Angeles/El Segundo Dunes have been historically classified as a mixture of southern foredune (Dune Mat) and southern dune scrub (Silver Dune Lupine–Mock Heather Scrub). Dune Mat plant communities are typically dominated by perennial species with a high proportion of suffrutescent (slightly woody at base) plants up to 30 centimeters tall. Species such as sand verbena (*Abronia maritima*), beach bur (*Ambrosia chamissonis*), and the nonnative sea rocket (*Cakile* sp.) usually occur in exposed sites, and pink sand verbena (*Abronia umbellata*) and morning-glory (*Calystegia macrostegia* and *soldanella*) occur in less exposed sites.

Silver Dune Lupine–Mock Heather Scrub is a dense coastal scrub community of scattered shrubs, subshrubs, and herbs that are generally less than 1 meter in height, often developing considerable cover, and often succulent. Characteristic species include saltbush (*Atriplex leucophylla*), California croton (*Croton californicus*), coast goldenbush (*Isocoma menziesii* var. *vernonioides*), bush lupine (*Lupinus chamissonis*), prickly pear (*Opuntia littoralis*), and lemonade-berry (*Rhus integrifolia*).

4.3 Database Searches

As a result of the literature review and database searches, 96 sensitive plant and wildlife species were identified as having the potential to occur within the Venice USGS 7.5-minute series topographic quadrangle or adjacent quadrangles. Twenty-two of the 96 species identified during the database search are federally listed or candidate species. Twelve of the 22 species are plants (Appendix A):

- marsh sandwort (*Arenaria paludicola*)
- Braunton's milk-vetch (*Astragalus brauntonii*)
- Ventura Marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*)
- coastal dunes milk-vetch (*Astragalus tener* var. *titi*)
- San Fernando Valley spineflower (*Chorizanthe parryi* var. *Fernandina*)

[24] Los Angeles County Department of Regional Planning. 2012. *Draft General Plan 2035*. Available at: http://planning.lacounty.gov/generalplan/draft2012

[25] City of Los Angeles, Department of Airports (DOA). 1990. *Species Diversity and Habitat Evaluation Across the El Segundo Sand Dunes at LAX*. Prepared by Mattoni, R.H.T., Agresearch, Inc. Prepared for: Los Angeles Environmental Affairs Department. The Board of Airport Commissioners, One World Way West, Los Angeles, California 90009.

- salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*)
- Santa Monica dudleya (*Dudleya cymosa* ssp. *ovatifolia*)
- Gambel's water cress (*Nasturtium gambelii*)
- spreading navarretia (*Navarretia fossalis*)
- California orcutt grass (*Orcuttia californica*)
- Lyon's pentachaeta (*Pentachaeta lyonii*)
- Brand's star phacelia (*Phacelia stellaris*)

Ten of the 22 species are wildlife species (Appendix B):

- El Segundo blue butterfly (*Euphilotes battoides allyni*)
- Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*)
- southern steelhead – Southern California DPS (*Oncorhynchus mykiss irideus*)
- Mohave tui chub (*Siphateles bicolor mohavensis*)
- western snowy plover (*Charadrius alexandrinus nivosus*)
- southwestern willow flycatcher (*Empidonax traillii extimus*)
- coastal California gnatcatcher (*Polioptila californica californica*)
- California least tern (*Sternula antillarum browni*)
- least Bell's vireo (*Vireo bellii pusillus*)
- Pacific pocket mouse (*Perognathus longimembris pacificus*)

There is no designated critical habitat or areas proposed for designation for critical habitat for federally listed plants within the study area (Appendix A). Critical habitat was identified for four plant species within 50 miles of the study area: Braunton's milk-vetch, Ventura Marsh milk-vetch, spreading navarretia, and Lyon's pentachaeta.

There is no designated critical habitat or areas proposed for designation for critical habitat for federally listed wildlife within the study area (Appendix B). Critical habitat was proposed for the El Segundo blue butterfly in 1997 in the Los Angeles/El Segundo Dunes but was never adopted. Critical habitat was identified for seven wildlife species within 35 miles of the study area: El Segundo blue butterfly, Palos Verdes blue butterfly, southern steelhead, western snowy plover, southwestern willow flycatcher, coastal California gnatcatcher, and least Bell's vireo.

4.4 Plant Communities

Four distinct plant communities were identified within the study area: Silver Dune Lupine–Mock Heather Scrub, Perennial Ryegrass Field, disturbed / Annual Brome Grassland, and disturbed vegetation. The remainder of the area is developed and was categorized into three mapping units: ornamental plantings, active construction area, and developed areas (Figures 4.4-1A through 4.4-1D, *Plant Community Map*). Developed areas include paved areas, buildings, and other man-made structures.

Silver Dune Lupine–Mock Heather Scrub

The approximately 8.46 acres located at the westernmost end of the study area and west of Pershing Drive were classified as Silver Dune Lupine–Mock Heather Scrub (Figure 4.4-1D, *Plant Community Map*). This area encompassed an area historically disturbed by residential uses and was dominated by a mix of mock heather (*Ericameria ericoides*) and silver dune lupine (*Lupinus*

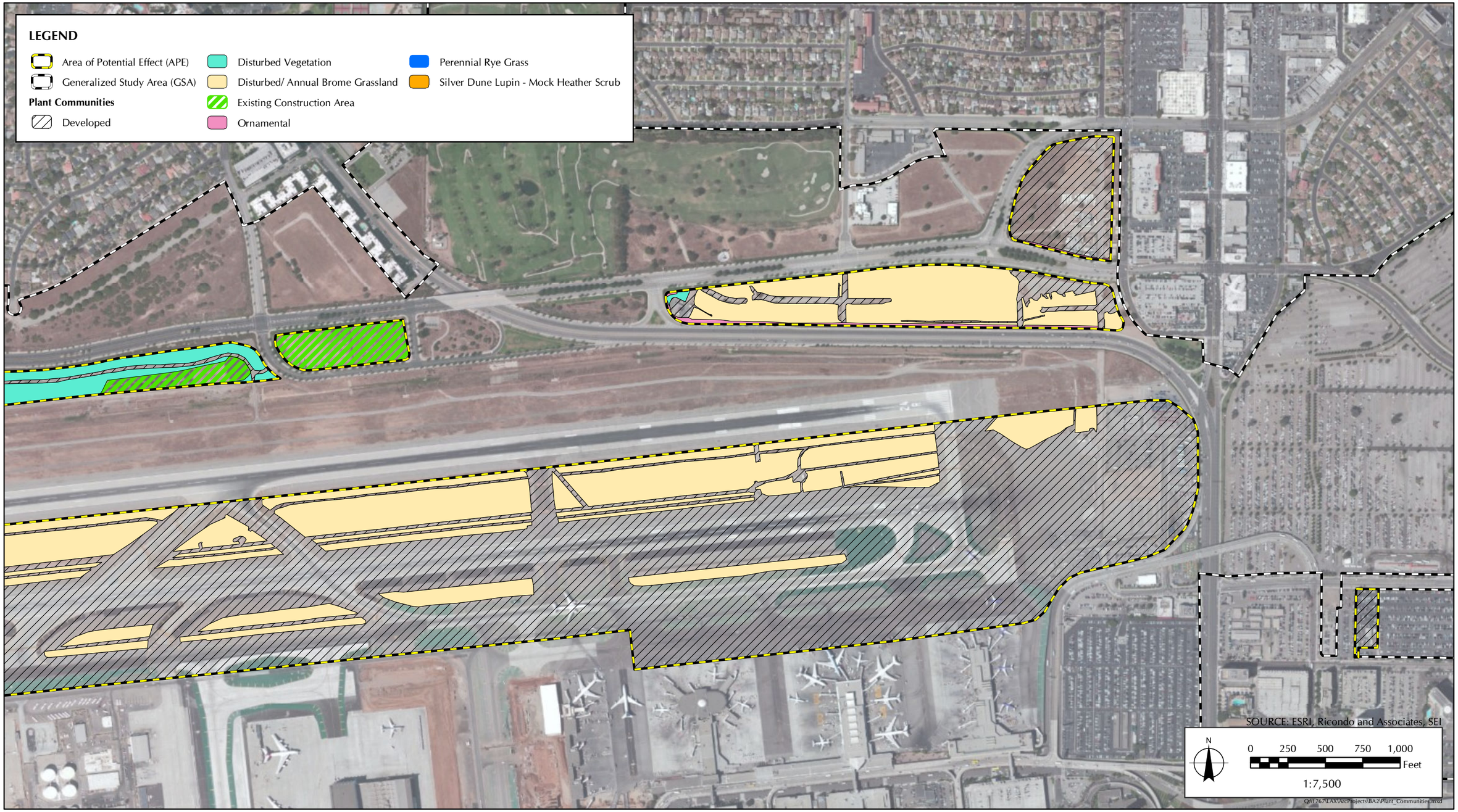
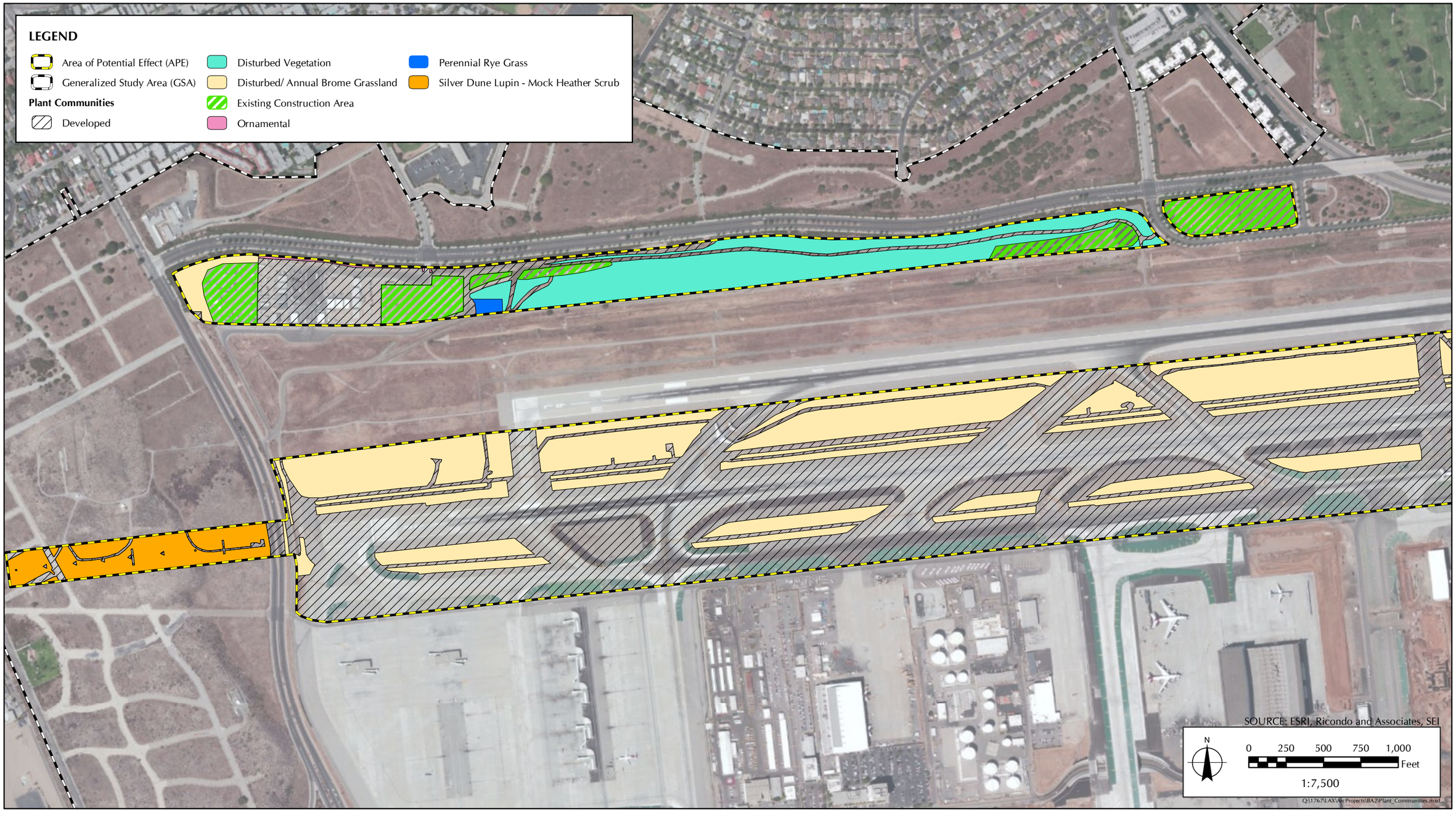


FIGURE 4.4-1A

Plant Community Map



RICONDO & ASSOCIATES

FIGURE 4.4-1B

Plant Community Map

FIGURE 4.4-1C

Plant Community Map

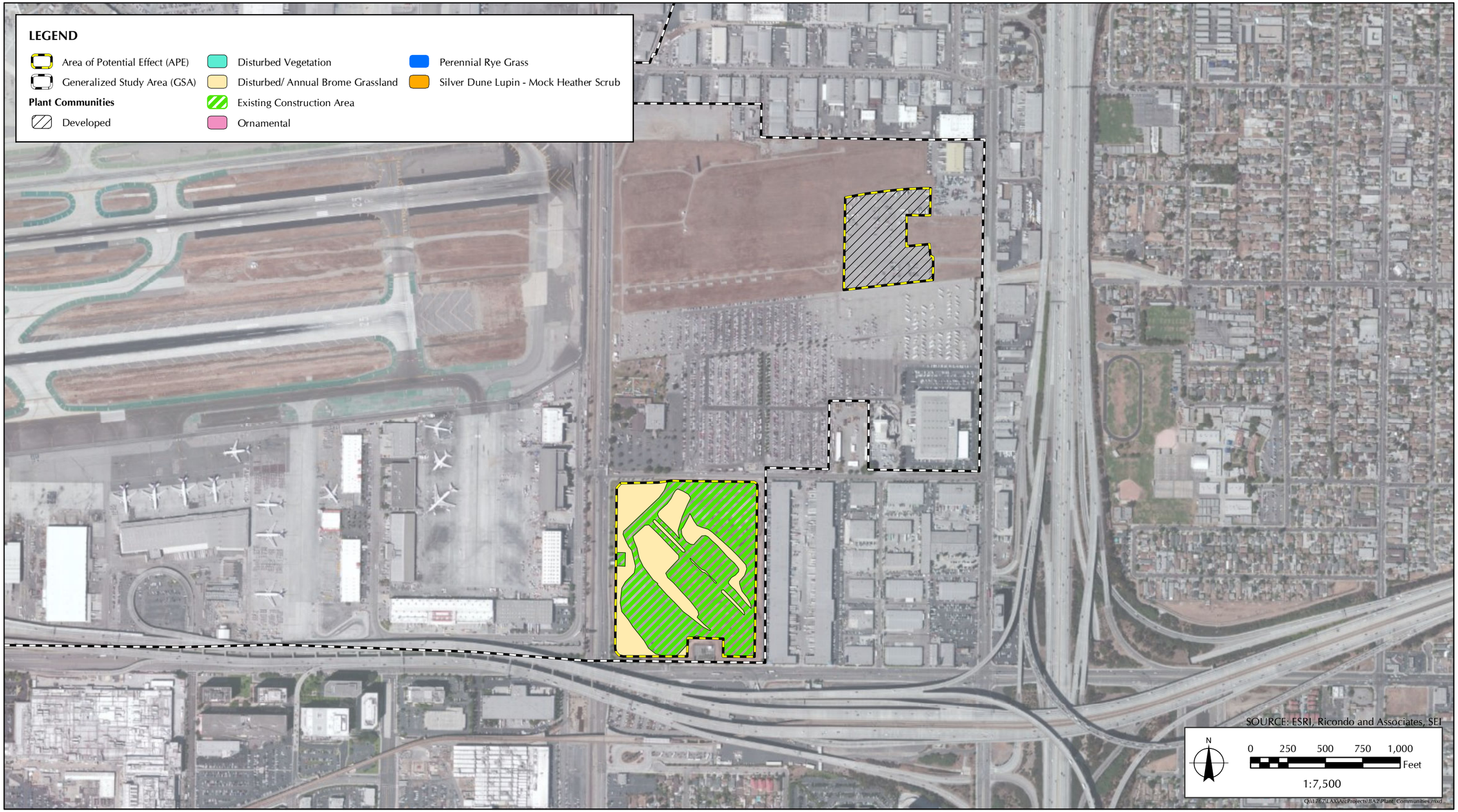


FIGURE 4.4-1D

Plant Community Map

chamissonis) (Figure 4.4-2, *Site Photographs, Silver Dune Lupine–Mock Heather Scrub*). Coast buckwheat was absent from this plant community within the study area. The overall plant community contains several non-native species, most likely due to the historical disturbance regime. This community corresponds to the *Lupinus chamissonis–Ericameria ericoides* Alliance (32.160.03), which has a global and state rarity ranking of 3.[26,27] This plant community may also be classified as Southern Dune Scrub (21330), which has the most sensitive plant community ranking, a global and state ranking of 1. According to CDFW, only plant communities with a ranking of S1, S2, or S3 are considered a sensitive plant community, with a ranking of S1 being the most sensitive rank. A plant community with a rank higher than S3 is not considered a sensitive plant community. The Los Angeles/El Segundo Dunes are virtually the only remaining example of Southern Dune Scrub in mainland Southern California.

Disturbed / Annual Brome Grassland

Vegetation characteristic of disturbed / Annual Brome Grassland areas can be seen in the large open space area west of and surrounding the runway. Although consistently maintained, vegetation has become established due to the lack of continuous soil impacts. There are approximately 114.38 acres of disturbed / Annual Brome Grassland plant community in this area. Plant species associated with disturbed / Annual Brome Grassland plant community were primarily annual non-native species, which included hottentot fig (*Carpobrotus edulis*), redstem filaree (*Erodium cicutarium*), wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis*), and perennial rye-grass (*Lolium multiflorum*) (Figure 4.4-3, *Site Photographs, Disturbed / Annual Brome Grassland*). Vegetation in disturbed / Annual Brome Grassland areas has been and will continue to be routinely maintained or removed as part of the LAWA's ongoing program to prevent wildlife hazardous to aircraft operations from entering the airfield.

Perennial Ryegrass Field

Approximately 0.42 acres of the study area was classified as Perennial Ryegrass Field (Figure 4.4-1). This plant community was confined to a small area north of the Argo Ditch and was dominated by perennial rye-grass (*Festuca perrenis*) (Figure 4.4-4, *Site Photographs, Perennial Ryegrass Field*). This community corresponds to the *Festuca perennis* Semi-natural Stands (41.321.00), which does not have a global or state rarity ranking.[28] This plant community may also be classified as Non-native Grassland (42200). According to CDFW, only plant communities with a ranking of S1, S2, or S3 are considered to be a sensitive plant community, with a ranking of S1 being the most sensitive rank. A plant community with a rank higher than S3 is not considered a sensitive plant community.

[26] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[27] California Native Plant Society. 2013. *The CNPS Ranking System*. Available at: http://www.cnps.org/cnps/rareplants/ranking.php

[28] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

PHOTO 1

FIGURE 4.4-2
Site Photographs, Silver Dune Lupine-Mock Heather Scrub

PHOTO 2

FIGURE 4.4-2
Site Photographs, Silver Dune Lupine-Mock Heather Scrub

PHOTO 1

PHOTO 2

FIGURE 4.4-3
Site Photographs, Disturbed / Annual Brome Grassland

FIGURE 4.4-4
Site Photographs, Perennial Ryegrass Field

Disturbed Vegetation

Vegetation characteristic of disturbed vegetation areas can be seen in small patches outside runway areas. Soil in disturbed vegetation areas has been frequently and recently placed, moved, or removed in disturbed areas. There are approximately 32.67 acres of disturbed vegetation plant community in this area. Plant species associated with disturbed vegetation plant community were primarily annual non-native species, which included redstem filaree (*Erodium cicutarium*), wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis*), and telegraph weed (*Heterotheca grandiflora*) (Figure 4.4-5, *Site Photographs, Disturbed Vegetation*). Vegetation in disturbed vegetation areas has been and will continue to be routinely maintained, removed, or covered as part of the ongoing airport construction activities.

Ornamental

Approximately 2.07 acres of the study area were classified as ornamental (Figure 4.4-1). These areas were confined to areas along paved city streets and included ornamental plants typically found in landscaping including oleander (*Nerium oleander*) and Mexican fan palm (*Washingtonia robusta*) (Figure 4.4-6, *Site Photographs, Ornamental*).

Existing Construction Area

Existing construction areas within the study area occupy approximately 61.7 acres and consist of existing staging areas or other areas where construction activities are currently taking place (Figure 4.4-7, *Site Photographs, Existing Construction Area*). The grading, excavating, or movement of construction equipment within this community makes it difficult for vegetation to establish.

Developed

Developed areas within the study area occupy approximately 300.66 acres and consist of paved areas and man-made structures such as runways; taxiways; roads; buildings; airfield signage; navigational equipment; and runway, taxiway, and airfield lighting (Figure 4.4-8, *Site Photographs, Developed*). The hardscape associated with this community make it unsuitable to support vegetation.

4.5 Plants

Seventy-four plant species from 28 families were identified during the survey. Thirty-six of the identified plant species are native to California, with the remaining 38 plant species being non-native (Attachment A-1, *Floral Compendium*). Non-native plants dominated most of the surveyed area in and around the runways and staging areas, with native patches occurring west of Pershing Drive. This may be due to the continual disturbance regime that occurs throughout the study area and the Los Angeles/El Segundo Dunes being protected as a Significant Ecological Area and Habitat Restoration Area. Human presence is limited to authorized personnel throughout the study area and frequent in the portion east of Pershing Drive. Human presence is infrequent in the portion of the study area west of Pershing Drive in the Los Angeles/El Segundo Dunes.

PHOTO 1

PHOTO 2

FIGURE 4.4-5
Site Photographs, Disturbed Vegetation

PHOTO 1

FIGURE 4.4-6
Site Photographs, Ornamental

PHOTO 2

FIGURE 4.4-6
Site Photographs, Ornamental

PHOTO 1

PHOTO 2

FIGURE 4.4-7
Site Photographs, Existing Construction Area

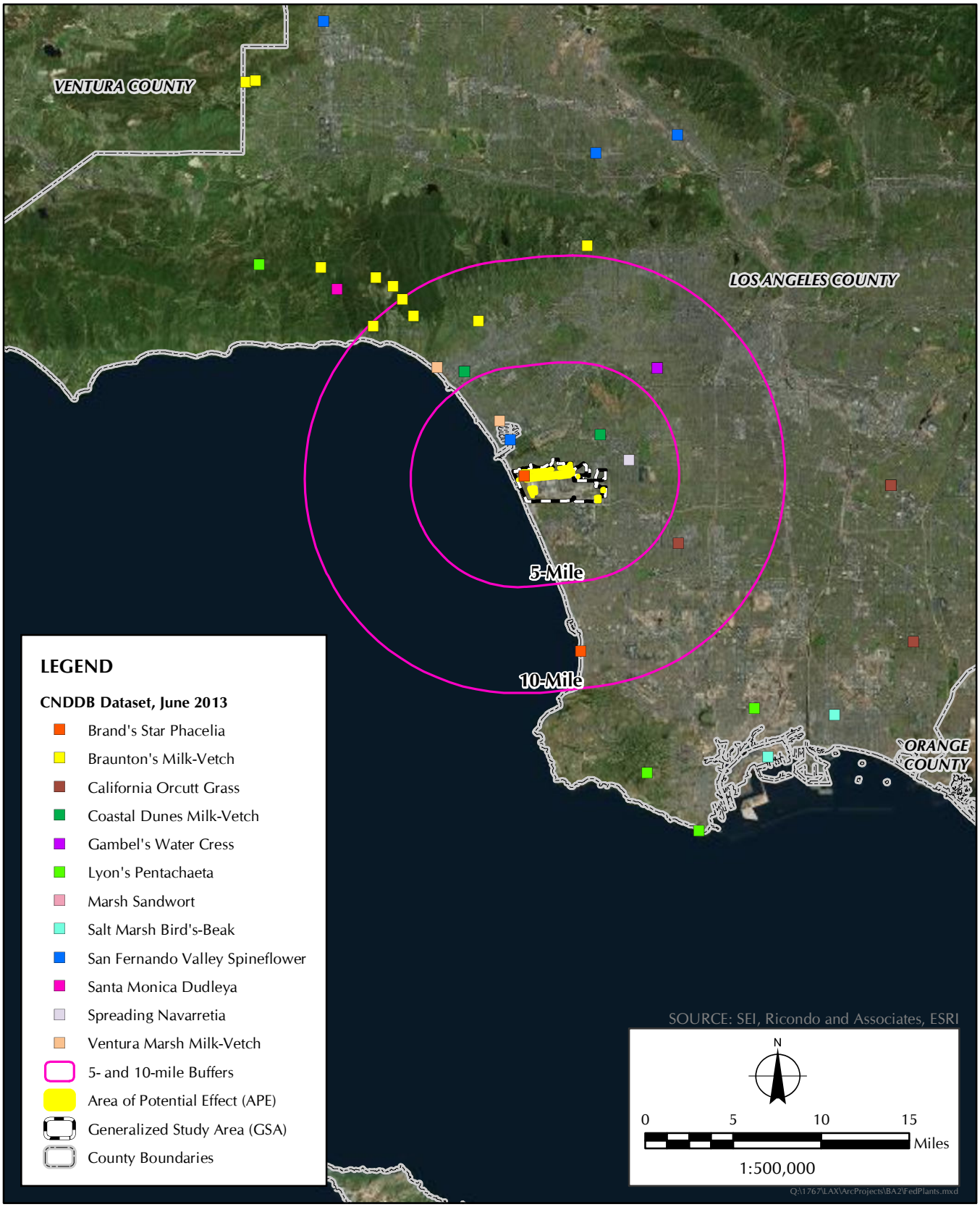
PHOTO 1

PHOTO 2

FIGURE 4.4-8
Site Photographs, Developed

4.6 Federally Listed and Candidate Plant Species

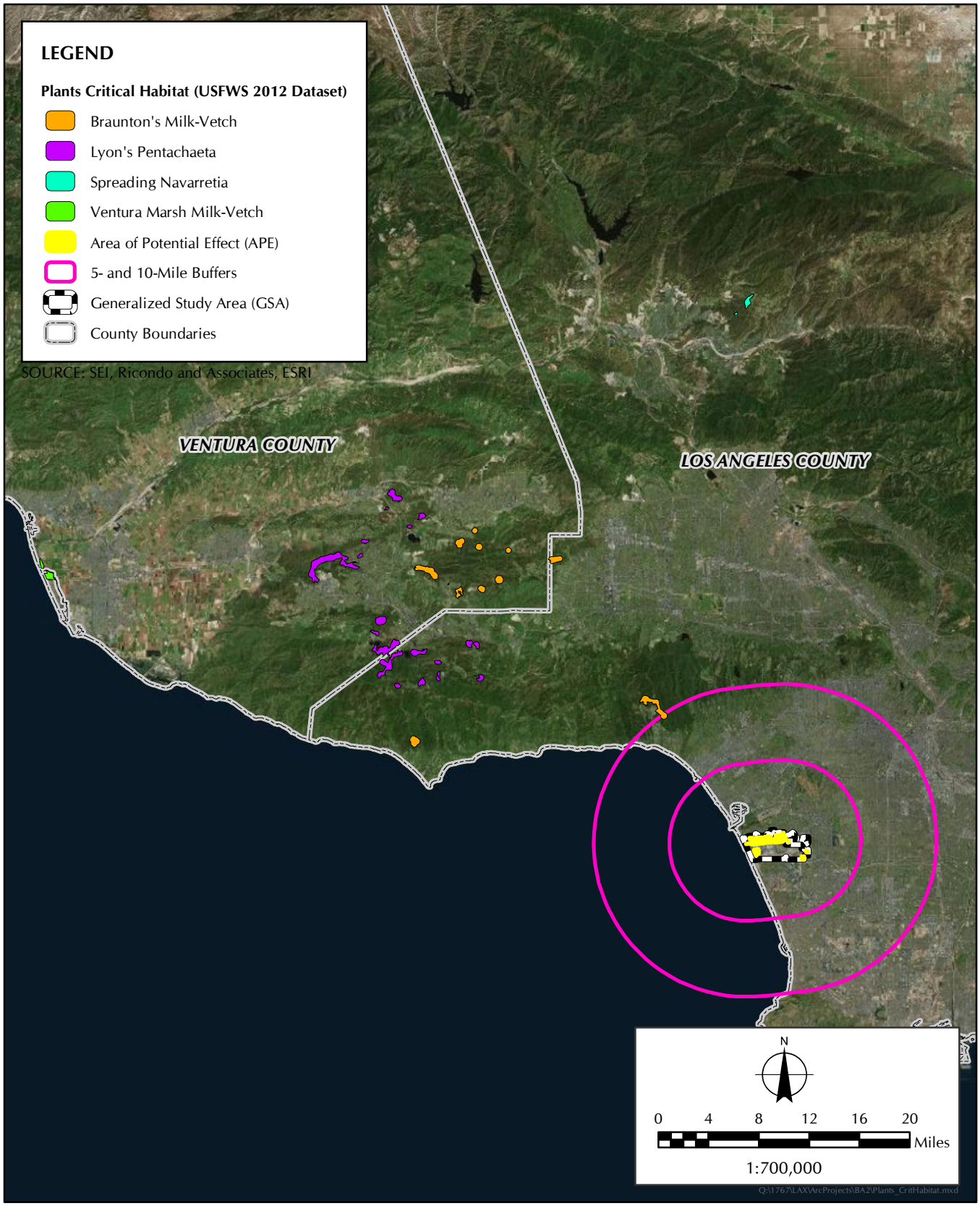
All 12 of the federally listed sensitive plant species that were identified as potentially occurring in the vicinity of the study area were determined to be absent as a result of directed surveys (Table 4.6-1, *Federally Listed and Candidate Plant Species Potentially Occurring in the Northern Runway Safety Area Improvements Study Area*). An account of each of these species is provided below. These plant species are listed as endangered, threatened, or candidate under the federal ESA. Distributions of extant populations of sensitive species near the study area are shown in Figure 4.6-1, *Federally Listed Plant Species Records*. Critical habitat for federally listed plant species is shown in Figure 4.6-2, *Plants Critical Habitat Map*.



RICONDO & ASSOCIATES

FIGURE 4.6-1

Federally Listed Plant Species Records



RICONDO & ASSOCIATES

FIGURE 4.6-2

Plants Critical Habitat Map

TABLE 4.6-1
Federally Listed and Candidate Plant Species Potentially Occurring in the North Runway Safety Area Improvements Study Area

Name	Status	Habitat	Survey Results
Marsh sandwort *Arenaria paludicola*	FE, SE, CNPS 1B.2	Freshwater marsh, marsh and swamp, wetland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 6.3 miles northeast of the study area. Currently, there is no established or proposed critical habitat for this species.
Braunton's milk-vetch *Astragalus brauntonii*	FE CNPS 1B.1	Chaparral, closed-cone coniferous forest, coastal scrub, limestone, valley and foothill grassland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 6.3 miles northeast of the study area. The nearest critical habitat is located approximately 10 miles to the northwest.
Ventura Marsh milk-vetch *Astragalus pycnostachyus* var. *lanosissimus*	FE, SE, CNPS 1B.1 Egregious	Marsh and swamp, salt marsh, wetland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 2.8 miles northwest of the study area. The nearest critical habitat is located approximately 49 miles to the northwest.
Coastal dunes milk-vetch *Astragalus tener* var. *titi*	FE, SE, CNPS 1B.1	Coastal bluff scrub, coastal dunes	Determined to be absent. There is suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Potentially suitable habitat is limited to the nearby Los Angeles/El Segundo Dunes. Nearest CNDDB record is located approximately 2.2 miles northeast of the study area. Currently, there is no established or proposed critical habitat for this species.
San Fernando Valley spineflower *Chorizanthe parryi* var. *Fernandina*	FC, SE, CNPS 1B.1	Coastal scrub	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Potentially suitable habitat is limited to the nearby Los Angeles/El Segundo Dunes. Nearest CNDDB record is located approximately 1.8 miles northwest of the study area. Currently, there is no established or proposed critical habitat for this species.
Salt marsh bird's-beak *Chloropyron maritimum* ssp. *Maritimum*	FE, SE, CNPS 1B.1	Coastal dunes, marsh and swamp, salt marsh, wetland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Potentially suitable habitat is limited to the nearby Los Angeles/El Segundo Dunes. Nearest CNDDB record is located approximately 5.7 miles northwest of the study area. Currently, there is no established or proposed critical habitat for this species.
Santa Monica dudleya *Dudleya cymosa* ssp. *Ovatifolia*	FT, CNPS 1B.2	Chaparral, coastal scrub	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Potentially suitable habitat is limited to the nearby Los Angeles/El Segundo Dunes. Nearest CNDDB record is located approximately 12.5 miles northwest of the study area. Currently, there is no established or proposed critical habitat for this species.
Gambel's water cress *Nasturtium gambelii*	FE, ST, CNPS 1B.1	Brackish marsh, freshwater marsh, marsh and swamp, wetland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 6.3 miles northeast of the study area. Currently, there is no established or proposed critical habitat for this species.
Spreading navarretia *Navarretia fossalis*	FT, CNPS 1B.1	Alkali playa, chenopod scrub, marsh and swamp, vernal pool, wetland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 2.8 miles east of the study area. The nearest critical habitat is located approximately 35 miles to the north.
California Orcutt grass *Orcuttia californica*	FE, SE, CNPS 1B.1	Vernal pool, wetland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 6 miles southeast of the study area. Currently, there is no established or proposed critical habitat for this species.
Lyon's pentachaeta *Pentachaeta lyonii*	FE, SE, CNPS 1B.1	Chaparral, coastal scrub, valley and foothill grassland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 14.1 miles southeast of the study area. The nearest critical habitat is located approximately 20 miles to the northwest.
Brand's star phacelia *Phacelia stellaris*	FC CNPS 1B.1	Coastal dunes, coastal scrub	Determined to be absent. There is suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Potentially suitable habitat is limited to the nearby Los Angeles/El Segundo Dunes. Nearest CNDDB record is located approximately 0.2 miles west of the study area. Currently, there is no established or proposed critical habitat for this species.

KEY: CNDDB = California Natural Diversity Database; CNPS = California Native Plant Society; FE = federally endangered; FT = federally threatened; FC = federal candidate; SE = state endangered; ST = state threatened
NOTES: Critical habitat is only afforded to those species that are listed under the Federal Endangered Species Act as endangered or threatened.
CNPS California Rare Plant Rank categories:

List 1B: Rare, threatened, or endangered in California and elsewhere
0.1: Seriously endangered in California
0.2: Fairly endangered in California
0.3: Not very endangered in California
List 2: Rare, threatened, or endangered in California, but more common elsewhere
0.2: Fairly endangered in California
List 3: Review list, more information required
List 4: Limited distribution (Watch List)
0.1: Seriously endangered in California
0.2: Fairly Endangered in California
0.3: Not very endangered in California

SOURCES: Sapphos Environmental Inc. January 2001. *Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources, Memoranda for the Record on Floral and Faunal Surveys.*
Glenn Lukos Associates. July 2012. *Appendix D-1 LAX Specific Plan Amendment Study, Floral and Faunal Compendium and Sensitive Plants and Wildlife.*
Frank Hovore & Associates. September 28, 1998. *Report of sensitive arthropod surveys, Los Angeles International Airport 2015 Master Plan Study Area, 1996-1998.*

Marsh sandwort (*Arenaria paludicola*) is a perennial herb that blooms from May to August. It is found in sandy openings in marshes and swamps (freshwater or brackish). It is a federal and state-listed endangered species. The nearest CNDDB occurrence for the species is located approximately 6.3 miles northeast of the study area.[29] Marsh sandwort was not observed during May and June 2013 surveys. Additionally, marsh sandwort was not observed during previous surveys.[30,31] Currently, there is no established or proposed critical habitat for this species.

Braunton's milk-vetch (*Astragalus brauntonii*) is a perennial herb that blooms from March to July. It is found in chaparral, coastal scrub, and valley and foothill grassland. It is a federally listed endangered species. The nearest CNDDB occurrence for the species is located approximately 6.3 miles northeast of the study area.[32] Braunton's milk-vetch was not observed during May and June 2013 surveys. Additionally, Braunton's milk-vetch was not observed during previous surveys.[33,34] The nearest critical habitat is located approximately 10 miles to the northwest.

Ventura marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*) is a perennial herb that blooms from July to October. It is found in coastal dunes, coastal scrub, and edges of marshes and swamps (coastal salt or brackish). It is a federal and state-listed endangered species. The nearest CNDDB occurrence for the species is located approximately 2.8 miles northwest of the study area.[35] Ventura marsh milk-vetch was not observed during June 2013 surveys. Additionally, Ventura marsh milk-vetch was not observed during previous surveys.[36,37] The nearest critical habitat is located approximately 49 miles to the northwest.

Coastal dunes milk-vetch (*Astragalus tener* var. *titi*) is an annual herb with purple flowers that blooms from March to June. It is found in moist, sandy depressions near the coast, typically coastal bluffs or dunes.[38] It is state-listed endangered and a potential candidate for federal listing as

[29] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[30] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[31] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[32] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[33] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[34] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[35] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[36] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[37] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[38] Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, eds. 2012. *The Jepson Manual: Vascular Plants of California,* 2nd Ed. Berkeley, CA: University of California Press.

endangered. Historical records indicate it occurred in the study area.[39] The nearest CNDDB occurrence for the species is located approximately 2.2 miles northeast of the study area.[40] Coastal dunes milk-vetch was not observed during May and June 2013 surveys. Additionally, coastal dunes milk-vetch was not observed during previous surveys.[41,42] Currently, there is no established or proposed critical habitat for this species.

San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) is an annual herb that blooms from April to June. It is found in coastal scrub and valley and foothill grassland. It is a federal candidate species and state-listed endangered species. The nearest CNDDB occurrence for the species is located approximately 1.8 miles northwest of the study area.[43] San Fernando Valley spineflower was not observed during May and June 2013 surveys. Additionally, San Fernando spineflower was not observed during previous surveys.[44,45] Currently, there is no established or proposed critical habitat for this species.

Salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*) is an annual herb that blooms from May to October. It is found in coastal dunes and marshes and swamps (coastal salt). It is a federal candidate species and state-listed endangered species. The nearest CNDDB occurrence for the species is located approximately 5.7 miles northwest of the study area.[46] Salt marsh bird's beak was not observed during May and June 2013 surveys. Additionally, salt marsh bird's beak was not observed during previous surveys.[47,48] Currently, there is no established or proposed critical habitat for this species.

Santa Monica dudleya (*Dudleya cymosa* ssp. *ovatifolia*) is a perennial herb that blooms from May to June. It is found in chaparral and coastal scrub. It is a federal threatened species. The nearest CNDDB occurrence for the species is located approximately 12.5 miles northwest of the study

[39] Pierce, W.D., and D. Pool. 1938. "The Fauna and Flora of the El Segundo Sand Dunes." *Bulletin of the Southern California Academy of Sciences*, *37*: 93–97.

[40] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[41] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[42] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[43] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[44] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[45] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[46] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[47] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[48] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

area.[49] Santa Monica dudleya was not observed during May and June 2013 surveys. Additionally, Santa Monica dudleya was not observed during previous surveys.[50,51] Currently, there is no established or proposed critical habitat for this species.

Gambel's water cress (*Nasturtium gambelii*) is a perennial rhizomatous herb that blooms from May to August. It is found in marshes and swamps (freshwater or brackish). It is a federally listed endangered and state-listed threatened species. The nearest CNDDB occurrence for the species is located approximately 6.3 miles northeast of the study area.[52] Gambel's water cress was not observed during May and June 2013 surveys. Additionally, Gambel's water cress was not observed during previous surveys.[53,54] Currently, there is no established or proposed critical habitat for this species.

Spreading navarretia (*Navarretia fossalis*) is an annual herb that blooms from April to June. It is found in chenopod scrub, marshes and swamps, playas, and vernal pools. It is a federally listed threatened species. The nearest CNDDB occurrence for the species is located approximately 2.8 miles east of the study area.[55] Spreading navarretia was not observed during May and June 2013 surveys. Additionally, spreading navarretia was not observed during previous surveys.[56,57] The nearest critical habitat is located approximately 35 miles to the north.

California orcutt grass (*Orcuttia californica*) is a prostrate and glandular annual grass that blooms April through August. It is found in vernal pools. It is both a federally and state-listed endangered species. The nearest CNDDB occurrence for the species is located approximately 6 miles southeast of the study area.[58] California orcutt grass was not observed in the study area as a result

[49] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[50] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[51] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[52] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[53] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[54] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[55] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[56] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[57] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[58] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

of surveys in May and June 2013. Additionally, California orcutt grass was not observed during previous surveys.[59,60] Currently, there is no established or proposed critical habitat for this species.

Lyon's pentachaeta (*Pentachaeta lyonii*) is an annual herb that blooms from March to August. It is found in chaparral, coastal scrub and valley and foothill grassland. It is a federally and state-listed endangered species. The nearest CNDDB occurrence for the species is located approximately 14.1 miles southeast of the study area.[61] Lyon's pentachaeta was not observed during May and June 2013 surveys. Additionally, Lyon's pentachaeta was not observed during previous surveys.[62,63] The nearest critical habitat is located approximately 20 miles to the northwest.

Brand's star phacelia (*Phacelia stellaris*) is an annual herb that blooms from March to May. It is found in coastal dunes and coastal scrub. It is a federal candidate species. The nearest CNDDB occurrence for the species is located approximately 0.2 miles west of the study area.[64] Brand's star phacelia was not observed during May and June 2013 surveys. Additionally, Brand's star phacelia was not observed during previous surveys.[65,66] Currently, there is no established or proposed critical habitat for this species.

4.7 Other Special-Status Plant Species

Two special status plant species were observed within the study area: Lewis' evening primrose (*Camissoniopsis lewisii*) and south coast branching phacelia *(Phacelia ramosissima* var. *austrolitoralis*). Not typically considered suitable habitat for the Lewis' evening primrose, the species was observed within disturbed / Annual Brome Grassland, which accounts for 114.38 acres of the study area. There are 8.46 acres of suitable habitat in the form of Silver Dune Lupine–Mock Heather Scrub for the south coast branching phacelia within the study area (Figure 4.7-1, *Locations of Other Special-Status Plant Species*). Although not afforded federal status pursuant to the federal ESA, or State status under the California Endangered Species Act, these two plant species are designated as List 3 on the California Native Plant Society List of Rare and Endangered Plants. List 3 plants are those for which the California Native Plant Society has determined that additional information is needed.

[59] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[60] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[61] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[62] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[63] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[64] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[65] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[66] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

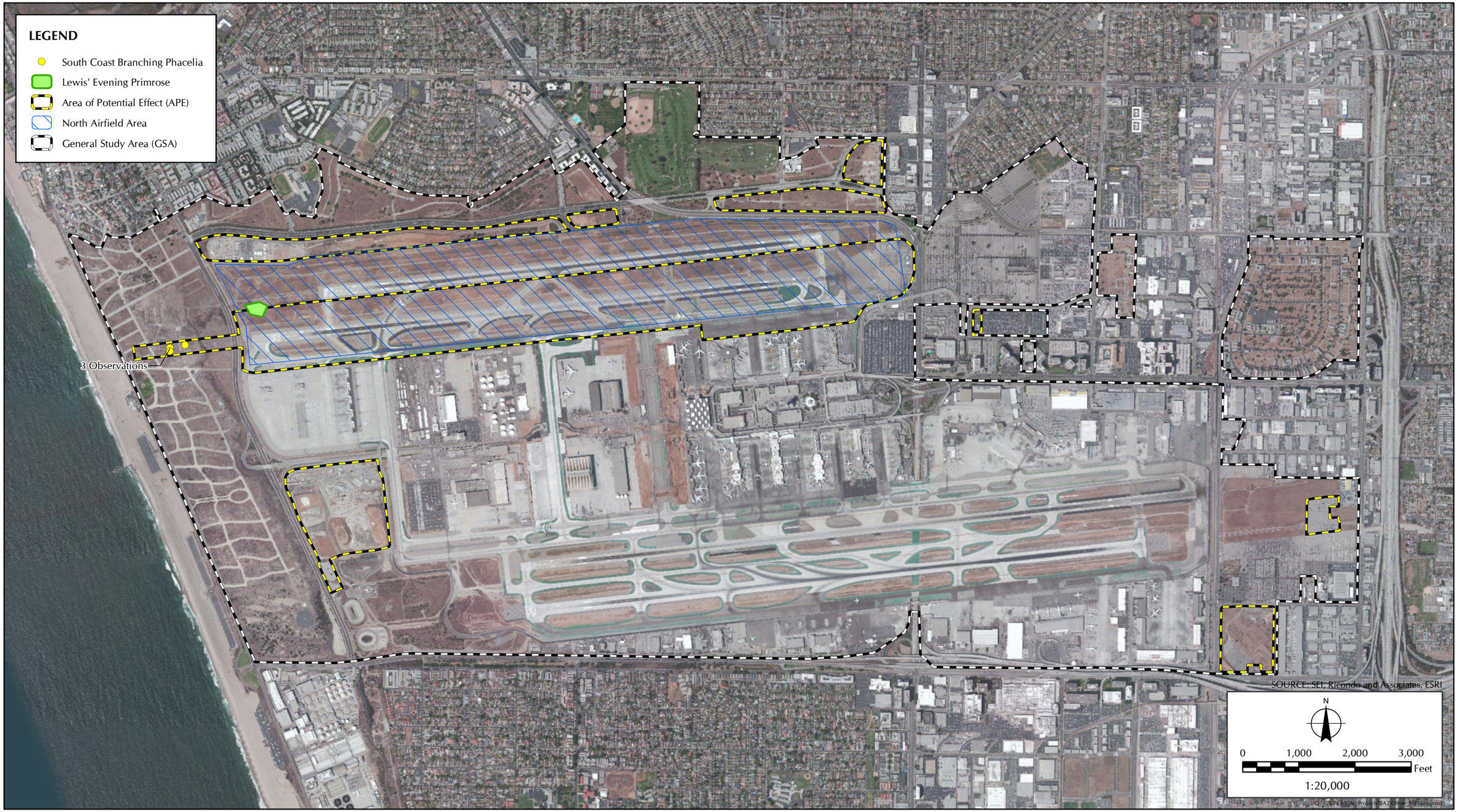


FIGURE 4.7-1

Locations of Other Special-Status Plant Species

4.8 Wildlife

Twenty-four wildlife species were observed during the 2013 surveys. There were 2 insect species, 3 reptile species, 18 bird species, and 1 mammal species recorded within the study area (Appendix B, Table B-1). Overall, the abundance of wildlife was considered low, with flying wildlife, such as butterflies and birds, accounting for most wildlife observations. Terrestrial wildlife was limited to a total of 3 reptile and 1 mammal species observations. No fish or amphibian species were observed during the surveys (Figure 4.8-1, *Locally Sensitive Wildlife Species Records*). A single burrowing owl along with its burrow was observed just south of Westchester Parkway near the intersection of Westchester Parkway and Northside Parkway, where it was utilizing a broken up concrete pipe (Figure 4.8-2, *Locally Sensitive and Protected Wildlife Species Observations*). The burrow associated with this observation will be avoided during construction activities. A pair of red foxes (*Vulpes vulpes*) along with their burrow was observed on the southeastern-most portion of the survey area, which is located at the corner of Aviation Boulevard and Imperial Highway. Although a non-native species and not afforded federal status pursuant to the federal ESA or state status pursuant to the California Endangered Species Act, the red fox is still afforded protection pursuant to the fur-bearing mammals act (California Fish and Game Code §4000–4012).

Portions of the study area adjacent to the runway lie within an active management area identified in the LAX Wildlife Hazard Management Plan (WHMP) prepared by an FAA-qualified wildlife biologist on behalf of the airport. The goal of an airport's WHMP is to minimize the risk to aviation safety, airport structures or equipment, or human health posed by populations of hazardous wildlife on and around the airport. The WHMP identifies hazardous wildlife attractants on or near the airport and the appropriate wildlife damage management techniques to minimize the wildlife hazard. The grass between runways are identified as hazardous wildlife attractants at LAX that contain vegetation that are managed under the WHMP to minimize wildlife hazards at LAX. In addition, some prey species around the runways are also actively managed to minimize wildlife hazards under the WHMP. LAX holds a current Federal Fish and Wildlife Service Depredation Permit, which allows for the limited take, temporary possession, and transport of migratory birds and nests at the airport to relieve or prevent injurious situations impacting public safety. The USDA Wildlife Services actively manages the airport property to reduce its attractiveness to red fox and other species. California Fish and Game Code Sections 4000–4012, 4152, and 4180 allow for USDA wildlife biologists to take fur-bearing mammals to protect property at the airport including the red fox. If the staging area where red fox have been previously observed is proposed to be used for the project, USDA will be consulted with to determine the presence and potential removal of red fox.

4.9 Federally Listed and Candidate Wildlife Species

All 10 of the federally listed sensitive wildlife species that were identified as potentially occurring in the vicinity of the study area were determined to be absent as a result of directed surveys (Table 4.9-1, *Federally Listed and Candidate Wildlife Species Potentially Occurring in the North Runway Safety Area Improvements Study Area*). However, occupied habitat for two species, El Segundo blue butterfly and coastal California gnatcatcher, is present in close proximity to the study area. An account of each of the 10 species is provided below.

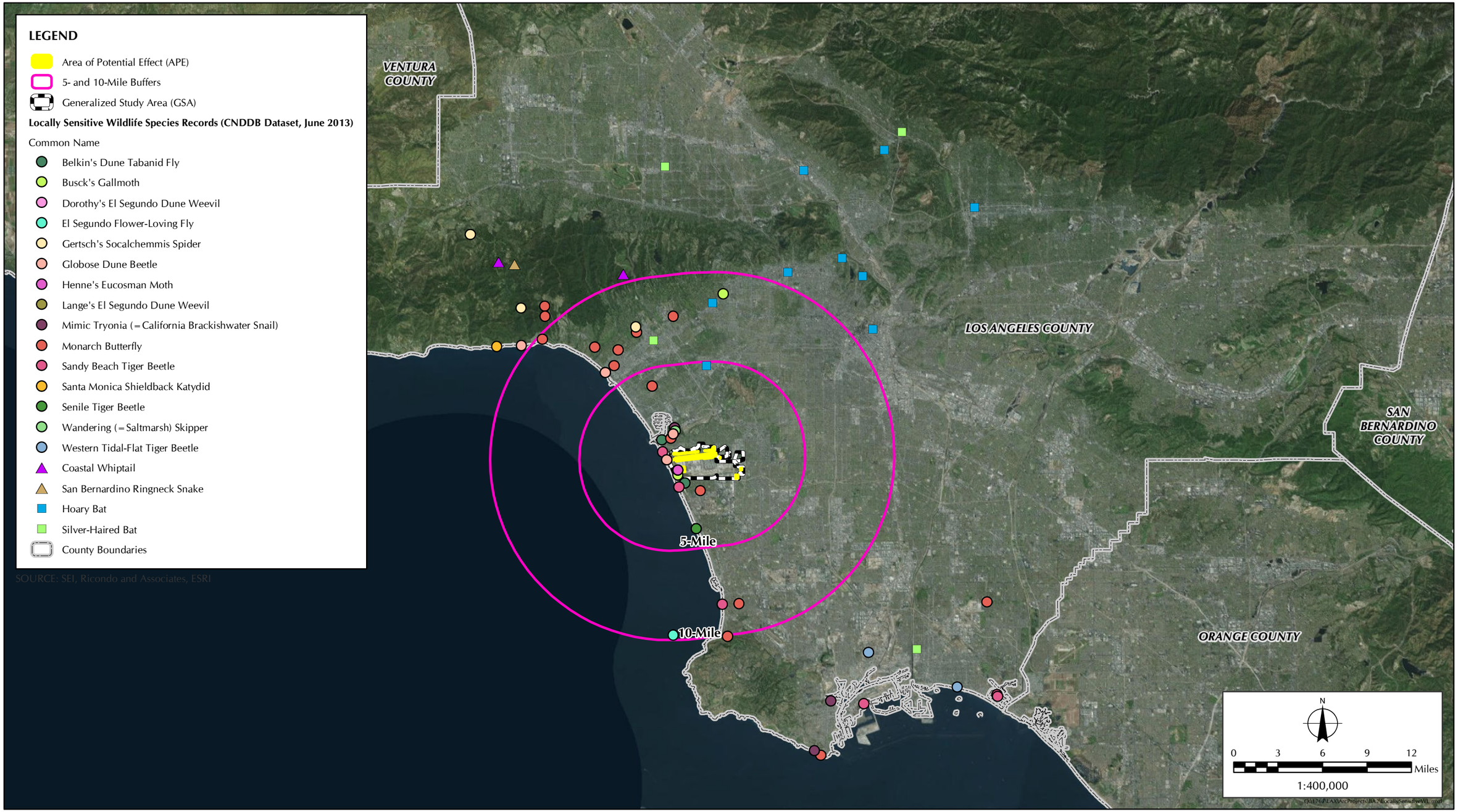


FIGURE 4.8-1
Locally Sensitive Wildlife Species Records

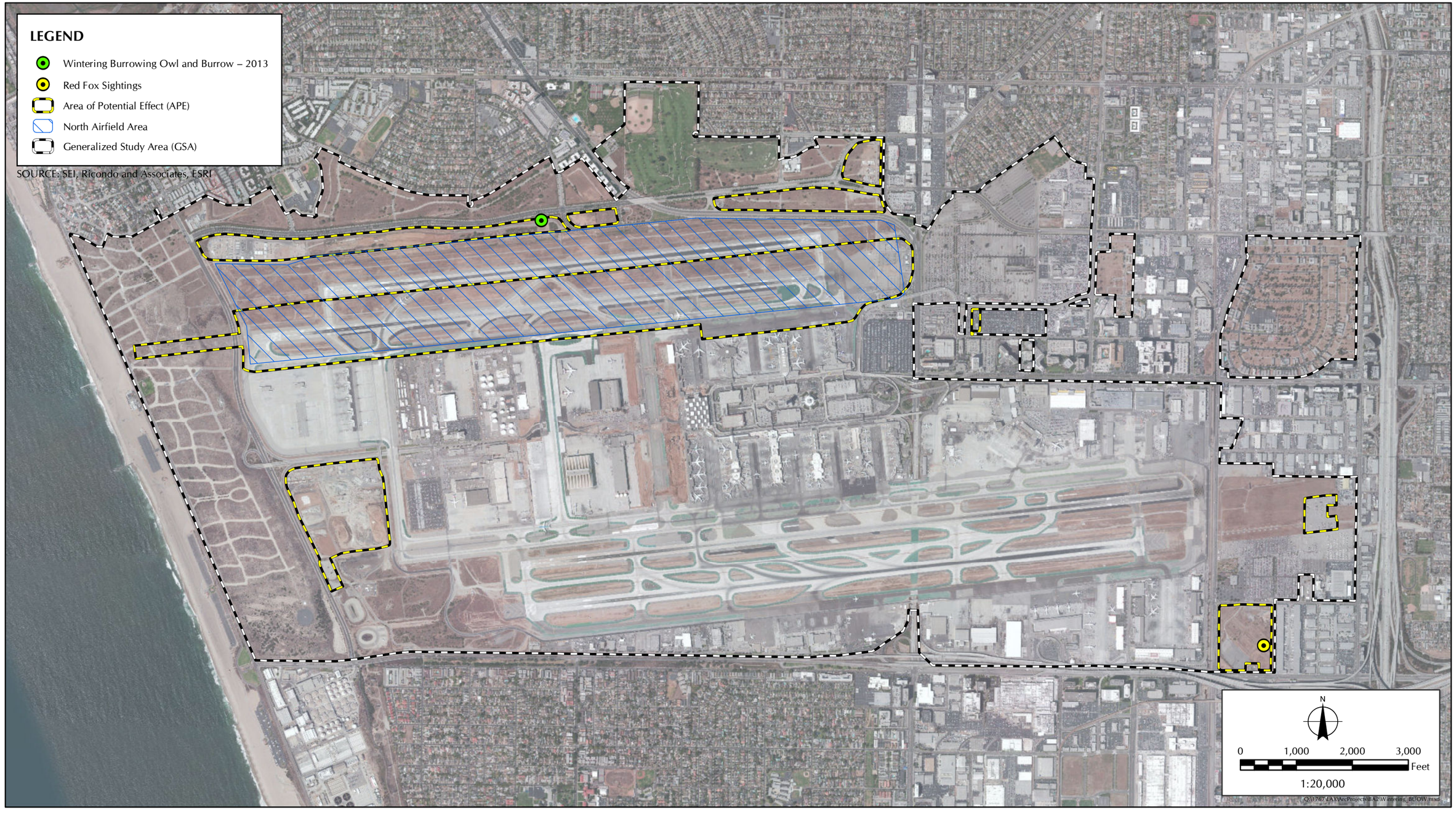


FIGURE 4.8-2

Locally Sensitive and Protected Wildlife Species Observations

TABLE 4.9-1
Federally Listed and Candidate Wildlife Species Potentially Occurring in the North Runway Safety Area Improvements Study Area

Name	Status	Habitat	Survey Results
Invertebrates			
El Segundo blue butterfly *Euphilotes battoides allyni*	FE	Coastal sand dunes with coast buckwheat.	Determined to be absent. Known to be present in the vicinity. Determined to be absent in the study area. There is no suitable habitat within the study area. The species was not observed in the study area during 2013 biological surveys or previous surveys in the study area. Occupied habitat is limited to the nearby Los Angeles/El Segundo Dunes, approximately 0.6 mile south of the study area, as documented in the CNDDB. Occupied habitat for the species is located 0.1 miles south of the study area in the Los Angeles/El Segundo Dunes.
Palos Verdes blue butterfly *Glaucopsyche lygdamus palosverdesensis*	FE	Coastal scrub	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 9.8 miles south of the study area. The nearest critical habitat is located approximately 10 miles to the northwest.
Fish			
Southern steelhead - southern California DPS *Oncorhynchus mykiss irideus*	FE, SSC	Aquatic, south coast flowing waters	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 12 miles northwest of the study area. The nearest critical habitat is located approximately 10 miles to the northwest.
Mohave tui chub *Siphateles bicolor mohavensis*	FE, SE, FP	Aquatic, artificial flowing waters, artificial standing waters	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 12 miles southeast of the study area. Currently, there is no established or proposed critical habitat for this species.
Birds			
Western snowy plover *Charadrius alexandrinus nivosus*	FT, SSC, BCC	Great Basin standing waters, sand shore, wetland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 0.8 mile northwest of the study area. The nearest critical habitat is located approximately 1,000 feet to the west. Known to nest on Dockweiler State Beach where a protective enclosure exists for their nesting.
Southwestern willow flycatcher *Empidonax traillii extimus*	FE, SE	Riparian woodland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 10.6 miles southeast of the study area. The nearest critical habitat is located approximately 22 miles to the north.
Coastal California gnatcatcher *Polioptila californica californica*	FT, SSC	Coastal bluff scrub, coastal scrub	Determined to be potentially present. Known to be present in the vicinity. Determined to be potentially present in the study area. There is marginal suitable habitat for nesting within the study area. Occupied habitat is limited to the nearby Los Angeles/El Segundo Dunes, approximately 2.8 miles northeast of the study area, as documented in the CNDDB. Previous observations have occurred approximately 800 feet to the south of the study area in the Los Angeles/El Segundo Dunes. The nearest critical habitat is located approximately 10 miles to the south.
California least tern *Sternula antillarum browni*	FE, SE, FP	Alkali playa, wetland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 1.2 miles northwest of the study area. Currently, there is no established or proposed critical habitat for this species.
Least Bell's vireo *Vireo bellii pusillus*	FE, SE	Riparian forest, riparian scrub, riparian woodland	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 14.7 miles northeast of the study area. The nearest critical habitat is located approximately 35 miles to the north.
Mammals			
Pacific pocket mouse *Perognathus longimembris pacificus)*	FE, SSC	Coastal scrub	Determined to be absent. There is no suitable habitat within the study area. The species was not observed during 2013 biological surveys or previous surveys in support of the LAX Master Plan.[1] Potentially suitable habitat is limited to the Los Angeles/El Segundo Dunes. Nearest CNDDB record is located approximately 1.1 miles south of the study area. Currently, there is no designated or proposed critical habitat for this species.

KEY: CNDDB = California Natural Diversity Database; CNPS = California Native Plant Society; FE = federally endangered; FT = federally threatened; FC = federal candidate; FD = federally delisted; BCC = birds of conservation concern; SE = state endangered; ST = state threatened; SSC = state species of special concern; FP = state fully protected; SD = state delisted

NOTE: Critical habitat is only afforded to those species that are listed under the Federal Endangered Species Act as endangered or threatened.

SOURCES: Sapphos Environmental Inc. January 2001. *Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources, Memoranda for the Record on Floral and Faunal Surveys.*
Glenn Lukos Associates. July 2012. *Appendix D-1 LAX Specific Plan Amendment Study, Floral and Faunal Compendium and Sensitive Plants and Wildlife.*
Frank Hovore & Associates. September 28, 1998. *Report of sensitive arthropod surveys, Los Angeles International Airport 2015 Master Plan Study Area, 1996-1998.*

[1] U.S. Department of Transportation, Federal Aviation Administration and City of Los Angeles, Los Angeles World Airports. April 2004. *LAX Master Plan EIS/EIR*. Available at: http://www.ourlax.org/pub_finalMP.aspx

These wildlife species are listed as endangered, threatened, or candidate under the federal ESA. Distributions of extant populations of sensitive species near the project site are shown in Figure 4.9-1, *Federal Listed Wildlife Species Records*. Critical habitat for federal-listed wildlife species is shown in Figure 4.9-2, *Wildlife Critical Habitat Map*.

El Segundo blue butterfly (*Euphilotes battoides allyni*) is a federally listed endangered species. This species typically occurs in coastal sand dunes with coast buckwheat. The study area occurs partially within the El Segundo Blue Butterfly Habitat Restoration Area. Habitat, including coast buckwheat, for the species was not observed within the study area. Occupied habitat for the species has been documented on approximately 200 acres within the Los Angeles/El Segundo Dunes south of the study area where its host plant occurs. Individuals, sign, or their host plant were not observed in the study area during 2013 biological surveys. Additionally, El Segundo blue butterfly was not observed in the study area during previous surveys.[67,68] El Segundo Blue Butterfly was recently observed at Ballona Wetlands and along the coastal strand at the coastal restoration sites by Dr. Richard Arnold. The El Segundo blue butterfly is known from only two other small localities. One locality is a 1.5-acre site at the Chevron Refinery Preserve and the other is a 0.5-acre site at Malaga Cove. The Dunes population represents approximately 90 percent of the known population of this species. The nearest CNDDB occurrence for the species is located approximately 0.6 miles south of the study area.[69] Critical habitat was proposed for this species on February 8, 1977 (42 FR 7972), but was never designated. An additional population was observed on Vandenberg Air Force Base in Santa Barbara County and is discussed in the 5-year review for the species.[70] However, it was unclear whether the population identified in Santa Barbara County is the El Segundo blue butterfly.

Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*) is a federally listed endangered species and typically occurs in coastal scrub communities. Habitat for the species was not observed within the study area, but is known to be present in the Los Angeles/El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys or previous surveys in the study area. The nearest CNDDB occurrence for the species is located approximately 9.8 miles south of the study area.[71] The Palos Verdes blue butterfly is known to inhabit the Palos Verdes Peninsula located approximately 10 miles south of the study area where its critical habitat can be found.

The Southern California distinct population segment (DPS) of the southern steelhead (*Oncorhynchus mykiss irideus*) is a federally listed endangered species and CDFW species of special concern. It is aquatic and typically occurs in south coast flowing waters. There is no suitable habitat for this species within the study area. This species is not present within the study

[67] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[68] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[69] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[70] USFWS. 2008. *El Segundo Blue Butterfly (Euphilotes battoides allynii) 5-Year Review: Summary and Evaluation*. Carlsbad, CA.

[71] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

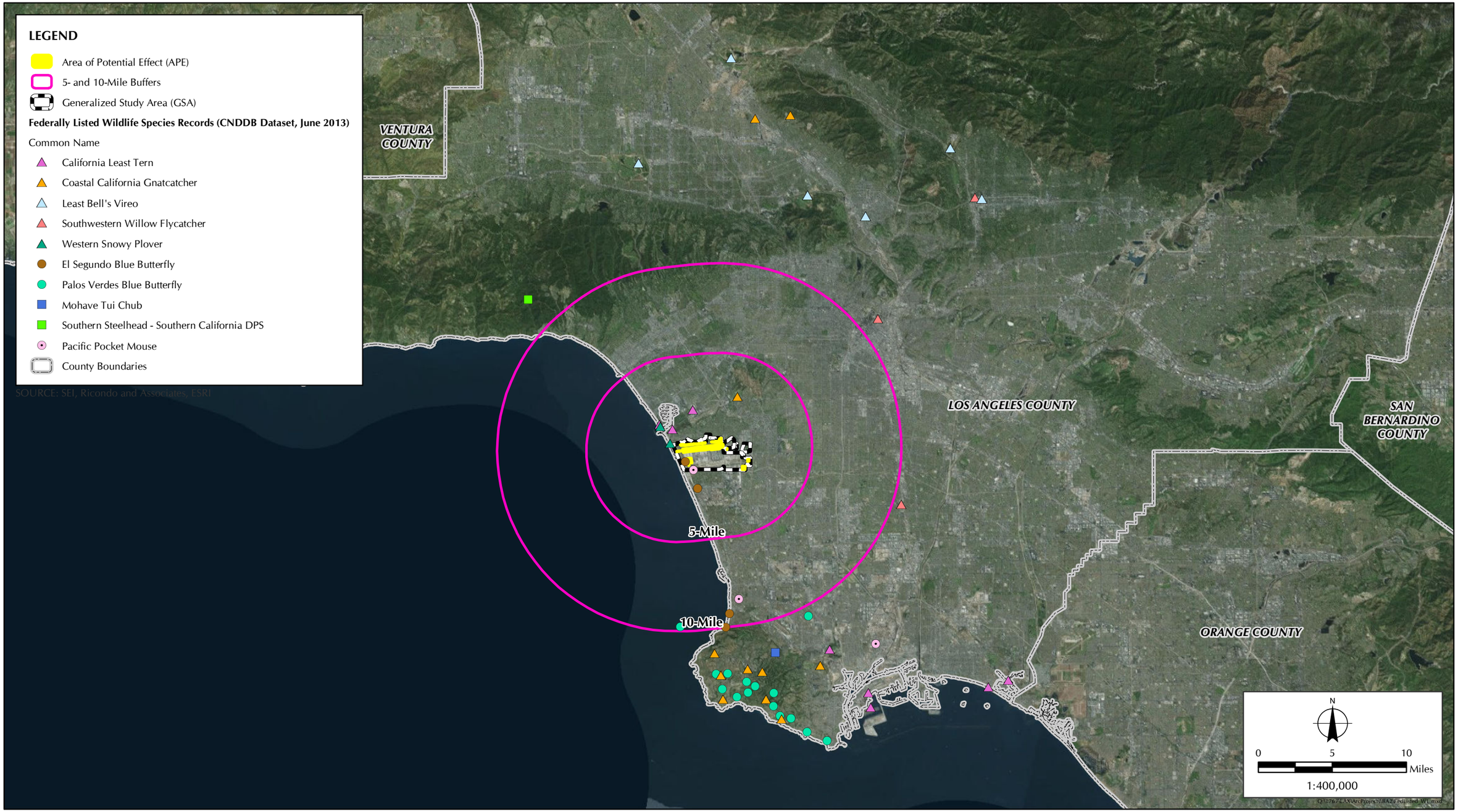


FIGURE 4.9-1

Federally Listed Wildlife Species Records

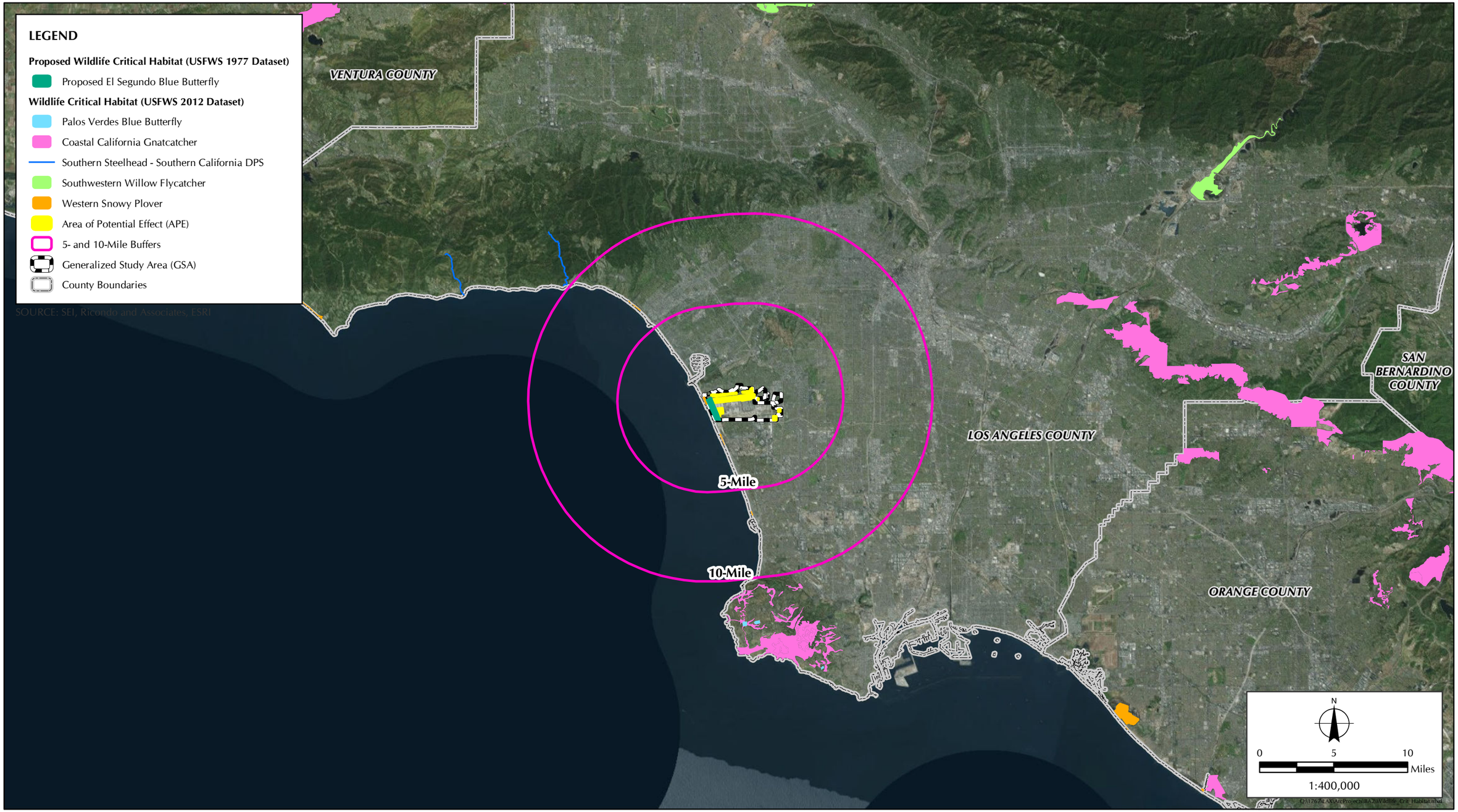


FIGURE 4.9-2
Wildlife Critical Habitat Map

area. The nearest CNDDB occurrence for the species is located approximately 12 miles northwest of the study area.[72] The nearest critical habitat is located approximately 10 miles to the northwest.[73]

Mohave tui chub (*Siphateles bicolor mohavensis*) is a federally and state-listed endangered species. It is aquatic and typically occurs in artificial flowing waters and artificial standing water. There is no suitable habitat for this species within the study area. This species is not present within the study area. The nearest CNDDB occurrence for the species is located approximately 12 miles southeast of the study area.[74] Currently, there is no established or proposed critical habitat for this species.

Western snowy plover (*Charadrius alexandrinus nivosus*) is a federally listed threatened species and CDFW species of special concern. It typically occurs in great basin standing waters, sand shore, and wetland communities. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. The nearest CNDDB occurrence for the species is located approximately 0.8 miles northwest of the study area.[75] The nearest critical habitat is located approximately 1,000 feet to the west.

Southwestern willow flycatcher (*Empidonax trailii extimus*) is a federally and state-listed endangered species. It is known to breed in limited riparian areas throughout the Southwest. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. The nearest CNDDB occurrence for the species is located approximately 10.6 miles southeast of the study area.[76] The nearest critical habitat is located approximately 22 miles to the north.

Coastal California gnatcatcher (*Polioptila californica californica*) is a federally listed threatened species and CDFW species of special concern. It typically occurs in coastal bluff scrub and coastal scrub. Marginally suitable nesting habitat for the species was observed in the study area. Suitable habitat is known to be present in the nearby Los Angeles/El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys. At least one pair was observed nesting in the Los Angeles/El Segundo Dunes in 2013 south of the study area with the nearest individual observation occurring approximately 800 feet south of the study area. The nearest CNDDB

[72] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[73] National Marine Fisheries Service. 2005. Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California. Washington D.C. Available at http://www.gpo.gov/fdsys/pkg/FR-2005-09-02/pdf/05-16389.pdf#page=1

[74] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[75] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[76] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

occurrence for the species is located approximately 2.8 miles northeast of the study area.[77] The nearest critical habitat is located approximately 10 miles to the south.

California least tern (*Sterna antillarum browni*) is a federally and state listed endangered species. It typically occurs in alkali playa and wetlands. It nests along the coast from San Francisco south into Baja California, Mexico. This species is a bird of the open ocean and near-shore waters. It is known to breed at a colony 3 miles north of the study area. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. The nearest CNDDB occurrence for the species is located approximately 1.2 miles northwest of the study area.[78]

Least Bell's vireo (*Vireo bellii pusillus*) is a federally and state-listed endangered species. It typically occurs in riparian forest, riparian scrub, and riparian woodland. Habitat, individuals, or sign were not observed during 2013 biological surveys or previous surveys. The nearest CNDDB occurrence for the species is located approximately 14.7 miles northeast of the study area.[79] Nearest critical habitat is located approximately 35 miles to the north.

Pacific pocket mouse (*Perognathus longimembris pacificus*) is a federally listed endangered species and CDFW species of special concern. It typically occurs in coastal scrub communities. It is known from only three localities in coastal Southern California. Attempts to locate this species at the Los Angeles/El Segundo Dunes have been unsuccessful. The dunes contain the largest remaining area of historically occupied habitat. Habitat was not observed within the study area and is not known to be present in the Los Angeles/El Segundo Dunes. Individuals or sign were not observed during 2013 biological surveys. Additionally, Pacific pocket mouse was not observed in the study area during previous surveys.[80,81] The nearest CNDDB occurrence for the species is located approximately 1.1 miles south of the study area.[82] Currently, there is no established or proposed critical habitat for this species.

4.10 Wetlands and Waters of the United States

There are no wetlands or waters of United States within the study area or areas identified as being under the jurisdiction of USACOE, RWQCB, or CDFW. As a result of the review of the 7.5-minute series topographic quadrangles and the NWI map, and field reconnaissance of the study area, it

[77] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[78] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[79] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

[80] Sapphos Environmental, Inc. 2001 Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources. Memoranda for the Record on Floral and Faunal Surveys.

[81] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

[82] California Department of Fish and Wildlife. 2013. *Rarefind 4.0: A Database Application for the Use of California Department of Fish and Wildlife Natural Diversity Database*. Sacramento, CA. Available at: http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp

was determined that there are no wetlands or other "waters of the United States" present within the study area.

4.11 Designated Conservation Areas

There are no current or proposed Habitat Conservation Plans or Natural Community Conservation Plan areas covering or adjacent to the study area.[83,84] However, the far western portion of the study area is located within the County of Los Angeles General Plan's El Segundo Dunes Significant Ecological Area (8.99 acres) and the Los Angeles/El Segundo Dunes El Segundo Blue Butterfly Habitat Restoration Area Boundary (4.14 acres) (Figures 4.11-1, *State and County Designated Conservation Areas*, and 4.11-2, *City Designated Conservation Areas*). The Los Angeles/El Segundo Dunes was also identified as an important natural resource and as an open space nature preserve in the City of Los Angeles General Plan and Ordinances No. 167940 and 169767. The City of Los Angeles General Plan delegates responsibility for the conservation of the Los Angeles/El Segundo Dunes to the City of Los Angeles Department of Airports, also known as LAWA, the department responsible for the LAX facility.

The Dockweiler State Beach Habitat Restoration Area occurs approximately 0.6 miles south of the westernmost portion of the study area and is focused on restoring coastal dune habitat for the El Segundo blue butterfly.

[83] United States Fish and Wildlife Service. 2013. *USFWS Habitat Conservation Plan Report*. Available at: http://ecos.fws.gov/conserv_plans/PlanReport

[84] California Department of Fish and Wildlife. 2013. *NCCP Summary Map*. Available at: http://www.dfg.ca.gov/habcon/nccp/

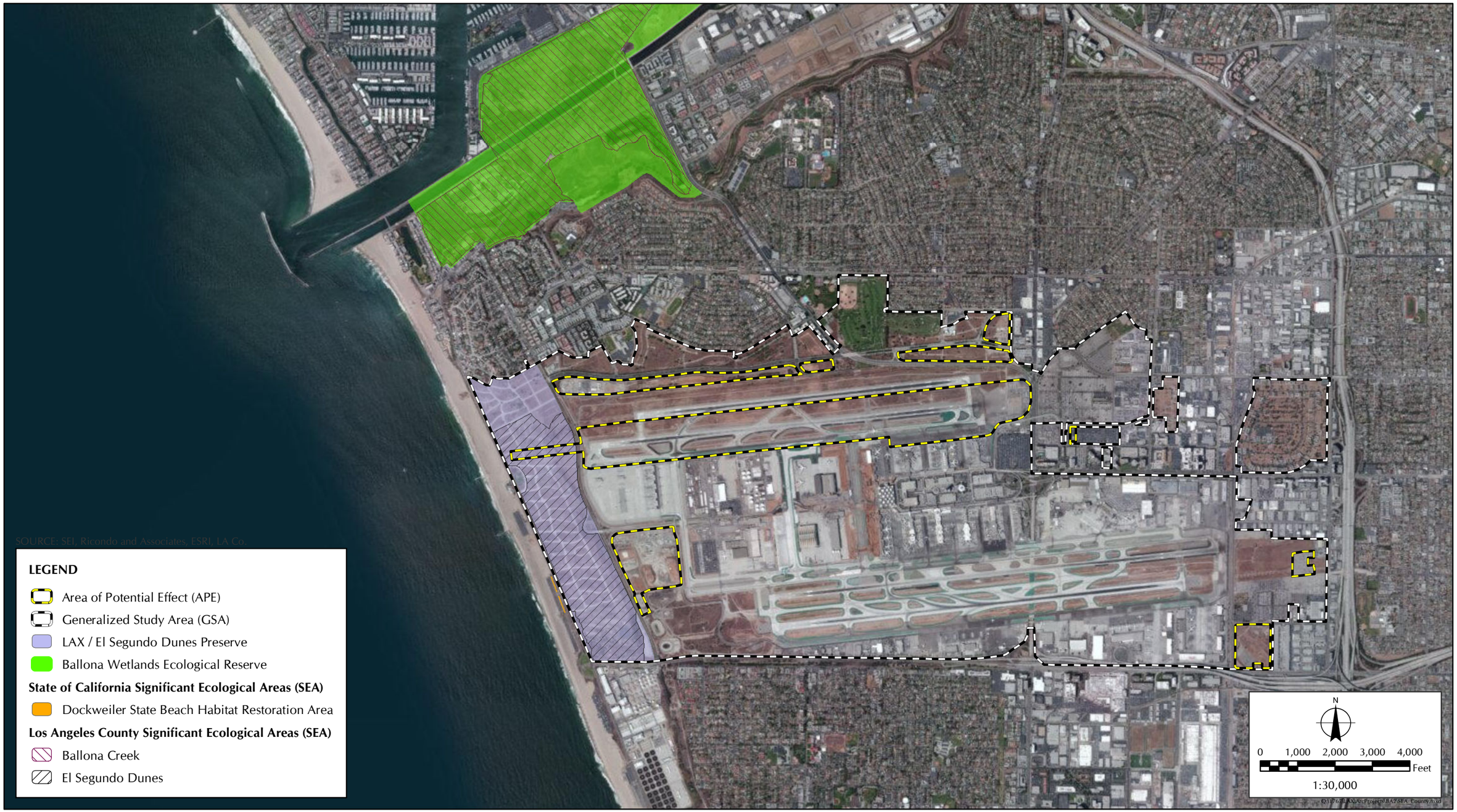


FIGURE 4.11-1
State and County Designated Conservation Areas

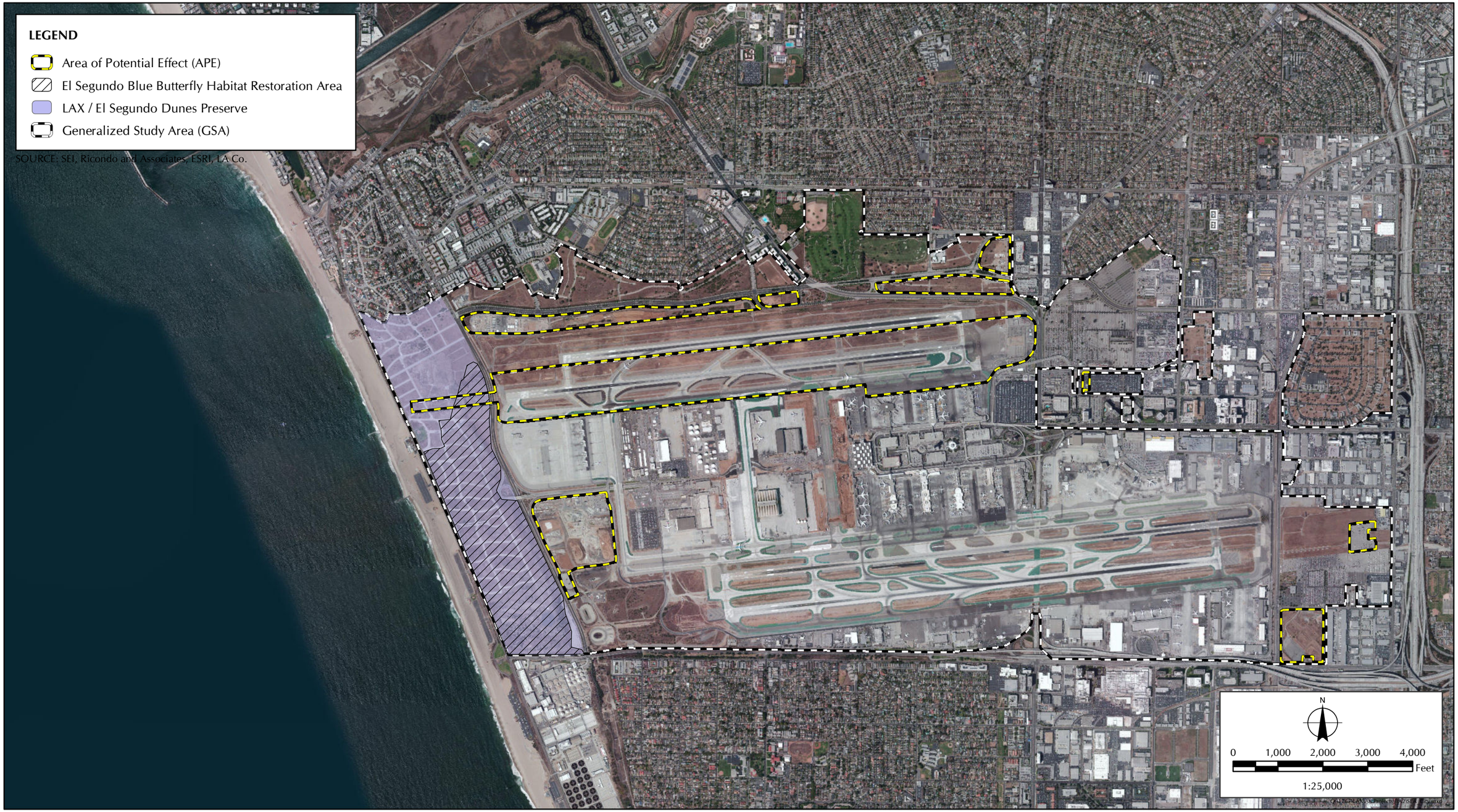


FIGURE 4.11-2
City Designated Conservation Areas

5.0 IMPACTS

Implementation of the proposed project would result in converting approximately 0.71 acres of disturbed / Annual Brome Grassland and less than 0.01 acre of Silver Dune Lupine–Mock Heather Scrub for relocation of taxiways, shifting of the runway end, and construction of a blast pad and retention wall. In addition, a total of 123.65 acres of undeveloped land (32.66 acres of disturbed vegetation, 26.59 acres of disturbed / Annual Brome Grassland, 61.72 acres of active construction area, 2.25 acres of ornamental, and 0.42 acres of perennial rye grass) and 56.55 acres of developed land may be used as staging areas. These activities will not result in impacts to any federally or state-listed threatened or endangered or candidate species. Additionally, project activities will not likely result in impacts to other locally sensitive plant or wildlife species. Impacts are described in greater detail below.

5.1 Plant Communities

Silver Dune Lupine–Mock Heather Scrub (Southern Dune Scrub)

One state-designated sensitive plant community, Silver Dune Lupine–Mock Heather Scrub (Southern Dune Scrub), was found to occur in the study area as a result of general surveys. Potential permanent impacts of less than 0.01 acre (1 square foot) and potential temporary impacts of up to 0.12 acre to this state-designated sensitive plant community would occur from implementation of the project due to construction activities associated with relocation of existing runway approach lights west of Pershing Drive.

5.2 Plants

There are 12 federally listed plant species that were identified as having potential to occur within the study area. Of these 12 species, none were found to occur in the study area as a result of general surveys focused on searching for sensitive plant species. Potential impacts to federally listed or candidate species would not occur from implementation of the proposed project.

Other Sensitive Species

Lewis' Evening Primrose and South Coast Branching Phacelia

Lewis' evening primrose and south coast branching phacelia were observed within the study area adjacent to proposed impact areas as a result of general surveys. Potential impacts to these species may occur from implementation of the project due to construction activities in vegetated areas around Runway 6R-24L and activities associated with relocation of existing runway approach lights west of Pershing Drive.

5.3 Wildlife

There are 10 federally listed wildlife species that were identified during the database search. Of these 10 species, none were observed in the study area as a result of general surveys focused on searching for sensitive wildlife species. However, both the El Segundo blue butterfly and coastal California gnatcatcher are known to frequent the Los Angeles/El Segundo Dunes and occupied habitat for both species occurs to the south of the study area. Potential impacts to these species

may occur from implementation of the project due to construction activities in vegetated areas around the relocation of existing runway approach lights west of Pershing Drive. Potential impacts to the remaining eight federally listed or candidate species would not occur from implementation of the proposed project.

6.0 RECOMMENDATIONS

6.1 General

Nesting Birds

Several species of birds were presumed to be nesting in vegetated areas outside the study area based on behavioral cues. The USFWS has issued a Federal Fish and Wildlife Permit to LAWA for the Depredation of Migratory Birds at Airports, which allows take of native bird species and their nests for those species that are not threatened or endangered. Harassment and/or removal of endangered/threatened species and/or bald and golden eagles require additional permits from the Migratory Bird Permit Office and/or Ecological Services Office.

It is recommended that construction activities take place outside of the breeding season. If clearing or construction takes place during the breeding season in areas that have potential for nesting birds or raptors, an FAA-qualified biologist should provide pre-construction sweeps prior to clearing of vegetation to determine (1) if nests are present and (2) that avifauna present are not threatened or endangered species. Assuming no threatened/endangered species are present, clearing activities can commence under the permit. Netting or other bird exclusion methods should be used to discourage birds from nesting in construction equipment and facilities, if determined by the wildlife biologist to be necessary. Any removal of birds or nests shall be conducted by the LAX USDA Wildlife Services wildlife biologists who have the primary responsibility at LAX for implementing and logging depredation activities and for submitting annual depredation permit reports.

6.2 Plant Communities

Silver Dune Lupine-Mock Heather Scrub

Installation of navigational aids and associated construction impacts may result in permanent impacts of less than 0.01 acre (1 square foot) and temporary impacts of up to 0.12 acre of state-designated sensitive habitat (Silver Dune Lupine–Mock Heather Scrub) within the Los Angeles/El Segundo Dunes adjacent to habitat occupied by the El Segundo blue butterfly. Mitigation for the permanent loss of state-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including the Habitat Restoration Area, shall be replaced at a ratio of 2:1 within the Los Angeles/El Segundo Dunes as described in the Los Angeles/El Segundo Dunes Habitat Restoration Plan. In addition, mitigation for the temporary loss of state-designated sensitive habitat shall include the restoration of the area to the appropriate coastal dune plant community as described in the Los Angeles/El Segundo Dunes Habitat Restoration Plan. The replacement and restoration of state-designated sensitive habitat shall be undertaken through restoration procedures as described in the Los Angeles/El Segundo Dunes Habitat Restoration Plan.

6.3 Plants

Federally Listed Species

Federally listed plant species were not found to occur in the study area; therefore, recommendations are not made.

Other Sensitive Species

Lewis' Evening Primrose and South Coast Branching Phacelia

LAWA has set forth provisions for mitigation of potential impacts to Lewis' evening primrose, which are known to occur in the western portion of the north airfield, between Runways 6L-24R and 6R-24L and south coast branching phacelia, which is known to occur in the Los Angeles/El Segundo Dunes. The proposed improvement areas are located outside the limits of where the two plant species were previously observed; hence, no impacts to these plant species are anticipated to occur from the proposed project based on existing information. Notwithstanding, LAWA proposes to conduct a pre-construction survey for Lewis' evening primrose and south coast branching phacelia to determine the presence/absence of the species and their location in relation to project impact areas. If the species is observed during pre-construction surveys, individuals will be flagged for avoidance where possible. If individuals cannot be avoided and will be impacted by construction activities, mitigation shall occur, as follows:

Mitigation Measure MM-BC-2[85]

LAWA or its designee shall prepare and implement a plan to compensate for the loss of individuals of the Lewis' evening primrose and south coast branching phacelia in coordination with the appropriate resource agencies. LAWA or its designee shall collect seed from those plants to be removed, and properly clean and store the collected seed until used. A mitigation site of suitable habitat equal to the area of impact shall be delineated within areas of the Los Angeles/El Segundo Dunes or equivalent. Collected seed shall be broadcast (distributed) after the first wetting rain following or concurrent with the associated impact, preferentially in the fall or early winter. LAWA or its designee shall implement a monitoring plan to monitor the establishment of individuals of Lewis' evening primrose and south coast branching phacelia for a period of not more than five years. Performance criteria shall include the establishment of an equal number of plants as that impacted following the distribution of seed within the mitigation site. Performance criteria shall also include confirmation of recruitment for two years following the first year that flowering is observed and establishment of individuals throughout the mitigation area within three years following the first year that flowering is observed.

Implementation of MM-BC-2 would compensate for the temporary displacement of plants, such that there would be no net adverse effect on these species, and their potential to survive and recover in the wild.

[85] City of Los Angeles, Los Angeles World Airports, and U.S. Department of Transportation, Federal Aviation Administration. January 2005. *Los Angeles International Airport Master Plan Final Environmental Impact Statement/Environmental Impact Report*.

6.4 Wildlife

Mitigation Measure MM-BC (BWP)-8[86]

To comply with the Migratory Bird Treaty Act, for those areas of the project site that are not actively maintained and have a potential for nesting birds/raptors, if construction is scheduled to occur during the nesting season for birds/raptors (generally February 1 to June 30 for raptors and March 15 to August 15 for nesting birds), vegetation that will be impacted by the proposed project shall be removed outside the nesting season if feasible. If this is not feasible, then a qualified biologist shall inspect the shrubs/trees prior to project activities to ensure that no nesting birds/raptors are present. If the biologist finds an active nest within the construction area and determines that the nest may be impacted, the biologist will delineate an appropriate buffer zone; the size of the buffer zone will depend on the species and the type of construction activity, and will be determined in consultation with CDFW. Only construction activities (if any) that have been approved by a Biological Monitor will take place within the buffer zone until the nest is vacated. The biologist shall serve as a construction monitor during those periods when construction activities shall occur near active nest areas to ensure that no inadvertent impacts on these nests shall occur. These construction avoidance measures will be coordinated with LAWA's USDA Wildlife Hazard Biologist and will be consistent with FAA Advisory Circular No. 150/5200-33 "Hazardous Wildlife Attractants on or Near Airports" and LAWA's "LAX Wildlife Hazard Mitigation Plan" to avoid increasing wildlife hazards to aircraft.

Federally Listed Species

Federally listed wildlife species were not observed within the study area. However, recommendations are made for the El Segundo blue butterfly and coastal California gnatcatcher due to their current and historical occupancy of areas adjacent to the study area west of Pershing Drive.

El Segundo Blue Butterfly

In accordance with LAX Master Plan Mitigation Measure MM-ET-3, El Segundo Blue Butterfly Conservation: Dust Control, and MM-ET-4, El Segundo Blue Butterfly Conservation: Habitat Restoration, and the Biological Opinion for the LAX Master Plan that was issued by the USFWS, impacts to the El Segundo blue butterfly and habitat occupied by the El Segundo blue butterfly shall be addressed through dust control during construction, habitat replacement, and avoidance of project activities during the flight season.

1. Construction activities shall occur outside the flight season for the El Segundo blue butterfly (June 1–September 30). If construction activities occur during the flight season, a qualified biological monitor needs to be present. Construction can continue in the absence of the El Segundo blue butterfly.

2. Construction activities should include the use of water or dust control agent to reduce fugitive dust within 2,000 feet of the Habitat Restoration Area.

[86] City of Los Angeles, Los Angeles World Airports. September 2009. *Los Angeles International Airport Bradley West Project Final Environmental Impact Report*.

3. A qualified environmental monitor shall be present for all construction within 1,000 feet of occupied habitat. Should the environmental monitor identify impacts to the El Segundo Blue butterfly or its habitat, mitigation shall occur.

Implementation of MM-ET-3 and MM-ET-4 would protect nearby occupied habitat from fugitive dust generated during construction and ensure avoidance of all occupied habitat such that there would be no adverse effect on this species and its potential to survive and recover in the wild.

Coastal California Gnatcatcher

This species occurs in areas adjacent to the study area west of Pershing Drive. This species may be affected by implementation of the proposed project. Therefore, several measures to reduce impacts, as identified in the nesting bird recommendation above, are recommended during construction activities west of Pershing Drive and where practical.

Implementation of the specified avoidance plan would avoid conflicts between nesting birds and construction and ensure avoidance of all occupied habitat such that there would be no adverse effect on this species and its potential to survive and recover in the wild.

Other Sensitive Species

Burrowing Owl

Pre-construction surveys are recommended for burrowing owl to be conducted outside the nesting season to determine the presence/absence of potential burrows for the species.[87] Burrows suitable for burrow owl occupation will be closed if located within an area where they may be impacted. If active burrows for the species are observed during the nesting season, they will be flagged for avoidance. If active burrows cannot be avoided and will be impacted by construction activities, mitigation should occur. Mitigation for this species generally consists of passively relocating individuals by creating additional suitable burrows outside the impact area. One potential site for relocation is the Los Angeles/El Segundo Dunes.

Implementation of the specified avoidance plan would avoid conflicts between nesting birds and construction and ensure avoidance of all occupied habitat such that there would be no adverse effect on this species and its potential to survive and recover in the wild.

Red Fox

Pre-construction surveys are recommended for red fox to determine the presence/absence of potential burrows for the species. Coordination with USDA Wildlife Services will occur regarding all potential red fox burrows as they are responsible for actively managing red foxes and other wildlife onsite in accordance with California Fish and Game Code Sections 4000–4012, 4152, and 4180.

Implementation of the specified recommendation would avoid conflicts between red foxes and construction and ensure that there would be no adverse effect on this species and its potential to survive and recover in the wild.

[87] California Department of Fish and Wildlife. 2012. *Staff Report on Burrowing Owl Mitigation*. Sacramento, CA. Available at: http://www.dfg.ca.gov/wildlife/nongame/docs/BUOWStaffReport.pdf

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APPENDIX A
OTHER SENSITIVE PLANT SPECIES

Federally Listed Species

All 12 of the federally listed plant species that were identified as potentially occurring in the vicinity of the project area were not observed during the 2013 surveys. These 12 species include: marsh sandwort (*Arenaria paludicola*), Braunton's milk-vetch (*Astragalus brauntonii*), Ventura Marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*), coastal dunes milk-vetch (*Astragalus tener* var. *titi*), San Fernando Valley spineflower (*Chorizanthe parryi* var. *Fernandina*), salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*), Santa Monica dudleya (*Dudleya cymosa* ssp. *ovatifolia*), Gambel's water cress (*Nasturtium gambelii*), spreading navarretia (*Navarretia fossalis*), California Orcutt grass (*Orcuttia californica*), Lyon's pentachaeta (*Pentachaeta lyonii*), and Brand's star phacelia (*Phacelia stellaris*).

State-Listed Species

One state-listed plant species was identified as potentially occurring in the vicinity of the project area: beach spectaclepod (*Dithyrea maritime*). This species was not observed during 2013 surveys. This plant species is not listed under the federal ESA. However, it is listed under the state ESA (Table A-1, *Other Sensitive Plant Species with Potential to Occur*). Sixty plant species from 25 families were identified during the 2013 survey (Attachment A-1, *Floral Compendium*).

Other Sensitive Species

Twenty-seven other sensitive plant species were identified as potentially occurring in the vicinity of the project area. Two of these species, Lewis' evening primrose (*Camissoniopsis lewisii*) and south coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*), were observed during 2013 surveys in the western portion of the project area. The remaining 25 species were not observed in the vicinity of the project area during 2013 surveys and include: Aphanisma (*Aphanisma blitoides*), south coast saltscale (*Atriplex pacifica*), Parish's brittlescale (*Atriplex parishii*), Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), slender mariposa-lily (*Calochortus clavatus* var. *gracilis*), Plummer's mariposa-lily (*Calochortus plummerae*), Santa Barbara morning-glory (*Calystegia sepium* ssp. *binghamiae*), Southern tarplant (*Centromadia parryi* ssp. *Australis*), Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*), coastal goosefoot (*Chenopodium littoreum*), many-stemmed dudleya (*Dudleya multicaulis*), island green dudleya (*Dudleya virens* ssp. *insularis*), Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*), mesa horkelia (*Horkelia cuneata* ssp. *puberula*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), white-veined monardella (*Monardella hypoleuca* ssp. *hypoleuca*), California spineflower (*Mucronea californica*), mud nama (*Nama stenocarpum*), prostrate vernal pool navarretia (*Navarretia prostrate*), Ballona cinquefoil (*Potentilla multijuga*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), Salt Spring checkerbloom (*Sidalcea neomexicana*), estuary seablite (*Suaeda esteroa*), San Bernardino aster (*Symphyotrichum defoliatum*), and Greata's aster (*Symphyotrichum greatae*).

These species are not listed under the federal ESA. However, they have been identified by federal and/or state resource agencies and the CNPS as rare or sensitive in all or a portion of their native range (Table A-1).

TABLE A-1
Other Sensitive Plant Species with Potential to Occur

Name	Status	Habitat	Survey Results
Plants			
Aphanisma *Aphanisma blitoides*	CNPS 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 8.5 miles south of the proposed project site.
South coast saltscale *Atriplex pacifica*	CNPS 1B.2	Chenopod scrub, coastal bluff scrub, coastal scrub	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 8.3 miles south of the proposed project site.
Parish's brittlescale *Atriplex parishii*	CNPS 1B.1	Alkali playa, chenopod scrub, meadow and seep, vernal pool, wetland	Determined to be absent. Habitat and individuals were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 5.7 miles northwest of the proposed project site.
Davidson's saltscale *Atriplex serenana* var. *davidsonii*	CNPS 1B.2	Coastal bluff scrub, coastal scrub	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 6.3 miles northeast of the proposed project site.
Slender mariposa-lily *Calochortus clavatus* var. *gracilis*	CNPS 1B.2	Chaparral, coastal scrub	Not likely to occur. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 13.7 miles northeast of the proposed project site.
Plummer's mariposa-lily *Calochortus plummerae*	CNPS 4.2	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 10.7 miles north of the proposed project site.
Santa Barbara morning-glory *Calystegia sepium* ssp. *binghamiae*	CNPS 1B.1	Marsh and swamp, salt marsh, wetland	Determined to be absent. Habitat and individuals were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 6.3 miles northeast of the proposed project site.
*Lewis' evening primrose *Camissoniopsis lewisii*	CNPS 3	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland	Determined to be present. Habitat observed in Los Angeles / El Segundo Dunes. Observed westernmost area enclosed by the two runways and taxiways. Previously detected in Spring 1998 near western end of north runway.
Southern tarplant *Centromadia parryi* ssp. *australis*	CNPS 1B.1	Marshes, swamps, valley and foothill grassland, vernal pools	Determined to be absent. Habitat and individuals were not observed during 2013 biological surveys. Previously detected within Continental City Property and East Contractor Employee Parking Area in fall 2008. Nearest CNDDB record is located approximately 1.8 miles northwest of the proposed project site.
Orcutt's pincushion *Chaenactis glabriuscula* var. *orcuttiana*	CNPS 1B.1	Coastal bluff scrub, coastal dunes	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys. Reported present in LAX Master Plan prior to taxon inclusions of variations. Nearest CNDDB record is located approximately 1.2 miles northwest of the proposed project site.
Coastal goosefoot *Chenopodium littoreum*	CNPS 1B.2	Coastal dunes	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 0.8 mile northwest of the proposed project site.
Beach spectaclepod *Dithyrea maritime*	ST, CNPS 1B.1	Coastal dunes, coastal scrub	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 1.8 miles northwest of the proposed project site.
Many-stemmed dudleya *Dudleya multicaulis*	CNPS 1B.2	Chaparral, coastal scrub, valley and foothill grassland	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 12.6 miles northeast of the proposed project site.
Island green dudleya *Dudleya virens* ssp. *insularis*	CNPS 1B.2	Coastal bluff scrub, coastal scrub	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 14.2 miles south of the proposed project site.
Los Angeles sunflower *Helianthus nuttallii* ssp. *parishii*	CNPS 1A	Freshwater marsh, marsh and swamp, salt marsh, wetland	Determined to be absent. Habitat and individuals were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 6.3 miles northeast of the proposed project site.
Mesa horkelia *Horkelia cuneata* ssp. *puberula*	CNPS 1B.1	Chaparral, cismontane woodland, coastal scrub	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals were not observed during 2013 biological surveys. Reported present in LAX Master Plan prior to taxon inclusions of subspecies. Nearest CNDDB record is located approximately 9.5 miles north of the proposed project site.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	CNPS 1B.1	Alkali playa, marsh and swamp, salt marsh, valley and foothill grassland, vernal pool, wetland	Determined to be absent. Habitat and individuals were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 1.8 miles northwest of the proposed project site.
White-veined monardella *Monardella hypoleuca* ssp. *hypoleuca*	CNPS 1B.3	Chaparral, cismontane woodland	Determined to be absent. Habitat and individuals were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 11.8 miles northwest of the proposed project site.
*California spineflower *Mucronea californica*	CNPS 4.2	Coastal scrub, chaparral	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys. Previously detected in 1998 in Habitat Restoration Area.
Mud nama *Nama stenocarpum*	CNPS 2.2	Marsh and swamp, wetland	Determined to be absent. Habitat and individuals were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 7.9 miles north of the proposed project site.
Prostrate vernal pool navarretia *Navarretia prostrate*	CNPS 1B.1	Coastal scrub, valley and foothill grassland, vernal pool, wetland	Determined to be absent. Habitat observed in Los Angeles/El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 2.8 miles east of the proposed project site.
*South coast branching phacelia *Phacelia ramosissima*	CNPS 3.2	Chaparral, coastal dunes, coastal scrub, coastal salt marshes	Determined to be present west of project area. Habitat observed in Los Angeles / El Segundo Dunes. Observed west of Pershing Drive during 2013 biological surveys. Previously detected in 2011 in Los Angeles / El Segundo Dunes.

TABLE A-1
Other Sensitive Plant Species with Potential to Occur, *Continued*

Name	Status	Habitat	Survey Results
Ballona cinquefoil *Potentilla multijuga*	CNPS 1A	Meadow and seep	Determined to be absent. Habitat and individuals were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 1.8 miles northwest of the proposed project site.
White rabbit-tobacco *Pseudognaphalium leucocephalum*	CNPS 2.2	Chaparral, cismontane woodland, coastal scrub, riparian woodland	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 10.9 miles northeast of the proposed project site.
Salt Spring checkerbloom *Sidalcea neomexicana*	CNPS 2.2	Alkali playa, brackish marsh, chaparral, coastal scrub, lower montane coniferous forest, marsh and swamp, Mojavean desert scrub, wetland	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 5.7 miles northwest of the proposed project sites.
Estuary seablite *Suaeda esteroa*	CNPS 1B.2	Marsh and swamp, salt marsh, wetland	Determined to be absent. Habitat and individuals were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 16.3 miles southeast of the proposed project site.
San Bernardino aster *Symphyotrichum defoliatum*	CNPS 1B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, marsh and swamp, meadow and seep, valley and foothill grassland, wetland	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not detected during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 6.3 miles northeast of the proposed project site.
Greata's aster *Symphyotrichum greatae*	CNPS 1B.3	Chaparral, cismontane woodland	Determined to be absent. Habitat and individuals were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 12.6 miles northeast of the proposed project site.
Habitats			
Southern Coast Live Oak Riparian Forest	G4, S4	Riparian forest	Determined to be absent. Habitat not observed during 2013 biological surveys. Nearest CNDDB record is located approximately 12.1 miles northwest of the proposed project site.
Southern Coastal Bluff Scrub	G1, S1.1	Coastal bluff scrub	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes during 2013 biological surveys. Nearest CNDDB record is located approximately 13.3 miles south of the proposed project site.
Southern Coastal Salt Marsh	G2, S2.1	Marsh and swamp, wetland	Determined to be absent. Habitat not observed during 2013 biological surveys. Nearest CNDDB record is located approximately 1.2 miles northwest of the proposed project site.
Southern Dune Scrub	G1, S1.1;	Coastal dunes	Determined to be present west of project area. Habitat observed in Los Angeles / El Segundo Dunes during 2013 biological surveys. Nearest CNDDB record is located approximately 0.9 miles south of the proposed project site.
Southern Sycamore Alder Riparian Woodland	G4, S4	Riparian woodland	Determined to be absent. Habitat not observed during 2013 biological surveys. Nearest CNDDB record is located approximately 8.9 miles northwest of the proposed project site.
California Walnut Woodland	G2, S2.1	Cismontane woodland	Determined to be absent. Habitat not observed during 2013 biological surveys. Nearest CNDDB record is located approximately 12 miles north of the proposed project site.

KEY:

CNDDB = California Natural Diversity Database
CNPS = California Native Plant Society
FE = federally endangered
FT = federally threatened
FC = federal candidate
FD = federally delisted
BCC = birds of conservation concern
SE = state endangered
ST = state threatened
SSC = state species of special concern
FP = state fully protected
SD = state delisted

NOTE:

*Critical habitat is only afforded to those species that are listed under the Federal Endangered Species Act as endangered or threatened. Reports describing previously observed species include the Sapphos Environmental Inc. Memoranda and Glenn Lukos Associates Specific Plan Amendment Study.

CNPS California Rare Plant Rank categories:

List 1B: Rare, threatened, or endangered in California and elsewhere
- 0.1: Seriously endangered in California
- 0.2: Fairly endangered in California
- 0.3: Not very endangered in California

List 2: Rare, threatened, or endangered in California, but more common elsewhere
- 0.2: Fairly endangered in California

List 3: Review list, more information required

List 4: Limited distribution (Watch List)
- 0.1: Seriously endangered in California
- 0.2: Fairly Endangered in California
- 0.3: Not very endangered in California

SOURCE:

Sapphos Environmental Inc. January 2001. *Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources, Memoranda for the Record on Floral and Faunal Surveys.*
Glenn Lukos Associates. July 2012. *Appendix D-1 LAX Specific Plan Amendment Study, Floral and Faunal Compendium and Sensitive Plants and Wildlife.*
Frank Hovore & Associates. September 28, 1998. *Report of sensitive arthropod surveys, Los Angeles International Airport 2015 Master Plan Study Area, 1996-1998.*

*Non-native
+Observed on June 14, 2013 in southern dune scrub

Taxonomic designations follow *The Jepson Manual*.[1]

DICOTS

Aizoaceae – Carpet-Weed Family

*+*Carpobrotus edulis*
hottentot fig

Amaranthaceae – Amaranth Family

*+*Amaranthus albus*
tumbleweed

Anacardiaceae – Sumac or Cashew Family

+*Rhus integrifolia*
lemonade berry

Apiaceae – Carrot Family

**Foeniculum vulgare*
fennel

Apocynaceae – Oleander Family

**Nerium oleander*
oleander

Asteraceae – Sunflower Family

+*Ambrosia chamissonis*
beach bur-sage
Artemisia californica
California sagebrush
+*Baccharis pilularis*
coyote brush
+*Chaenactis glabriuscula* var. *glabriuscula*
yellow pincushion

[1] Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. *The Jepson Manual: vascular plants of California, second edition*. University of California Press, Berkeley.

Centaurea melitensis
tocolote
Centaurea solstitialis
yellow star-thistle
Cichorium intybus
Chicory
Corethrogyne filaginifolia
California aster
+*Ericameria ericoides*
mock heather
+*Erigeron canadensis*
common horseweed
Deinandra fasciculata
fascicled tarplant
*+*Gazania linearis*
gazania
**Glebionis coronaria*
crown daisy
+*Heterotheca grandiflora*
telegraph weed
*+*Hypochaeris glabra*
smooth cat's-ear
**Lactuca serriola*
prickly lettuce
+*Pseudognaphalium biolettii*
two-color rabbit-tobacco
**Sonchus oleraceus*
common sow thistle
Xanthium strumarium
cockleburr

Boraginaceae – Waterleaf Family

+*Phacelia ramosissima* var. *austrolitoralis*
South coast branching phacelia

Brassicaceae – Mustard Family

*+*Brassica tournefortii*
wild turnip
+*Erysimum suffrutescens*
suffrutescent wallflower
*+*Hirschfeldia incana*
shortpod mustard
*+*Raphanus sativus*
radish
**Sisymbrium altissimum*
tumble mustard

Chenopodiaceae – Goosefoot Family

*+*Salsola tragus*
Russian thistle

Convolvulacaceae – Morning Glory Family

**Convulvulus arvensis*
bindweed
Calystegia macrostegia ssp. intermedia
south coast morning glory

Euphorbiaceae – Spurge Family

+*Croton californicus*
California croton
**Euphorbia peplus*
petty spurge
*+*Euphorbia terracina*
Geraldton carnation weed
**Ricinus communis*
castor bean

Fabaceae – Pea Family

**Acacia redolens*
bank catclaw
+*Acmispon glaber*
deerweed
Lotus purshianus
Spanish lotus
Lupinus bicolor
miniature lupine
+*Lupinus chamissonis*
silver dune lupine
**Melilotus indicus*
sourclover
**Trifolium pratense*
red clover

Geraniaceae – Geranium Family

*+*Erodium cicutarium*
redstem filaree

Lauraceae – Laurel Family

**Cinnamomum camphora*
camphortree

Magnoliaceae – Magnolia Family

Magnolia grandiflora
southern magnolia

Malvaceae – Mallow Family

**Malva parviflora*
cheeseweed

Nyctaginaceae – Four O'Clock Family

[+]Abronia umbellata var. *umbellata*
pink sand verbena

Onagraceae – Evening Primrose Family

Camissoniopsis lewisii
Lewis' evening primrose
[+]Camissoniopsis cheiranthifolia subsp. *suffruticosa*
beach evening primrose

Papaveraceae – Poppy Family

[+]Eschscholzia californica
California poppy

Plantaginaceae – Plantain Family

**Plantago lanceolata*
English plantain

Platanaceae – Plane-Tree Family

Platanus sp.
sycamore

Plumbaginaceae – Leadwort Family

**Limonium sinuatum*
winged sea lavender

Polygonaceae – Buckwheat Family

[+]Eriogonum fasciculatum var. *fasciculatum*
coastal California buckwheat
Polygonum aviculare
prostrate knotweed
Rumex crispus
curly dock

Rubiaceae – Madder Family

+*Galium angustifolium* subsp. *angustifolium*
narrow leaved bedstraw

Solanaceae – Nightshade Family

+*Datura wrightii*
Jimson weed
Solanum americanum
common nightshade

Ulmaceae – Elm Family

Ulmus parvifolia
Chinese elm

MONOCOTS

Arecaceae – Palm Family

**Washingtonia robusta*
Mexican fan palm

Poaceae – Grass Family

*+*Arundo donax*
giant reed
*+*Avena fatua*
wild oat
*+*Bromus diandrus*
ripgut brome
**Bromus madritensis*
red brome
**Cortaderia jubata*
pampas grass
+*Cynodon dactylon*
Bermuda grass
**Hordeum murinum*
hare barley
**Lamarckia aurea*
goldentop
**Paspalum dilatatum*
Dallis grass
**Pennisetum setaceum*
crimson fountain grass
**Setaria pumila*
yellow bristle grass

APPENDIX B
OTHER SENSITIVE WILDLIFE SPECIES

Federally Listed Species

All 10 federally listed wildlife species that were identified as potentially occurring in the vicinity of the project area were not observed during the 2013 surveys and include: El Segundo blue butterfly (*Euphilotes battoides allyni*), Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*), southern steelhead – southern California DPS (*Oncorhynchus mykiss irideus*), Mohave tui chub (*Siphateles bicolor mohavensis*), western snowy plover (*Charadrius alexandrinus nivosus*), southwestern willow flycatcher (*Empidonax traillii extimus*), coastal California gnatcatcher (*Polioptila californica californica*), California least tern (*Sternula antillarum browni*), least Bell's vireo (*Vireo bellii pusillus*), and Pacific pocket mouse (*Perognathus longimembris pacificus*).

State-Listed Species

Three state-listed wildlife species were identified as potentially occurring in the vicinity of the project area. None of the three state-listed sensitive wildlife species were observed during 2013 surveys. These species include: California black rail (*Laterallus jamaicensis coturniculus*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), and bank swallow (*Riparia riparia*).

These wildlife species are not listed under the federal ESA. However, they are listed under the state ESA (Table B-1, *Other Sensitive Wildlife Species with Potential to Occur*). Twenty-two wildlife species were observed during the 2013 surveys. There were two insect species, three reptile species, and 17 bird species recorded at the project site (Attachment B-1, *Faunal Compendium*).

Other Sensitive Wildlife Species

Eighteen other sensitive wildlife species were identified as potentially occurring in the vicinity of the Project area. One of the 18 other sensitive wildlife species, burrowing owl (*Athene cunicularia*), was observed during 2013 surveys. The remaining 17 species include: silvery legless lizard (*Anniella pulchra pulchra*), Western spadefoot (*Spea hammondii*), western pond turtle (*Emys marmorata*), coast horned lizard (*Phrynosoma blainvillii*), two-striped garter snake (*Thamnophis hammondii*), tricolored blackbird (*Agelaius tricolor*), American peregrine falcon (*Falco peregrinus anatum*), loggerhead shrike (*Lanius ludovicianus*), California brown pelican (*Pelecanus occidentalis californicus*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), south coast marsh vole (*Microtus californicus stephensi*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), big free-tailed bat (*Nyctinomops macrotis*), Southern California saltmarsh shrew (*Sorex ornatus salicornicus*), and American badger (*Taxidea taxus*).

Burrowing owl was also observed during surveys conducted for the Specific Plan Amendment Study Environmental Impact Report in the area north of Runway 6L-24R on airport property.[1]

[1] Los Angeles World Airports. 2012. *LAX Specific Plan Amendment Study – Draft EIR*. Available at: http://www.lawa.org/LAXSPAS/Reports.aspx

These wildlife species are not listed under the federal ESA. However, they have been identified by federal and/or state resource agencies as rare or sensitive in all or a portion of their native range (Table B-1).

Locally Sensitive Wildlife Species

Twenty-four locally sensitive wildlife species were identified as potentially occurring in the vicinity of the project area. None of the 24 locally sensitive wildlife species were observed during 2013 surveys. These species include: Dune scarab beetle (*Aegilla convexa*), Santa Monica shieldback katydid (*Aglaothorax longipennis*), Belkin's dune tabanid fly (*Brennania belkini*), Busck's gallmoth (*Carolella busckana*), western tidal-flat tiger beetle (*Cicindela gabbii*), sandy beach tiger beetle (*Cicindela hirticollis gravida*), senile tiger beetle (*Cicindela senilis frosti*), Globose dune beetle (*Coelus globosus*), Monarch butterfly (*Danaus plexippus*), El Segundo crab spider (*Ebo* sp.), El Segundo sun spider (*Eremobates* sp.), Henne's eucosman moth (*Eucosma hennei*), Lange's El Segundo Dune weevil (*Onychobaris langei*), wandering (=saltmarsh) skipper (*Panoquina errans*), south coast dune beetle (*Psammodius macclayi*), El Segundo flower-loving fly (*Rhaphiomidas terminatus terminates*), Gertsch's socalchemmis spider (*Socalchemmis gertschi*), El Segundo Jerusalem cricket (*Stenopelmatus* sp.), Dorothy's El Segundo Dune weevil (*Trigonoscuta dorothea dorothea*), mimic tryonia (=California brackishwater snail) (*Tryonia imitator*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), San Bernardino ringneck snake (*Diadophis punctatus modestus*), hoary bat (*Lasiurus cinereus*), and silver-haired bat (*Lasionycteris noctivagans*).

These wildlife species are not listed under the federal ESA. However, they have been identified by federal and/or state resource agencies as rare or sensitive in all or a portion of their native range (Table B-1).

TABLE B-1
Other Sensitive Wildlife Species Potentially Occurring in the Study Area

Name	Status	Habitat	Survey Results
Invertebrates			
*Dune scarab beetle *Aegilla convexa*		Ocean beaches, dunes	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals not observed during 2013 biological surveys. Previously detected in 1996–1998 and 2011 in Los Angeles/El Segundo Dunes.
Santa Monica shieldback katydid *Aglaothorax longipennis*		Chaparral	Determined to be absent. Habitat, individuals and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 11.8 miles northwest of the study area.
Belkin's dune tabanid fly *Brennania belkini*		Southern foredune, southern dune scrub	Determined to be absent. Habitat observed in the Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys. Previously detected in Los Angeles/El Segundo Dunes and LAX (1996–1998). Nearest CNDDB record is located approximately 0.6 mile south of the study area.
Busck's gallmoth *Carolella busckana*		Coastal dunes, coastal scrub	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 0.9 mile south of the study area.
Western tidal-flat tiger beetle *Cicindela gabbii*		Estuary, mud shore/flats	Determined to be absent. Habitat, individuals and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 14.1 miles southeast of the study area.
Sandy beach tiger beetle *Cicindela hirticollis gravida*		Coastal dunes	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 0.7 mile northwest of the study area.
Senile tiger beetle *Cicindela senilis frosti*		Mud shore/flats, wetland	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 4 miles south of the study area.
Globose dune beetle *Coelus globosus*		Foredunes, sand hummocks	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys or previous surveys. Previously detected in Los Angeles/El Segundo Dunes (1996–1998). Nearest CNDDB record is located approximately 0.4 mile west of the study area.
Monarch butterfly *Danaus plexippus*		Roosts in wind-protected tree groves (eucalyptus, Monterey pine, and cypress)	Determined to be absent. Habitat, individuals and sign were not observed during the surveys. Previously detected in Los Angeles/El Segundo Dunes. Nearest CNDDB record is located approximately 1.8 miles northwest of the study area.
*El Segundo crab spider *Ebo* sp.		Southern foredune, southern dune scrub	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys. Previously determined to be present (1996–1998).
*El Segundo sun spider *Eremobates* sp.		Dunes	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys. Previously determined to be present (1996–1998).
Henne's eucosman moth *Eucosma hennei*		Coastal dunes	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 0.6 mile south of the study area.
Lange's El Segundo Dune weevil *Onychobaris langei*		Coastal dunes	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys. Nearest CNDDB record is located approximately 0.6 miles south of the study area.
Wandering (=saltmarsh) skipper *Panoquina errans*		Marsh and swamp, wetland	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 1.4 miles north of the study area.
*South coast dune beetle *Psammodius macclayi*		Sand dune systems along coast and flood plain river systems	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys. Previously detected in Los Angeles / El Segundo Dunes (1996–1998).
El Segundo flower-loving fly *Rhaphiomidas terminatus terminatus*		Dunes	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 9.8 miles southwest of the study area.

TABLE B-1
Other Sensitive Wildlife Species Potentially Occurring in the Study Area, *Continued*

Name	Status	Habitat	Survey Results
Gertsch's socalchemmis spider *Socalchemmis gertschi*		Coastal scrub	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 7.6 miles northwest of the study area.
*El Segundo Jerusalem cricket *Stenopelmatus* sp.		Southern foredune, southern dune scrub	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys. Previously detected in Los Angeles/El Segundo Dunes (1996–1998).
Dorothy's El Segundo Dune weevil *Trigonoscuta dorothea dorothea*		Coastal dunes	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 0.3 mile west of the study area.
Mimic tryonia (=California brackishwater snail) *Tryonia imitator*		Aquatic, brackish marsh, estuary, lagoon, marsh and swamp, salt marsh, wetland	Determined to be absent. Habitat, individuals and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 1.6 miles north of the study area.
Amphibians			
Western spadefoot *Spea hammondii*	SSC	Cismontane woodland, coastal scrub, valley & foothill grassland, vernal pool, wetland	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys. Previously detected on LAX (1996). Suitable habitat was removed from LAX and there has been a lack of current observations. Nearest CNDDB record is located approximately 22.9 miles east of the study area.
Reptiles			
Silvery legless lizard *Anniella pulchra pulchra*	SSC	Coastal sage scrub, chaparral, coastal dunes, valley/foothill grasslands, oak woodlands, pine forests	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys. Previously determined present in Los Angeles/El Segundo Dunes. Nearest CNDDB record is located approximately 10.9 miles southeast of the study area.
Coastal whiptail *Aspidoscelis tigris stejnegeri*		Deserts, semiarid areas, woodland, riparian areas	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 10.6 miles of northwest of the study area.
San Bernardino ringneck snake *Diadophis punctatus modestus*		Open, relatively rocky areas often moist places near intermittent streams	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 14.1 miles northwest of the study area.
Western pond turtle *Emys marmorata*	SSC	Aquatic, artificial flowing waters, Klamath/north coast flowing waters, Klamath/north coast standing waters, marsh and swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, south coast flowing waters, south coast standing waters, wetland	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 1.2 miles northwest of the study area.
Coast horned lizard *Phrynosoma blainvillii*	SSC	Chaparral, cismontane woodland, coastal bluff scrub, coastal scrub, desert wash, pinon and juniper woodlands, riparian scrub, riparian woodland, valley & foothill grassland	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys. Previously determined present in Los Angeles/El Segundo Dunes. Nearest CNDDB record is located approximately 6.4 miles south of the study area.
Two-striped garter snake *Thamnophis hammondii*	SSC	Marsh and swamp, riparian scrub, riparian woodland, wetland	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 12.7 miles northwest of the study area.
Birds			
Tricolored blackbird *Agelaius tricolor*	BCC, SSC	Freshwater marsh, marsh and swamp, swamp, wetland	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 9.1 miles southeast of the study area.
Burrowing owl *Athene cunicularia*	BCC, SSC	Coastal prairie, coastal scrub, great basin grassland, great basin scrub, Mojavean desert scrub, Sonoran desert scrub, valley & foothill grassland	Determined to be present. Habitat, individuals, and sign were observed during the surveys. Previously determined present as a winter resident in Los Angeles / El Segundo Dunes. Observed in 2012 on western and northern areas of the north airfield. Nearest CNDDB record is located approximately 1.4 miles north of the study area.

TABLE B-1
Other Sensitive Wildlife Species Potentially Occurring in the Study Area, *Continued*

Name	Status	Habitat	Survey Results
American peregrine falcon *Falco peregrinus anatum*	FD, SD, FP, BCC	Breeds in woodland, forest, coastal habitats. Non-breeding habitat includes riparian, coastal and inland wetlands	Determined to be absent. Foraging habitat observed. Breeding habitat not observed. Individuals and sign were not observed during 2013 biological surveys. Previously detected flying over the area and roosting in adjacent buildings. Nearest CNDDB record is located approximately 20.2 miles northeast of the study area.
Loggerhead shrike *Lanius ludovicianus*	SSC	Broadleaved upland forest, desert wash, Joshua tree woodland, Mojavean desert scrub, pinon & juniper woodlands, riparian woodland, Sonoran desert scrub	Determined to be absent. Foraging habitat observed. Nesting habitat not observed. Individuals and sign were not observed during 2013 biological surveys. Previously detected breeding in Los Angeles/El Segundo Dunes (1998, 2008, 2009). Nearest CNDDB record is located approximately 35.9 miles north of the study area.
California black rail *Laterallus jamaicensis coturniculus*	ST, FP, BCC	Brackish marsh, freshwater marsh, marsh and swamp, salt marsh, wetland	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 0.8 mile northwest of the study area.
Belding's savannah sparrow *Passerculus sandwichensis beldingi*	SE	Marsh and swamp, wetland	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 1.2 miles northwest of the study area.
California brown pelican *Pelecanus occidentalis californicus*	FD, SD, FP	Colonial nester on coastal islands just outside the surf line	Determined to be absent. Habitat, individuals, and sign were not observed during the 2013 biological surveys. The species may flyover the study area as it is in close proximity to the open ocean. The species is a year-round resident of southern California. Nearest CNDDB record is located approximately 1.8 miles northwest of the study area.
Bank swallow *Riparia riparia*	ST	Riparian scrub, riparian woodland	Determined to be absent. Breeding habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. May forage on the study area. Nearest CNDDB record is located approximately 7.4 miles northwest of the study area.
Mammals			
Pallid bat *Antrozous pallidus*	SSC	Chaparral, coastal scrub, desert wash, great basin grassland, great basin scrub, Mojavean desert scrub, riparian woodland, Sonoran desert scrub, upper montane coniferous forest, valley and foothill grassland	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 4.8 miles north of the study area.
Western mastiff bat *Eumops perotis californicus*	SSC	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 4.8 miles north of the study area.
Hoary bat *Lasiurus cinereus*		Broadleaved upland forest, cismontane woodland, lower montane coniferous forest, north coast coniferous forest	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 4.9 miles north of the study area.
Silver-haired bat *Lasionycteris noctivagans*		Lower montane coniferous forest, oldgrowth, riparian forest	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 6.6 miles north of the study area.
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	SSC	Coastal scrub	Determined to be absent. Habitat, individuals, and sign were not observed during the 2013 biological surveys. Previously detected in the LAX airfield open space. Have not been observed since 1997. Presumed extirpated due to LAX operations and maintenance. Nearest CNDDB record is located approximately 22 miles northeast of the study area.
South coast marsh vole *Microtus californicus stephensi*	SSC	Tidal marshes	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 1.4 miles north of the study area.
Pocketed free-tailed bat *Nyctinomops femorosaccus*	SSC	Joshua tree woodland, pinon and juniper woodlands, riparian scrub, Sonoran desert scrub	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 2.8 miles east of the study area.
Big free-tailed bat *Nyctinomops macrotis*	SSC	Low-lying arid areas in southern California. Need high cliffs or rocky outcrops for roosting sites.	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 11.3 miles northeast of the study area.

TABLE B-1
Other Sensitive Wildlife Species Potentially Occurring in the Study Area, *Continued*

Name	Status	Habitat	Survey Results
Southern California saltmarsh shrew *Sorex ornatus salicornicus*	SSC	Salt marsh	Determined to be absent. Habitat, individuals, and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 1.4 miles northwest of the study area.
American badger *Taxidea taxus*	SSC	Alkali marsh, alkali playa, alpine, alpine dwarf scrub, bog and fen, brackish marsh, broadleaved upland forest, chaparral, chenopod scrub, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub, desert dunes, desert wash, freshwater marsh, great basin grassland, great basin scrub, interior dunes, ione formation, Joshua tree woodland, limestone, lower montane coniferous forest, marsh and swamp, meadow and seep, Mojavean desert scrub, montane dwarf scrub, north coast coniferous forest, oldgrowth, pavement plain, redwood, riparian forest, riparian scrub, riparian woodland, salt marsh, sonoran desert scrub, sonoran thorn woodland, ultramafic, upper montane coniferous forest, upper Sonoran scrub, valley and foothill grassland	Determined to be absent. Habitat observed in Los Angeles / El Segundo Dunes. Individuals and sign were not observed during 2013 biological surveys or previous surveys. Nearest CNDDB record is located approximately 11.3 miles northeast of the study area.

KEY:
CNDDB = California Natural Diversity Database
CNPS = California Native Plant Society
FE = federally endangered
FT = federally threatened
FC = federal candidate
FD = federally delisted
BCC = birds of conservation concern
SE = state endangered
ST = state threatened
SSC = state species of special concern
FP = state fully protected
SD = state delisted

NOTE:
*Critical habitat is only afforded to those species that are listed under the Federal Endangered Species Act as endangered or threatened. Reports describing previously observed species include the Sapphos Environmental Inc. Memoranda and Glenn Lukos Associates Specific Plan Amendment Study.

SOURCES: Sapphos Environmental Inc. January 2001. *Technical Report LAX Master Plan EIS/EIR, 7. Biological Resources, Memoranda for the Record on Floral and Faunal Surveys*.
Glenn Lukos Associates. July 2012. *Appendix D-1 LAX Specific Plan Amendment Study, Floral and Faunal Compendium and Sensitive Plants and Wildlife*.
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United States Fish and Wildlife Service. 2013. *California Brown Pelican (Pelecanus occidentalis)*. Arcata, CA. Available at http://www.fws.gov/arcata/es/birds/brnpelican/b_pelican.html
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United States Fish and Wildlife Service. 2013. *Species Profile - Western Burrowing Owl (Athene cunicularia hypogea)*. Washington, DC. Available at http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0AR#status

ATTACHMENT B-1
FAUNAL COMPENDIUM

Technical Note: The names and taxonomy for all faunal species is based upon the most current and accepted checklists approved by the appropriate scientific societies. Reptile names and taxonomy follow the recent report from the committee sanctioned by the Society for the Study of Amphibians and Reptiles, the American Society of Ichthyologists and Herpetologists, and The Herpetologists' League to continue the development of standard English names of the North American herpetofauna.[*] Bird names and taxonomy follow the *Check-List of North American Birds*, 7th edition, and its supplements approved by the American Ornithologist Union.[†]

Terrestrial Invertebrates

Insects

LEPIDOPTERA

Nymphalidae – Brush-Footed Butterflies

Junonia coenia
common buckeye

COLEOPTERA

Entiminae

Curculionidae – Weevils

weevil species

[*] Crother, B. I., J. Boundy, J. A. Cambell, K. de Queiroz, D. R. Frost, R. Highton, J. B. Iverson, P. A. Meylan, T. W. Reeder, M. E. Seidel, S. G. Tilley, and D. B. Wake. 2001. *Scientific and standard English names of amphibians and reptiles of North America north of Mexico, with comments regarding confidence in our understanding*. Edited by J. J. Moriarty. Society for the Study of Amphibians and Reptiles Herpetological Circulars No. 29.

[†] American Ornithologists' Union. 1998. *Check-List of North American Birds*, 7th ed. American Ornithologists' Union, Washington, DC.

Terrestrial Vertebrates

Reptiles

SQUAMATA

Phrynosomatidae – Zebra-Tailed, Spiny, Tree, and Horned Lizards

Sceloporus occidentalis
western fence lizard

Uta stansburiana
common side-blotched lizard

Colubridae – Colubrid Snakes

Pituophis catenifer
gopher snake

Birds

PODICIPEDIFORMES

Podicipedidae – Grebes

Aechmophorus occidentalis
western grebe

SULIFORMES

Phalacrocoracidae – Cormorants

Phalacrocorax auritus
double-crested cormorant

PELECANIFORMES

Ardeidae – Heron and Egrets

Egretta thula
snowy egret

ACCIPITRIFORMES

Accipitridae – Hawks, Eagles, and Kites

Buteo jamaicensis
red-tailed hawk

STRIGIFORMES

Strigidae – Typical Owls

Athene cunicularia
burrowing owl

CHARADIFORMES

Laridae – Gulls

Larus occidentalis
western gull

COLUMBIFORMES

Columbidae – Pigeons and Doves

Columba livia
rock pigeon
Zenaida macroura
mourning dove

FALCONIFORMES

Falconidae – Falcons

Falco sparverius
American kestrel

PASSERIFORMES

Corvidae – Jays and Crows

Corvus brachyrhynchos
American crow
Corvus corax
common raven

Hirundinidae – Swallows and Martins

Petrochelidon pyrrhonota
cliff swallow
Hirundo rustica
barn swallow

Mimidae – Thrashers

Mimus polyglottos
northern mockingbird

Sturnidae – Starlings

Sturnus vulgaris
European starling

Icteridae – Blackbirds and Orioles

Agelaius phoeniceus
red-winged blackbird

Fringillidae – Finches

Carpodacus mexicanus
house finch
Spinus psaltria
lesser goldfinch

MAMMALS

Vulpes vulpes
red fox

Appendix D

Cultural Resources

Los Angeles International Airport
Proposed Runway 6R-24L
Runway Safety Area Improvements Project

Cultural Resources Technical Report

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U.S. Department of Transportation
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December 15, 2014

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APPENDICES

SECTION ES
SUMMARY OF FINDINGS

This Cultural Resources Technical Report (CRTR) documents the results of a cultural resources assessment for the Proposed Runway Safety Area (RSA) Improvements to Runway 6R-24L (proposed undertaking) at the Los Angeles International Airport (LAX), in Los Angeles County, California. The record search identified 11 previously recorded cultural resources within 0.5 mile of the area of potential effects (APE). Intensive pedestrian surveys were conducted on May 8, 2013; June 14, 2013; July 27, 2013; December 18, 2013; and July 16, 2014, and resulted in the identification of two historic period (greater than 50 years old) cultural resources (one built environment and one archaeological): Runway 6R-24L and LAX Supplemental Site 1H (structural debris scatter from the Surfridge community). Both resources lack integrity and do not meet any of the criteria for listing on the National Register of Historic Places (NRHP), and are therefore recommended not eligible for listing on the NRHP.

The results of records search and archival research suggest a potential for the unanticipated discovery of buried cultural deposits if construction activities extend into native or undisturbed soil. Construction activities associated with the proposed undertaking are not anticipated to extend beyond 3 feet below ground surface, which is reported to consist of fill material. However, if plans for the proposed undertaking are modified so that ground disturbances occur in areas or at depths that do not consist of redeposited fill or have not previously been disturbed, unanticipated discoveries of archaeological resources may occur. The disturbance or destruction of potentially significant undiscovered resources by construction-related activities would be considered a significant effect unless mitigated. It is recommended that procedures outlined in the Archaeological Treatment Plan[1] completed pursuant to Mitigation Measure HA-4 of the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP) be followed to ensure the long-term protection and proper treatment of those unexpected archaeological discoveries of federal, state, and/or local significance found within the APE.

[1] Los Angeles World Airports. June 2005. *Archaeological Treatment Plan*. Prepared by: Brian F. Smith and Associates, San Diego, CA.

SECTION 1.0
INTRODUCTION

The Los Angeles World Airports (LAWA) is planning Runway Safety Area (RSA) improvements to Runway 6R-24L at the Los Angeles International Airport (LAX). Sapphos Environmental, Inc. previously prepared a Cultural Resources Technical Report (CRTR) documenting the results of a cultural resources assessment in support of improvements to Runway 6R-24L and 6L-24R. However, improvements identified in that project did not bring the Runway 6R-24L RSA into compliance with Federal Aviation Administration (FAA) design standards. The proposed Runway 6R-24L Runway Safety Area Improvements Project (proposed undertaking) is being undertaken by LAWA in response to the requirements of *The Transportation, Treasury, Housing and Urban Development, the Judiciary, The District of Columbia, and Independent Agencies Appropriations Act* (Public Law 109-115),[1] which states that all RSAs at 14 Code of Federal Regulations (CFR) Part 139 airports[2] must meet FAA design standards by December 31, 2015.

This CRTR consists of a brief description of the proposed undertaking, a summary of the regulatory frameworks that guide the decision-making process with respect to historic properties, a description of the methods employed to support the characterization and evaluation of cultural resources within the proposed undertaking area, the results for baseline conditions for cultural resources, the potential for the proposed undertaking to affect cultural resources, and, if appropriate, opportunities to avoid and minimize the potential effects of the proposed undertaking.

1.1 PURPOSE OF THE CULTURAL RESOURCES TECHNICAL REPORT

This CRTR was prepared to characterize the cultural resources that would potentially be affected by construction, operation, and maintenance of the proposed undertaking. As such, the document presents data and information to be used in making a determination of effects to cultural resources resulting from the proposed undertaking and will provide the substantial evidence required with respect to cultural resources for environmental documentation under the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA).

1.2 SOURCES OF RELEVANT INFORMATION

A literature review was conducted at the South Central Coastal Information Center (SCCIC), at California State University, Fullerton, and was the primary source of relevant information used in the preparation of this CRTR. Additional information was gathered through a Phase I survey, informal coordination with cooperating agencies, and spatial analysis based on geographic information system data. Sources of relevant information are cited in footnotes and compiled in Section 6, *References*.

1.3 WORKING DEFINITIONS

This section defines technical terms used in the characterization of baseline conditions and assessment of the potential for the proposed undertaking to affect cultural resources.

[1] *The Transportation, Treasury, Housing and Urban Development, the Judiciary, The District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), 30 November 2005.

[2] 14 Code of Federal Regulations (CFR) Part 139 airports are U.S. airports that are certified by FAA to allow commercial passenger aircraft operations.

Archaeological site is defined by the National Register of Historic Places (NRHP) as the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of these remains. Archaeological remains usually take the form of artifacts (e.g., fragments of tools, vestiges of utilitarian or non-utilitarian objects), features (e.g., remnants of walls, cooking hearths, or midden deposits), and ecological evidence (e.g., pollen remaining from plants that were in the area when the activities occurred).[3] Prehistoric archaeological sites represent the material remains of Native American groups and their activities. These sites are generally thought to date to the period before European contact but, in some cases, may contain evidence of trade contact with Europeans. Historic archaeological sites reflect the activities of nonnative populations during the historic period.

Area of potential effects (APE) consists of the portions of the proposed undertaking area that have the potential to be subjected to direct effects, such as ground disturbances associated with grading, leveling, and excavation. The APE also includes a 100-foot buffer area surrounding the loci of direct ground disturbance that accounts for indirect effects such as accidental vehicular and foot traffic.

Cultural resources study area is a 0.5-mile buffer placed around the APE from which the relevant sources of information are collected and reviewed in order to determine the potential cultural sensitivity of the APE.

Historic period is defined as the period that begins with the arrival of the first nonnative population and thus varies by area. Most Southern California archaeologists use AD 1542 as the date to mark the beginning of the historic period, following the beginning of the Spanish contact with coastal California.

Isolate is defined as an isolated artifact or small group of artifacts that appear to reflect a single event, loci, or activity. It may lack identifiable context but has the potential to add important information about a region, culture, or person. Isolates do not require avoidance or mitigation under NHPA because they lack contextual integrity and, therefore, are unlikely to meet the criteria for inclusion in the NRHP.

Native American sacred site is defined as an area that has been, and often continues to be, of religious significance to Native American peoples, such as an area where religious ceremonies are practiced or an area that is central to their origins as a people.

[3] U.S. Department of the Interior, National Park Service. 2000. *National Register Bulletin: Guidelines for Evaluating and Registering Archeological Properties*. Washington, DC. Available at: http://www.cr.nps.gov/nr/publications/bulletins/arch/

SECTION 2.0
DESCRIPTION OF THE PROPOSED UNDERTAKING

The description of the proposed undertaking includes its precise location and boundaries, the project elements that constitute the proposed undertaking, and a brief characterization of the existing conditions at the proposed undertaking area.

2.1 PROPOSED UNDERTAKING LOCATION

The proposed undertaking is located within the north airfield on LAX property within the City of Los Angeles, Los Angeles County (Figure 2.1-1, *Regional Vicinity Map*). The area around LAX is highly urbanized and consists of transportation infrastructure (airport and interstate highways), commercial, and residential uses. To the north of LAX is the community of Westchester in the City of Los Angeles, to the east is the City of Inglewood, to the south is the City of El Segundo, and to the west is the Pacific Ocean. Highway access to LAX is provided by the San Diego Freeway (Interstate 405), which is a north-south freeway east of LAX, and the Century Freeway (Interstate 105), which is an east-west freeway south of LAX. Major roadways that serve LAX include Sepulveda Boulevard, Century Boulevard, Imperial Highway, and Lincoln Boulevard.

The northern airfield complex at LAX includes Runway 6R-24L as well as a system of parallel and connecting taxiways (Figure 2.1-2, *Proposed Undertaking Location*). In addition, there are a number of airfield operations roadways located within the north airfield area. The undertaking properties are within the U.S. Geological Survey (USGS) 7.5-minute series, Venice, California, topographic quadrangle in unsectioned portions of Township 2, South, Range 15 West. The elevation ranges from 126 feet above mean sea level (MSL) to 86 feet above MSL.

2.2 EXISTING CONDITIONS

The proposed undertaking area consists of the paved Runway 6R-24L and shoulder areas, and includes taxiways and service roadways separated by unpaved sections of maintained grass and low scrub vegetation. The eastern portion of the proposed undertaking includes two on-airport parking areas utilized for the staging of construction vehicles and other equipment used at LAX, a partially graveled area, and a grassy area at the east end of Runway 24R (Figure 2.1-2). This area also includes the Air Operations Area (AOA) fence and a service road (El Manor Avenue, previously a residential street), both of which are now located on airport property and closed to the public. The western portion of the proposed undertaking includes Medium Intensity Approach Lighting System with Runway Alignment Indicator (MALSR) instrumentation associated with Runway 6R-24L positioned on coastal dunes west of the runway.

2.3 PROPOSED UNDERTAKING ELEMENTS

LAWA is proposing to improve the RSA of Runway 6R-24L at LAX in response to *The Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act* (Public Law 109-115).[1] This act requires completion of RSA improvements by airport sponsors that hold a certificate under Title 14, CFR, Part 139, Certification and Operations: Land Airports Serving Certain Air Carriers, to comply with FAA design standards by December 31, 2015.

[1] *The Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), 30 November 2005.

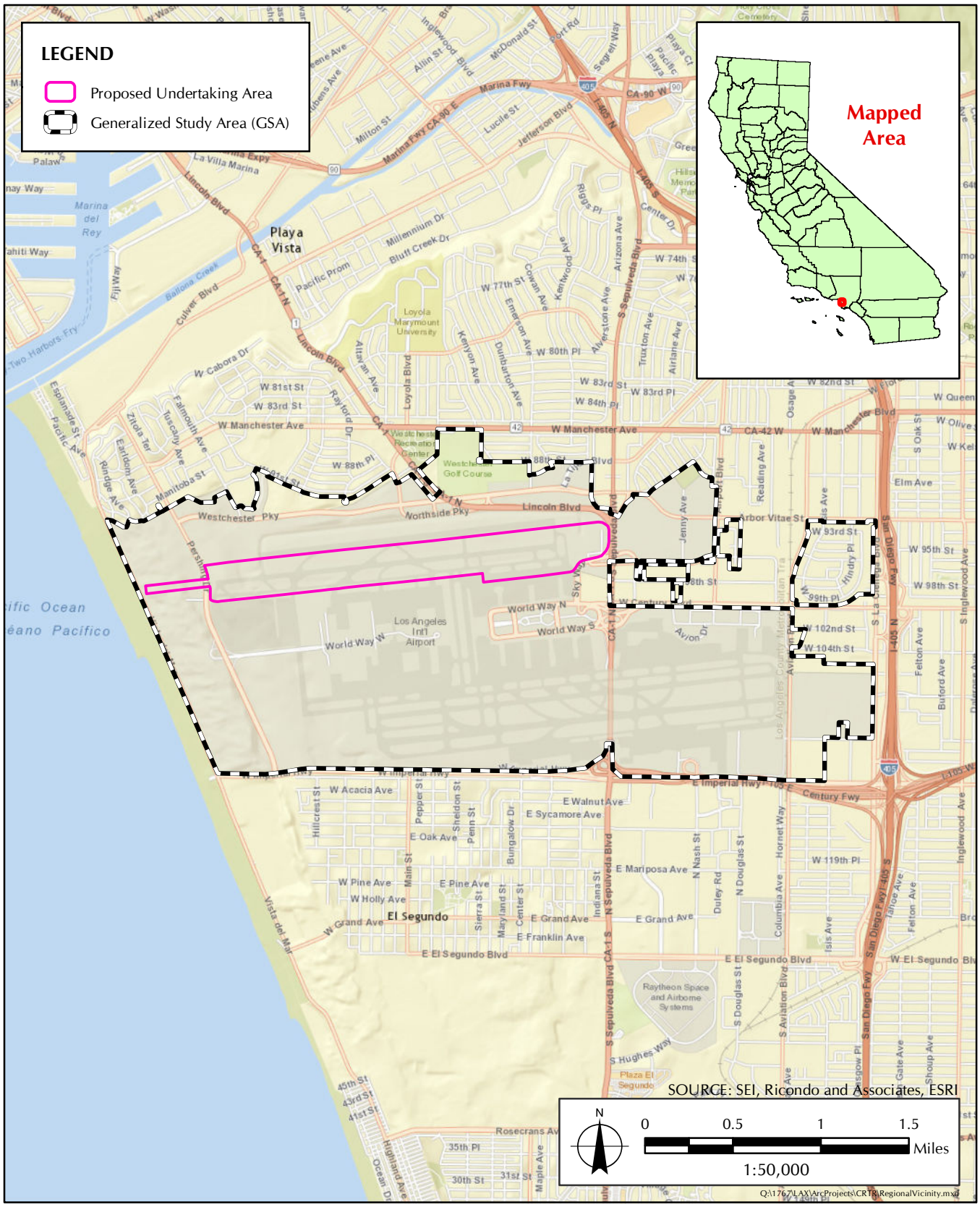

FIGURE 2.1-1

Regional Vicinity Map

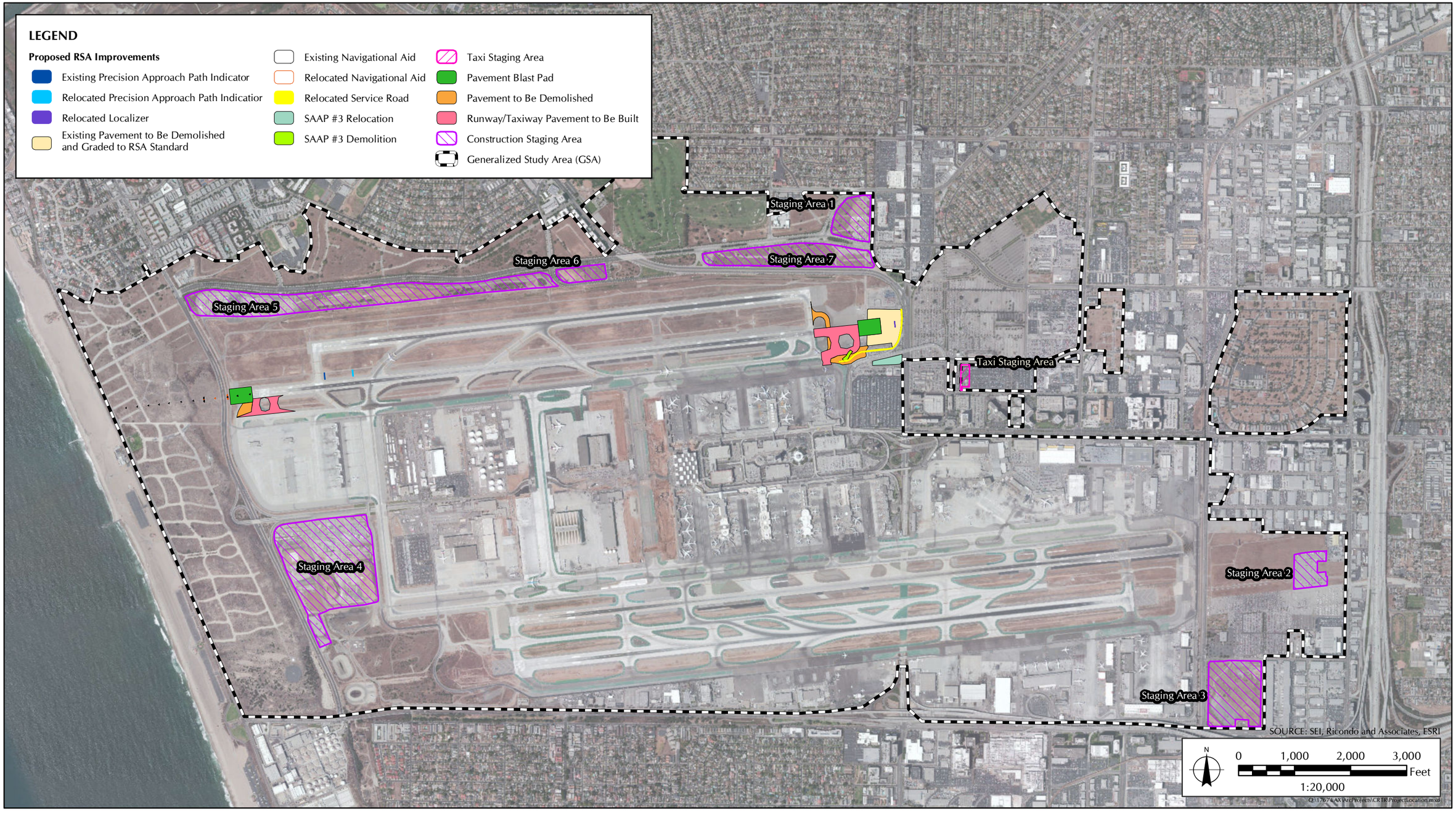

FIGURE 2.1-2

Proposed Undertaking Location

The components of the proposed undertaking related to Runway 6R-24L RSAs improvements are:

Runway 6R

- Shift Runway 6R endpoint approximately 200 feet to the east; existing landing threshold would be shifted 420 feet to the east, resulting in an approximately 550-foot displaced threshold:
  - Construct a blast pad 400 feet long and 280 feet wide
  - Construct retaining wall and add fill graded to RSA standards
  - Shift existing connector Taxiways E16 and E17 to the east
  - Construct new and rehabilitate existing runway and taxiway pavement, modify airfield signage, lighting and markings
  - Relocate navigational aids, including the glide slope antenna, and precision approach path indicators (PAPI)
  - Abandon two approach light system (MALSR) station and shift light stations to the east to coincide with existing light station locations

Runway 24L

- Shift Runway 24L endpoint by constructing approximately 800 feet of new runway pavement to the east; landing threshold will remain in current location; pavement will be marked as a displaced threshold:
  - Shift Taxiway E endpoint approximately 500 feet to the east with 400-foot separation from the runway;
  - Remove existing Taxiway E7 including the existing loop westbound that joins Taxiway V between Runways 24L and 24R;
  - Construct new connector Taxiways E7 and E6;
  - Construct new and rehabilitate existing runway and taxiway pavement, modify airfield signage, lighting and markings;
  - Relocate the existing ILS localizer antenna to the east;
  - Demolish and relocate existing Secure Area Access Post (SAAP) #3;
  - Protect in place existing storm sewer;
  - Relocate Air Operations Area (AOA) fence;
  - Construct 400-foot long jet blast pad; and
  - Relocate taxicab holding/staging area and associated buildings;
- Implement declared distances
- Extend and realign existing vehicle service road(s) south of Taxiway E, which will require closure of Alverstone Avenue and Davidson Drive, as well as adjacent parking lot; remove and grade pavement within RSA

Shift Runway 6R End. Construction of the proposed project will require a shift of the Runway 6R end by approximately 200 feet to the east. The shift of the runway also requires shifts to taxiways allowing aircraft to enter and exit the runway, and shifts to aircraft navigational aids that are fixed by function in relation to the runway threshold. LAWA proposes to remove existing Taxiways E16 and E17 that provide access to the existing end of Runway 6R and construct new taxiway connectors E16 and E17 to provide access to the shifted end of Runway 6R (Figure 2.1-2). The runway and taxiway lightings and markings associated with the end of Runway 6R will need to be modified to reflect the shift in the Runway 6R threshold. The shift in the Runway 6R threshold will require the relocation of portions of the instrument landing system (ILS) and approach lighting system, namely the glide slope antenna, PAPI, and MALSR.

MALSR. Construction activities for the proposed improvements, mainly modifications of the MALSR system, would occur in areas west of the runway, within the Los Angeles Airport/El Segundo Dunes, and north of the El Segundo blue butterfly occupied habitat. The required improvements would be designed to minimize disturbance of the Los Angeles Airport/El Segundo Dunes and are anticipated to include the following:

- Abandon the two (western-most) light stations – remove light poles for flashing lights; existing conduit and light pole foundations would remain in place.

- Replace existing light poles with new poles on existing foundations, if practicable.

- Replace lights on existing foundations on light stations where necessary. Existing foundations would remain, but may require minor modification and new conduit to be installed (see details below). Seven of the light stations would be located within the Los Angeles Airport/El Segundo Dunes.

- Two light stations would be modified to accommodate flashing lights:

    - The two proposed flasher stations would require construction of new concrete maintenance pads adjacent to existing foundations for a flasher control cabinet and junction box. Each pad is approximately 4 feet by 4 feet.

    - The proposed two flasher stations would require that underground conduit be installed. Two segments of 2-inch conduit are required with each being approximately 200 feet long. Conduit would be installed approximately 24 inches underground using a trenchless method thereby limiting disturbance of the Los Angeles Airport/El Segundo Dunes. It is anticipated that the installation of this conduit would require digging four small holes for the underground drilling/boring operation. These holes would be no larger than 3 feet by 3 feet and would be hand dug.

- Existing conduit for the other relocated light stations would be used where practicable.

    - In the event that the existing conduit is found to be unusable, it would be necessary to install approximately 1,400 feet of 2-inch underground conduit. This conduit would also be installed approximately 24 inches underground using a trenchless method thereby limiting disturbance of the Los Angeles Airport/El Segundo Dunes. This could involve digging eight small holes for the underground drilling/boring operation; however, it may be possible to use existing hand holes for this purpose.

Shift Runway 24L End. To maintain the existing runway length for departures (10,285 feet), LAWA proposes to shift the Runway 24L end by approximately 800 feet to the east, but in order to maintain the existing touchdown point on Runway 24R in the existing location, LAWA will also implement a displaced threshold of approximately 800 feet. The shift of the runway end results in the requirement to shift taxiways, allowing aircraft to enter and exit the runway, and to shift aircraft navigational aids that are fixed by function in relation to the runway threshold. The endpoint of

Taxiway E will also be shifted 500 feet to the east. LAWA proposes to remove existing Taxiway E7 located east of the existing end of Runway 24L and construct new taxiway E7 and E6 (Figure 1.2-2). The taxiway lightings and markings associated with the end of Runway 24L will need to be modified to reflect the shift in the Runway 24L threshold. The shift in Taxiway E would impact the existing SAAP #3, which would fall within the Taxiway Object Free Area (TOFA). This will require the relocation of SAAP #3 which will remain in the general area, but details of the ultimate SAAP #3 site are dependent on the final design (Figure 1.2-2). With the eastern shift in the Runway 24L end and associated RSA, the Runway 6R ILS localizer also needs to be shifted to the east. The approach light system for Runway 24L will require modification and will be a combination of in-pavement fixtures and elevated fixtures.

Declared Distances. Declared distances are "the distances the airport operator declares available and suitable for satisfying an aircraft's takeoff run, take-off distance, accelerate-stop distance, and landing distance requirements."[3] The FAA defines four types of declared distances: the Take-Off Run Available (TORA), the Take-Off Distance Available (TODA), the Accelerate-Stop Distance Available (ASDA), and the Landing Distance Available (LDA).[4] Aircraft operators use these declared distances, along with weather data, aircraft performance characteristics, and market segments for flight planning, including the determination of payload and range restrictions. Pilots and airplane operators' performance engineers need this information for calculating their allowable takeoff and landing weights and speeds.[5] Essentially, declared distances represent the maximum runway distances available to safely takeoff or reject a takeoff (TORA, TODA, and ASDA), or to land (LDA). Shortening the usable runway length would allow for the full RSA dimensions to be available in the event of an aircraft's excursion from the runway during an overrun, undershoot, or veer-off.

Service Roads. Portions of service roads currently located within the 6R-24L RSA would be relocated or realigned in order to meet RSA standards and to ensure that service vehicles operate outside of the RSA. An existing vehicle service road located southeast of Taxiway E would be relocated and realigned east around the shifted RSA. This would require closure of LAWA-owned Alverstone Avenue and Davidson Drive (which are closed to the public), as well as the taxicab staging lot. Existing pavement located within the shifted RSA may need to be removed and the area graded if it does not meet RSA grade standards. The AOA fence would need to be relocated along the southeastern portion of the north runway complex in order to accommodate the realigned service roads described above. The AOA fence realignment is depicted on Figure 2.1-2.

The realignment of service roads and the AOA fence outside the RSA along the eastern side of the north runway complex, along with the relocated Runway 6R Localizer, would make it necessary to close the taxi and shuttle staging area, located east of Runway 6R-24L. This parking area is located inside the LAX property boundary, east of Alverstone Avenue, and is used for taxi and shuttle staging; it is not open to the public. This parking area totals approximately 95,500 square feet in area and contains paved surface parking; the pavement would be demolished and graded to RSA standards (Figure 2.1-2). The taxicab holding lot would be relocated to an existing LAWA-owned parking lot located between West 96th Street and West 98th Street, approximately 200 feet east of Vicksburg Avenue.

[3] U.S. Department of Transportation, Federal Aviation Administration. 26 February 2014. Advisory Circular 150/5300-13A, Airport Design. Washington, DC.

[4] U.S. Department of Transportation, Federal Aviation Administration. 26 February 2014. Advisory Circular 150/5300-13A, Airport Design. Washington, DC.

[5] U.S. Department of Transportation, Federal Aviation Administration. 6 March 2009. CERTALERT, Reporting Declared Distances to Aeronautical Information Services. Washington, DC.

Construction Staging Areas. Construction staging areas would be necessary due to the limited space available for storage of materials and equipment within the airfield area. Locations of the potential construction staging areas for this project are illustrated in Figure 2.1-2. Only a portion of these construction staging areas would be used during construction of the proposed undertaking. However, specific construction staging areas for this proposed undertaking have not been determined at the present time; therefore, all potential staging areas are being considered in this analysis. Construction staging areas would be located in previously disturbed areas and would result in minimal ground disturbance.

2.4 AREA OF POTENTIAL EFFECTS

The Area of Potential Effects (APE) for archaeology and historic architecture for the proposed undertaking includes boundaries of the entire area that will have physical disturbance, including construction staging areas. The APE includes the various construction work described in the previous section, such as relocating and constructing service roads, pavement rehabilitation, and construction staging areas. LAWA delineated the APE boundaries through consultation with FAA. As the proposed undertaking would not increase the operational capacity of LAX, increase aircraft operations, or change the fleet mix or flight paths of aircraft operating at LAX, delineation of an indirect APE is not required.

The cultural resources study area, which includes the APE, is located within the U.S. Geological Survey (USGS) 7.5-minute series, Venice, California, topographic quadrangle in unsectioned portions of Township 2, South, Range 15 West. The APE is approximately the width of runway 6R-24L and is roughly bounded by Sepulveda Boulevard on the east and Vista del Mar on the west (Figure 2.4-1, *Area of Potential Effects and the Cultural Resources Study Area*). Direct impacts from earth-moving activities in these areas could include minor grading and leveling in order to prepare the roadbed for paving. It is anticipated that more extensive ground disturbance will occur in the construction staging areas. The APE is primarily covered with maintained grasses, pavement, and graded spaces surrounding the construction staging areas; airfield pavement; graded, maintained grassed areas surrounding the airfield pavement; and paved areas to the east.

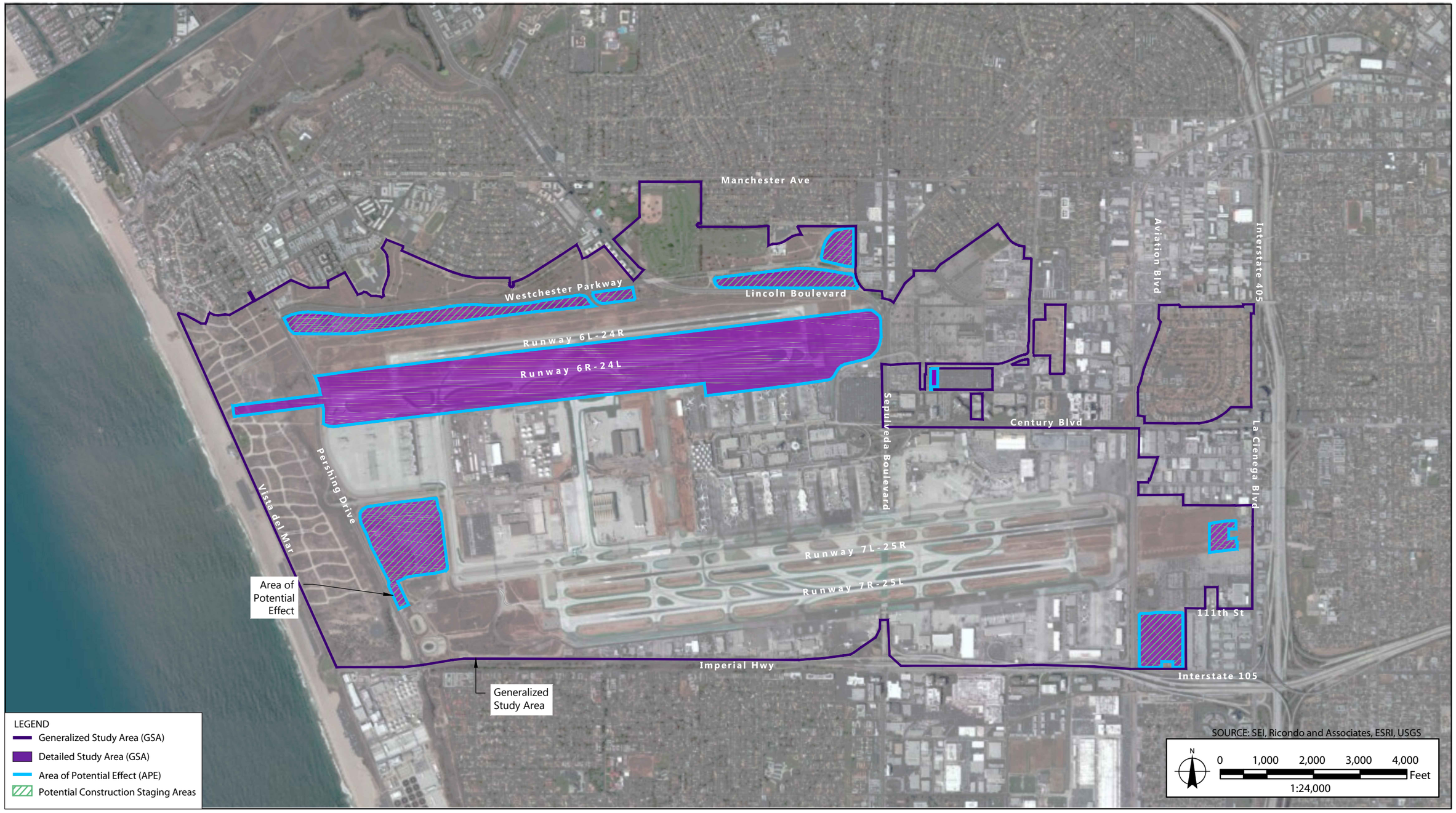

FIGURE 2.4-1

Area of Potential Effects and the Cultural Resources Study Area

SECTION 3.0
REGULATORY FRAMEWORK

This section identifies the federal statutes, ordinances, or policies that govern the conservation and protection of cultural resources that must be considered during the decision-making process for projects that have the potential to affect cultural resources.

3.1 FEDERAL

3.1.1 National Historic Preservation Act of 1966[1]

Enacted in 1966, the National Historic Preservation Act (NHPA) declared a national policy of historic preservation and instituted a multifaceted program, administered by the Secretary of the Interior, to encourage the achievement of preservation goals at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the National Register of Historic Places (NRHP), established the position of State Historic Preservation Officer and provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHPA, assisted Native American tribes to preserve their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP). Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the NRHP and that the ACHP must be afforded an opportunity to comment, through a process outlined in the ACHP regulations at 36 CFR Part 800, on such undertakings.

3.1.1.1 National Register of Historic Places

The NRHP was established by the NHPA of 1966 as "an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment."[2] The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if it is significant under one or more of the following criteria:[3]

Criterion A: It is associated with events that have made a significant contribution to the broad patterns of our history.

Criterion B: It is associated with the lives of persons who are significant in our past.

[1] *United States Code*, 16 USC 470.

[2] *Code of Federal Regulations*, 36 CFR 60.2.

[3] *Code of Federal Regulations*, 36 CFR 60.4.

Criterion C: It embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.

Criterion D: It has yielded, or may be likely to yield, information important in prehistory or history.

Cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative in nature are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be at least 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

3.1.2 Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

SECTION 4.0
METHODS

This section of the CRTR describes the methods employed in the characterization and evaluation of historic properties within the APE for the proposed undertaking. This report describes the results of records searches and field investigations conducted for the proposed undertaking at LAX.

4.1 CULTURAL RESOURCES

4.1.1 Records Search and Literature Review

A cultural resources records search was conducted at the South Coastal Information Center (SCIC), which is the repository for the California Historical Resources Information System (CHRIS) for this area. The SCIC CHRIS information is housed at California State University, Fullerton. The initial record search was conducted on November 20, 2012, and as a result of refinements to the APE, a supplemental record search was conducted on December 16, 2013. These searches included reviews of all known relevant cultural resources survey reports to ascertain the presence of previously recorded prehistoric and historic archaeological resources within a 0.5-mile radius of the APE (Figure 2.4-1).

4.1.2 Phase I Cultural Resources Survey

The Phase I cultural resources surveys of the APE were conducted on May 8, 2013; June 14, 2013; July 27, 2013; December 18, 2013; and July 16, 2014, by Sapphos Environmental, Inc. staff archaeologists (Dr. Tiffany Clark, Mr. Clarus Backes, Mr. Christopher Purtell, and Mr. Adam White) and architectural historian (Ms. Marilyn Novell) (Appendix A, *Resumes*; Figure 4.1.2-1, *Cultural Survey Area Map*). LAWA personnel accompanied the archaeologists and architectural historian during the duration of the field visits. The goal of the pedestrian survey was to identify prehistoric and historic period sites and isolates within the APE. An Ashtech handheld global positioning system (GPS) unit was used to locate the APE boundary and to record the location of identified cultural resources. Sites and built-environment resources were documented on State of California Department of Parks and Recreation (DPR) 523 series forms with preliminary sketch maps and photographs providing supplemental documentation. No artifacts were collected during pedestrian survey.

4.1.2.1 Runway 6R-24L Safety Area Improvements

To inspect Runway 6R-24L, the archaeologists walked a total of four parallel transects spaced approximately 15 meters apart, including two on either side of each road segment. The MALSR approach lighting located at the western extent of the APE was surveyed by four transects spaced approximately 10 meters apart at each lighting location. The Phase I surveys showed that large portions of the APE are graded dirt roads, paved roads, airport runway and managed (mowed) vegetation consisting of non-native grasses and low-growing scrub habitats; these areas exhibited good to excellent ground visibility. The area surrounding the MALSR approach lighting located at the western extent of the APE exhibited moderate ground visibility resulting from moderate to dense dune vegetation cover.

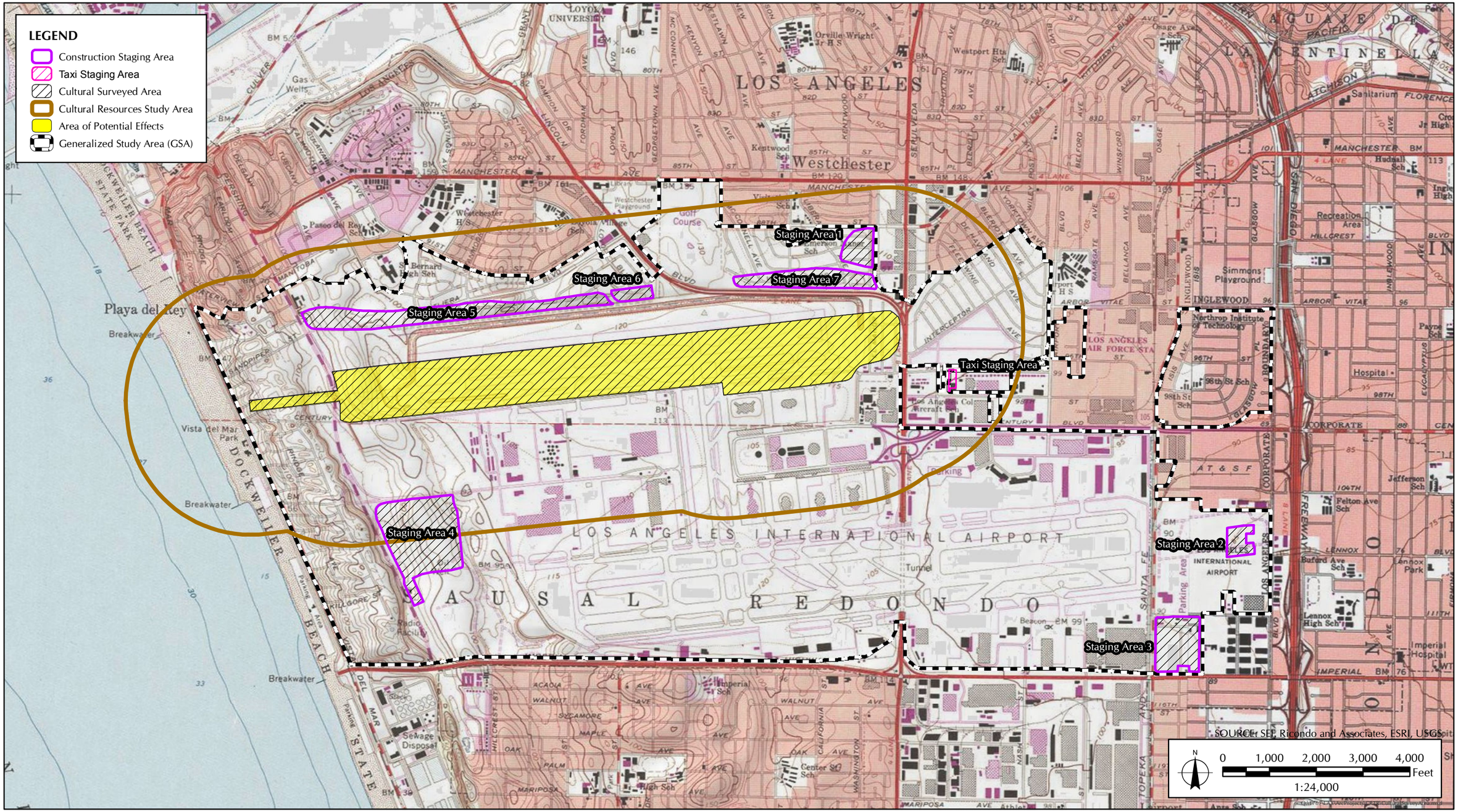

FIGURE 4.1.2-1

Cultural Survey Area Map

5.1 CULTURAL RESOURCES

5.1.1 Cultural Resources Setting

5.1.1.1 Prehistoric Context

Several prehistoric cultural chronologies have been proposed for the Southern California coast with two of the most frequently cited sequences developed by William Wallace[1] and Claude Warren.[2] The chronological sequence presented herein represents an updated synthesis of these schemes as compiled by Glassow and others[3] for the Northern California Bight. This geographic area consists of the coastal area from Vandenberg Air Force Base south to Palos Verdes, as well as the Channel Islands and adjacent inland areas, including the Los Angeles Basin.[4] The prehistoric sequence of the Los Angeles Basin can be divided into four broad temporal categories (Table 5.1.1.1-1, *California Coastal Regional Chronology*). It should be noted that the prehistoric chronology for the region is being refined on a continuing basis, with new discoveries and improvements in the accuracy of dating techniques.

TABLE 5.1.1.1-1
CALIFORNIA COASTAL REGIONAL CHRONOLOGY

Epoch	Coastal Region	Dates
Late Pleistocene / Early Holocene	Paleo-Coastal Period	Circa 9500 to 7000/6500 BC
Middle Holocene	Millingstone Period	Circa 7000/6500 to 1500/1000 BC
Late Holocene	Intermediate Period	1500/1000 BC to AD 750
Late Holocene	Late Period	AD 750 to Spanish contact

Terminal Pleistocene and Early Holocene: Paleo-Coastal Period (Circa 9500 to 7000/6500 BC)

Although data on early human occupation for the Southern California coast are limited, archaeological evidence from the northern Channel Islands suggests initial settlement within the region occurred at least 12,000 years before present (BP). At Daisy Cave (CA-SMI-261) on San Miguel Island, radiocarbon dates indicate an early period of use in the terminal Pleistocene,

[1] Wallace, William J. 1955 "A Suggested Chronology for Southern California Coastal Archaeology." *Southwestern Journal of Anthropology*, *11*: 214–230.

[2] Warren, Claude M. 1968 "Cultural Tradition and Ecological Adaptation on the Southern California Coast." In *Archaic Prehistory in the Western United States*, edited by Cynthia Irwin-Williams, pp. 1–14. Eastern New Mexico University Contributions in Anthropology No. 1. Portales.

[3] Glassow, Michael A., Lynn H. Gamble, Jennifer E. Perry, and Glenn S. Russell. 2007. "Prehistory of the Northern California Bight and the Adjacent Transverse Ranges." In *California Prehistory, Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 191–213. New York, NY: Altamira Press.

[4] Glassow, Michael A., Lynn H. Gamble, Jennifer E. Perry, and Glenn S. Russell. 2007. "Prehistory of the Northern California Bight and the Adjacent Transverse Ranges." In *California Prehistory, Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 191–213. New York, NY: Altamira Press.

sometime between 9600 and 9000 calibrated (cal) BC.[5] Evidence of early human occupation in the Northern California Bight has also been found on nearby Santa Rosa Island, where human remains from the Arlington Springs Site (CA-SRI-1730) have been dated between 11,000 and 10,000 cal BC.[6] Archaeological data recovered from these and other coastal Paleoindian sites indicate a distinctively maritime cultural adaptation, termed the "Paleo-Coastal Tradition,"[7] which involved the use of seafaring technology and a subsistence regime focused on shellfish gathering and fishing.[8]

Relatively few sites have been identified in the Los Angeles Basin that date to the terminal Pleistocene and early Holocene. Currently, the earliest reliable date for human occupation in the area derives from the La Brea Tar Pits (CA-LAN-159), where human bone has been dated to 8520 cal BC.[9] Evidence of possible early human occupation has also been found at the sand dune bluff site of Malaga Cove (CA-LAN-138), located between Redondo Beach and Palos Verdes.[10] Researchers have proposed that archaeological remains recovered from the lowermost cultural stratum at the site, which include shell, animal bone, and chipped stone tools, may date as early as 8000 cal BC.[11,12]

Middle Holocene: Millingstone Period (Circa 7000/6500 to 1500/1000 BC)

The Millingstone Period or Horizon, also referred to as the "Encinitas Tradition,"[13,14] is the earliest well-established cultural occupation of the coastal areas of the region. The onset of this period, which began sometime between 7000 and 6500 cal BC, is marked by the expansion of populations throughout the Northern California Bight. Regional variations in technology, settlement patterns, and mortuary practices among Millingstone sites have led researchers to define several local manifestations or "patterns" of the tradition.[15] In coastal Los Angeles and Orange Counties, the Encinitas Tradition is represented by the "Topanga Pattern." Topanga groups are thought to have been relatively small and highly mobile, with a general subsistence economy

[5] Erlandson, J.M., D.J. Kennett, B.L. Ingram, D.A. Guthrie, D.P. Morris, M.A. Tveshov, G.J. West, and P.L. Walker. 1996. "An Archaeological and Paleontological Chronology for Daisy Cave (CA-SMI-261), San Miguel Island, California." *Radiocarbon*, *38*: 355–373.

[6] Johnson, J.R., T.W. Stafford, Jr., H.O. Ajie, and D.P. Morris. 2002. "Arlington Springs Revisited." In *Proceedings of the Fifth California Islands Symposium*, edited by D. Browne, K. Mitchell, and H. Chaney, pp. 541–545. Santa Barbara, CA: USDI Minerals Management Service, and The Santa Barbara Museum of Natural History.

[7] Moratto, M.J. 1984. *California Archaeology*, pp. 103–113. New York, NY: Academic Press.

[8] Rick, T.C., J.M. Erlandson, and R.L. Vellanoweth. 2001. "Paleocoastal Fishing along the Pacific Coast of the Americas: Evidence from Daisy Cave, San Miguel Island, California." *American Antiquity*, *66*: 595–614.

[9] Berger, R., R. Protsch, R. Reynolds, C. Rozaire, and J.R. Sackett. 1971. *New Radiocarbon Dates Based on Bone Collagen of California Indians*, pp. 43–49. Contributions to the University of California Archaeological Survey, Los Angeles.

[10] Walker, Edwin Francis. 1951. *Five Prehistoric Archaeological Sites in Los Angeles County, California*. Southwest Museum, F.W. Hodge Anniversary Publication Fund VI, Los Angeles.

[11] Moratto, M.J. 1984. *California Archaeology*, pp. 132. New York, NY: Academic Press.

[12] Wallace, W.J. 1986. "Archaeological Research at Malaga Cove." In *Symposium: A New Look at Some Old Sites*, edited by G.S. Breschini and T. Haversat, pp. 21–27. Salinas, CA: Coyote Press.

[13] Sutton, Mark Q. 2010. "The Del Rey Tradition and Its Place in the Prehistory of Southern California." *Pacific Coast Archaeological Society Quarterly*, *44*(2): 1–54.

[14] Sutton, Mark Q., and Jill K. Gardner. 2010. "Reconceptualizing the Encinitas Tradition of Southern California." *Pacific Coast Archaeological Society Quarterly*, *42*(4): 1–64.

[15] Sutton, Mark Q., and Jill K. Gardner. 2010. "Reconceptualizing the Encinitas Tradition of Southern California." *Pacific Coast Archaeological Society Quarterly*, *42*(4): 1–64.

focused on the gathering of shellfish and plant foods, particularly hard seeds, with hunting being of less importance.[16]

Two temporal subdivisions have been defined for the portion of the Topanga Pattern falling within the Millingstone Period: Topanga I (circa 6500 to 3000 BC) and Topanga II (circa 3000 to 1000 BC).[17] Topanga I assemblages are characterized by abundant manos and metates, core tools and scrapers, charmstones, cogged stone, and discoidals; projectile points are quite rare with those present resembling earlier, large, leaf-shaped forms.[18] Secondary inhumations with associated cairns are the most common burial form at Millingstone sites with small numbers of extended inhumations also identified. The subsequent Topanga II phase largely represents a continuation of the Topanga pattern with site assemblages characterized by numerous manos and metates, charmstones, cogged stones, discoidals, and some stone balls. A significant technological change in ground stone occurs at this time with the appearance of mortars and pestles at Topanga II sites, suggesting the adoption of balanophagy by coastal populations.[19] The quantity of projectile points also notably increases in Topanga II site deposits indicating that the hunting of large game may have played a greater role in the subsistence economy than in earlier times. Although secondary burials continue to be quite common, a few flexed inhumations have also been recovered from archaeological contexts dating to the Topanga II phase.

A number of Millingstone sites have been identified in the Los Angeles Basin. Within the vicinity of the current proposed undertaking, evidence of long-term Topanga occupation has been found in the Ballona Lagoon near Marina del Rey. Data obtained from survey and excavation projects in the Ballona Lagoon indicate that during the Topanga I phase, the bluff tops overlooking the lagoon were used as temporary campsite locales by coastal groups who exploited marine and lagoon fish and shellfish resources.[20] During the Topanga II phase, use of the area intensified with small, limited-use settlements established along the edges of the lagoon. Faunal remains from these latter sites suggest Topanga II groups practiced a more generalized subsistence strategy that emphasized the exploitation of small terrestrial mammals, in addition to fish and shellfish resources.[21]

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[16] Glassow, Michael A., Lynn H. Gamble, Jennifer E. Perry, and Glenn S. Russell. 2007. "Prehistory of the Northern California Bight and the Adjacent Transverse Ranges." In *California Prehistory, Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 191–213. New York, NY: Altamira Press.

[17] Sutton, Mark Q., and Jill K. Gardner. 2010. "Reconceptualizing the Encinitas Tradition of Southern California." *Pacific Coast Archaeological Society Quarterly*, *42*(4): 1–64.

[18] Glassow, Michael A., Lynn H. Gamble, Jennifer E. Perry, and Glenn S. Russell. 2007. "Prehistory of the Northern California Bight and the Adjacent Transverse Ranges." In *California Prehistory, Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 191–213. New York, NY: Altamira Press.

[19] Sutton, Mark Q., and Jill K. Gardner. 2010. "Reconceptualizing the Encinitas Tradition of Southern California." *Pacific Coast Archaeological Society Quarterly*, *42*(4): 1–64.

[20] Altschul, Jeffrey H., John G. Douglass, Richard Ciolek-Torrello, Sarah Van Galder, Benjamin R. Vargas, Kathleen L. Hull, Donn R. Grenda, Jeffrey Homburg, Manual Palacios-Fest, Steven Shelley, Angela Keller, and David Maxwell. 2007. "Life at the Nexus of the Wetlands and Coastal Prairie, West Los Angeles." *Proceedings for the Society for California Archaeology*, *20*: 34–42.

[21] Altschul, Jeffrey H., John G. Douglass, Richard Ciolek-Torrello, Sarah Van Galder, Benjamin R. Vargas, Kathleen L. Hull, Donn R. Grenda, Jeffrey Homburg, Manual Palacios-Fest, Steven Shelley, Angela Keller, and David Maxwell. 2007. "Life at the Nexus of the Wetlands and Coastal Prairie, West Los Angeles." *Proceedings for the Society for California Archaeology*, *20*: 34–42.

Late Holocene: Intermediate Period (1500/1000 BC to AD 750)

The Intermediate Period, which encompasses the early portion of the "Del Rey Tradition" as defined by Sutton,[22] begins around 3500 BP. At this time, significant changes are seen throughout the coastal areas of Southern California in material culture, settlement systems, subsistence strategies, and mortuary practices. These new cultural traits have been attributed to the arrival of Takic-speaking people from the southern San Joaquin Valley.[23] Biological, archaeological, and linguistic data indicate that the Takic groups who settled in the Los Angeles Basin were ethnically distinct from the preexisting Hokan-speaking Topanga populations and are believed to be ancestral to ethnographic Gabrielino groups.[24] Although archaeological evidence indicates that "relic" Topanga III populations continued to survive in isolation in the Santa Monica Mountains, these indigenous groups appear to have been largely replaced or absorbed by the Gabrielino or Chumash by 2000 BP.[25]

Intermediate Period sites within the Los Angeles Basin are represented by the "Angeles Pattern" of the Del Rey Tradition.[26] Three temporal subdivisions have been defined for the portion of the Angeles Pattern that falls within the Intermediate Period: Angeles I (1500 to 600 BC), Angeles II (600 BC to AD 400), and Angeles III (AD 400 to 750).[27] The onset of the Angeles I phase is characterized by the increase and aggregation of regional populations and the appearance of the first village settlements. The prevalence of projectile points, single-piece shell fishhooks, and bone harpoon points at Angeles I sites suggests a subsistence shift in the Intermediate Period with an increased emphasis on fishing and terrestrial hunting and less reliance on the gathering of shellfish resources. Regional trade or interaction networks also appeared to develop at this time, with coastal populations in the Los Angeles Basin obtaining small steatite artifacts and *Olivella* shell beads from the southern Channel Islands and obsidian from the Coso Volcanic Field.[28] Finally, marked changes are seen in mortuary practices during the Angeles I phase, with flexed primary inhumations and cremations replacing extended inhumations and cairns.

The Angeles II phase largely represents a continuation and elaboration of the Angeles I technology, settlement, and subsistence systems. One exception to this pattern is the introduction of a new funerary complex around 2600 BP consisting of large rock cairns or platforms that contain abundant broken tools, faunal remains, and cremated human bone. These mortuary features have generally been thought to represent the predecessor of the Southern California Mourning

[22] Sutton, Mark Q. 2010. "The Del Rey Tradition and Its Place in the Prehistory of Southern California." *Pacific Coast Archaeological Society Quarterly*, *44*(2): 1–54.

[23] Sutton, Mark Q. 2009. "People and Language: Defining the Takic Expansion in Southern California." *Pacific Coast Archaeological Society Quarterly*, *41*(2 and 3): 31–93.

[24] Sutton, Mark Q. 2009. "People and Language: Defining the Takic Expansion in Southern California." *Pacific Coast Archaeological Society Quarterly*, *41*(2 and 3): 31–93.

[25] Sutton, Mark Q., and Jill K. Gardner. 2010. "Reconceptualizing the Encinitas Tradition of Southern California." *Pacific Coast Archaeological Society Quarterly*, *42*(4): 17.

[26] Sutton, Mark Q. 2010. "The Del Rey Tradition and Its Place in the Prehistory of Southern California." *Pacific Coast Archaeological Society Quarterly*, *44*(2): 1–54.

[27] Sutton, Mark Q., and Jill K. Gardner. 2010. "Reconceptualizing the Encinitas Tradition of Southern California." *Pacific Coast Archaeological Society Quarterly*, *42*(4): 8.

[28] Koerper, Henry C., Roger D. Mason, and Mark L. Peterson. 2002. "Complexity, Demography, and Change in Late Holocene Orange County." In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by M. Erlandson and Terry L. Jones, pp. 63–81. University of California, Los Angeles, Institute of Archaeology, Perspectives in California Archaeology, Vol. 6. Los Angeles.

Ceremony.[29] Several important changes in the archaeological record mark the beginning of the Angeles III phase. At this time, larger seasonal villages characterized by well-developed middens and cemeteries were established along the coast or inland areas. Archaeological data from Angeles III sites indicate that residents of these settlements practiced a fairly diverse subsistence strategy, which included the exploitation of both marine and terrestrial resources.[30] Notable technological changes occurred at this time with the introduction of the plank canoe and bow and arrow.[31] The appearance of new *Olivella* bead types at Angeles III sites indicates a reconfiguration of existing regional exchange networks with increased interaction with populations in the Gulf of California.[32] Finally, cremations increase slightly in frequency at this time with inhumations no longer placed in an extended position.[33]

In the Ballona Lagoon near Marina del Rey, several large residential sites (CA-LAN-63, CA-LAN-64, and CA-LAN-206A) were established within the wetlands and surrounding bluffs at the beginning of the Intermediate Period.[34] These sites contained a diversity of features, including hearths, burials, and houses. Faunal remains indicate a broad-spectrum collecting strategy that included the exploitation of terrestrial mammals and birds, as well as fish and shellfish. The presence of particular species of migratory waterfowl in the faunal assemblage indicates that primary occupation of these sites may have occurred in the late fall to early spring. These data suggest that although residential mobility in the Intermediate Period was greatly reduced from previous times, a fully sedentary occupation of the Ballona Lagoon locale is still not indicated.[35]

Late Holocene: Late Period (AD 750 to Spanish Contact)

The Late Period dates from approximately AD 750 until Spanish contact at AD 1542. Sutton[36] has divided this period, which falls within the larger Del Rey Tradition, into two phases: Angeles IV (AD 750–1200) and Angeles V (AD 1200–1550). The Angeles IV phase is characterized by the continued growth of regional populations and the development of large, sedentary villages. Recent archaeological research indicates that Late Period habitation sites within the Los Angeles Basin may

[29] Sutton, Mark Q. 2010. "The Del Rey Tradition and Its Place in the Prehistory of Southern California." *Pacific Coast Archaeological Society Quarterly*, *44*(2): 14–16.

[30] Sutton, Mark Q. 2010. "The Del Rey Tradition and Its Place in the Prehistory of Southern California." *Pacific Coast Archaeological Society Quarterly*, *44*(2): 18–20.

[31] Glassow, Michael A., Lynn H. Gamble, Jennifer E. Perry, and Glenn S. Russell. 2007. "Prehistory of the Northern California Bight and the Adjacent Transverse Ranges." In *California Prehistory, Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 203–204. New York, NY: Altamira Press.

[32] Koerper, Henry C., Roger D. Mason, and Mark L. Peterson. 2002. "Complexity, Demography, and Change in Late Holocene Orange County." In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by M. Erlandson and Terry L. Jones, pp. 63–81. University of California, Los Angeles, Institute of Archaeology, Perspectives in California Archaeology, Vol. 6. Los Angeles.

[33] Sutton, Mark Q. 2010. "The Del Rey Tradition and Its Place in the Prehistory of Southern California." *Pacific Coast Archaeological Society Quarterly*, *44*(2): 18.

[34] Altschul, Jeffrey H., John G. Douglass, Richard Ciolek-Torrello, Sarah Van Galder, Benjamin R. Vargas, Kathleen L. Hull, Donn R. Grenda, Jeffrey Homburg, Manual Palacios-Fest, Steven Shelley, Angela Keller, and David Maxwell. 2007. "Life at the Nexus of the Wetlands and Coastal Prairie, West Los Angeles." *Proceedings for the Society for California Archaeology*, *20*: 37–38.

[35] Altschul, Jeffrey H., John G. Douglass, Richard Ciolek-Torrello, Sarah Van Galder, Benjamin R. Vargas, Kathleen L. Hull, Donn R. Grenda, Jeffrey Homburg, Manual Palacios-Fest, Steven Shelley, Angela Keller, and David Maxwell. 2007. "Life at the Nexus of the Wetlands and Coastal Prairie, West Los Angeles." *Proceedings for the Society for California Archaeology*, *20*: 38.

[36] Sutton, Mark Q. 2010. "The Del Rey Tradition and Its Place in the Prehistory of Southern California." *Pacific Coast Archaeological Society Quarterly*, *44*(2): 26.

have been hierarchically organized around estuarine locales with more productive locales supporting large residential populations.[37] Although chiefdoms appear to have developed in the northern Channel Islands and Santa Barbara region after 850 BP,[38,39] little direct evidence has been found to suggest this level of social complexity existed in the Los Angeles Basin during the late prehistoric period.[40]

Several new types of material culture appear during the Angeles IV phase, including Cottonwood series points, birdstone and "spike" effigies, *Olivella* cupped beads, and *Mytilus* shell disk beads. The presence of Southwestern pottery, Patayan ceramic figurines, and Hohokam shell bracelets at Angeles IV sites suggests some interaction between groups in the Los Angeles Basin and the Southwest. Notable changes are seen in regional exchange networks after 800 BP with an increase in the number and size of steatite artifacts, including large vessels, elaborate effigies, and comals, recovered from Angeles V sites. The presence of these artifacts suggests a strengthening of trade ties between populations in the Los Angeles Basin and the southern Channel Islands.[41] Finally, Late Period mortuary practices remain largely unchanged from the Intermediate Period with flexed primary inhumations continuing to be the preferred burial method.

Marked changes occurred in the occupation of the Ballona Lagoon during the Late Period. Paleoenvironmental reconstructions indicate that by 1000 BP, much of the lagoon had silted in and become a sediment-choked estuary.[42] At this time, most of the Intermediate Period settlements in the area were abandoned as the local population aggregated into a few large settlements along lower Centinela Creek and at the edge of the lagoon.[43] Faunal remains recovered from these Late Period sites indicate a generalized subsistence strategy focused on a broad mix of terrestrial and marine resources with a shift from lagoon to sandy shoreline shellfish species as the estuary silted in.[44,45]

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[37] Grenda, D.R., and J.A. Altschul. 2002. "Complex Cultures, Complex Arguments: Sociopolitical Organization in the Blight." In *Islanders and Mainlanders, Prehistoric Context for the Southern California Blight*, edited by J.H. Altschul and D.R. Grenda, pp. 147–178. Tucson, AZ: SRI Press.

[38] Arnold, Jeanne E. 1992. "Complex Hunter-Gatherer-Fishers of Prehistoric California: Chiefs, Specialists, and Maritime Adaptations of the Channel Islands." *American Antiquity*, *57*(1): 60–84.

[39] Gamble, Lynn H. 2005. "Culture and Climate: Reconsidering the Effect of Palaeoclimatic Variability Among Southern California Hunter-Gatherer Societies." *World Archaeology*, *37*(1): 92–108.

[40] Sutton, Mark Q. 2010. "The Del Rey Tradition and Its Place in the Prehistory of Southern California." *Pacific Coast Archaeological Society Quarterly*, *44*(2): 26.

[41] Koerper, Henry C., Roger D. Mason, and Mark L. Peterson. 2002. "Complexity, Demography, and Change in Late Holocene Orange County." In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by M. Erlandson and Terry L. Jones, pp. 69. University of California, Los Angeles, Institute of Archaeology, Perspectives in California Archaeology, Vol. 6. Los Angeles.

[42] Altschul, Jeffrey H., John G. Douglass, Richard Ciolek-Torrello, Sarah Van Galder, Benjamin R. Vargas, Kathleen L. Hull, Donn R. Grenda, Jeffrey Homburg, Manual Palacios-Fest, Steven Shelley, Angela Keller, and David Maxwell. 2007. "Life at the Nexus of the Wetlands and Coastal Prairie, West Los Angeles." *Proceedings for the Society for California Archaeology*, *20*: 39.

[43] Altschul, Jeffrey H., John G. Douglass, Richard Ciolek-Torrello, Sarah Van Galder, Benjamin R. Vargas, Kathleen L. Hull, Donn R. Grenda, Jeffrey Homburg, Manual Palacios-Fest, Steven Shelley, Angela Keller, and David Maxwell. 2007. "Life at the Nexus of the Wetlands and Coastal Prairie, West Los Angeles." *Proceedings for the Society for California Archaeology*, *20*: 39.

[44] Maxwell, D. 2003. "Vertebrate Faunal Remains." In *At the Base of the Bluff, Archaeological Inventory and Evaluation along Lower Centinela Creek, Marina del Rey, California*, edited by J.H. Altschul, A.Q. Stoll, D.R. Grenda, and R. Ciolek-Torrello, pp. 145–177. Playa Vista Monograph Series, Test Excavation Report 4. Tucson, AZ: Statistical Research.

5.1.1.2 Regional Ethnography

At the time of contact, the Native Americans subsequently known as the Gabrielino Indians occupied lands around the Los Angeles International Airport and whose territories comprised nearly the entire basin comprising the Counties of Los Angeles and Orange. They belonged to the Takic family of the Uto-Aztecan linguistic stock. Named after the Mission San Gabriel, the Gabrielino are considered to have been one of the two wealthiest and largest ethnic groups in aboriginal Southern California,[46] the other being the Chumash. This was largely due to the many natural resources within the land base they controlled, primarily the rich coastal section from Topanga Canyon to Aliso Creek, and the offshore Channel Islands of San Clemente, San Nicholas, and Santa Catalina.

The Takic-speaking ancestors of the Gabrielino arrived in the Los Angeles Basin around 1500 BC and spread throughout the area, displacing a preexisting Hokan-speaking population.[47] The first Spanish contact with the Gabrielino took place in 1520, when Juan Rodriguez Cabrillo arrived in Santa Catalina Island. In 1602, the Spanish returned to Santa Catalina under Sebastián Vizcaíno, and in 1769, Gaspar de Portolá made the first attempt to colonize Gabrielino territory. By 1771, the Spanish had built four missions, and the decimation of the Gabrielino had already begun.[48] European diseases and conflicts among the Gabrielino population, as well as conversion to Christianity, carried a toll in their numbers, traditions, and beliefs.

Although determining an accurate account of the population numbers is difficult, Bean and Smith[49] state that by AD 500, the Gabrielino established permanent settlements and their population continued to grow. Early Spanish accounts indicate that the Gabrielino lived in permanent villages with a population ranging from 50 to 200 individuals. The Gabrielino population surpassed 5,000 people by around 1770.

Several types of structures characterized the Gabrielino villages. They lived in domed circular structures covered with tule, ferm, or carrizo. Communal structures measured over 60 feet in diameter and could house three or four families. Sweathouses, menstrual huts, and a ceremonial enclosure were also part of the village arrangements.[50]

The Gabrielino practiced different subsistence strategies that included hunting, fishing, and gathering. Hunting activities in land were carried out with the use of bow and arrow, deadfalls, snares, and traps. Smoke and throwing clubs also were used to assist with the hunt of burrowing animals. Aquatic animals were hunted with harpoons, spear-throwers, and clubs. Although most

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[45] Becker, K.M. 2003. "Invertebrate Faunal Remains." In *At the Base of the Bluff, Archaeological Inventory and Evaluation along Lower Centinela Creek, Marina del Rey, California*, edited by J.H. Altschul, A.Q. Stoll, D.R. Grenda, and R. Ciolek-Torrello, pp. 179–200. Playa Vista Monograph Series, Test Excavation Report 4. Tucson, AZ: Statistical Research.

[46] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, edited by R.F. Heizer, p. 538. Washington, DC: Smithsonian Institution.

[47] Sutton, Mark Q. 2009. "People and Language: Defining the Takic Expansion in Southern California." *Pacific Coast Archaeological Society Quarterly*, *41*(2 and 3): 31–93.

[48] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, edited by R.F. Heizer, pp. 540–541. Washington, DC: Smithsonian Institution.

[49] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, edited by R.F. Heizer, p. 540. Washington, DC: Smithsonian Institution.

[50] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, edited by R.F. Heizer, p. 542. Washington, DC: Smithsonian Institution.

fishing activities took place along rivers and from shore, open water fishing trips between mainland and the islands also took place using boats made from wood planks and asphaltum. The Gabrielino fishing equipment included fishhooks made of shells, nets, basketry traps, and poison substances obtained from plants.[51]

The Gabrielino diet included a large number of animals, such as deer, rabbit, squirrel, snake, and rats, as well as a wide variety of insects. However, some meat taboos also existed. The meat of bears, rattlesnakes, stingrays, and ravens were not consumed; these animals were believed to be messengers of the god Chengiichngech. Aquatic animals such as fish, whales, seals, sea otters, and shellfish were also an important part of the diet, mainly among the coastal population.[52]

A variety of plant foods were consumed by the Gabrielino, the main one being acorns. These nuts are rich in nutrients and have a high content of fiber and fat. Other plants used for consumption by the Gabrielino include the seeds of the Islay (*Prunus ilicifolia*), which were ground into a meal, and the seeds and shoots of the Chía (*Salvia columbariae*), which were eaten raw, made into loaves, or mixed with water to make a beverage. Roots and bulbs were also part of the diet among the mainland and island groups, as well as clover, wild sunflower seeds, and cholla seeds. Wild tobacco was used for medicinal purposes and as a sedative and narcotic.[53]

The Gabrielinos were involved in trade among themselves and with other groups. Coastal Gabrielinos exchanged steatite, shell and shell beads, dried fish, sea otter pelts, and salt with inland groups for acorns, seeds, obsidian, and deerskins.[54] During the late prehistoric period, the principal trade item, both among the Gabrielino and for export to other groups, was steatite. Also known as soapstone or soaprock, major outcroppings of steatite are found on Santa Catalina Island. Steatite was widely used among the Gabrielino to make arrow straighteners and artistic or ritualistic objects. In addition, this rock was used in the making of functional objects for food preparation such as bowls, mortars, pestles, and comals.[55] Archaeological data indicate that a steatite "industry" developed prehistorically on the island that involved the large-scale trade of both raw materials and finished artifacts to mainland communities.[56]

[51] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, edited by R.F. Heizer, p. 546. Washington, DC: Smithsonian Institution.

[52] McCawley, W. 1996. *The First Angelinos: The Gabrielino Indians of Los Angeles*, pp. 116–117, 121, 126. Banning, CA: Malki Museum Press.

[53] McCawley, W. 1996. *The First Angelinos: The Gabrielino Indians of Los Angeles*, pp. 128–131. Banning, CA: Malki Museum Press.

[54] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, edited by R.F. Heizer, p. 547. Washington, DC: Smithsonian Institution.

[55] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, edited by R.F. Heizer, p. 547. Washington, DC: Smithsonian Institution.

[56] Bean, L.J., and C.R. Smith. 1978. "Gabrielino." In *Handbook of North American Indians, Vol. 8*, edited by R.F. Heizer, p. 547. Washington, DC: Smithsonian Institution.

5.1.1.3 Historic Context[57]

Los Angeles International Airport

The land occupied by LAWA constituted part of Rancho Sausal Redondo, which had been granted to Antonio Ygnacio Avila by the Mexican government in 1837. The land was used for cattle ranching and sheep grazing. Later, when it was known as the Bennett Rancho, the land held fields of lima beans, barley, and wheat until the late 1920s. By the mid-1920s, pilots utilized the flat farmland of the Bennett Rancho near the current intersection of Imperial and Aviation Boulevards as a safe location for practice and emergency landings. Around this time, industrial and business leaders of Los Angeles recognized the need for a municipal airport with facilities that exceeded those of the existing airports in Burbank, Glendale, and Santa Monica. Meanwhile, the Bennett Rancho was promoted as a location for a Los Angeles municipal airport by realtor William W. Mines, earning the site the moniker "Mines Field." After Mines Field was selected as the location for the 1928 National Air Races, the City of Los Angeles (City) leased 640 acres of the field for the Los Angeles Municipal Airport in August 1928.

To administer the airport, the City created the Department of Airports on October 1, 1928. With little infrastructure and no office space at the airport, most employees worked at City Hall. Airport attendants stayed at the field working out of a small shed. Flagmen signaled to pilots with red and white cloth banners when it was safe for takeoff and landing. Air traffic was light.

The first permanent building at the airport, Hangar One,[58] opened in 1929 on the south side of the airfield. The City expanded the airport later that year with the construction of administrative offices, an all-weather runway, and additional hangars. Despite the city's hopes and intentions, the airport served private pilots and flying schools rather than commercial airlines. After a 1934 study of the aviation benefits of the Los Angeles Municipal Airport, the airport successively convinced Trans World Airways (TWA) and American Airlines to relocate their services if the facility was upgraded to accommodate passenger service. Subsequently, in 1935, under the direction of the Emergency Relief Administration, the airport was upgraded with grading, runway construction, and the installation of a new sewer line. In 1937, the Works Progress Administration approved major improvements to the north side of the airfield, including a new east-west runway and sewer, water line, grading, and drainage construction. Meanwhile, the City funded runway light and field light installation.

In the early 1940s, architects Sumner Spaulding and John Austin with city engineer Lloyd Aldrich prepared plans for the airport to attract modern commercial airline services. However, these plans were shelved with the onset of World War II. During the war, the airport served the military effort after the federal government took control of it in January 1942.

The Los Angeles City Department of Airports created a master plan for the airport in early 1943, including eastward expansion of the airfield and construction of new terminals and administration buildings. The plan garnered the commitment of United Airlines, TWA, Western Air, American Airlines, and Pan American Airways to relocate to the airport after the war and the completion of the proposed upgrades. A revised master plan, released in August 1944, proposed two phases of

[57] This section is drawn from the LAX Master Plan EIS/EIR: Los Angeles World Airports. January 2001. *Master Plan Final Environmental Impact Statement/Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*. Appendix I, Section 106 Report, pp. 16–35. Prepared by: PCR Services Corporation.

[58] Hangar One is listed on the NRHP.

development: (1) immediate accommodations for commercial operations and (2) long-range westward expansion of the airfield. In 1945, Los Angeles voters approved a $12.5 million bond measure to fund these improvements. Soon after, construction began on temporary accommodations for the airlines called the Intermediate Facilities, including four buildings, three of which served as terminals. Airlines then constructed their own hangars. In December 1946, four of the five major airlines began operations at Los Angeles Municipal Airport and Pan American Airways followed in January 1947.

On October 11, 1949, the airport received a new name, Los Angeles International Airport, after the Civil Aeronautics Administration declared the facility sufficient for international, intercontinental, and long-haul nonstop domestic flights and classified it as an "international-express-class" port.

Meanwhile, the temporary Intermediate Facilities were overwhelmed by passenger and cargo traffic. In the first 5 years of operation, passenger traffic increased 80 percent and freight traffic increased nearly 400 percent. Although the completion of an air freight building in 1951 alleviated some of the constrained space and opened it to passenger services, the facilities were still cramped. In 1951, architects William L. Pereira and Charles Luckman developed a master plan for the airport in order to expand its facilities. The bond issue that would have paid for these improvements failed in May 1953. However, the airport continued with some upgrades with its own revenue and federal funds, including terminal expansions, parking facility expansion, construction of maintenance facilities, and runway expansions, including a tunnel for vehicle traffic in order to accommodate larger planes on expanded runways.

The innovation of long-range commercial jet planes, particularly the Boeing 707 and DC-8 in 1958 and 1959, dramatically shaped the national system of airports, ushering in the era of the Jet Age. These new larger, more efficient jets precipitated a rapid rise in air travel. Between 1960 and 1970, air travel nearly tripled and many airports were not equipped to handle the new jets or the amount of traffic they generated.

Recognizing the limitations of the existing infrastructure, airport officials again hired Pereira and Luckman to master plan its Jet Age facilities. Pereira and Luckman teamed with Welton Becket & Associates and Paul R. Williams for the proposed improvements funded by a $60 million bond approved by voters in June 1956. The innovative design distributed passengers through six ticketing buildings facing onto a U-shaped access road around a sunken 0.5-mile-long mall containing parking for 5,000 cars, a restaurant, an employee cafeteria, electrical and heating plants, and the airport administration building. The ticketing buildings connected via underground passageways to satellites—large concourses that housed waiting areas, cocktail lounges, dining facilities, gift shops, and newsstands. Each of the seven oval-shaped satellite concourses was larger than a football field and contained 10 gates with bridges to connect to planes.

The first phase of construction began in 1957, which included field improvements and runway extensions, and was followed by excavations for the underground components. The final phase included the construction of the terminal buildings and the Airport Traffic Control Tower (ATCT). Completed in 1961, the ATCT was the highest in the world at 172 feet and sat above the administration offices. On June 25, 1961, Vice President Lyndon B. Johnson dedicated the new airport facilities, although only the United Airlines ticketing terminal and its two satellites were open at the time. United Airlines began passenger service from the new facility in August, and American, Western, Continental, Delta, Pacific, and Pacific Southwest Airlines followed suit in the following months in their new buildings on the south side of the access road. Meanwhile, TWA and Bonanza Airlines began operating from new buildings on the north side of the access road.

The last passenger terminal and satellite complex completed was the $5 million international facility in 1962, which included the usual ticketing, boarding, and baggage areas, as well as customs, immigration, and agriculture and public health inspectors.

On January 13, 1962, the Theme Building, the centerpiece of the new airport design, opened to the public. Reminiscent of Pereira and Luckman's earlier schemes for the airport and reflecting the Jet Age mentality, the modern-styled parabolic arch's four legs rise 135 feet from the ground and 340 feet across the base in the center of the terminal area. At the top of the structure is an observation deck and restaurant with a view 70 feet above the parking lot. The central kitchen and commissary is at ground level. The Theme Building was designated City of Los Angeles Historic-Cultural Monument #570 in 1992 and is on the National Register of Historic Places (NRHP).

In response to the 1964 air freight boom where freight traffic increased nearly 400 percent, the airport built a new air cargo center. Cargo City was built on a 96-acre site that had been the Intermediate Facilities, which was demolished to make way for Flying Tigers Airlines, TWA, and Atlantic Transfer's cargo terminals.

As the airport expanded, it faced increasing complaints from its residential neighbors who had moved into suburban tract homes surrounding the airport following World War II. In order to expand a noise buffer zone around the airport, the Department of Airports spent more than $145 million between 1965 and 1985 purchasing homes and property in Palisades del Rey, West Westchester, Emerson Manor, North Westchester, and North Playa del Rey.

In 1967, the Department of Airports released a new master plan authored by William Pereira & Associates. The plan focused on alleviating traffic at the airport by proposing new roadway construction to serve up to 48 million passengers annually, a new terminal at the west end of the airport, and construction of small localized metroports throughout the Los Angeles metropolis. Although the metroports did not materialize, a new terminal for commuter traffic and air taxis at the western edge of World Way opened in 1970. In 1968, the World Way Postal Center, designed by Cesar Pelli and Anthony Lumsden of Daniel, Mann, Johnson, and Mendenhall (DMJM) opened on Century Boulevard. In 1974, a $410,000 sound barrier was installed along a 1,500-foot portion of the northern airport boundary.

By the late 1970s, demands on the airport had exceeded its facilities' operation capacity. Expectations of the 1984 Summer Olympic Games in Los Angeles also added to the urgency. In 1981, ground was broken on an expansion, which included a new double-deck roadway, an addition of more than 1 million square feet of terminal space, remodeling of existing terminal buildings, 8,800 new parking spaces, runway reconstruction, and reconstruction of the central utility plant. Gin Wong was the supervising architect, and Bechtel Civil & Minerals, Inc. and DMJM oversaw construction. At the same time, the new Tom Bradley International Terminal was designed by a joint venture of William Pereira & Associates, Daniel Dworsky and Associates, Bonito A. Sinclair and Associates, and John Williams and Associates. Deleuw, Cather and Company and the Ralph M. Parsons Company designed the 2.8-mile elevated roadway as part of the expansion.

In the 1980s, the Gateway Cargo Center and several other cargo terminals and buildings replaced the airport's original hangars and ATCT in the southeast corner of the airport. A new airport traffic control tower, designed by Kate Diamond of Siegel Diamond Architects and Adrianna Levinescu of Holmes & Narver, opened in 1996. The $26 million, 289-foot-tall ATCT complements the neighboring Theme Building.

Surfridge

Surfridge was an affluent community that originated in the 1920s that gradually dissolved through LAX expansion, beginning in the 1960s.[59] The community was located immediately west of the present airport, and was bounded by Pershing Drive to the east, Vista Del Mar to the west, and Imperial Highway to the south. Based on historic USGS topographic maps, the development of the Surfridge community began between 1924 and 1934.[60,61] The community was home to early Los Angeles elite, including William de Mille, Cecil B. DeMille, Charles Bickford, Mel Blanc, and Mae Murray.[62]

By the late 1950s, the airport had grown significantly and required additional land in order to expand. In addition, residents of Surfridge complained of increasing noise levels from the transition to jet engines. In 1961, the City of Los Angeles began purchasing Surfridge property through eminent domain.[63] Following acquisition by the city, houses were either moved or destroyed throughout the 1960s and into the 1970s, thereby dissolving the Surfridge community.

5.1.2 Cultural Resources Characterization

5.1.2.1 Previous Cultural Resources Inventories in the Study Area

The results of the literature review indicate that 14 cultural resources studies have been conducted within 0.5 mile of the North Airfield (Table 5.1.2.1-1, *Previous Surveys within the Proposed Undertaking Study Area*). Locations of these previous surveys are shown in Figure 5.1.2.1-1, *Topographic Map with USGS 7.5-Minute Quadrangle Index Showing Previously Surveyed Areas in the Cultural Resources Study Area*). Figure 5.1.2.1-1 indicates that much of the APE associated with the proposed undertaking was previously evaluated in 1995 as part of a larger archaeological resources reconnaissance survey of the LAX property.[64]

[59] Anton, Mike. 2 March 2013. "LAX Ghost Town a Home to Memories and Rare Butterflies." *Los Angeles Times*.

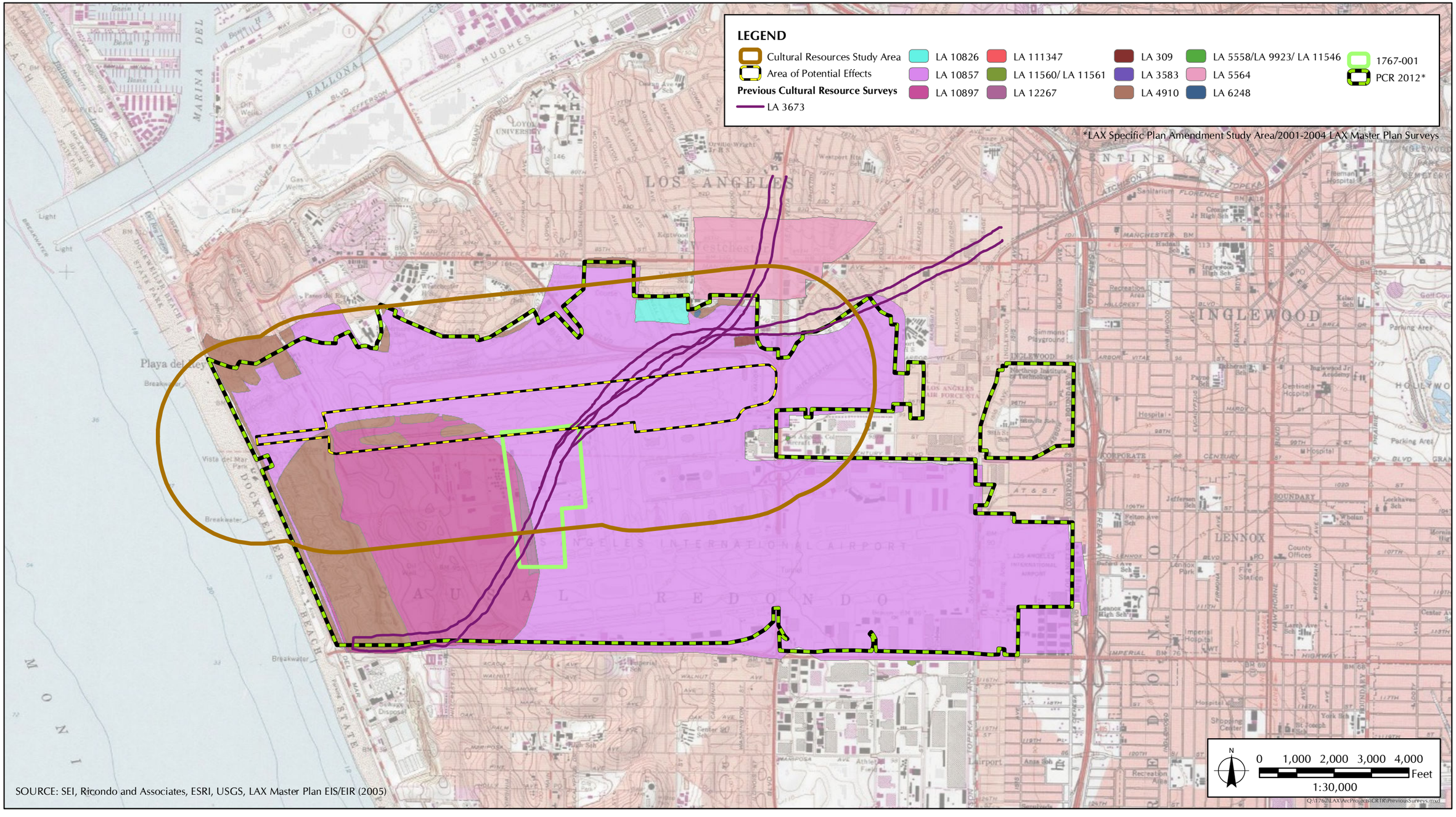
[60] U.S. Geological Service. 1924. Venice, California, 7.5-Minute Series Topographic Quadrangle.

[61] U.S. Geological Service. 1934. Venice, California, 7.5-Minute Series Topographic Quadrangle.

[62] Alexander, Zoe. April 2013 "Paradise Lost: the Rise & Fall of Surfridge." *Our South Bay*.

[63] Alexander, Zoe. April 2013 "Paradise Lost: the Rise & Fall of Surfridge." *Our South Bay*.

[64] Roschke, Rod. 1995. *Paleontological and Archaeological Resources Reconnaissance of LAX Property, Los Angeles County, California*. RMW Paleo Associates, Inc., Mission Viejo, CA.



SOURCE: SEI, Ricondo and Associates, ESRI, USGS, LAX Master Plan EIS/EIR (2005)

FIGURE 5.1.2.1-1

Topographic Map with USGS 7.5-Minute Quadrangle Index Showing
Previously Surveyed Areas in the Cultural Resources Study Area

TABLE 5.1.2.1-1
PREVIOUS SURVEYS WITHIN THE PROPOSED UNDERTAKING STUDY AREA

Report No.	Year	Report Title	Authors
LA 309	1987	Archaeological Reconnaissance Report for Areas Relating to the North Outfall Replacement Sever Project, Los Angeles County, California.	Myra L. Frank & Associates
LA 3673	1987	Historic Property Survey Report, North Outfall Relief Sewer (NORS)	Myra L. Frank & Associates
LA 4910	1995	Paleontological and Archaeological Resources Reconnaissance of LAX Property, Los Angeles County, California	Raschke, Rod, RMW Paleo Associates, Inc.
LA 5558	2000	Cultural Resources Assessment for Pacific Bell Wireless Facility LA913-11, County of Los Angeles, California	LSA Associates, Inc.
LA 5564	1999	A Neighborhood History and Predications of Archaeological Potential	Sue Verity
LA 6248	2002	Phase I Archaeological Survey Fire Station Number 5, Westchester, California	Greenwood and Associates
LA 7851 & LA 11560	2006	Archaeological and Historic Evaluations for the Proposed Airport Surveillance Detection Equipment, Model 3X (ASDE-3X), to Serve LAX, Los Angeles, Los Angeles County, California	PAST, Inc.
LA 9923	2009	Cultural Resources Analysis for T-Mobile Site Number LA03358D "Intercom Building" 9800 South Sepulveda Avenue, Los Angeles, California	Archaeological Resources Technology
LA 10826	2008	Section 106 Consultation for Three-Hole Expansion and Two-Hole Course Modification, Westchester Golf Course and Los Angeles International Airport, Los Angeles, CA	Federal Aviation Administration, U.S. Department of Transportation
LA 10857	2005	The Final LAX Master Plan Mitigation Monitoring & Reporting Program	Brian F. Smith and Associates
LA 11546	1980	Cultural Resources Records Search, Site Visit Results, and Direct APE Historic Architectural Assessment for Clearwire Candidate CA-LOS2026B/LA03XC087, 9800 South Sepulveda Boulevard, Los Angeles, Los Angeles County, California. EBI Project 61103316	Michael Brandman Associates
LA 11561	2005	Proposed Federal Aviation Administration (FAA) Airport Surface Detection Equipment, Model X (ASDE-3X) to serve LAX Los Angeles, CA – Case # FAA040625A	SRI International
PCR 2012	2012	LAX Specific Plan Amendment Study	PCR Services Corporation
1767-001	2012	LAX Midfield Satellite Concourse Project, Cultural Resources Technical Report	Sapphos Environmental, Inc.
1767-002	2014	Proposed Runway 6L-24R and Runway 6R-24L Safety Area and Associated Improvements Project, Cultural Resources Technical Report	Sapphos Environmental, Inc.
	2001	Section 106 Report, Appendix I, LAX Master Plan Final EIS/EIRLAX Specific Plan Amendment Study	PCR Services Corporation
	2003	Supplemental Section 106 Report, Appendix S-G, LAX Master Plan Supplement to the Draft EIS/EIR	PCR Services Corporation

LA 309. This project involved a reconnaissance survey of five areas within Los Angeles County for the North Outfall Replacement Sewer Project. One of these areas (Survey Area #4) was located within 0.5 mile of the proposed project area. Results of the evaluation found no cultural resources within the areas of proposed surface modification.

LA 3673. This is a Historic Properties Survey Report prepared as part of a Supplemental Environmental Impact Statement for the proposed North Outfall Replacement Sewer project that would run through the airport and surrounding areas. The survey found no archaeological or built-environment resources eligible for listing on the NRHP within the project area.

LA 4910. This project involved a paleontological and archaeological resources reconnaissance survey of undeveloped areas of the LAX property. The study included a pedestrian survey of the entire LAX property, with the exception of a few restricted areas. Several newly identified prehistoric and historic sites were identified during the survey with a small number of previously recorded resources relocated and updated.

LA 5558. This project included an assessment of cultural resources for a proposed telecommunications facility to be installed on the facade of an existing building. Results of a records search indicate that no historic properties would be impacted by the proposed project.

LA 5564. This document provides a summary of the history of the Westchester neighborhood. In addition, it includes predications regarding the nature and extent of archaeological remains within the area that borders the intersection of Manchester Avenue and Sepulveda Boulevard.

LA 6248. This report discusses the results of a cultural resources study for the City of Los Angeles' proposed Fire Station No. 5, in the community of Westchester. A pedestrian survey of the proposed site identified samples of shell that were consistent with prehistoric use of the area. Given this finding, along with the project's proximity to an extensive prehistoric occupation complex, Greenwood and Associates recommended that a qualified archaeological monitor be present during earth-moving activities.

LA 7851 & LA 11560. Archaeological and historical evaluations were undertaken in support of a proposed project to install airport surveillance detection equipment. The evaluations included a records search and field surveys in three separate sites.

LA 9923. This report provided results of records search and field investigation to identify cultural resources and make recommendations regarding the installation of antennae and other cellular equipment. No historic properties were identified within the APE.

LA 10826. This document includes a letter exchange between the FAA and the Office of Historic Preservation (OHP) regarding a proposed expansion of the Westchester Golf Course located on LAX property. The FAA states that there are no documented cultural resources within the APE. The California State Historic Preservation Officer responded that he cannot concur that the undertaking will not affect historic properties because no information specific to the project area was provided by the FAA. The OHP recommends that a records search be conducted at the California Historical Resources Information Center in order to obtain information on previously identified cultural resources within the project area.

LA 10857. This report provides the Archaeological Treatment Plan as part of the LAX Master Plan Mitigation Monitoring and Reporting Program, in compliance with federal and state laws and guidelines for the protection of archaeological resources discovered at the airport.

LA 11546. This project involved a cultural resources records search, site visit, and historic architectural assessment for the proposed placement of antennas on the roof of an existing building. Results of this work indicate that no historic properties are located within the APE.

LA 11561. This memo provides an analysis of the potential effect of a project to install airport surveillance detection equipment. On behalf of the FAA, the consultants requested the California Office of Historic Preservation to concur with a finding that the project was not likely to adversely affect historic resources.

PCR 2012. The letter report details the findings of a records search conducted by PCR Services Corporation for the LAX Specific Plan Amendment Study. Results of this study indicate that 10 cultural resources, including built-environment resource, historic and prehistoric archaeological sites, and prehistoric isolate resources, were recorded within the proposed project area.

1767-001. Sapphos Environmental, Inc. recently conducted a cultural resources investigation for the proposed LAX Midfield Satellite Concourse Project. This assessment found no paleontological, archaeological, Native American sacred sites, or cemeteries within the proposed project property. Although 10 buildings and structures were recorded within the project area, none of these resources were determined to be historic resources under CEQA.

1767-002. Sapphos Environmental, Inc. recently conducted a cultural resources investigation for the proposed Runway 6R-24L and 6L-24R Safety Area and Associated Improvements Project. This assessment identified four historic period cultural resources within the APE. All the historic period cultural resources within the APE were determined ineligible for inclusion into the NRHP.

Section 106 Report, Appendix I, LAX Master Plan Final EIS/EIR. This Section 106 report identifying the historic resources present and potentially affected by the proposed 2004 Master Plan improvements was prepared for the LAX Master Plan Final EIS/EIR.

Supplemental Section 106 Report, Appendices S–G, LAX Master Plan Supplement to the Draft EIS/EIR. A supplemental Section 106 report identifying the historic resources present and potentially affected by the proposed Alternative D identified in the 2004 Master Plan improvements was prepared for the LAX Master Plan Final EIS/EIR.

5.1.2.2 Supplemental Literature Review: Previous Cultural Resources Inventories in the Study Area

The results of the supplemental literature review indicate that two additional cultural resources studies have been conducted within 0.5 mile of the APE of the proposed undertaking (Table 5.1.2.2-1, *Previous Cultural Resources Inventories within the Proposed Undertaking Study Area*). Locations of these previous surveys are shown in Figure 5.1.2.1-1). Brief summaries of each of these cultural resource studies are provided below.

TABLE 5.1.2.2-1
PREVIOUS CULTURAL RESOURCES INVENTORIES WITHIN THE PROPOSED UNDERTAKING STUDY AREA

Report No.	Year	Report Title	Authors
LA 11347	2011	Cultural Resources Monitoring Report for Taxi Lane S and Bradley West	CH2M HILL
LA 12267	2013	LAX Midfield Satellite Concourse Project Cultural Resources Technical Report	Frank, Stephanie and Holland, Karl, Sapphos Environmental

LA 12267. This report documents the results of cultural resources construction monitoring at Taxi Lane S and Bradley West within LAX. One newly recorded archaeological resource was documented as a result of the project. The resource is not within the APE.

LA 12267. Sapphos Environmental, Inc. conducted a cultural resources investigation for the proposed LAX Midfield Satellite Concourse Project. This assessment found no paleontological, archaeological, Native American sacred sites, or cemeteries within the proposed project property. Although 10 buildings and structures were recorded within the project area, none of these resources were determined to be historic resources under CEQA.

5.1.2.3 Previously Recorded Cultural Resources within the Study Area

The results of the records search determined that three archaeological sites, two archaeological isolates, and five built environment resources had previously been recorded within 0.5 mile of the North Airfield (Table 5.1.2.3-1, *Previously Recorded Cultural Resources within the Study Area)*; locations of the cultural resources are shown in Figure 5.1.2.3-1, *Previously Recorded Cultural Resources in the Cultural Resources Study Area*. A brief summary of each of these cultural resources is provided below. None of these previously documented cultural resources are located within the APE of the proposed undertaking.

TABLE 5.1.2.3-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN THE STUDY AREA

Historic/Archaeological Resource	Resource Type	NRHP Eligibility
CA-LAN-202	Site	Ineligible
CA-LAN-1118	Site	Ineligible
CA-LAN-2358H/CA-LAN-*1H	Site	Ineligible
P-19-100115	Isolate	Ineligible
P-19-100116	Isolate	Ineligible
P-19-150442 (Milliron's Department Store)	Building	Ineligible due to age (in 1998)
P-19-150445 (Syad Realty Building)	Building	Ineligible
P-19-189869 (Clearwire CA-LOS2026B/LA03XC087)	Building	Ineligible
Loyola Theater (LAHCM No. 259)	Building	Not evaluated
Theme Building (LAHCM No. 570)	Structure	Eligible

KEY:
NRHP = National Register of Historic Places

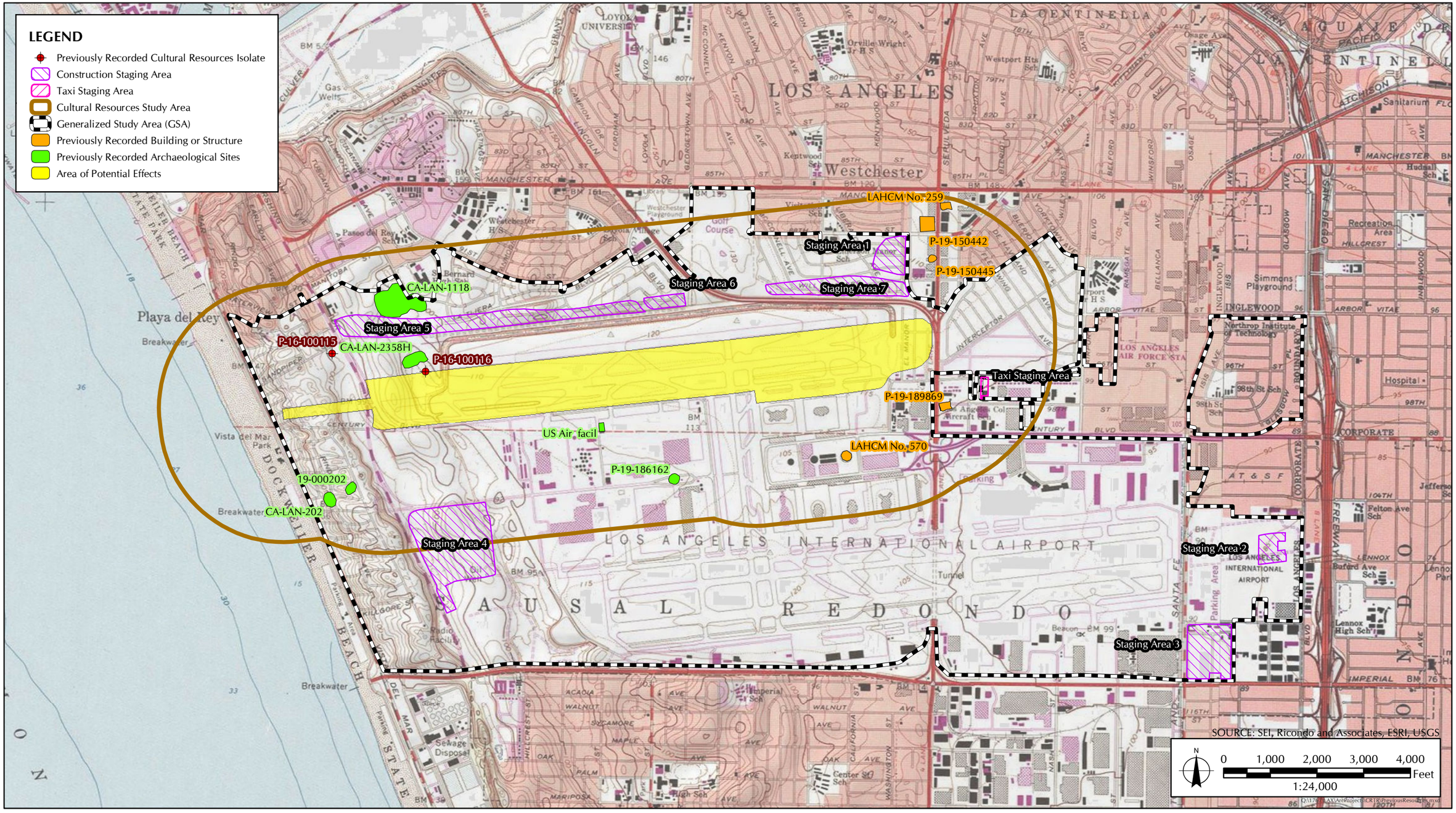


FIGURE 5.1.2.3-1

Previously Recorded Cultural Resources in the Cultural Resources Study Area

CA-LAN-202. This prehistoric site, which measured 61 meters in diameter, was originally recorded in 1953 by Eberhart. Residential development of the area in the 1960s appears to have extensively disturbed the site. Although later revisits to the area identified isolated fragments of *Mytilus* shell, no other cultural materials were identified in the vicinity.[65] Based on these findings, it was concluded that the site is ineligible for the NRHP.[66]

CA-LAN-1118. This site was originally recorded by Stickel and Appier in 1981.[67] The remains were described as a shell midden with associated lithic debitage that covered a 250- by 100-meter area. Grading and road construction in this area has destroyed large portions of the site since its original recording.[68] Due to its lack of integrity, the site was determined to be ineligible for the NRHP.

CA-LAN-2258H/CA-LAN-*1H. This site was recorded by Raschke and others in 1995 in the area immediately west of the northernmost runway.[69] The site consists of a large scatter of historic debris that included concrete, asphalt, glass, brick fragments, plaster, linoleum fragments, countertop tiles, and metal fragments. Historic documents indicate that these deposits likely represent the remains of a Nike Missile testing site, which was constructed in 1954. The facility was demolished in 1993 in preparation of the construction of Westchester Parkway. Because the site largely consists of redeposited materials, the resource is not considered eligible for the NRHP.

P-15-100115. This isolated occurrence consists of a large flake of reddish quartzite. The isolate is not eligible for the NRHP.

P-19-100116. This isolated find consists of a large felsite porphyry flake. The isolate is not eligible for the NRHP.

P-19-150442 / Milliron's Department Store. Also known as the Broadway-Westchester Department Store, this building is located at the northwest corner of Sepulveda Boulevard and La Tijera Boulevard. Constructed in 1948, the building is considered to be a prime example of the International Style. The building was originally recorded in 1987 by Starzak, who noted that the cultural resource was not eligible for inclusion on the NRHP because of its age; it was recommended that the building be reconsidered for eligibility in 1998, when the structure is 50 years old.[70]

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[65] California Department of Parks and Recreation. 1980. Update to Primary Record for CA-LAN-202. Site form on file at the South Central Coastal Information Center, California State University, Fullerton.

[66] Los Angeles World Airports. April 2004. *Master Plan Final Environmental Impact Statement/Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*. Section 4.9.1, Historic/Architectural and Archaeological/Cultural Resources.

[67] California Department of Parks and Recreation. 1981. Primary Record for CA-LAN-1118. Site form on file at the South Central Coastal Information Center, California State University, Fullerton.

[68] Raschke, Rod, Carol Stadum, and Ronald M. Bissell. 1995. *Paleontological and Archaeological Resources Reconnaissance of the Los Angeles International Airport (LAX) Property, Los Angeles County, California*. RMW Paleo Associates, Inc., Mission Viejo, CA.

[69] Raschke, Rod, Carol Stadum, and Ronald M. Bissell. 1995. *Paleontological and Archaeological Resources Reconnaissance of the Los Angeles International Airport (LAX) Property, Los Angeles County, California*. RMW Paleo Associates, Inc., Mission Viejo, CA.

[70] California Department of Parks and Recreation. 1987. Primary Record for P-19-150442. Site form on file at the South Central Coastal Information Center, California State University, Fullerton.

P-19-150455 / Syad Realty Building. This single-story commercial structure is located at the southwest corner of 89th Street and Sepulveda Boulevard. It was constructed in 1950 in a variation of a Utilitarian Style. Starzak argued that the structure does not appear to be eligible for individual listing on the NRHP on the basis of architectural merit or historic significance.[71]

P-19-189869 / Clearwire CA-LOS2026B/LA03XC087. This building is located at the southwest corner of 98th Street and Sepulveda Boulevard. The building is a Modern Style commercial building that was constructed as the United Savings and Loan building in 1964. An evaluation of the property found that the property does not appear to qualify for the NRHP.[72]

Loyola Theater. This theater building is located on Sepulveda Boulevard south of Manchester Avenue. Designed by Clarence J. Smale, the Baroque Modern style theater was built in 1948. In 1982, it was designated City of Los Angeles Historic-Cultural Monument #259.

Theme Building. Built in 1961 and 1962, the Theme Building was the centerpiece of the large expansion of LAX that converted it into a "jet-age airport." The building was designed by architects William Pereira, Charles Luckman, Welton Becket, and Paul Williams, and is composed of sets of parabolic arches from which a flying saucer–shaped restaurant is suspended. The Theme Building was found eligible for the NRHP under Criterion C. The Theme Building was also designated City of Los Angeles Historic-Cultural Monument #570 in 1992.

5.1.2.4 Supplemental Records Search: Previously Recorded Cultural Resources within the Study Area

The results of the supplemental records search determined that one additional built environment resource had previously been recorded within 0.5 mile of the APE of the proposed undertaking (Table 5.1.2.2-4, *Previously Recorded Cultural Resources within the Study Area Identified in the Supplemental Records Search*); locations of the cultural resources are shown in Figure 5.1.2.3-1. A brief summary of the identified cultural resource is provided below. The previously documented cultural resource is not located within the APE of the proposed undertaking.

[71] California Department of Parks and Recreation. 1987. Update to Primary Record for P-19-150445. Site form on file at the South Central Coastal Information Center, California State University, Fullerton.

[72] California Department of Parks and Recreation. 2010. Primary Record for P-19-189869. Site form on file at the South Central Coastal Information Center, California State University, Fullerton.

TABLE 5.1.2.4-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN THE STUDY AREA IDENTIFIED IN THE SUPPLEMENTAL RECORDS SEARCH

Historic/Archaeological Resource	Resource Type	NRHP Eligibility
P-19-186162	Control Tower	Not evaluated

KEY:
NRHP = National Register of Historic Places

P-19-186162. This site is currently a "beacon tower" that originally served as the control tower for Los Angeles International Airport. The tower was constructed in 1951 and operated as the control tower until 1961. The cultural resource has not been evaluated for inclusion for the NRHP.[73]

5.2 PHASE I CULTURAL RESOURCES SURVEY

5.2.1 Description of Cultural Resources

The Phase I survey identified no prehistoric archaeological resources within the APE. However, two historic-period cultural resources were recorded within the APE of the proposed undertaking during the cultural resources assessment (Runway 6R-24L and LAX Supplemental Site 1H) (Figure 5.2.1-1, *Newly Recorded Cultural Resources in the Cultural Resources Study Area*). Descriptions and significance evaluations of the two identified historic-period cultural resources are presented below. For more detailed information on these sites, the reader is referred to the completed DPR 523 site forms provided in Appendix B, *DPR 523 Forms*.

Runway 6R-24L. Runway 6R-24L is one of two runways in the north runway complex at LAX and is located within the APE (Image 5.2.1-1, *Runway 6R-24L, Facing East*). Historic documents and USGS topographic maps indicate that the runway was built sometime between 1958 and 1962 as part of the Jet Age improvement project at LAX.[74,75] The grooved, concrete runway measures 10,285 feet in length with a width of 150 feet; it is surrounded by a paved shoulder and blast pad, the latter of which is located on the eastern end of the APE. Related features associated with Runway 6R-24L include a number of taxiways, service roads, and approach lighting systems.

[73] California Department of Parks and Recreation. 2006. Primary Record for P-19-186162. Site form on file at the South Central Coastal Information Center, California State University, Fullerton.

[76] Thomas Brothers. 1957. *Los Angeles County 1957 Street Atlas*. Los Angeles, CA.

[76] Thomas Brothers. 1957. *Los Angeles County 1957 Street Atlas*. Los Angeles, CA.

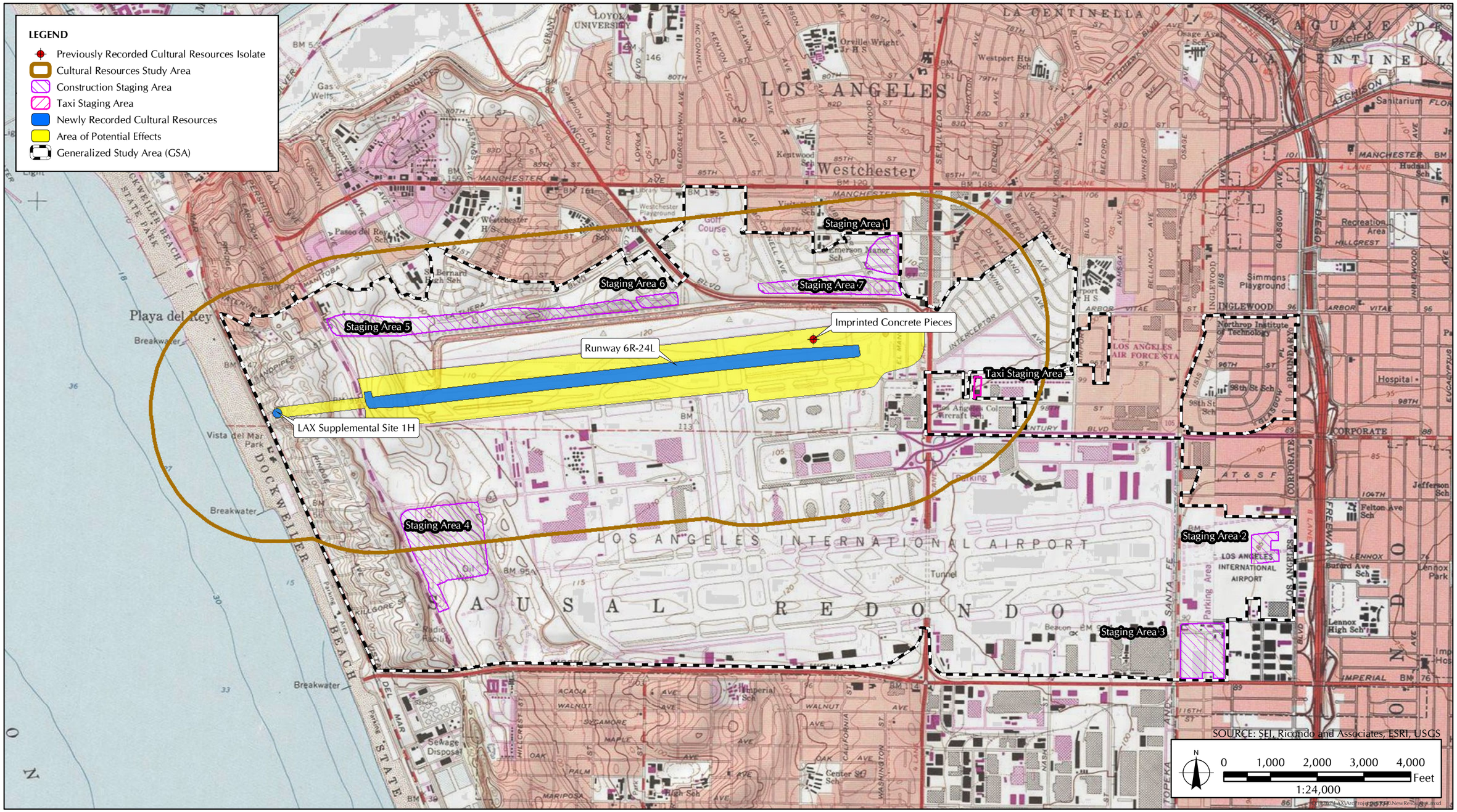

FIGURE 5.2.1-1

Newly Recorded Cultural Resources in the Cultural Resources Study Area

Image 5.2.1-1. *Runway 6R-24L, Facing East*

Over the years, Runway 6R-24L has undergone numerous improvements and modifications in response to the increasing demands of air traffic at LAX. The runway is paved with modern concrete; striping and other marking elements are painted on its surface. Although no identifiable historic materials were found in association with Runway 6R-24L, a broken piece of concrete with stamped lettering was identified in the immediate vicinity of the feature. The imprinted concrete fragments (possibly an identifier from a FAA navigational aid) appear to read, "FAA G5" and "C…IF." No additional information could be found as to the exact function or age of the materials (Image 5.2.1-2, *Concrete Fragments with Imprinting, Located North of Runway 6R-24L*).

Image 5.2.1-2. *Concrete Fragments with Imprinting, Located North of Runway 6R-24L*

LAX Supplemental Site 1H. LAX Supplemental Site 1H is located within the APE, approximately one-third of a mile west of Runway 6R-24L (Image 5.2.1-3, *LAX Supplemental Site 1H, Facing South*). A MALSR approach light associated with Runway 6R-24L is situated approximately at the center of the site. The site contains structural debris from the former Surfridge community, including brick and cement fragments, and lesser amounts of bottle glass, rebar, and nails.

The site is bordered by airport access roads that were once residential streets. The 1957 Thomas Brothers Los Angeles County Street Atlas lists these currently unnamed access roads as Ney Street directly north of the site, Argo Street directly south of the site, and Rindge Avenue directly east of the site.[76] Historically, several structures existed within the APE. The 1934 USGS Venice topographic quadrangle depicts five structures on Ney Street and two structures on Argo Street, all within approximately 200 feet of the site boundary and APE.[77] The 1942 USGS Venice topographic quadrangle depicts six structures on Ney Street, two structures on Argo Street, and two structures on Rindge Avenue, all within approximately 200 feet of the site boundary and APE.[78] An aerial photo dating to 1952 shows approximately 19 structures within approximately 200 feet of the site boundary and APE.[79] The 1964 USGS Venice topographic quadrangle shows no structures present within the site boundary and APE, which is confirmed by a 1972 aerial photo.[80,81]

[76] Thomas Brothers. 1957. *Los Angeles County 1957 Street Atlas*. Los Angeles, CA.

[77] U.S. Geological Service. 1934. Venice, California, 7.5-Minute Series Topographic Quadrangle.

[78] U.S. Geological Service. 1942. Venice, California, 7.5-Minute Series Topographic Quadrangle.

[79] Nationwide Environmental Title Research, LLC. 1952 aerial photo. Tempe, AZ. Accessed at: http://www.historicaerials.com.

[80] U.S. Geological Service. 1964. Venice, California, 7.5-Minute Series Topographic Quadrangle.

Image 5.2.1-3. *LAX Supplemental Site 1H, Facing South*

5.2.2 Significance Evaluation of Cultural Resources

The historical significance of Runway 6R-24L and LAX Supplemental Site 1H was determined by applying the procedures and criteria for the NRHP.

Runway 6R-24L. The NRHP eligibility criteria for has been applied to this site. Archival data indicate that Runway 6R-24L was first constructed between 1958 and 1962. Initial research has yielded no information suggesting an association of the runway with either significant historic events or people (Criteria A and B). Although the runway does appear to be associated with aviation history, it does not illustrate any significant association with the development of the commercial airline and airport industry in the early 20th century. Moreover, the runway has been heavily altered since its initial construction and thus no longer retains its original or historic appearance, visual narrative, or characteristics from a specific period that would make the resource eligible under Criterion C. Finally, research has provided no indication that the runway has the potential to yield any further information important to the history of the United States (Criterion D). Taken together, Runway 6R-24L does not meet any of any of the criteria for listing to the NRHP and, thus, cannot be considered a historic property.

[81] Nationwide Environmental Title Research, LLC. 1972 aerial photo. Tempe, AZ. Accessed at: http://www.historicaerials.com.

In order for a property to be eligible for listing in the NRHP, it must also retain its historic integrity. As mentioned above, Runway 6R-24L has been subjected to a number of improvements and alterations over the past 50 years. These modifications have significantly affected the runway's integrity in design, materials, and workmanship. Moreover, the continual development and expansion of LAX has resulted in a loss of integrity of setting and feeling. As such, it may be concluded that Runway 6R-24L does not retain a level of integrity needed to make it eligible for listing on the NRHP and, thus, cannot be considered a historic property.

LAX Supplemental Site 1H. The NRHP eligibility criteria have been applied to this site. Archival documents indicate that structures formerly present in and around LAX Supplemental Site 1H were constructed between circa 1934 and 1952 as part of the Surfridge community. No information has been found to indicate that LAX Supplemental Site 1H was associated with a historic event (Criteria A). Although individuals significant to the early motion picture industry are known to have owned properties in Surfridge, no residences associated with such persons remain intact today in the former Surfridge area (Criterion B). In addition, no information was found regarding the exact location of such properties. LAX Supplemental Site 1H does not significantly embody the distinctive characteristics of an engineering structure or architectural style, type, or period, which would make it eligible for inclusion under Criterion C as there are no structures remaining in and around the site. Finally, research has provided no indication that the site has the potential to yield potentially important information (Criterion D). Taken together, the resource does not meet any of the criteria for listing to the NRHP and, thus, cannot be considered a historic property.

The integrity of LAX Supplemental Site 1H has been effectively destroyed by airport operations and activities over the past 50 years. These activities include the removal of the housing, landscape, street lights, and street signs, and the construction of airport runway safety improvements. The complete removal of Surfridge residences has resulted in a loss of integrity of setting and feeling. Taken together, the data suggest that LAX Supplemental Site 1H does not retain a level of integrity that is needed to make it eligible for listing on the NRHP and, thus, cannot be considered a historic property.

5.3 SUMMARY OF FINDINGS

5.3.1 Cultural Resources

One built-environment resource, Runway 6R-24L, and one historic archaeological site, LAX Supplemental Site 1H, were documented in the proposed undertaking APE. Neither resource meets the eligibility requirements for the NRHP. Furthermore, all of the ground-disturbing activities associated with this undertaking will be located in previously disturbed areas that are not anticipated to contain intact subsurface deposits. Therefore, the proposed undertaking is not expected to have any effects on historic properties or historic resources.

However, results of the records search and archival research suggest that a number of archaeological sites are located within the larger cultural resources study area. In addition, the records search of the NAHC Sacred Lands File indicates that Native American traditional cultural places are also present in the immediate vicinity of the proposed undertaking. These findings suggest a potential for the unanticipated discovery of buried cultural deposits if construction activities extend into native or undisturbed soil.

If plans for the proposed undertaking are modified so that ground disturbances occur in areas that do not consist of re-deposited fill or that have not been previously disturbed, it is recommended

that an archaeological construction monitoring program be implemented in accordance with Mitigation Measure (MM) HA-5 of the MMRP and that procedures outlined in the Archaeological Treatment Plan[82] completed pursuant to MM HA-4 of the MMRP be followed to ensure the long-term protection and proper treatment of any unexpected archaeological discoveries of federal, state, and/or local significance found within the APE.

[82] Los Angeles World Airports. June 2005. *Archaeological Treatment Plan*. Prepared by: Brian F. Smith and Associates, San Diego, CA.

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APPENDIX A
RESUMES

Tiffany C. Clark, PhD, RPA

PhD Anthropology, emphasis in Archaeology, Arizona State University, Tempe, 2006

MA Anthropology, emphasis in Bioarchaeology, Arizona State University, Tempe, 1997

AB (cum laude), Biology, minor in Anthropology, Occidental College, Los Angeles, 1992

Registered Professional Archaeologist (ID No. 989197)

Cultural Resources Specialist

- *Principal Investigator of archaeological studies*
- *Phase/Class I, II, and III archaeological investigations*
- *Prehistoric and historic laboratory analyses*
- *Preparation of prehistoric and historic archaeological reports*
- *CRHR and NRHP site eligibility assessments*

Years of Experience: 18+

Relevant Experience:

- *LA Plaza Cultura y Artes Project, Los Angeles County*
- *Phase I Cultural Resources Inventory, Avalon Wind Energy Project, Kern County*
- *Phase I Cultural Resources Technical Study, Keeler Dunes, Inyo County*
- *Cultural Resources Study, State Route 710, Los Angeles County*
- *Phase II/III Archaeological Investigations, Catalina Renewable Energy Project, Kern County*
- *Phase III Archaeological Investigations, Red Mountain Freeway, Maricopa County*

Dr. Tiffany Clark, archaeologist and cultural resources specialist for Sapphos Environmental, Inc., has more than 18 years of experience in cultural resources management, archaeological survey and excavation, laboratory analysis, and report preparation. She has supervised projects in California and Arizona pursuant to the National Historic Preservation Act, the National Environmental Policy Act, and the California Environmental Quality Act. Her training and background meet the U.S. Secretary of the Interior's Professional Qualifications Standards in Archaeology.

As a principal investigator, Dr. Clark has managed Phase I (records search and pedestrian survey), Phase II (site eligibility testing), and Phase III (data recovery) projects. She has authored numerous cultural resources technical reports and environmental documents for compliance with local, state, and federal regulations. She has successfully coordinated with a variety of lead and regulatory agencies, including the Bureau of Land Management, California Department of Transportation, Federal Aviation Administration, U.S. Fish and Wildlife Services, U.S. Forest Service, and U.S. Army Corps of Engineers.

Dr. Clark specializes in the prehistoric archaeology of the interior deserts of the American Southwest. Her research interests include prehistoric economies in smaller-scale societies. She is especially interested in economic specialization and the organization of ceramic production and distribution systems. Her research has relied on a variety of compositional and technological analysis techniques to answer archaeological questions related to ceramic specialization and exchange.

Dr. Clark has also conducted research on the organization of prehistoric subsistence practices and faunal resource procurement strategies. She has identified and analyzed animal remains from numerous archaeological sites throughout the American Southwest. Her research has addressed the effect of population aggregation on large-game availability, the impact of 17th century Spanish colonization on Native American hunting strategies, and the role of European domesticated animals in indigenous subsistence systems.

Dr. Clark is a member of the Register of Professional Archaeologists, Society for American Archaeology, and Society for California Archaeology. She has authored or coauthored numerous professional reports and routinely presents papers at professional meetings. She has published articles in a variety of peer-reviewed journals, including *Ethnobiology*, the *Journal of Archaeological Anthropology*, and *Kiva*.

Clarus J. Backes, Jr., MA, RPA

MA, Anthropology, California State University, Long Beach, 2009

BA (magna cum laude), Anthropology, emphasis in Archaeology and Linguistics, California State University, Los Angeles, 2005

Registered Professional Archaeologist (ID No. 1673640)

Certified Archaeological Consultant, County of Riverside, California (Certification No. 247)

Archaeological Resources Manager

- *Field and laboratory crew chief*
- *Excavation and data recovery*
- *Preparation of prehistoric and historic archaeological reports*
- *Prehistoric and historic laboratory analyses*
- *Archaeological monitoring*

Years of Experience: 13

Relevant Experience:

- *Manzana Wind Energy Project*
- *Catalina Alternative Energy Project*
- *Avalon Wind Energy Project*
- *2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan*
- *Phase I Archaeological Survey of the Vasquez Rocks Natural Area Park*
- *Black Lava Butte Wind Energy Site Testing*

Mr. Clarus Backes, Archaeological Resources Manager for Sapphos Environmental, Inc., has 13 years of professional experience and has supervised numerous projects in California in support of compliance with the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), and Sections 106 and 110 of the National Historic Preservation Act (NHPA). Mr. Backes has worked as a cultural resources specialist and manager at Sapphos Environmental, Inc. for five years. He has participated in a wide range of projects involving archaeological survey, testing, data recovery, monitoring, laboratory analysis, and the development of mitigation and treatment plans, and has over 10 years of experience in a decision-making capacity on cultural resources projects in California. His training and background meet the U.S. Secretary of the Interior's Professional Qualifications Standards for prehistoric and historic archaeology.

Mr. Backes specializes in the prehistoric archaeology of Southern California. His research interests include hunter-gatherer subsistence and technology; archaeological applications of evolutionary theory; rock art technology, including pigment manufacture and exchange; and the application of physical science techniques to archaeological questions.

Mr. Backes's current research includes compositional and provenance analyses of pigments, ceramics, obsidian, and other archaeological materials via laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS). This research is conducted in association with the Institute for Integrated Research on Materials, Environment and Society (IIRMES) at California State University, Long Beach (CSULB), and supports several ongoing North American and Mesoamerican archaeological projects.

Mr. Backes also specializes in rock art recording and analysis, including in situ and laboratory pigment compositional analyses. He has conducted detailed, high-resolution baseline conditions assessments at numerous rock art sites in Southern California using analog and digital formats, ultraviolet and infrared photography, and digital enhancement. He has also pioneered techniques for ultraviolet fluorescence analysis of damaged pictograph sites. He regularly conducts rock art research in the western Mojave Desert, at China Lake Naval Air Weapons Station, and as part of the University of California, Los Angeles (UCLA), Little Lake Rock Art Digital Conservation Project.

Mr. Backes is a member of the Society for American Archaeology (SAA), Society for California Archaeology (SCA), and the American Rock Art Research Association (ARARA). He has authored or coauthored numerous professional reports, peer reviewed publications and monographs, and routinely presents papers at professional meetings.

Christopher W. Purtell, MA, RPA

Master of Arts, Anthropology (Emphasis in Archaeology), California State University, Fullerton, 2013

Bachelor of Arts (honors in the major), Anthropology/ Archaeology, California State University, Dominguez Hills, 2005

Registered Professional Archaeologist (ID No. 990027)

Senior Archaeological Resources Coordinator

- *Environmental analysis and compliance in support of CEQA, NEPA, and NHPA*
- *Archaeological principal investigator*
- *Project management of archaeological studies*
- *Phase I, II, and III archaeological investigations*
- *Prehistoric and historic laboratory analysis*
- *Coordination with Native American Heritage Commission*
- *Archaeological construction monitoring*
- *Archaeological record search*
- *Ethnographic research*

Years of Experience: 8

Relevant Experience:

- *Phase I surveys and Technical Reports, Catalina Renewable Energy Project, Avalon Wind Energy Project, Manzana Wind Energy Project, Hoffman Summit Wind Energy Project, and PdV Wind Energy Project*
- *Cultural Task Manager for 2008 Owens Valley PM_{10} Environmental Impact Report*
- *Phase I, II, and III Investigations for the Vasquez Rocks Natural Area Park*
- *Project Manager for the LA Plaza de Cultura y Artes*

Mr. Christopher Purtell is a project archeologist (senior archaeological resources coordinator) for Sapphos Environmental, Inc. Mr. Purtell has eight years of experience in project management, environmental compliance, archaeological survey, excavation, monitoring, laboratory analysis, and documentation.

As a senior archaeological resources coordinator, Mr. Purtell has undertaken and contributed to work efforts for prehistoric and historic archaeology in the Great Basin and Mojave Desert pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). As a field director, Mr. Purtell has managed field crews in intensive pedestrian surveys, excavations, and laboratory analyses. He has co-authored cultural analyses for fatal flaw studies; authored environmental compliance documents, such as Initial Studies, Environmental Impact Reports, and Cultural Resources Technical Reports; and compiled California Department of Parks and Recreation (DPR) site records. He has successfully coordinated with a variety of lead and regulatory agencies, including the Bureau of Land Management (BLM) among others. His training and background meet the U.S. Secretary of the Interior's Professional Qualifications Standards for prehistoric and historic archaeology.

Mr. Purtell has conducted archaeological research in California, western Mexico, Baja California, and the north coast of Peru. He specializes in lithic trajectories and technologies, and received the 2007–2008 Professional Distinction Award for Field and Laboratory Analysis from the California State University, Fullerton, Graduate School of Anthropology. Additional research interests include geographic information system (GIS) studies on prehistoric migration patterns, the archaeology of San Nicolas Island and Baja California, and California rock art. Mr. Purtell's recent work assignments have included cultural resources manager at the 9,212-acre site of the 2008 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan in Inyo County, California, for the Great Basin Unified Air Pollution Control District; cultural resources task manager for the 8,300-acre Avalon Wind Energy Project; Catalina Renewable Energy Project; and project manager for the LA Plaza de Cultura y Artes in El Pueblo de Los Angeles Historic District in downtown Los Angeles.

Mr. Purtell's professional experience includes over 20 years as a business director and program manager in the manufacturing of aerospace airframe components prior to his cultural resources management work. Mr. Purtell has extensive working knowledge in program management practices, quality management principles, and International Organization for Standardization 9002 quality procedures and applications, which are international in scope, and which have given him the necessary knowledge and expertise to manage complex cultural resources projects.

Adam J. White

BA, Anthropology and History, minors in Geology and Near Eastern Languages and Cultures, University of California, Los Angeles, 2011

Archaeological Resources Coordinator

- *Preparation of cultural resource survey reports*
- *Field crew chief*
- *Phase I archaeological investigations*
- *Laboratory analysis of prehistoric artifacts*

Years of Experience: 3

Relevant Experience:

- *STEP Archaeologist with Petrified Forest National Park, Arizona*
- *NAGPRA consultation and report preparation with Hopi, Zuni, and Navajo tribes.*
- *Understanding of National Park Service guidelines and regulations*
- *Surveys, significance evaluations and data recovery for Kern County Wind Development projects*

Mr. Adam White, Archaeological Resources Coordinator for Sapphos Environmental, Inc., has more than 3 years of experience in archaeological survey and excavation, laboratory analysis, and report preparation in California, the American Southwest, and Egypt. He has been involved with numerous cultural resource management projects within the private sector in California and has worked as an archaeologist for the National Park Service at Petrified Forest National Park, Arizona. Mr. White has also been an active participant in the UCLA/RUG Fayum Project in Al-Fayum, Egypt.

As an Archaeological Resources Coordinator for Sapphos Environmental, Inc., Mr. White has acted as project manager for cultural resources surveys and assessments, has led field crews in intensive pedestrian surveys for projects in urban and desert areas of southern California, and has worked on Phase II evaluation and Phase III data recovery projects. He has drafted numerous cultural resource technical reports, including California Department of Parks and Recreation resource reports and various internal documents. Mr. White has a strong background in site mapping using a variety of techniques, including Total Station, differential global positioning system (GPS), and traditional mapmaking methods. He has attended Section 106 training by ACHP.

Mr. White gained much experience in National Park Service archaeology during his employment as a GS-05 STEP Archaeologist at Petrified Forest National Park, Arizona. During summer 2010, he conducted numerous condition assessments at sites throughout the park, assisted in various research projects with different universities, and compiled Native American Graves Protection and Repatriation Act (NAGPRA) reports.

Mr. White has conducted academic research throughout Arizona at Hopi Reservation, Petrified Forest National Park, and Bureau of Land Management (BLM) land with the University of Redlands; University of Colorado, Boulder (UCB); and University of California, Los Angeles (UCLA). These projects have included mapping prehistoric Hopi pueblos, recording rock art panels, and surveying for Pueblo IV habitation sites. He is also a participant in the UCLA/RUG Fayum Project in Al-Fayum Egypt, where he has assisted in the excavation of a Graeco- Roman town and survey for Neolithic camp sites.

Mr. White is a member of the Society for American Archaeology (SAA) and presented research at the group's 76th Annual Meeting in April 2011.

Marilyn Novell, MS

MS, History of Architecture and Urbanism, University of California, Berkeley, 2010

BA, American Studies, concentration in Cultural Landscapes, University of California, Berkeley, 2008

Historic Resources Coordinator/Architectural Historian/Technical Editor

Years of Experience: 7

- *Architectural history*
- *Cultural landscapes research and writing*
- *Urban geography*
- *Historic resources inventories*
- *Cultural resources technical reports*
- *Historic context statements*
- *Field surveys in support of CEQA compliance*
- *Architectural photography*
- *Applications for landmark status*
- *California Department of Parks and Recreation (DPR) recordation*
- *Project management*
- *Historic Resources Inventory for the Los Angeles Unified School District*
- *Application for Landmark Status: University YWCA, Berkeley, California*
- *Research and writing for SurveyLA's Historic Context Statement*
- *Management of architecture, housing, urbanism, and city planning content for social media–driven web site*

Ms. Marilyn Novell has over seven years of professional and academic experience in historic preservation, cultural resources documentation, and architectural history.

Ms. Novell has worked on historic and cultural resource assessments for projects in Los Angeles, Santa Monica, Berkeley, Utah/Colorado, and the Klamath River basin in California. As a member of the board of directors of the Julia Morgan-designed Berkeley City Club, she participated in documenting the building's grounds for the Historic American Landscapes Survey (HALS). Ms. Novell has experience in developing historical and cultural resources sections and technical reports, specifically those related to Native American tribal trust resources and cultural values. Her qualifications meet the Secretary of the Interior's Professional Qualification Standards for Architectural History and History.

Ms. Novell's professional background includes management and contributions to projects aimed at the evaluation of historic properties and districts. She contributed to the City of Los Angeles Historic Resources Survey project (SurveyLA), both in the City Office of Historic Resources and for consultant firms conducting the survey for the City. In this capacity, she assisted in recording and evaluating properties in the field, researching identified properties, and writing summary reports. At Sapphos Environmental, Inc. she served as historic resources coordinator for an ongoing district-wide Historic Resource Inventory for the Los Angeles Unified School District (LAUSD). Her responsibilities included background research, writing of summary reports, intensive-level surveys of 55 postwar LAUSD campuses, and compiling evaluations and significance statements for California Department of Parks and Recreation (DPR) historic resources forms.

She served as project manager for Stonegate at Sierra Madre, California, a 21-parcel development that encompasses two historic structures. The project included researching and writing a Historic Structures Report and design review for proposed construction at the development.

During her years of experience with Internet technology and content, she was instrumental in the development of a national online database of New Deal–era public projects including schools, post offices, airports, hospitals, murals, and parks. In 2013, she founded the news-gathering web site 100% Built, focused on architecture, cities, and the built environment; the technology and interface were adopted by *Places Journal* to enhance the periodical's online presence.

Ms. Novell's areas of interest include social and cultural factors in buildings and landscapes, urban and suburban growth patterns, and Southern California history. Her master's thesis was a case study of a 1950 housing tract in the San Francisco Bay area that traced the histories of 63 originally nearly identical houses over time to their current highly individualized state, reflecting cultural, economic, and aesthetic changes in the residents and the community. She is a member of the California Preservation Foundation, the Los Angeles Conservancy, the Society of Architectural Historians, the National Trust for Historic Preservation, and the Vernacular Architecture Forum.

APPENDIX B
DPR 523 FORMS

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI #**

PRIMARY RECORD

Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 4 ***Resource Name or #:** LAX Supplemental Site 1H

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted** ***a. County:** Los Angeles

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Venice **Date:** 1964 **T** 3S; **R** 15W; UNSECTIONED**;** S.B. **B.M.**

c. Address: 1 World Way West City: Los Angeles Zip: 90045

d. UTM: Zone: 11S; 366735 mE/ 3757110 mN (G.P.S.) Datum at MALSR approach light

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) The site is located in the former Surfridge community west of Pershing Drive, east of Vista Del Mar and north of Imperial Highway. It is approximately one-third of a mile west of runway 6R-24L of the Los Angeles International Airport (LAX).

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The site is a sparse scatter of historical structural debris that appears to be from the demolished Surfridge community located directly west of Los Angeles International Airport. The cultural materials present consist primarily of structural concrete and brick fragments, but also includes green and clear bottle glass fragments, rebar, and nails in lesser amounts. No historic artifacts with temporarily diagnostic maker's marks were encountered. The structural debris within the current project's area of potential effects (APE) is roughly defined to be within a 100-foot radius of the datum, but structural debris continues to the north and south of the site. Site recordation was limited to the current project's APE, and therefore, the limits of the historical debris scatter are incompletely defined. .

***P3b. Resource Attributes:** (List attributes and codes) AH4: Privies/dumps/trash scatters

***P4. Resources Present:** ☐ Building ☐ Structure ☐ Object ■ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #)
Site overview, facing south; 7/16/2014

***P6. Date Constructed/Age and Sources:**
■ Historic ☐ Prehistoric ☐ Both

***P7. Owner and Address:**
Los Angeles World Airports
1 World Way
Los Angeles, CA 90045

***P8. Recorded by:** (Name, affiliation, and address)
AJ White
Sapphos Environmental, Inc.
430 North Halstead Street
Pasadena, CA 91107

***P9. Date Recorded:** July 16, 2014

***P10. Survey Type:** (Describe)
Pedestrian

***P11. Report Citation:** Sapphos Environmental, Inc. 2014. *Los Angeles International Airport Proposed Runway 6L-24R and Runway 6R-24L Safety Area and Associated Improvements Project Cultural Resources Technical Report.* Pasadena, CA.

***Attachments:** ☐ NONE ■ Location Map ☐ Sketch Map ■ Continuation Sheet ☐ Building, Structure, and Object Record ■ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (List):

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **Trinomial**

ARCHAEOLOGICAL SITE RECORD

 ***Resource Name or #:** LAX Supplemental Site 1H

***A1. Dimensions:** a. Length: 100 feet (N/S) × b. Width: 100 feet (E/W)
Method of Measurement: ☐ Paced ☐ Taped ■ Visual estimate ☐ Other:
Method of Determination (Check any that apply.): ■ Artifacts ☐ Features ☐ Soil ☐ Vegetation ☐ Topography ☐ Cut bank ☐ Animal burrow ☐ Excavation ☐ Property boundary ☐ Other (Explain):

Reliability of Determination: ☐ High ☐ Medium ■ Low Explain: Site limits incompletely defined. Site recordation was limited to the current project's APE due to airport security concerns.

Limitations (Check any that apply): ■ Restricted access ■ Paved/built over ■ Site limits incompletely defined ■ Disturbances ■ Vegetation ☐Other (Explain):

A2. Depth: ☐ None ☐ Unknown Method of Determination: Based on surface observations.

***A3. Human Remains:** ☐ Present ☐ Absent ☐ Possible ☐ Unknown (Explain): None observed

***A4. Features:** No features were identified.

***A5. Cultural Constituents** (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.):
The site is a diffuse historical debris scatter primarily composed of structural concrete and brick fragments, but also including green and clear bottle glass fragments, rebar, and nails. One white ceramic dish fragment was noted. No historic artifacts with temporarily diagnostic maker's marks were encountered.

***A6. Were Specimens Collected?** ■ No ☐ Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)

***A7. Site Condition:** ☐ Good ☐Fair ■ Poor (Describe disturbances.): Very little of the original structures remain as they were either relocated or destroyed during the 1960s and 1970s during airport expansion. The area was further disturbed through the installation of a Medium Intensity Approach Lighting System (MALSR) approach light at a later date. Modern trash is present throughout the site.

***A8. Nearest Water** (Type, distance, and direction.) Pacific Ocean, approximately 930 feet to the southwest.

***A9. Elevation:** 94 feet above mean sea level

A10. Environmental Setting (Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.): The site is located on the western slope of the Palisades del Rey Dunes in low-lying Southern California coastal vegetation. Although the area was once cleared for residential structures, dune sand and vegetation have largely reclaimed much of the area. The land slopes at approximately 8 degrees to the southwest.

A11. Historical Information: See continuation sheet.

***A12. Age:** ☐ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ☐ 1880-1914 ■ 1914-1945 ■ Post 1945 ☐ Undetermined Describe position in regional prehistoric chronology or factual historic dates if known: See continuation sheet.

A13. Interpretations (Discuss data potential, function[s], ethnic affiliation, and other interpretations): The historic artifacts appears to represent the structural debris of one or more residential structures belonging to the demolished Surfridge community.

A14. Remarks: None.

A15. References (Documents, informants, maps, and other references): See continuation sheet.

A16. Photographs: P1010327-P1010332

Original Media/Negatives kept at: Sapphos Environmental, Inc.

***A17. Form Prepared by:** AJ White **Date:** 7/17/2014

Affiliation and Address: Sapphos Environmental, Inc., 430 North Halstead, Pasadena, CA 91107

A11. Historical Information:

The site is within the boundaries of the demolished Surfridge community. Surfridge was an affluent community that originated in the 1920s and was destroyed beginning in the 1960s through LAX expansion.[1] Development began between 1924 and 1934, based on historic USGS topographic maps of the area.[2,3] The community was home to early Los Angeles elite, including William de Mille, Cecil B. DeMille, Charles Bickford, Mel Blanc, and Mae Murray.[4]

By the late 1950s, the airport had grown significantly and needed room to expand. In addition, residents of Surfridge complained of increasing noise levels from the transition to jet engines. In 1961, the City of Los Angeles began purchasing Surfridge property through eminent domain.[5] Following acquisition by the city, houses were either moved or destroyed throughout the 1960s and into the 1970s, thereby dissolving the Surfridge community.

The site is bordered by airport access roads that were once residential streets. The 1957 Thomas Brothers Los Angeles County Street Atlas lists these currently unnamed access roads as Ney Street directly north of the site, Argo Street directly south of the site, and Rindge Avenue directly east of the site.[6] Several structures existed close to or within the site. The 1934 USGS Venice topographic quadrangle depicts five structures on Ney Street and two structures on Argo Street, all within approximately 200 feet of the site.[7] The 1942 USGS Venice topographic quadrangle depicts six structures on Ney Street, two structures on Argo Street, and two structures on Rindge Avenue, all within approximately 200 feet of the site.[8] An aerial photo dating to 1952 shows approximately 19 structures within approximately 200 feet of the site vicinity.[9] The 1964 USGS Venice topographic quadrangle shows no structures present in the site vicinity, which is confirmed by a 1972 aerial photo.[10,11]

[1] Anton, Mike. 2 March 2013 “LAX Ghost Town a Home to Memories and Rare Butterflies.” *Los Angeles Times.*

[2] U.S. Geological Service. 1924. Venice, California, 7.5-minute Series Topographic Quadrangle.

[3] U.S. Geological Service. 1934. Venice, California, 7.5-minute Series Topographic Quadrangle.

[4] Alexander, Zoe. April 2013 “Paradise Lost: the Rise & Fall of Surfridge.” *Our South Bay.*

[5] Alexander, Zoe. April 2013 “Paradise Lost: the Rise & Fall of Surfridge.” *Our South Bay.*

[6] Thomas Brothers. 1957. *Los Angeles County 1957 Street Atlas.* Los Angeles, CA.

[7] U.S. Geological Service. 1934. Venice, California, 7.5-minute Series Topographic Quadrangle.

[8] U.S. Geological Service. 1942. Venice, California, 7.5-minute Series Topographic Quadrangle.

[9] Nationwide Environmental Title Research, LLC. 1952 aerial photo. Tempe, AZ. Accessed at: http://www.historicaerials.com.

[10] U.S. Geological Service. 1964. Venice, California, 7.5-minute Series Topographic Quadrangle.

[11] Nationwide Environmental Title Research, LLC. 1952 aerial photo. Tempe, AZ. Accessed at: http://www.historicaerials.com.

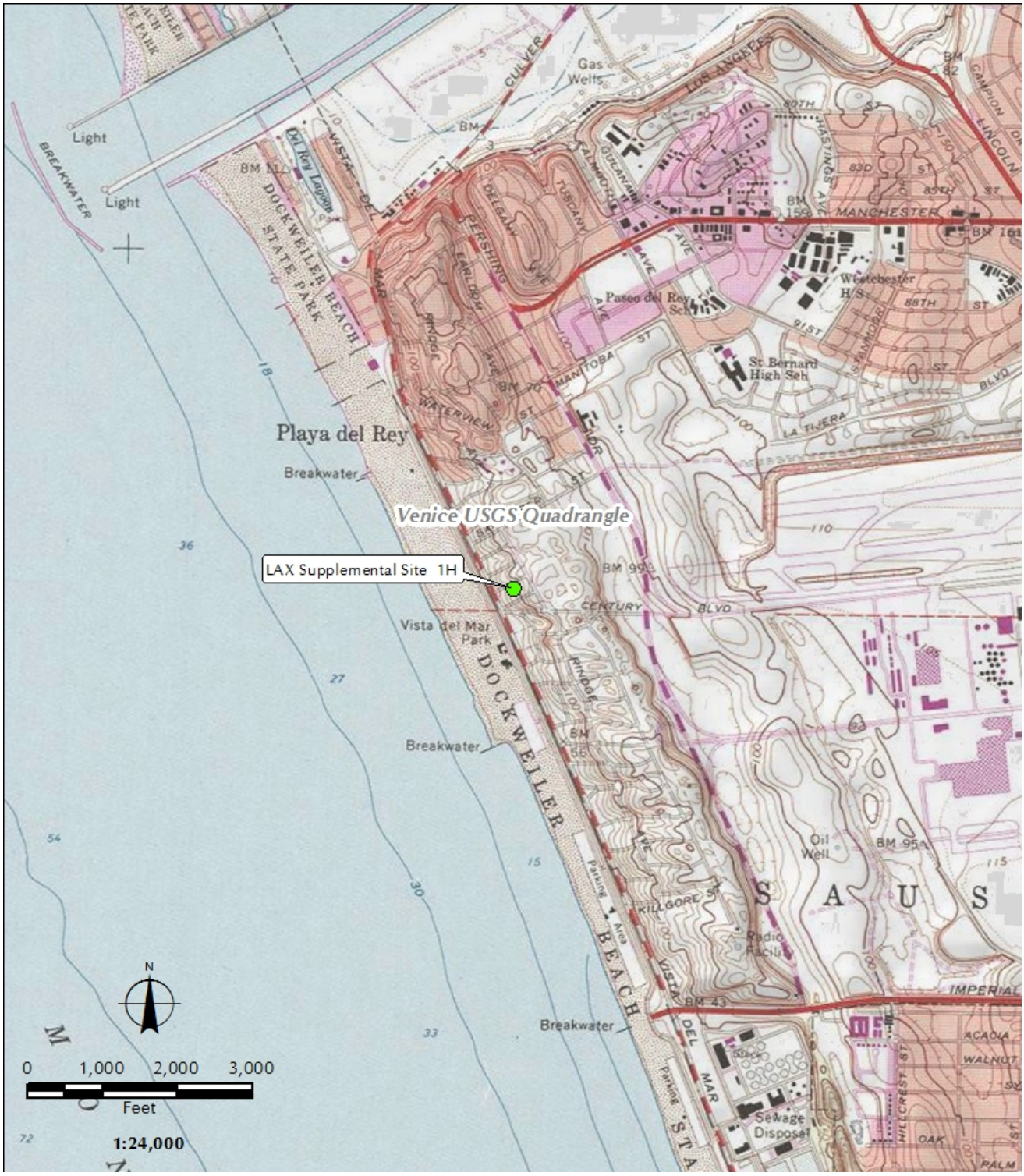
State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

***Resource Name or #:** LAX Supplemental Site 1H

***Map Name:** Venice, California ***Scale:** 1:24,000 ***Date of Map:** 1981 Revised 1964



*Required information

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # Trinomial NRHP Status Code
Other Listings Review Code	Reviewer Date

***Resource Name or #:** Runway 6R-24L, Los Angeles International Aiport

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted** ***a. County:** Los Angeles

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Venice **Date:** 1964 **T** 3S; **R** 15W; UNSECTIONED**;** S.B. **B.M.**

c. Address: 1 World Way West City: Los Angeles Zip: 90045

d. UTM: Zone: 11S; 369000mE/ 3757350mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) Elevation: Runway 6R-24L is the southernmost runway in the North Airfield at the Los Angeles International Airport.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Runway 6R-24L is one of two runways in the North Runway Complex at Los Angeles International Airport (LAX). Historic documents and U.S. Geological Survey (USGS) topographic maps indicate that the runway was built sometime between 1958 and 1962 as part of the jet-age improvement project at LAX (*Los Angeles Times*, 1957; USGS, 1964). The grooved, concrete runway measures 10,285 feet in length with a width of 150 feet; the runway is surrounded by a paved shoulder and blast pad, the latter of which is located on its eastern end. Related features associated with Runway 6R-24L include a number of taxiways, service roads, and approach lighting systems.

***P3b. Resource Attributes:** (List attributes and codes) HP11. Engineering Structure

***P4. Resources Present:** ☐ Building ■ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) Runway 6R-24L, facing east, 6/14/2013

***P6. Date Constructed/Age and Sources:** ■ Historic ☐ Prehistoric ☐ Both

***P7. Owner and Address:**

Los Angeles World Airports
1 World Way
Los Angeles, CA 90045

***P8. Recorded by:** (Name, affiliation, and address)

Tiffany Clark
Sapphos Environmental, Inc.
430 North Halstead Street
Pasadena, CA 91107

***P9. Date Recorded:** June 14, 2013

***P10. Survey Type:** (Describe) Pedestrian

***P11. Report Citation:** Sapphos Environmental, Inc. 2013. Memorandum for the Record: Results of the Cultural Resources Evaluation for the Proposed LAX North Runway Safety Area Improvements Project. Pasadena, CA.

***Attachments:** ☐ NONE ■ Location Map ☐ Sketch Map ☐ Continuation Sheet ■ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ■ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code

 ***Resource Name or #** (Assigned by recorder) Runway 6R-24L, Los Angeles International Airport

B1. Historic Name: North Runway, Los Angeles International Airport
B2. Common Name: Runway 6R-24L
B3. Original Use: Airport Runway B4. Present Use: Airport Runway
***B5. Architectural Style:** Not applicable
***B6. Construction History:** (Construction date, alterations, and date of alterations)
Runway was originally built between 1958 and 1962 as part of the jet-age improvement project at LAX (*Los Angeles Times*, 1957; U.S. Geological Survey, 1964). The runway had been subject to an unknown number of alterations and improvements since its construction.

***B7. Moved?** ■No ☐Yes ☐Unknown **Date:** **Original Location:** Not applicable

***B8. Related Features:**
Related features associated with Runway 6R-24L include a number of taxiways, service roads, and approach lighting systems.

B9a. Architect: Unknown b. Builder: Unknown

***B10. Significance: Theme:** Airports **Area:** City of Los Angeles

Period of Significance: **Property Type:** **Applicable Criteria:**
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The construction of Runway 6R-24L was part of the jet-age improvement project that was began at LAX in the late 1950s. The first phase of construction began in 1957, and involved field improvements and the extension of existing runways, followed by excavations for the underground components. The final phase included the construction of the North Runway (Runway 6R-24L), new passenger terminal buildings and airline maintenance areas, and the control tower. During this time, the Theme Building was also constructed at LAX. Considered to be the centerpiece of the new airport design, the building reflected the Jet Age mentality with its modern-styled parabolic arch's four legs rise 135 feet from the ground and 340 feet across the base in the center of the terminal area.

Runway 6R-24L does not meet any of the evaluative criteria for inclusions on the National Register of Historic Places (Criteria A–D) or the California Register of Historical Resources (Criteria 1–4). In addition, the runway has been subjected to a number of alterations and improvements and as such, does not possess much of its original integrity.

B11. Additional Resource Attributes: (List attributes and codes) HP11. Engineering Structure

***B12. References:** *Los Angeles Times*. 25 November 1957. "Airport Project Will Start Soon: Ground-Breaking Ceremonies Slated Dec. 8 for $46,000,000 Expansion Project."

U.S. Geological Survey. 1964. *7.5-Minute Series, Venice, California, Topographic Quadrangle*. Reston, VA.

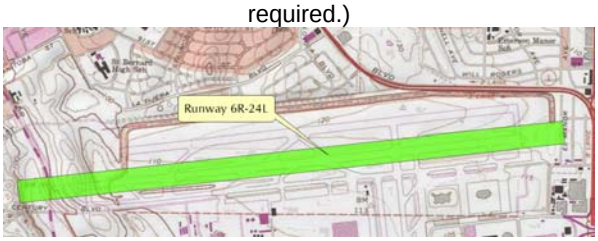
B13. Remarks: None

***B14. Evaluator:** Tiffany Clark, Sapphos Environmental, Inc., Pasadena, CA

***Date of Evaluation:** June 14, 2013

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



North Arrow

L1. Historic and/or Common Name: Runway 6R-24L

L2a. Portion Described: ■ Entire Resource ☐ Segment ☐ Point Observation **Designation:** Runway 6R-24L

b. Location of point or segment: (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map) The entirety of Runway 6R-24L has been field inspected. See map for location of runway.

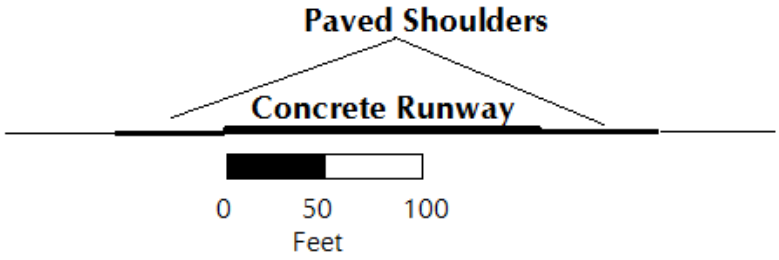
L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

Runway 6R-24L is one of two runways in the North Runway Complex at LAX. Historic documents and U.S. Geological Survey topographic maps indicate that the runway was built sometime between 1958 and 1962 as part of the jet-age improvement project at LAX (*Los Angeles Times*, 1957; U.S. Geolgoical Survey, 1964). The grooved, concrete runway measures 10,285 feet in length with a width of 150 feet; the runway is surrounded by a paved shoulder and blast pad, the latter of which is located on its eastern end. Related features associated with Runway 6R-24L include a number of taxiways, service roads, and approach lighting systems.

Over the years, Runway 6R-24L has undergone numerous improvements and modifications in response to the increasing demands of air traffic at LAX. The runway is paved with modern concrete; striping and other marking elements are painted on its surface. Although no identifiable historic materials were found in association with Runway 6R/24L, a broken piece of concrete with stamped lettering was identified in the immediate vicinity of the feature (see photograph below) (11S 370233mE, 3757589 mN). The imprinted concrete fragments appear to read “FAA G5” and “C…IF.” No information could be found as to the possible function or age of the remains.

L4. Dimensions: (In feet for historic features and meters for prehistoric features)
a. Top Width: 150 feet
b. Bottom Width: Not applicable
c. Height or Depth: Not applicable
d. Length of Segment: 10,285 feet

L4e. Sketch of Cross-Section (include scale) **Facing:** East



L5. Associated Resources: Taxiways, service roads, and approach lighting systems.

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.) Runway is located on a level area west of the El Segundo Dunes.

L7. Integrity Considerations: The runway has been subjected to a number of alterations and improvements since its construction. As such, it does not possess much of its original integrity.

L8a. Photograph, Map or Drawing

L8b. Description of Photo, Map, or Drawing (View, scale, etc.)

Stamped concrete piece found in association with Runway 6R-24L.

L9. Remarks: None

L10. Form Prepared by: (Name, affiliation, and address)

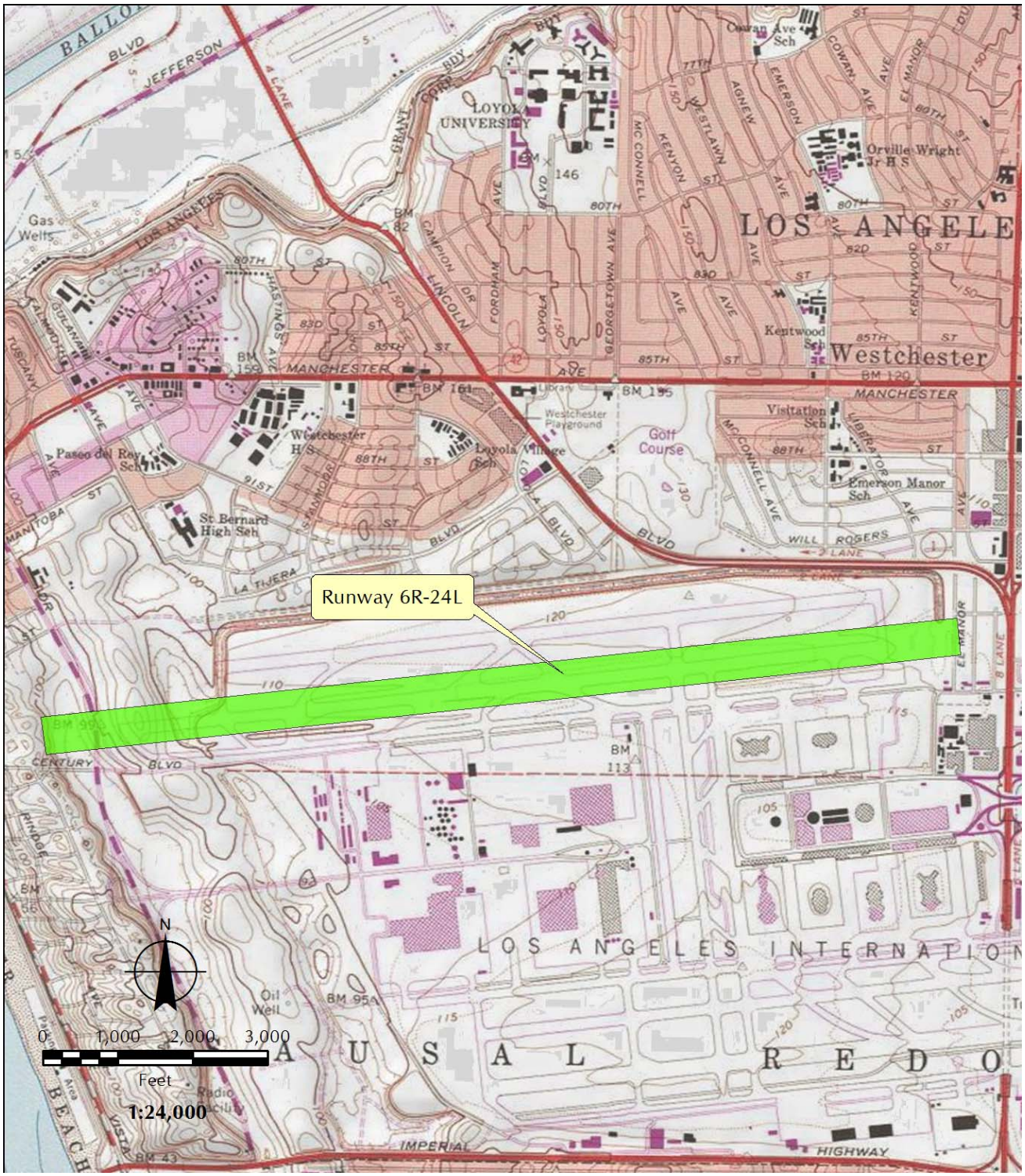
Tiffany Clark
Sapphos Environmental, Inc.
430 North Halstead Street
Pasadena, CA 91107

L11. Date: June 20, 2013

State of California — The Resources Agency DEPARTMENT OF PARKS AND RECREATION **LOCATION MAP**	Primary # HRI# Trinomial

Page 5 **of** 5 ***Resource Name or #:** Runway 6R-24L

***Map Name:** Venice, California ***Scale:** 1:24,000 ***Date of Map:** 1964



Appendix E

California Coastal Commission Negative Determination

STATE OF CALIFORNIA – NATURAL RESOURCES AGENCY EDMUND G. BROWN, JR., GOVERNOR

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105- 2219
VOICE (415) 904- 5200
FAX (415) 904- 5400
TDD (415) 597-5885

February 19, 2015

David Kessler, AICP
Regional Environmental Protection Specialist
Airports Division
Federal Aviation Administration
P.O. Box 92007
Los Angeles, CA 90009-2007

Subject: Negative Determination ND-0003-15 (Relocation and Replacement of Approach Lighting System for Runway 6R at Los Angeles International Airport, Los Angeles County)

Dear Mr. Kessler:

The Coastal Commission staff has reviewed the above-referenced project. The Federal Aviation Administration (FAA) is improving the Runway Safety Area (RSA) for Runway 6R-24L, the inboard runway on the north side of Los Angeles International Airport (LAX). These RSA improvements and design standards are mandated by *The Transportation, Treasury, Housing and Urban Development, The Judiciary, The District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law 109-115). The subject negative determination covers the relocation and replacement of those parts of the federally owned and operated Approach Lighting System (ALS) for Runway 6R (the runway designation for west-to-east approaches on Runway 6R-24L) which are located in the coastal zone within the El Segundo Dunes area of LAX. Other elements of the ALS relocation for Runway 6R and the other RSA improvements for Runway 6R-24L at LAX are located inland of the coastal zone and are not included in this negative determination.

In order to lengthen the Runway 6R RSA to meet FAA design standards, LAX is relocating the west end of Runway 6R approximately 420 feet east of its current location. It is not possible to extend the RSA westward from the west end of Runway 6R due to the immediate proximity of Pershing Drive at the west end of the runway and the El Segundo Blue Butterfly Habitat Preserve located immediately west of Pershing Drive.[1] Due to the eastward relocation of the runway endpoint, the FAA must relocate three of its Runway 6R ALS towers, which are located every 200 feet beginning from the end of the runway to a point approximately 2,500 feet west of the runway endpoint in the El Segundo Dunes.

The FAA proposes to deactivate and remove the two westerly ALS towers from the dunes and to relocate the "1000-foot light bar" (supported by three separate towers) to a location immediately east of Pershing Drive (outside the coast zone). The project also includes replacement of the

[1] The eastern boundary of the coastal zone in this area is the eastern right-of-way of Pershing Drive.

remaining seven ALS towers in the coastal zone with new towers as the existing structures have reached the end of their design life. The FAA will excavate and remove the existing concrete pads which support the two westerly ALS towers that will be deactivated, and excavate and remove the northern and southern concrete pads which currently support the "1000-foot light bar." The central pad will be retained in order to support a new single-pole ALS tower at this location. The nine existing ALS stations in the coastal zone are sited on concrete pads that total 555 sq.ft. The proposed relocation and upgrade project would remove from the dunes four concrete pads totaling 253.4 sq.ft. Minor excavation next to the concrete pads to be removed will be undertaken to disconnect buried electrical and communication lines to each of the tower stations. The replacement ALS towers will be installed on the existing concrete pads at the seven ALS stations. The project includes the installation of upgraded power and communication cables to the replacement ALS towers, using directional boring equipment rather than trenching to minimize ground disturbance between stations. Existing gravel and paved service roads which provide access to and connect each of the ALS stations will be used by construction personnel for construction access and staging.

The project area is located in the northern end of the approximate 300-acre El Segundo Dunes, an environmentally sensitive habitat area (ESHA), and the four eastern-most ALS towers are located within the extreme northern corner of the 203-acre dunes Habitat Restoration Area, the area occupied by the federally endangered El Segundo blue butterfly. However, in August 2014 the FAA undertook field surveys of the project area and confirmed that coast buckwheat – the host plant for the El Segundo blue butterfly – is not present in the vicinity of the nine subject ALS towers. The nearest coast buckwheat plants are located 300-500 feet south of the existing ALS stations and service road, and no coast buckwheat was observed north of the ALS stations. The FAA concluded that the proposed project would not affect any federally listed species or designated critical habitat in the El Segundo Dunes. Only scattered vegetation exists at, adjacent to, and between the ALS stations and when present is comprised of iceplant and other ornamental and non-native plants. All temporarily disturbed areas will be restored to pre-project conditions.

In November 2004 the Commission concurred with consistency determination CD-062-04 from the FAA for proposed reconfiguration of runway navigation aids in the El Segundo Dunes. That project was necessary due to a proposed realignment of runways and taxiways on the north side of LAX by Los Angeles World Airports. In its concurrence the Commission found that:

> [Coastal Act] *Section 30240(a) . . . states that within environmentally sensitive habitat areas, "only uses dependent on those resources shall be allowed within those areas." The FAA constructed the existing navigation aids located in the El Segundo Dunes between 1975 and 1977, and the Commission did not begin conducting federal consistency reviews until November 1978. As a result, no analysis occurred for consistency with the Section 30240(a) allowable use policy for the installation of the original navigation aids. Currently, however, the El Segundo Dunes is designated as an environmentally sensitive habitat and the proposed reconfiguration of the existing navigation aids is not a type of land use or development that is dependent on these coastal dune resources. The proposed installation of the new navigation aids and associated roads is therefore not consistent with the allowable*

> *use test of Section 30240(a) of the Coastal Act. As a result, the FAA is asserting that the proposed project is consistent to "the maximum extent practicable" with Section 30240(a).*

The Commission then noted that Section 930.32 of the Coastal Zone Management Act federal consistency regulations state that federal activities must be fully consistent with state coastal management programs unless:

> *. . . compliance is prohibited based upon the requirements of existing law applicable to the Federal agency's operations. If a Federal agency asserts that compliance with the management program is prohibited, it must clearly describe to the State agency the statutory provisions, legislative history, or other legal authority which limits the Federal agency's discretion to comply with the provisions of the management program.*

The findings for CD-062-04 further stated that the Commission reviewed the references to federal statute, regulations, and FAA advisories provided by the FAA to support the agency's assertion that full compliance with Section 30240(a) of the Coastal Act is prohibited by the requirements of existing law applicable to the FAA. The Commission concluded that there was a basis in the federal statutes that compelled LAWA to comply with the FAA advisories and standards for the design of runways and taxiways at LAX, in particular, FAA Advisory Circular 150/5300-13, Airport Design. The proposed realignment of the two runways in the north airfield at LAX would consequently mandate the reconfiguration of the existing navigation aids in the El Segundo Dunes that support flight operations on those runways. The Commission also determined that the FAA designed the reconfiguration project to minimize effects on environmentally sensitive habitat and would implement a habitat restoration plan to restore and enhance coastal dune habitat prior to the start of project construction.

The Commission concluded in its concurrence with CD-062-04 that:

> *Therefore, given the mandate for LAWA to comply with FAA standards for runway design, the FAA requirement to provide navigation aids for runway operations, a navigation aid reconfiguration plan that minimizes impacts to environmentally sensitive coastal dune habitat, and FAA's preparation of the El Segundo Dunes Habitat Restoration Plan, the Commission concludes that the proposed project is consistent to the maximum extent practicable with the environmentally sensitive habitat and wetlands policies (Section 30240 and 30233) of the Coastal Act.*

However, the reconfiguration of the north airfield runways at LAX was not implemented and the navigation aids for Runway 6R remained in place.

As with CD-062-04, the FAA is asserting that the proposed project is consistent to "the maximum extent practicable" with Section 30240(a). The FAA has cited in its negative determination Public Law 109-115 which mandates that the proposed ALS relocation and replacement for Runway 6R be completed by December 31, 2015. The FAA has designed the proposed project to minimize surface disturbance around the existing ALS stations during

removal and installation activities, to use the existing concrete pads to support the replacement ALS towers, to limit any minor expansion of concrete support pads to the minimum necessary, and to use existing gravel and paved roads to access all construction work areas. The proposed project area does not include any native vegetation, sensitive habitat, or coast buckwheat plants and is separated from this El Segundo blue butterfly host plant by at least 300 feet.

In conclusion, the Commission staff **agrees** that the proposed relocation and replacement of those parts of the LAX Runway 6R Approach Lighting System (ALS) located in the El Segundo Dunes will not adversely affect coastal zone resources. Under the federal consistency regulations (Section 15 CFR 930.35(a)), a negative determination can be submitted for an activity "which is the same or similar to activities for which consistency determinations have been prepared in the past." The proposed relocation and replacement of ALS towers is similar to a project concurred with by the Commission in CD-062-04 (but which was not constructed by the FAA due to circumstances beyond the agency's control). However, the proposed project would create significantly reduced impacts to sensitive habitat compared to the previously-approved project, due to its location further to the north, the lack of sensitive habitat in the project area, and the distance between the project area and coast buckwheat plants. While the project will create minor temporary impacts during removal and installation work, the project will also eliminate two ALS stations from the dunes, significantly reduce the size of a third station, and reduce by 47 percent the area of concrete pads in the dunes which support the federally-mandated ALS towers for Runway 6R. We therefore **concur** with your negative determination made pursuant to 15 CFR 930.35 of the NOAA implementing regulations. Please contact Larry Simon at (415) 904-5288 should you have any questions regarding this matter.

Sincerely,

CHARLES LESTER
Executive Director

cc: CCC – South Coast District
Evelyn Y. Quintanilla, Los Angeles World Airports

Appendix F

Noise

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1. Introduction

Sound, when transmitted through the air and upon reaching our ears, may be perceived as desirable or unwanted. People normally refer to noise as unwanted sound. Because sound can be subjective, individuals have different perceptions, sensitivities, and reactions to noise. Loud sounds may bother some people, while others may be bothered by certain rhythms or frequencies of sound. Sounds that occur during sleeping hours are usually considered to be more objectionable than those that occur during daytime hours.

Noise levels are measured using a variety of scientific metrics. As a result of extensive research into the characteristics of aircraft noise and human response to that noise, standard noise descriptors have been developed for aircraft noise exposure analyses. The descriptors used in this noise analysis are described below.

Decibel, dB – Sound is a complex physical phenomenon consisting of complex minute vibrations traveling through a medium, such as air. These vibrations are sensed by the human ear as sound pressure. Because of the vast range of sound pressure or intensity detectable by the human ear, sound pressure level (SPL) is represented on a logarithmic scale known as decibels (dB). A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet (laboratory-type) listening conditions. An SPL of 120 dB begins to be felt inside the ear, and discomfort and pain at approximately 140 dB. Most environmental sounds have SPLs ranging from 30 to 100 dB.

Because decibels are logarithmic, they cannot be added or subtracted directly like other (linear) numbers. For example, if two sound sources each produce 100 dB, when they are operated together they will produce 103 dB, not 200 dB. Four 100 dB sources operating together again double the sound energy, resulting in a total SPL of 106 dB, and so on. In addition, if one source is much louder than another, the two sources operating together will produce the same SPL as if the louder source were operating alone. For example, a 100 dB source plus an 80 dB source produce 100 dB when operating together. Two useful rules to remember when comparing SPLs are: (1) most people perceive a 6 to 10 dB increase in SPL between two noise events to be about a doubling of loudness, and (2) changes in SPL of less than about 3 dB between two events are not easily detected outside of a laboratory.

A-Weighted Sound Pressure Level, dBA: The decibel (dB) is a unit for describing sound pressure level. When expressed in dBA, the sound has been filtered to reduce the effect of very low and very high frequency sounds, much like the human ear does. Frequency, or pitch, is a basic physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 20,000 Hz. Because the human ear is more sensitive to middle and high frequencies

(i.e., 1,000 to 4,000 Hz), as compared to low frequencies, a frequency weighting called "A" weighting is applied. With the A-weighting, calculations and sound monitoring equipment approximates the sensitivity of the human ear to sounds of different frequencies.

Some common sounds on the dBA scale are listed in **Table 1**. As shown in the table, the relative perceived loudness of a sound doubles for each increase of 10 dBA, even though a 10 dBA change corresponds to a change of relative sound energy by a factor of 10. Generally, sounds with differences of 2 dBA or less are not perceived to be noticeably different by most listeners.

Table 1: Common Sounds on the A-Weighted Decibel Scale

SOUND	SOUND LEVEL (DBA)	RELATIVE LOUDNESS (APPROXIMATE)	RELATIVE SOUND ENERGY
Rock music, with amplifier	120	64	1,000,000
Thunder, snowmobile (operator)	110	32	100,000
Boiler shop, power mower	100	16	10,000
Orchestral crescendo at 25 feet, noisy kitchen	90	8	1,000
Busy street	80	4	100
Interior of department store	70	2	10
Ordinary conversation, 3 feet away	60	1	1
Quiet automobiles at low speed	50	1/2	.1
Average office	40	1/4	.01
City residence	30	1/8	.001
Quiet country residence	20	1/16	.0001
Rustle of leaves	10	1/32	.00001
Threshold of hearing	0	1/64	.000001

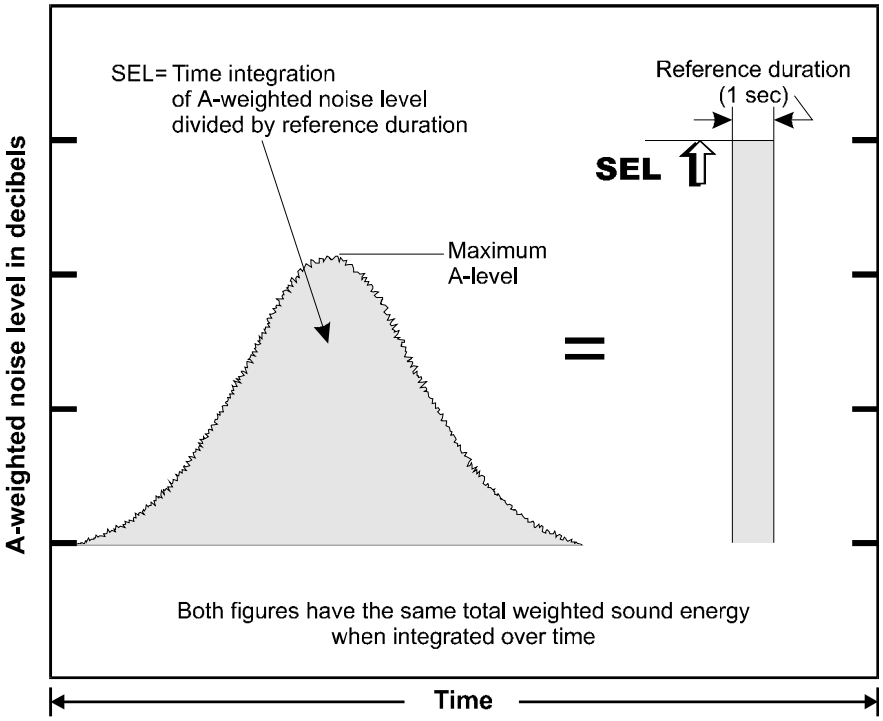
SOURCE: U.S. Department of Housing and Urban Development, Aircraft Noise Impact—Planning Guidelines for Local Agencies, 1972.
PREPARED BY: Ricondo & Associates, Inc., August 2014.

Maximum A-Weighted Noise Level, L_{max} – Sound levels vary with time. For example, the sound increases as an aircraft approaches, then falls and blends into the ambient or background as the aircraft recedes into the distance. Because of this variation, it is often convenient to describe a particular noise "event" by its highest or maximum sound level (L_{max}). Note that L_{max} describes only one dimension of an event; it provides no information on the cumulative noise exposure generated by a sound source. In fact, two events with identical L_{max} may produce very different total exposures as one may be of very short duration, while the other may be much longer.

Sound Exposure Level, SEL: Sound exposure level (SEL) is a time integrated measure, expressed in decibels, of the sound energy of a single noise event to a reference duration of one second. The sound level is integrated over the period that the level exceeds a threshold. Therefore, SEL accounts for both the maximum

sound level and the duration of the sound. The standardization of discrete noise events into a one-second duration allows the calculation of the cumulative noise exposure of a series of noise events that occur over a period of time. Because of this compression of sound energy, the SEL of an aircraft noise event is typically 7 to 12 dBA greater than the L_{max} of the event. SEL values for aircraft noise events depend on the location of the aircraft relative to the noise receptor, the type of operation (landing, takeoff, or overflight), and the type of aircraft. The SEL concept is depicted on **Figure 1**.

Figure 1: Sound Exposure Level Concept



SOURCE: Brown-Buntin Associates, Inc.
PREPARED BY: Ricondo & Associates, Inc., August 2014.

A-weighted Day-Night Average Sound Level, DNL: DNL, also denoted as L_{dn} is expressed in dBA and represents the noise level over a 24-hour period. DNL includes the cumulative effects of a number of sound events rather than a single event. It also accounts for increased sensitivity to noise during nighttime hours. The DNL values are used to estimate the effects of specific noise levels on land uses. The U.S. Environmental Protection Agency (USEPA) introduced the metric in 1976 as a single number measurement of community noise exposure. The FAA adopted DNL as the noise metric for measuring cumulative aircraft noise under FAR Part 150, *Airport Noise Compatibility Planning*. The Department of Housing and Urban Development, the Veterans Administration, the Department of Defense, the United States Coast Guard, and the Federal Transit Administration have also adopted DNL for measuring cumulative noise exposure.

The calculation of DNL applies a 10-decibel-weighting penalty (equivalent to a ten-fold increase in aircraft operations) for each hour during the nighttime period (10:00 p.m. to 7:00 a.m.) before the 24-hour value is computed. The weighting penalty accounts for the more intrusive nature of noise during the nighttime hours.

DNL is expressed as an average noise level on the basis of annual aircraft operations for a calendar year, not on the average noise levels associated with different aircraft operations. To calculate the DNL at a specific location, SEL values at that location associated with each individual aircraft operation (landing or takeoff) are determined. Using the SEL for each noise event and applying the 10-decibel penalty for nighttime operations as appropriate, a partial DNL value is then calculated for each aircraft operation. The partial DNL values for each aircraft operation are added logarithmically to determine the total DNL.

The logarithmic addition process, whereby the partial DNL values are combined, can be approximated by the following guidelines:

When two DNLs differ by:	Add the following amount to the higher value:
0 or 1 dBA	3 dBA
2 or 3 dBA	2 dBA
4 to 9 dBA	1 dBA
10 dBA or more	10 dBA

For example:

70 dBA + 70 dBA (difference: 0 dBA) = 73 dBA
60 dBA + 70 dBA (difference: 10 dBA) = 70 dBA

Adding the noise from a relatively quiet event (60 dBA) to a relatively noisy event (70 dBA) results in a value of 70 dBA because the quieter event has only 1/10 of the sound energy of the noisier event. As a result, the quieter noise event is "drowned out" by the noisier one, and there is no increase in the overall noise level as perceived by the human ear.

DNL is used to describe existing and predicted noise exposure in communities in an airport environs based on the average daily operations over the year and the average annual operational conditions at the airport. Therefore, at a specific location near an airport, the noise exposure on a particular day is likely to be higher or lower than the annual average exposure, depending on the specific operations at the airport on that day. DNL has been widely accepted as the best available method to describe aircraft noise exposure and is the noise descriptor required by FAA for aircraft noise exposure analyses and land use compatibility planning under Federal Aviation Regulations Part 150, *Airport Noise Compatibility Planning*, and for environmental assessments for airport improvement projects.

Community Noise Equivalent Level, CNEL: California law mandates use of the Community Noise Equivalent Level (CNEL) for assessing airport noise exposure.[1] As stated above, for aviation noise analysis, the FAA has determined that the cumulative noise exposure of individuals resulting from aircraft noise must be established in terms of the yearly day-night average sound level (DNL) metric, but accepts the use of the CNEL for aircraft noise evaluations in California.[2]

CNEL is a 24-hour, time-weighted average noise metric, expressed in terms of dBA, which accounts for the noise levels of individual aircraft events, the number of times those events occur, and the time of day they occur. CNEL is calculated based on noise levels and operational activity occurring during three time periods: daytime (7:00 a.m. to 6:59 p.m.), evening (7:00 p.m. to 9:59 p.m.), and nighttime (10:00 p.m. to 6:59 a.m.). To represent the added intrusiveness of sounds during evening and nighttime hours, CNEL adds weights of 4.77 dBA and 10 dBA to events occurring during the evening and nighttime periods, respectively.[3]

1.1 CNEL and Noise Exposure Ranges

Noise exposure criterion levels of CNEL 65 dB, 70 dB, and 75 dB were used for the analysis, in accordance with FAA Order 1050.1E. The three noise exposure ranges used were 1) CNEL 65 to 70 dB, 2) CNEL 70 to 75 dB, and 3) CNEL 75+ dB. Noise exposure maps for 2013 existing conditions and for 2016 future conditions for both the With Project and Without Project conditions were prepared. As construction of the proposed Project would result in a temporary shift in aircraft operations, noise exposure maps for the 2016 Construction scenario were prepared as well. The CNEL 65 dB contour was examined for each of the alternatives to identify noise sensitive areas where noise would increase by CNEL 1.5 dB or greater, when compared to the CNEL 65 dB contour for the normal operations in the same timeframe.

1.2 Graphic Representation

To graphically represent DNL, contour lines that connect points of equal DNL values are drawn on a map. For example, a contour may be drawn to connect all points with a DNL of 70 dB; another may be drawn to connect all points with a DNL of 65 dB; and so forth. Aircraft noise exposure contours were drawn at 5 DNL intervals to reflect the ranges in DNL values from 65 to 75 dB. In addition, a CNEL 65 dB contour was prepared for the construction year, for comparison to the CNEL 65 dB contour for the Without Project in the same timeframe.

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1 California Code of Regulations, Title 21, Division 2.5, Chapter 6.

2 The FAA definition of "significance" is specified using the day-night average sound level (DNL) metric. The FAA recognizes the use of the Community Noise Equivalent Level (CNEL) for aircraft noise evaluations in California. See FAA Order 1050.1E, Appendix A, Section 14 for FAA's acceptance of CNEL as a suitable substitute for DNL.

3 State of California, Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook,* 2002.

1.3 The CNEL Descriptor

The validity and accuracy of CNEL calculations depend on the basic information used in the calculations. For future airport activities, the reliability of CNEL calculations is affected by a number of uncertainties:

- Future aviation activity levels—the forecast number of aircraft operations, the types of aircraft serving the airport, the times of operation (daytime, evening, and nighttime), and aircraft flight tracks—are estimates. Achievement of the estimated levels of activity cannot be assured.
- Acoustical and performance characteristics of future aircraft are also estimates. When new aircraft designs are involved, aircraft noise data and flight characteristics must be estimated.
- The noise descriptors used as the basis for calculating DNL represent typical human response (and reaction) to aircraft noise. Because people vary in their responses to noise and because the physical measure of noise accounts for only a portion of an individual's reaction to that noise, DNL can be used only to obtain an average response to aircraft noise that might be expected from a community.
- Single flight tracks used in computer modeling represent a wider band of actual flight tracks.

These uncertainties aside, CNEL mapping was developed as a tool to assist in land use planning around airports. The mapping is best used for comparative purposes rather than for providing absolute values. That is, CNEL calculations provide valid comparisons between different projected conditions, as long as consistent assumptions and basic data are used for all calculations.

Thus, sets of CNEL calculations can show anticipated changes in aircraft noise exposure over time, or differences in noise exposure associated with different airport development alternatives or operational procedures. However, a line drawn on a map does not imply that a particular noise condition exists on one side of that line and not on the other. CNEL calculations provide a means for comparing noise exposure under different scenarios.

Nevertheless, CNEL contours can be used to (1) highlight an existing or potential aircraft noise problem that requires attention, (2) assist in the preparation of noise compatibility programs, and (3) provide guidance in the development of land use controls, such as zoning ordinances, subdivision regulations, and building codes. CNEL is considered to be the best noise metric available for expressing aircraft noise exposure.

1.4 Evaluation of the Adequacy of the DNL Descriptor

In order to address concerns related to methods of aircraft noise measurement, and to reach a national consensus, the Federal Interagency Committee on Noise (FICON) was created to assess the manner in which noise exposure and its effects are evaluated and the usefulness of DNL to describe the effects of aircraft noise on people. The committee included representatives of all of the federal agencies involved in environmental noise studies, including staff from the USEPA, the Council on Environmental Quality (CEQ), the Departments of

Treasury, Defense (DOD), Housing and Urban Development (HUD), Veterans Affairs, and Transportation, as well as technical advisors from the Committee on Hearing and Biomechanics.

The FICON evaluated the threshold for acceptable noise levels (threshold of significance) and whether the DNL 65 was the proper threshold. The committee's findings were released in the *Federal Register* (FR 44223, September 24, 1992). Some of the committee's conclusions were:

- Continue using the DNL to measure airport noise;
- Complaints are an inadequate indicator of the full extent of noise effects on a population;
- Noise predictions and interpretations are frequently less reliable below DNL 65— predictions below this level should take into account the inaccuracy of prediction models at large distances from the airport;
- No definitive evidence of non-auditory health effects from aircraft noise exist, particularly below DNL 70;
- Every change in the noise environment does not necessarily affect public health and welfare.

FICON also recommended that a new federal interagency committee be formed with a mandate to provide a forum for debate of future aviation noise research needs.

In March 1993, the FAA requested public comments concerning the FICON report released in 1992.[4] The request for comment coincided with a study that was prepared by the FAA in accordance with the Safety, Capacity, Noise Improvement, and Intermodal Transportation Act of 1992.[5] Later in 1993 the Federal Interagency Committee on Aviation Noise (FICAN) was formed. FICAN has provided a forum for soliciting input from interested members of the aviation profession and communities. FICAN members have worked with researchers to develop individual agency priorities for research to address noise issues, and have published technical papers on aviation noise topics, including a 1997 study of the effects of aviation noise on sleep.[6] One of the findings of FICAN was that the use of supplemental metrics provides valuable information that is not easily captured by DNL. However, both FICON and FICAN validated the use of the DNL metric as the acceptable metric to identify significant aircraft noise impacts.

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4 *Federal Register*, FR16569, March 29, 1993.

5 Section 123 of the Airport and Airway Safety, Capacity, Noise Improvement, and Intermodal Transportation Act of 1992 (49 U.S.C. app 2102, PL 102-581) required the FAA to conduct a noise study and report the results to Congress not later than October 31, 1993. The study analyzed the social, economic, and health effects of airport noise within the DNL 55, 60, and 65 dBA contours to determine the actual level at which noise adversely impacts populations. It also included an evaluation of single event analysis on populations.

6 *Effects of Aviation Noise on Awakenings from Sleep*, Federal Interagency Committee on Aviation Noise, June 1997.

2. Aircraft Noise

2.1 Noise Analysis Methodology

The methodology used for this aircraft noise analysis involved: (1) the use of noise descriptors developed for airport noise analyses; (2) development of basic data and assumptions for use as input to a computer model; and (3) the application of the computer model, providing estimates of aircraft noise levels.

Noise levels are measured using a variety of scientific metrics. As a result of extensive research into the characteristics of aircraft noise and human response to that noise, standard noise descriptors have been developed for aircraft noise exposure analyses. The descriptors used in this noise analysis are described below.

2.2 Integrated Noise Model

In 1978, the FAA released the first version of a computer simulation model designed to assess aircraft noise exposure. Known as the Integrated Noise Model or INM, it has become the standard tool used for modeling airport noise. The INM generates noise exposure contours and noise levels at individual locations and provides a graphical image of aircraft noise levels for a selected geographic area.

The INM computes DNL using an internal database that includes performance characteristics and noise data for a wide variety of civilian and military aircraft. Noise exposure levels are calculated from airport-specific data that are input into the model. The input includes runway coordinates, flight tracks, fleet mix, activity levels, runway and flight track utilization, average local temperatures, time of day, and departure trip length data. The INM correlates these data with the internal aircraft database using a series of algorithms that calculate noise exposure. The INM database incorporates detailed information about each aircraft type, including departure profiles for different trip lengths, approach profiles, and SEL noise curves based on distances and various thrust settings. The outputs of these calculations include plots of points that connect to form noise contours. The INM is typically used to model average annual aircraft noise exposure, that is, the average sound level over an average 24-hour period of both busy and quiet times for the airport.

Other output from the INM include the area within each contour, noise measurements at locations (referred to as grid points), and SEL curves or values for specific aircraft types. The SEL curves can be used to estimate SEL for a specific aircraft type depending on how far the aircraft is from a listening point or observer and the estimated thrust setting. Since the introduction of the INM, newer versions have been released by the FAA

with an updated aircraft database to reflect changes in the existing and projected aircraft fleet mixes of airports throughout the National Airspace System and to incorporate enhanced algorithms for calculating aircraft noise at specific locations and propagation of noise.

Version 7.0d of INM was used for the noise analysis documented in this Initial Study, which was the latest approved version of the model at the time the analysis was done. Version 7.0d is an accepted, state-of-the-art tool for determining the total effect of aircraft noise at and around airports. The aircraft database contains a representation of commercial, general aviation, and military aircraft powered by turbojet, turbofan, turboprop, or piston-driven engines. The noise exposure maps derived from the INM for the alternatives in this study are based on the DNL noise metric.

Noise exposure maps were generated using INM for existing and future conditions using a slightly different aircraft fleet mix and runway usage for the years included in the study (2013 and 2016). The proposed Project would slightly change the long-term operational conditions at LAX for future scenarios: Runway 24L would be shifted approximately 800 feet to the east, thereby shifting the departure point for "heavy" aircraft 800 feet to the east.[7] The existing Runway 24L threshold would remain in its current location; therefore, declared distances would also be implemented. The proposed Project would not change the number or type of aircraft operations at LAX.

Construction of the proposed Project would require construction activities within the Runway 6R-24L RSA on both ends of the runway, which would be conducted in two distinct phases, estimated at 6 months each, covering the entire 2016 calendar year. The first phase of construction would focus on the RSA improvements to the Runway 24L end; once those improvements are completed, construction of the RSA improvements to the Runway 6R end would be conducted. While an extended closure of the runway is not expected, the proposed Project would require connecting taxiways to be intermittently closed during construction. As Runway 6R-24L is the primary departures runway on the north airfield, a runway length analysis was performed to determine the number of aircraft to be shifted to other runways. More information can be found in Section 2.3.4. The temporary construction contour was developed in INM.

2.3 Basic Data and Assumptions

To determine aircraft noise exposure levels under existing and forecasted conditions, aircraft operations attributed to an average annual day are used in INM. For the Initial Study (IS), noise exposure was analyzed for operational years 2013 (existing conditions) and 2016. Additionally, noise exposure during the construction phase of the RSA improvements on Runway 6R-24L was analyzed.

The primary data required to develop noise exposure maps using INM Version 7.0d includes:

[7] The weight category "heavy" is defined as any aircraft weighing more than 255,000 pounds, including the Boeing 747 and Airbus 340.

- The existing and forecasted number of aircraft operations accounted for by time of day, type of aircraft, and stage length (nonstop departure trip length from LAX).
- Operational information including runway use, location and use of flight tracks (the paths that pilots fly to arrive at/depart from an airport), departure profiles, existing noise abatement procedures, etc.

2.3.1 AIRCRAFT OPERATIONS

Individual daily aircraft operations at LAX for 2013 were obtained from LAWA. The future noise environment for 2016 was analyzed based on FAA TAF forecasted operational conditions for each respective year. Annual operations are the same for the With and Without Project scenarios. Annual flight operations data for 2013 and 2016 are shown in **Table 2**.

Table 2: Existing and Forecast LAX Aircraft Flight Operations

	ANNUAL FLIGHT OPERATIONS	
AIRCRAFT CATEGORY	**EXISTING 2013 [1/]**	**TAF 2016 [2/]**
Air Carrier (AC)	501,598	526,526
Air Taxi (AT)	92,624	97,541
General Aviation (GA)	18,226	18,755
Military (MIL)	2,469	2,525
Total Operations	**614,917**	**645,346**

NOTES:

1/ 2013 Annual operations obtained from Federal Aviation Administration OPSNET for 2013 calendar year.

2/ 2014 Federal Aviation Administration Terminal Area Forecast for 2016 fiscal year.

SOURCES: Federal Aviation Administration, Terminal Area Forecast for 2016 fiscal year, http://aspm.faa.gov/main/taf.asp, accessed August 4, 2014; Federal Aviation Administration, OPSNET for 2013 calendar year, https://aspm.faa.gov/opsnet/, accessed August 4, 2014.

PREPARED BY: Ricondo & Associates, Inc., October2014.

2.3.2 AIRCRAFT FLEET MIX

Aircraft noise levels can vary greatly based on the aircraft type. This is due to differences in the noise emissions of the various airframe/engine combinations and aircraft performance characteristics. For this reason, it is very important to determine the precise mix of aircraft operating from the airport. LAWA's Aircraft Noise and Operations Monitoring System (ANOMS) data were used to determine the existing 2013 INM fleet mix at LAX. The Design Day Flight Schedule was used to determine the 2016 fleet mix.

Tables 3 and **4** presents the different INM aircraft types modeled for LAX for 2013 and 2016, respectively. For noise modeling purposes, aircraft are assigned an aircraft type from the INM database. While INM aircraft types provide representative noise characteristics for a large variety of aircraft, the database is not exhaustive. When selecting INM aircraft type, it is often appropriate to combine aircraft with similar characteristics (e.g., engine types, number of engines, weight, performance characteristics, and noise exposure characteristics) under the same INM aircraft type.

Table 3 (1 of 3): 2013 LAX Fleet Mix

	2013 ANNUAL OPERATIONS			
INM DESIGNATION	**DAY**	**EVENING**	**NIGHT**	**TOTAL**
1900D	5906	86	300	6292
727EM2	124	9	25	158
737300	14136	2913	1447	18496
737400	4134	826	234	5193
737500	41	7	1	49
737700	44694	10124	7041	61859
737800	59739	13754	15931	89424
747200	27	61	472	559
74720B	508	145	73	726
747400	6969	2135	5135	14238
7478	1062	444	1068	2574
757300	6737	1577	2106	10420
757PW	23629	4856	9599	38084
757RR	9239	2725	4198	16162
767300	9381	3372	4083	16836
767400	112	22	27	161
767CF6	4732	1022	1680	7434
777200	6927	742	1462	9131
777300	10	1	0	11
7773ER	10508	1841	4629	16979
7878R	983	77	115	1175
A300-622R	435	79	1286	1801
A300B4-203	23	137	977	1137
A310-304	24	13	8	45
A319-131	17727	3972	4773	26472
A320-211	20904	5045	4709	30658
A320-232	14302	3368	5399	23069
A321-232	6558	1591	2887	11036
A330-301	878	58	45	982
A330-343	1900	76	609	2584
A340-211	1980	453	245	2678
A340-642	1498	839	252	2589

Table 3 (2 of 3): 2013 LAX Fleet Mix

	2013 ANNUAL OPERATIONS			
INM DESIGNATION	**DAY**	**EVENING**	**NIGHT**	**TOTAL**
A380-841	1347	294	1400	3041
A380-861	1579	5	88	1672
BEC58P	135	35	25	195
C130E	466	0	42	508
CIT3	73	11	11	94
CL600	2210	311	266	2787
CL601	36009	8357	4430	48797
CNA172	26	3	1	30
CNA182	7	0	0	7
CNA206	22	1	0	24
CNA208	183	45	159	387
CNA20T	5	1	0	6
CNA441	539	93	86	718
CNA500	209	22	30	261
CNA510	416	74	54	544
CNA525C	398	61	61	520
CNA55B	326	24	31	381
CNA560E	145	21	6	172
CNA560XL	744	85	67	895
CNA680	364	54	43	460
CNA750	1141	153	144	1438
CRJ9-ER	41083	11895	4995	57973
CVR580	0	93	355	448
DC1010	714	407	1539	2660
DC870	944	0	0	944
DC93LW	10	3	7	20
DHC6	92	14	12	119
DHC830	4640	1552	172	6364
DO328	19	1	2	22
ECLIPSE500	17	4	9	30
EMB14L	4	66	75	145
EMB170	2913	518	100	3531

Table 3 (3 of 3): 2013 LAX Fleet Mix

	2013 ANNUAL OPERATIONS			
INM DESIGNATION	**DAY**	**EVENING**	**NIGHT**	**TOTAL**
EMB190	3051	771	293	4115
F10062	688	72	61	821
FAL20	38	10	15	63
GASEPV	62	9	7	78
GII	58	18	12	87
GIIB	275	50	63	388
GIV	1910	375	258	2543
GV	1881	309	295	2485
IA1125	169	16	18	204
LEAR25	178	6	5	188
LEAR35	1813	279	296	2388
MD11GE	1335	461	1499	3295
MD11PW	459	195	579	1233
MD81	17	1	7	24
MD82	1429	350	183	1962
MD83	2884	547	271	3702
MD9025	5	2	5	12
MU3001	693	85	76	854
PA28	9	3	6	18
PA31	9	1	1	11
PA42	6	2	5	13
SD330	140	26	25	191

SOURCE: Federal Aviation Administration, OPSNET; LAWA ANOMS Data 2013; Environmental Science Associates, 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2014.

Table 4 (1 of 3): 2016 LAX Fleet Mix

	2016 ANNUAL OPERATIONS			
INM DESIGNATION	DAY	EVENING	NIGHT	TOTAL
1900D	4096	0	0	4096
737300	12894	3340	2801	19036
737400	3620	938	787	5345
737500	34	9	7	51
737700	43123	11171	9369	63663
737800	62339	16149	13544	92033
74720B	555	0	185	740
747400	5599	2502	4435	12536
7478	1232	551	976	2758
757300	7134	1905	2790	11829
757PW	26075	6963	10196	43234
757RR	11065	2955	4327	18347
767300	9837	2342	5153	17332
767400	94	22	49	166
767CF6	4343	1034	2275	7652
777200	6274	1171	1703	9148
777300	8	1	2	11
7773ER	11666	2178	3166	17010
7878R	1699	0	0	1699
A300-622R	417	208	1042	1667
A300B4-203	263	132	658	1052
A310-304	340	0	340	680
A319-131	19372	3399	6457	29228
A320-211	23665	5231	7370	36266
A320-232	17807	3936	5545	27289
A321-232	4758	2039	3399	10196
A330-301	561	0	374	936
A330-343	1478	0	985	2463
A340-211	2419	691	0	3110
A340-642	2339	668	0	3007
A380-841	2412	0	658	3070

Table 4 (2 of 3): 2016 LAX Fleet Mix

	2016 ANNUAL OPERATIONS			
INM DESIGNATION	**DAY**	**EVENING**	**NIGHT**	**TOTAL**
A380-861	1326	0	362	1688
BEC58P	130	25	45	200
C130E	389	0	130	518
CIT3	63	12	22	96
CL600	1855	360	645	2860
CL601	35656	6930	5540	48125
CNA172	21	4	7	32
CNA182	5	1	2	7
CNA206	16	3	5	24
CNA208	258	50	89	397
CNA20T	4	1	1	6
CNA441	738	0	19	757
CNA500	173	34	60	267
CNA510	362	70	126	558
CNA525C	346	67	120	534
CNA55B	254	49	88	391
CNA560E	115	22	40	177
CNA560XL	596	116	207	919
CNA680	307	59	106	472
CNA750	957	186	333	1476
CRJ9-ER	51279	9496	3798	64574
DC1010	1090	0	1289	2379
DC870	1061	0	580	1642
DHC6	56	0	19	74
DHC830	5120	1707	0	6826
ECLIPSE500	20	4	7	31
EMB120	26879	4704	4704	36287
EMB145	1107	0	0	1107
EMB14L	151	0	0	151
EMB170	1237	317	173	1726
EMB190	1442	369	201	2012

Table 4 (3 of 3): 2016 LAX Fleet Mix

	2016 ANNUAL OPERATIONS			
INM DESIGNATION	**DAY**	**EVENING**	**NIGHT**	**TOTAL**
F10062	546	106	190	842
FAL20	42	8	15	64
GASEPV	52	10	18	80
GII	58	11	20	89
GIIB	258	50	90	398
GIV	1693	328	588	2609
GV	1654	321	575	2550
IA1125	136	26	47	209
LEAR25	140	6	47	192
LEAR35	1590	308	552	2451
MD11GE	1002	445	779	2226
MD11PW	375	167	291	833
MD81	22	3	10	35
MD82	1758	234	821	2813
MD83	3318	442	1548	5309
MU3001	569	110	198	877
PA28	12	2	4	18
PA31	7	1	2	11
PA42	8	2	3	13

SOURCE: Federal Aviation Administration, Terminal Area Forecast, http://aspm.faa.gov/main/taf.asp; Ricondo & Associates, Inc., August 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2014.

2.3.3 TIME OF DAY

The Time of Day aircraft operations occur is important for determining cumulative noise exposure. In the CNEL metric, aircraft noise levels are weighted based on the time of day they occur. In determining CNEL, each aircraft operation occurring during the nighttime, between the hours of 10:00 p.m. and 7:00 a.m., is treated as if it were 10 operations in terms of noise exposure. Similarly, operations taking place during the evening period, between the hours of 7:00 p.m. and 10:00 p.m., are treated as if they were three operations. Logarithmically, these multipliers are the equivalent of adding 10 dB to the noise level of each nighttime operation and 4.77 dB to the noise level of each evening operation. These noise level penalties are intended to correspond to the drop in background noise level which studies have found takes place naturally from daytime to evening and nighttime in a typical community. The evening and nighttime decrease in ambient sound levels—from both outdoor and indoor sources—is commonly considered to be the principal explanation for people's heightened sensitivity to noises during these periods. CNEL is designed to account

for this increased sensitivity. **Tables 5** and **6** summarize operations by time of day for 2013 (existing) and 2016. Time of day operations by aircraft category do not differ between the With and Without Project scenarios.

Table 5: Summary of Operations by Time of Day (2013)

AIRCRAFT CATEGORY	ANNUAL FLIGHT OPERATIONS		
	DAY (7 A.M. – 7 P.M.)	EVENING (7 P.M. – 10 P.M.)	NIGHT (10 P.M. – 7 A.M.)
Large Narrow-Body	12.1%	12.0%	18.4%
Large Wide-Body and New Large Aircraft	8.8%	1.9%	4.5%
Non-Jet	8.8%	8.0%	5.4%
Small Jet	22.1%	23.4%	11.0%
Small Narrow-Body	44.0%	43.2%	38.8%
Small Wide-Body	4.2%	5.0%	8.4%

NOTE: Totals may not add to 100 percent due to rounding.

SOURCES: Existing (2013) data is based on data provided by Los Angeles World Airports (2014).
PREPARED BY: Ricondo & Associates, Inc., August 2014.

Table 6: Summary of Operations by Time of Day (2016)

AIRCRAFT CATEGORY	ANNUAL FLIGHT OPERATIONS		
	DAY (7 A.M. – 7 P.M.)	EVENING (7 P.M. – 10 P.M.)	NIGHT (10 P.M. – 7 A.M.)
Large Narrow-Body	11.9%	14.7%	19.0%
Large Wide-Body and New Large Aircraft	8.8%	8.7%	12.4%
Non-Jet	8.6%	6.7%	4.3%
Small Jet	23.0%	19.3%	11.9%
Small Narrow-Body	43.6%	46.7%	42.8%
Small Wide-Body	4.0%	3.9%	9.6%

NOTE: Totals may not add to 100 percent due to rounding.

SOURCES: Ricondo & Associates, Inc., August 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2014.

2.3.4 RUNWAY USE

Runway utilization refers to the percentage of operations that utilize a given runway. Aircraft generally take off and land into the wind. As a result, runway utilization is largely determined by prevailing wind conditions. At LAX, prevailing winds are westerly. For operational efficiency, aircraft departures generally occur from the inboard runways, Runway 24L and Runway 25R, and arrivals are to the outboard runways, Runway 24R and

Runway 25L. Radar data via the ANOMS were used to determine the existing runway utilization at LAX. Existing (2013) runway utilization is shown in **Table 7**. Runway utilization will not change as a result of the proposed Project. **Table 8** depicts the runway utilization for 2016.

Table 7: LAX 2013 Operational Runway Utilization

	ARRIVALS				DEPARTURES			
RUNWAY	DAY	EVENING	NIGHT	TOTAL	DAY	EVENING	NIGHT	TOTAL
06L	0.5%	0.2%	3.6%	0.9%	0.0%	0.0%	0.0%	0.0%
06R	0.0%	0.0%	15.8%	2.3%	0.5%	0.2%	0.2%	0.4%
07L	0.0%	0.0%	6.6%	1.0%	0.5%	0.3%	0.7%	0.6%
07R	0.5%	0.3%	4.3%	1.0%	0.0%	0.0%	0.2%	0.0%
24L	1.6%	2.4%	1.3%	1.7%	43.2%	40.1%	25.9%	39.5%
24R	45.9%	46.6%	30.9%	43.9%	1.5%	0.5%	1.3%	1.3%
25L	49.4%	47.1%	35.6%	47.0%	3.2%	5.0%	10.7%	4.9%
25R	2.0%	3.3%	2.0%	2.3%	51.1%	53.9%	60.9%	53.3%

NOTE: Totals may not add to 100 percent due to rounding.

SOURCE: Los Angeles International Airport, 2013; Ricondo and Associates INM Input File, August 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2014.

Table 8: LAX 2016 Operational Runway Utilization

	ARRIVALS				DEPARTURES			
RUNWAY	DAY	EVENING	NIGHT	TOTAL	DAY	EVENING	NIGHT	TOTAL
06L	0.5%	0.2%	3.5%	0.9%	0.0%	0.0%	0.0%	0.0%
06R	0.0%	0.0%	15.1%	2.5%	0.5%	0.2%	0.2%	0.4%
07L	0.0%	0.0%	6.3%	1.1%	0.5%	0.3%	0.7%	0.5%
07R	0.5%	0.3%	3.8%	1.1%	0.0%	0.0%	0.2%	0.0%
24L	1.6%	2.4%	1.3%	1.7%	43.2%	43.3%	25.9%	40.0%
24R	45.7%	46.4%	32.0%	43.5%	1.5%	0.4%	1.4%	1.3%
25L	49.6%	47.4%	36.0%	47.0%	3.1%	4.7%	10.3%	4.6%
25R	2.0%	3.3%	2.0%	2.2%	51.2%	51.1%	61.4%	53.0%

NOTE: Totals may not add to 100 percent due to rounding.

SOURCE: Ricondo and Associates INM Input File, August 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2014.

Construction of the proposed Project would require construction activities within the Runway 6R-24L RSA on both ends of the runway, and a temporary reduction in runway length during each phase of construction. Construction would be conducted in two distinct phases, estimated at 6 months each, covering the entire 2016 calendar year. The first phase of construction would focus on the RSA improvements to the Runway 24L end; once those improvements are completed, construction of the RSA improvements to the Runway 6R end would commence. While closure of the runway is not anticipated during construction, the Proposed Action would require connecting taxiways to be intermittently closed. As Runway 6R-24L is the primary departures runway on the north airfield, normal aircraft operations on this runway would need to be adjusted during construction based on the available runway length for departures. Annualized runway use for the construction period of the proposed Project is shown in **Table 9**.

Table 9: Proposed Project Construction Period Runway Utilization

	ARRIVALS				DEPARTURES			
RUNWAY	DAY	EVENING	NIGHT	TOTAL	DAY	EVENING	NIGHT	TOTAL
06L	0.5%	0.2%	11.0%	2.2%	0.0%	0.0%	0.0%	0.0%
06R	0.0%	0.0%	7.5%	1.3%	0.5%	0.2%	0.3%	0.4%
07L	0.0%	0.0%	6.3%	1.1%	0.5%	0.3%	0.9%	0.6%
07R	0.5%	0.3%	3.8%	1.1%	0.0%	0.0%	0.2%	0.0%
24L	1.6%	2.4%	1.3%	1.7%	35.7%	35.9%	19.9%	32.8%
24R	45.7%	46.4%	32.0%	43.5%	0.8%	0.3%	0.8%	0.7%
25L	49.6%	47.4%	36.0%	47.0%	6.5%	7.9%	13.1%	7.9%
25R	2.0%	3.3%	2.0%	2.2%	56.0%	55.3%	64.8%	57.5%

NOTE: Totals may not add to 100 percent due to rounding.

SOURCE: Ricondo and Associates INM Input File, February 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

2.3.5 AIRCRAFT FLIGHT TRACKS

The existing and assumed future uses of the runways and flight tracks to and from the Airport are important in determining where aircraft are flying and, consequently, where noise is generated in the Airport environs. Generalized flight tracks (the geographical spread of aircraft operations in terms of overflight density) for LAX for arrivals and departures are available in the Final Environmental Assessment for Los Angeles International Airport (LAX) Runway 7L-25R Runway Safety Area (RSA) and Associated Improvements Project.[8]

[8] City of Los Angeles, Los Angeles World Airports, *Final Environmental Assessment for Los Angeles International Airport (LAX) Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project*, August 2013.

2.3.6 DEPARTURE TRIP LENGTH (STAGE LENGTH)

Departure trip length, commonly referred to as stage length (unrelated to "Stage" classifications of aircraft for FAR Part 36 noise certification), refers to the non-stop distance an aircraft travels after departure. This information is needed to determine average gross takeoff weights for different aircraft types. The noise generated by departures of a specific aircraft type will vary depending on the takeoff weights of the particular operations. For example, a fully loaded aircraft departing on a long flight will weigh more on departure than the same fully loaded aircraft departing on a shorter flight because the longer flight requires more fuel on board. It usually takes the heavier aircraft longer to reach its takeoff velocity, thereby using more runway length and climbing at a slower rate than a lighter aircraft, particularly on hot days. Therefore, more land area will be exposed to higher levels of aircraft noise by departures of heavier aircraft than departures of the same aircraft with lighter loads.

Table 10 shows the nine different stage length categories included in INM that have been established to represent different departure trip length distances. The INM uses the stage length category for each operation to determine which profile to use for a specific aircraft departure. In most cases, using the published departure distances to determine the stage length and therefore the departure profile to be used provides good correlation between noise levels estimated by the INM and measured noise levels.

Table 10: INM Departure Stage Length Categories

STAGE LENGTH CATEGORY	RANGE OF DEPARTURE TRIP LENGTH (NAUTICAL MILES)
1	0 – 500
2	500 – 1,000
3	1,000 – 1,500
4	1,500 – 2,500
5	2,500 – 3,500
6	3,500 – 4,500
7	4,500 – 5,500
8	5,500 – 6,500
9	6,500+

SOURCE: Federal Aviation Administration, *INM User's Guide*.
PREPARED BY: Ricondo & Associates, Inc., August 2014.

3. Construction Equipment Noise

3.1 Noise Analysis Methodology

Construction activities typically generate noise from the operation of equipment required for demolition and construction of various facilities. Noise impacts from on-site construction and construction trucks staging have been evaluated by determining the noise levels generated by different types of construction activity, calculating the construction-related noise level at nearby sensitive receptor locations, and comparing these construction-related noise levels to existing ambient noise levels (i.e., noise levels without construction noise). More specifically, the following steps were undertaken to calculate construction-period noise levels:

1. Ambient noise levels at surrounding sensitive receptor locations were modeled based on aircraft noise in proximity to the nearby noise-sensitive receptors;
2. Typical noise levels for each type of construction equipment were obtained from the Federal Highway Administration (FWHA) Roadway Construction Noise Model (RCNM). Construction equipment, including number and type of equipment, was gathered for each phase/component of construction;
3. Distances between construction site and staging area locations (noise source), and surrounding sensitive receptors were measured using Project plans and aerial imagery;
4. Construction noise levels were calculated for sensitive receptor locations based on the conventional standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance. Construction noise levels are quantified at predetermined distances from the site using the equivalent continuous noise level (L_{eq}) metric; and,
5. Calculated noise levels associated with Project construction at sensitive receptor locations were then compared to estimated existing noise levels and the construction noise significance thresholds identified below.

3.2 Roadway Construction Noise Model

Roadway construction is often conducted in close proximity to residences and businesses and should be controlled and monitored in order to avoid excessive noise impacts. In addition to community issues, excessive noise can threaten a construction project's schedule. In general, a project's schedule can be maintained by balancing the type, time of day and duration of construction activities; adhering to local noise control requirements; and being proactive to community concerns. To aid in this process, the U.S. Department of Transportation Federal Highway Administration (FWHA) has developed a construction noise screening tool. The FHWA Roadway Construction Noise Model (RCNM) is a national model for the prediction

of construction noise. This model is not required for use on Federal-aid projects; however, it can be used for the prediction of construction noise during the project development and construction phases.

The FHWA RCNM is based on the construction noise prediction spreadsheet developed for the Central Artery/Tunnel Project in Boston, Massachusetts (CA/T Project or "Big Dig") by Parsons Brinckerhoff Quade & Douglas, Inc. The CA/T Project was the largest urban construction project ever conducted in the United States and has the most comprehensive noise control specification ever developed in the United States. FHWA RCNM incorporates the CA/T Project's noise limit criteria and extensive construction equipment noise database, where these parameters can be modified according to each project's needs. Users can activate and analyze multiple pieces of equipment simultaneously and define multiple receptor locations, including land-use type and baseline noise levels, where the FHWA RCNM will calculate sound level results for multiple metrics.

The intended use for the FHWA RCNM is a construction noise screening tool to predict noise emissions from equipment and determine compliance with noise criteria limits. The model is based on the CA/T prediction spreadsheet, not on the FHWA Traffic Noise Model® (FHWA TNM) or the FHWA Highway Construction Noise Computer Program (HICNOM, developed in 1982). The FHWA RCNM predicts noise from highway construction operations based on a compilation of empirical data and the application of acoustical propagation formulas. It enables the calculation of construction noise levels in more detail than manual methods while avoiding the need to collect extensive amounts of project-specific input data (as is required by HICNOM, a data-intensive and more comprehensive method for construction noise prediction).

The RCNM allows for estimation of three key metrics of interest: L_{max}, L_{eq}, and L_{10} at receptor locations for a construction operation that can include up to 20 pieces of equipment. Input data includes receptor type, distance from construction, construction equipment type, and an "acoustical usage factor", which is used to estimate the fraction of time each piece of equipment is operating at full power (i.e., its loudest condition). FHWA RCNM Version 1.1 was used to determine construction noise effects from the proposed Project.

3.3 Basic Data and Assumptions

Input data used in the RCNM model is discussed in the following sections. General settings and assumptions include:

- Default acoustical usage factors per piece of equipment.
- Actual sampled data was used for determining noise impacts, instead of specification data (where available).
- Noise mitigation devices, such as barriers, were not incorporated into the model. Therefore, noise effects are conservative.

3.3.1 AMBIENT NOISE LEVELS

The existing noise environment at and around the proposed Project site consists of noise from airport-related activities including aircraft departing, landing, and taxiing on runways and connecting taxiways; and noise from vehicular traffic movements on local roadways. Some land uses are considered more sensitive to intrusive noise than others due to the amount of noise exposure and the types of activities typically involved at the receptor location. The *L.A. CEQA Thresholds Guide* states that residences, schools, motels and hotels, libraries, religious institutions, hospitals, nursing homes, and parks are generally more sensitive to noise than commercial and industrial land uses.

Potential noise sensitive locations that may be affected by construction of the proposed Project were identified based on reviews of Project plans, GIS, and aerial imagery. Since the proposed Project site is located on the north side of the airport, the identification of noise-sensitive locations focused on areas in Westchester, with an additional noise-sensitive location identified near one of the staging areas. **Figure 2** depicts the construction and construction staging areas, and closest noise-sensitive receptor areas.

Ambient noise levels for noise-sensitive areas were modeled in INM based on 2013 data from LAX. Data pertaining to aircraft operations, fleet mix, time of day, and runway use for the existing 2013 scenario are discussed above in Section 2.3. Noise-sensitive areas were chosen based on proximity to the construction area and construction staging locations. The ambient noise levels take into account only aircraft overflight noise; noise from local roadways has not been included. Noise levels at these locations were modeled to determine baseline L_{eq} values, as shown in **Table 11**.

Table 11: Background Noise Levels at Noise-Sensitive Receptor Areas

ID #	LOCATION	EXISTING CONDITIONS L_{EQ} (DB)
1	Residential Uses in Playa Del Ray	65.3
2	Saint Bernard High School	65.5
3	Residential uses along southern edge of Westchester	64.5
4	Park West Apartments on Lincoln Boulevard	63.5
5	Residential uses along West 88th Street	63.0
6	Park Westchester Condominiums on Sepulveda Eastway	70.2
7	Residential Uses within City of Inglewood	67.3

SOURCE: Ricondo & Associates, Inc., October 2014.
PREPARED BY: Ricondo & Associates, Inc., October 2014.

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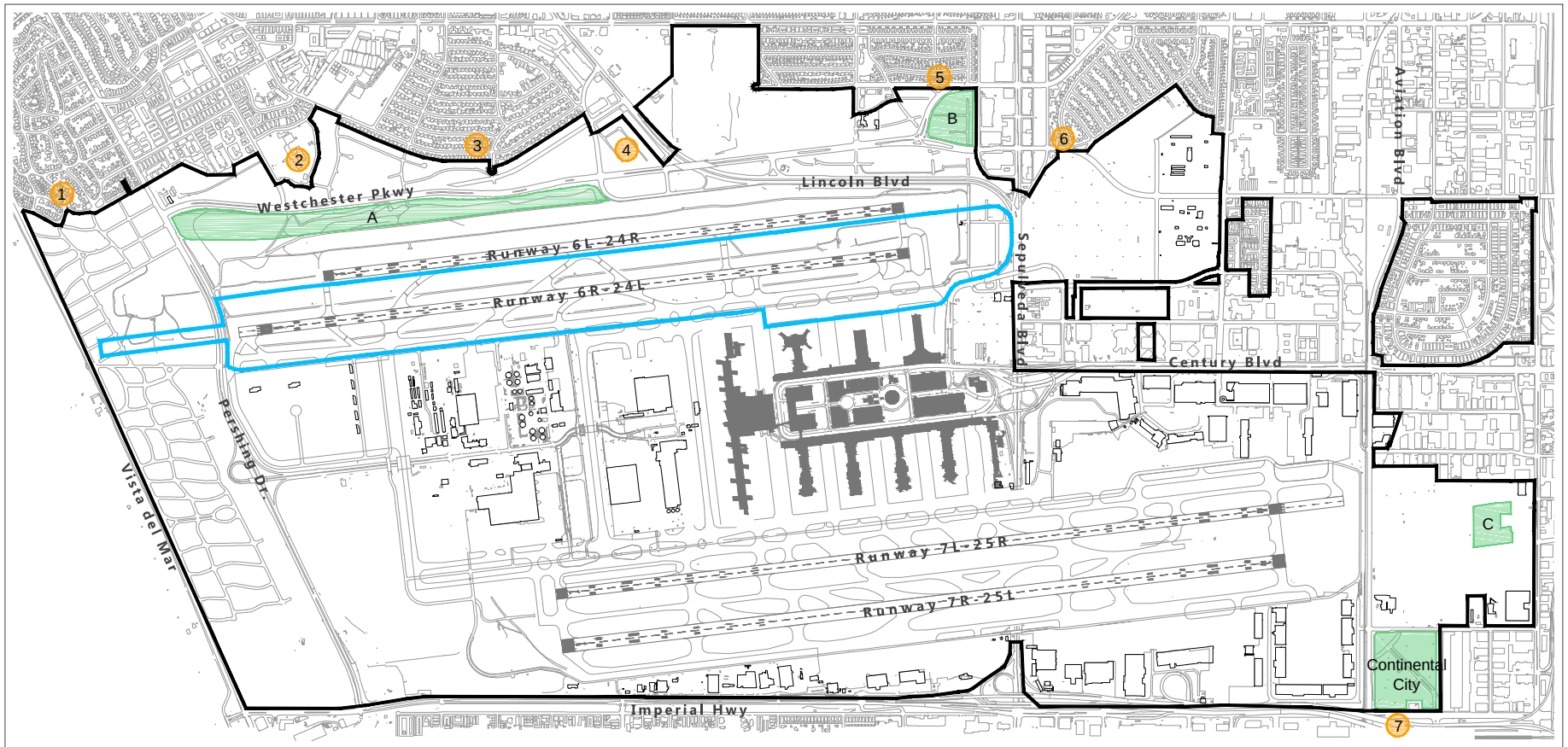

LEGEND

- LAX Property Boundary
- (1) Sensitive Noise Receptor Area
- A Potential Construction Staging Area
- Construction Area

SENSITIVE NOISE RECEPTOR AREA

1. Residential Uses in Playa Del Rey
2. Saint Bernard High School
3. Residential Uses Along Southern Edge of Westchester
4. Park West Apartments Northwest on Lincoln Blvd. South of La Tijera Blvd.
5. Residential Uses Along West 88th Street Between Liberator Ave. and Sepulveda Westway
6. Park Westchester Condominiums
7. Residential Uses within Del Aire

SOURCE: Landrum & Brown, *Los Angeles International Airport, Airport Layout Plan,* 2005; Ricondo & Associates, Inc., September 2014.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

FIGURE 2

NORTH 0 2,500 ft.

Sensitive Noise Receptor Areas and Potential Construction Staging Areas

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3.3.2 CONSTRUCTION EQUIPMENT

Sources of construction noise estimated in this analysis included construction vehicles and equipment. Construction equipment is classified as on-site off-road equipment, such as bulldozers, backhoes and front end loaders. Construction vehicles are made up of on-road equipment including delivery semi-trucks, pickup and flatbed trucks, truck tractors and road sweepers. On-road construction equipment are mostly street legal vehicles that can be operated on public roads.

Construction activity estimates, including types, number, and specifications of equipment for various construction activities, were derived from data provided by MARRS Services, Inc., in support of the LAX Runway 7L/25R RSA EA.[9] This data included various types and numbers of construction equipment organized into crews. Crews were assigned to specific construction activities associated with the proposed Project by identifying activities that are similar in nature to activities included in the LAX Runway 7L/25R RSA EA. Equipment for each phase of the construction schedule was compiled. The construction phases assumed to have the greatest potential impact (those associated with grading/paving) were analyzed at the construction areas closest to noise-sensitive sites. A complete list of construction equipment for each of these phases is shown in **Table 12**. Also included in Table 12 are the on-road construction vehicles assumed at the construction staging areas.

Table 12: Construction Equipment

RUNWAY 6R-24L	CONSTRUCTION STAGING AREAS
Asphalt Paver	Concrete Batch Plant 1/
Backhoe Loader	Dump Trailer
Compactor	Flat Bed Trucks
Concrete Saw	Pickup Trucks
Crane	Truck Tractor
Cure/Texture Rig	Water Tank Trailer
Dozer	
Flat Bed truck	
Front End Loader	
Grader	
Pickup Trucks	
Pavement Profiler	
Roller	
Scraper	

NOTE:

1/ The concrete batch plant would only operate at one of the construction staging areas.

SOURCE: Ricondo & Associates, Inc., March 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

[9] City of Los Angeles, Los Angeles World Airports, Final Environmental Assessment for Los Angeles International Airport (LAX) Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project, August 2013.

Construction equipment to be utilized for the relative phases of construction, along with distances to the nearest noise-sensitive areas, was input into the RCNM model. The model uses **Equation 1** to determine the maximum noise level for each noise-sensitive area. **Equation 2** shows the calculation for the equivalent continuous noise level (L_{eq}) for a single piece of equipment. **Equation 3** shows the calculation for summing the equivalent continuous noise level from all pieces of construction equipment.

Equation 1: Maximum Noise Level (L_{max}) Calculation

$$L_{max} = selected\_L_{max} - 20 \log (D/50) - shielding$$

Where:

L_{max}	=	maximum noise level (dBA)
selected L_{max}	=	specification or actual maximum A-weighted sound level at 50 feet (dBA)
D	=	distance between the equipment and receptor (feet)
shielding	=	insertion loss of any barriers or mitigation (dBA)

SOURCE: U.S. Department of Transportation, Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006.
PREPARED BY: Ricondo & Associates, Inc., October 2014.

Equation 2: Equivalent Continuous Noise Level (L_{eq}) Calculation

$$L_{eq} = L_{max} + 10 \log (UF/100)$$

Where:

L_{eq}	=	equivalent continuous noise level (dBA)
L_{max}	=	maximum noise level (dBA)
UF	=	time-averaging usage factor (%)

SOURCE: U.S. Department of Transportation, Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006.
PREPARED BY: Ricondo & Associates, Inc., October 2014.

Equation 3: Total Construction L_{eq}

Total Construction L_{eq} = 10 * log (∑ (individual equipment L_{eq} values[3]))

SOURCE: U.S. Department of Transportation, Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006.
PREPARED BY: Ricondo & Associates, Inc., October 2014.

Outputs from the RCNM model include the collective noise from all construction equipment, in both L_{eq} and L_{max}, for each receptor. The L_{eq} values were added to ambient noise levels to determine total noise at each receptor using **Equation 4**, and then compared against significance thresholds.

Equation 4: Total (Ambient and Construction) L_{eq}

$$\mathbf{Total\ Leq} = \mathbf{10} * \mathbf{Log_{10}}\left(\mathbf{10^{\frac{La}{10}} + 10^{\frac{Lc}{10}}}\right)$$

Where:

L_a = ambient noise (dBA)
L_c = total construction L_{eq} from Equation 3-3 (dBA)

SOURCE: U.S. Department of Transportation, Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006.
PREPARED BY: Ricondo & Associates, Inc., October 2014.

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Runway 6R-24L Runway Safety Area Improvements Project Initial Study

Appendix F

Noise

Construction Noise Results

Provided by Ricondo & Associates

March 2015

F.1 Construction – Noise Results

Attachment F.1

Construction Noise Results

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/28/2014
Case Description:

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
ID #1	Residential	63.8	63.8	63.8

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dump Truck	No	40		76.5	650.0	0.0
Pickup Truck	No	40		75.0	650.0	0.0
Flat Bed Truck	No	40		74.3	650.0	0.0

Results

		Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dump Truck		54.2	50.2	68.8	68.8	68.8	68.8	68.8	68.8	None	None	None	None	None	None
Pickup Truck		52.7	48.7	68.8	68.8	68.8	68.8	68.8	68.8	None	None	None	None	None	None
Flat Bed Truck		52.0	48.0	68.8	68.8	68.8	68.8	68.8	68.8	None	None	None	None	None	None
	Total	54.2	53.8	68.8	68.8	68.8	68.8	68.8	68.8	None	None	None	None	None	None

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/28/2014
Case Description:

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
ID #2	Residential	62.0	62.0	62.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dump Truck	No	40		76.5	1460.0	0.0
Pickup Truck	No	40		75.0	1460.0	0.0
Flat Bed Truck	No	40		74.3	1460.0	0.0

Results

		Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dump Truck		47.1	43.2	67.0	67.0	67.0	67.0	67.0	67.0	None	None	None	None	None	None
Pickup Truck		45.7	41.7	67.0	67.0	67.0	67.0	67.0	67.0	None	None	None	None	None	None
Flat Bed Truck		44.9	41.0	67.0	67.0	67.0	67.0	67.0	67.0	None	None	None	None	None	None
	Total	47.1	46.8	67.0	67.0	67.0	67.0	67.0	67.0	None	None	None	None	None	None

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/28/2014
Case Description:

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
ID #3	Residential	63.6	63.6	63.6

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dump Truck	No	40		76.5	500.0	0.0
Pickup Truck	No	40		75.0	500.0	0.0
Flat Bed Truck	No	40		74.3	500.0	0.0

Results

		Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dump Truck		56.5	52.5	68.6	68.6	68.6	68.6	68.6	68.6	None	None	None	None	None	None
Pickup Truck		55.0	51.0	68.6	68.6	68.6	68.6	68.6	68.6	None	None	None	None	None	None
Flat Bed Truck		54.3	50.3	68.6	68.6	68.6	68.6	68.6	68.6	None	None	None	None	None	None
	Total	56.5	56.1	68.6	68.6	68.6	68.6	68.6	68.6	None	None	None	None	None	None

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/28/2014
Case Description: 6L-24R RSA Construction

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
ID #4	Residential	62.3	62.3	62.3

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	1089.0	0.0
Backhoe	No	40		77.6	1089.0	0.0
Concrete Saw	No	20		89.6	1089.0	0.0
Front End Loader	No	40		79.1	1089.0	0.0
Flat Bed Truck	No	40		74.3	1089.0	0.0
Grader	No	40	85.0		1089.0	0.0
Pickup Truck	No	40		75.0	1089.0	0.0
Roller	No	20		80.0	1089.0	0.0
Scraper	No	40		83.6	1089.0	0.0
Dozer	No	40		81.7	1089.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Paver	50.5	47.4	67.3	67.3	67.3	67.3	67.3	67.3	None	None	None	None	None	None
Backhoe	50.8	46.8	67.3	67.3	67.3	67.3	67.3	67.3	None	None	None	None	None	None
Concrete Saw	62.8	55.8	67.3	67.3	67.3	67.3	67.3	67.3	None	None	None	None	None	None
Front End Loader	52.3	48.4	67.3	67.3	67.3	67.3	67.3	67.3	None	None	None	None	None	None
Flat Bed Truck	47.5	43.5	67.3	67.3	67.3	67.3	67.3	67.3	None	None	None	None	None	None
Grader	58.2	54.3	67.3	67.3	67.3	67.3	67.3	67.3	None	None	None	None	None	None
Pickup Truck	48.2	44.3	67.3	67.3	67.3	67.3	67.3	67.3	None	None	None	None	None	None
Roller	53.2	46.2	67.3	67.3	67.3	67.3	67.3	67.3	None	None	None	None	None	None
Scraper	56.8	52.8	67.3	67.3	67.3	67.3	67.3	67.3	None	None	None	None	None	None
Dozer	54.9	50.9	67.3	67.3	67.3	67.3	67.3	67.3	None	None	None	None	None	None
Total	62.8	60.9	67.3	67.3	67.3	67.3	67.3	67.3	None	None	None	None	None	None

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/28/2014
Case Description:

**** Receptor #4 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
ID #5	Residential	60.9	60.9	60.9

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dump Truck	No	40		76.5	150.0	0.0
Pickup Truck	No	40		75.0	150.0	0.0
Flat Bed Truck	No	40		74.3	150.0	0.0

Results

		Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dump Truck		66.9	62.9	65.9	65.9	65.9	65.9	65.9	65.9	1.0	None	1.0	None	1.0	None
Pickup Truck		65.5	61.5	65.9	65.9	65.9	65.9	65.9	65.9	None	None	None	None	None	None
Flat Bed Truck		64.7	60.7	65.9	65.9	65.9	65.9	65.9	65.9	None	None	None	None	None	None
	Total	66.9	66.6	65.9	65.9	65.9	65.9	65.9	65.9	1.0	0.7	1.0	0.7	1.0	0.7

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/28/2014
Case Description: 6L-24R RSA Construction

**** Receptor #2 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
ID #6	Residential	72.1	72.1	72.1

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	1252.0	0.0
Backhoe	No	40		77.6	1252.0	0.0
Front End Loader	No	40		79.1	1252.0	0.0
Flat Bed Truck	No	40		74.3	1252.0	0.0
Grader	No	40	85.0		1252.0	0.0
Pickup Truck	No	40		75.0	1252.0	0.0
Roller	No	20		80.0	1252.0	0.0
Crane	No	16		80.6	1252.0	0.0
Scraper	No	40		83.6	1252.0	0.0
Compactor (ground)	No	20		83.2	1252.0	0.0
Dozer	No	40		81.7	1252.0	0.0

Results

		Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment		Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		49.2	46.2	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None
Backhoe		49.6	45.6	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None
Front End Loader		51.1	47.2	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None
Flat Bed Truck		46.3	42.3	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None
Grader		57.0	53.0	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None
Pickup Truck		47.0	43.0	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None
Roller		52.0	45.0	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None
Crane		52.6	44.6	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None
Scraper		55.6	51.6	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None
Compactor (ground)		55.3	48.3	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None
Dozer		53.7	49.7	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None
	Total	57.0	58.7	77.1	77.1	77.1	77.1	77.1	77.1	None	None	None	None	None	None

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 02/28/2014
Case Description:

**** Receptor #5 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
ID #7	Residential	59.5	59.5	59.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dump Truck	No	40		76.5	800.0	0.0
Pickup Truck	No	40		75.0	800.0	0.0
Flat Bed Truck	No	40		74.3	800.0	0.0
Concrete Batch Plant	No	15	83.0		800.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Dump Truck	52.4	48.4	64.5	64.5	64.5	64.5	64.0	64.0	None	None	None	None	None	None
Pickup Truck	50.9	46.9	64.5	64.5	64.5	64.5	64.0	64.0	None	None	None	None	None	None
Flat Bed Truck	50.2	46.2	64.5	64.5	64.5	64.5	64.0	64.0	None	None	None	None	None	None
Concrete Batch Plant	58.9	50.7	64.5	64.5	64.5	64.5	64.0	64.0	None	None	None	None	None	None
Total	58.9	54.4	64.5	64.5	64.5	64.5	64.0	64.0	None	None	None	None	None	None