Draft
Environmental Impact Report
(Draft EIR)

[State Clearinghouse No. 2012101019]

for

Los Angeles International Airport (LAX)

Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project

(Runway Safety Area Improvements and
Pavement Reconstruction of
Portions of Runway 7L/25R, Taxiway B, and
Apron West of Air Freight Building No. 8)

Volume I

Main Document

City of Los Angeles
Los Angeles World Airports

September 2013

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NOTICE OF AVAILABILITY

City of Los Angeles, California – Los Angeles World Airports

Draft EIR for the Runway 7L/25R RSA and Associated Improvements Project

THE FOLLOWING IS A NOTICE OF AVAILABILITY FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE RUNWAY 7L/25R RUNWAY SAFETY AREA (RSA) AND ASSOCIATED IMPROVEMENTS PROJECT AT LOS ANGELES INTERNATIONAL AIRPORT (LAX) AND NOTIFICATION OF A RELATED PUBLIC WORKSHOP.

PROJECT LOCATION AND DESCRIPTION: LAWA has prepared a project-level Draft EIR for the Runway 7L/25R RSA and Associated Improvements Project (proposed Project), pursuant to the California Environmental Quality Act (CEQA). The proposed Project is located in the South Airfield. The proposed Project would include: (1) Runway 7L/25R Improvements including extending the Runway 7L/25R pavement; grading and compacting the RSA; constructing a blast pad west of the Runway 7L extension; several taxiways modifications as necessary; relocating the existing Localizer Antenna and shelter to the west; replacing the existing Approach Lighting System (ALS) towers with in-pavement lights; and modifying the existing Runway and Taxiway lighting and markings in the newly constructed pavements; (2) Pavement Reconstruction of the eastern portions of Runway 7L/25R and Taxiway B including connecting taxiways and installation of in-pavement approach lights; (3) Pavement reconstruction of the aircraft parking apron west of Air Freight Building No. 8, including new markings. The proposed Project would not result in increased or decreased aviation activity at LAX compared to existing conditions.

SIGNIFICANT IMPACTS ASSOCIATED WITH THE PROJECT: Implementation of the proposed Project is expected to result in significant and unavoidable impacts related to air quality during construction activities. These impacts, however, are short-term and temporary and would not occur during operations of the proposed Project.

PUBLIC REVIEW AND COMMENT: LAWA plans to release the Runway 7L/25R RSA and Associated Improvements Project Draft EIR for public review on Thursday, September 19, 2013, and it will be available for review and comments until Monday, November 4, 2013. The Draft EIR will be available for review at Los Angeles World Airports (LAWA) and at the public libraries listed below. The document will also be available for review at LAWA's website, www.ourlax.org. Comments can be submitted in any of the following ways: (1) written comments submitted at the public workshop (details below); (2) written comments submitted online at www.ourlax.org; or (3) written comments submitted to the following address:

Los Angeles World Airports, Capital Programming and Planning
Land Use and Entitlement Section – Attention: Evelyn Y. Quintanilla
One World Way, Suite 218, Los Angeles, CA 90009-2216

Comments must be received by LAWA no later than 5:00 p.m., Pacific Time, Monday, November 4, 2013.

REVIEW OF DOCUMENTS: The Runway 7L/25R RSA and Associated Improvements Project Draft EIR is available for review at the locations listed below. Review days and times vary by location. The documents can also be viewed at www.ourlax.org.

LAWA Administrative Offices Los Angeles International Airport One World Way, Suite 218 Los Angeles, CA 90045	Westchester Branch Library 7114 W. Manchester Ave. Westchester, CA 90045	El Segundo Library 111 W. Mariposa Avenue El Segundo, CA 90245

PUBLIC WORKSHOP: A public workshop will be held by LAWA to afford interested parties the opportunity to review and inquire about the Draft EIR in addition to the opportunity to submit written comments as described above. **No decisions on the project will be made at the public workshop**. The public workshop and parking facilities are wheelchair accessible. Sign language interpreters, assistive listening devices, and other auxiliary aids and/or services may be provided, if requested a minimum of 72-hours prior to the public workshop, by calling the LAX Stakeholder Liaison Office at (800) 919-3766. The workshop will be held as follows:

When: Thursday, October 3, 2013, from 6:00 p.m. to 8:00 p.m.

Where: Flight Path Learning Center, 6661 West Imperial Highway, Los Angeles, CA 90045

For further information or questions regarding this project, contact Evelyn Y. Quintanilla, Project Manager at (424) 646-5188.

Si necesita asistencia en Español, por favor comuníquese con Evelyn Y. Quintanilla al (424) 646-5188.

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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

1.1 Project Background

The City of Los Angeles, through its aviation department, Los Angeles World Airports (LAWA), is proposing the Runway 7L/25R Safety Area Project and Associated Improvements at the Los Angeles International Airport (LAX or Airport). LAWA proposes to construct improvements to the Runway Safety Area (RSA) for Runway 7L/25R, and to reconstruct pavement on the eastern segments of Runway 7L/25R and Taxiway B, and the aircraft parking apron west of Air Freight Building No. 8 (collectively, the proposed Project). The RSA improvements are being undertaken by LAWA in response to 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. This Act requires completion of RSA improvements by airport sponsors that hold a certificate under Title 14, Code of Federal Regulations (CFR), Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*, to meet Federal Aviation Administration (FAA) design standards by December 31, 2015.

This Environmental Impact Report (EIR) was prepared pursuant to the requirements of the California Environmental Quality Act (CEQA). LAWA is the Lead Agency to ensure compliance with CEQA for airport development actions at LAX. The proposed Project is also concurrently undergoing an environmental review under the National Environmental Policy Act (NEPA) with the FAA as the federal Lead Agency. The NEPA-compliant document being prepared is an Environmental Assessment (EA).

1.1.1 <u>Refinement of the Proposed Project</u>

A Notice of Preparation (NOP) and Initial Study (IS) were prepared and made available to the public on October 5, 2012. The proposed Project evaluated in the IS included four components: RSA improvements; pavement reconstruction of portions of Runway 7L/25R and Taxiway B; eastern extension of Taxiway C (which included reconfiguration of a service road and demolition of Air Freight Building No. 8); and construction of a new Ground Support Equipment (GSE) Maintenance Facility. Based on comments received during the agency and public review period of the NOP/IS and comments received during the agency and public review period on the Draft EA prepared for the proposed Project in compliance with NEPA, LAWA refined the proposed Project objectives and eliminated the following elements from the proposed Project:

- Eastern extension of Taxiway C;
- Reconfiguration of a service road to the east of Runway 7L/25R;
- Demolition of Air Freight Building No. 8; and
- Construction of a new GSE Maintenance Facility.

In addition, refinements to the two remaining components of the proposed Project, the RSA improvements and pavement reconstruction of portions of Runway 7L/25R and Taxiway B. These refinements include reconfiguring a service road on the west side of Runway 7L/25R and relocating a localizer shelter and other FAA equipment shelters. These refinements are discussed in detail in Chapter 2.

1.1.2 Relationship to LAX Master Plan

Several other projects besides the proposed Project are also being studied and/or implemented at LAX. Some of these projects are part of the LAX Master Plan, approved by the City of Los Angeles City Council in December 2004. This document serves as a broad policy statement regarding the conceptual strategic planning framework for future development at LAX. The LAX Master Plan also outlines how projected growth in passengers and cargo at LAX can be accommodated, in part, through the year 2015. The approved LAX Master Plan includes airfield modifications, development of new terminals, and new landside facilities to accommodate passenger and employee traffic, parking, and circulation. It also provides working guidelines to be consulted by LAWA as it formulates and processes site-specific LAX Master Plan projects. LAWA prepared a Program EIR for the LAX Master Plan, which, according to CEQA Guidelines Section 15168, is an EIR that applies to a series of actions that can be characterized as one large project.[1]

The proposed Project is not a component of the LAX Master Plan as the federal requirement for RSA compliance occurred under 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), which was adopted November 30, 2005. However, LAWA has incorporated many of the same commitments and mitigation measures identified in the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP) as part of the mitigation measures for the proposed Project. The commitments to be implemented as part of the proposed Project are identified in the individual sub-Chapters within Chapter 4. Relevant information from the LAX Master Plan Program EIS/EIR is incorporated in this document by reference.

1.2 Environmental Review Process

1.2.1 CEQA Compliance

One of the primary objectives of CEQA is to enhance public participation in the planning process. The environmental review process provides several opportunities for the public to participate through the public noticing and public review of CEQA documents and in public hearings. Additionally, lead agencies are required to consider comments from the scoping process in the preparation of the Draft EIR and to respond to public comments on the Draft EIR in preparation of the Final EIR.

This document is a Draft EIR for the proposed Runway 7L/25R Runway Safety Area and Associated Improvements (proposed Project) at LAX. LAX is owned by the City of Los Angeles and operated by the LAWA, whose Board of Airport Commissioners (BOAC) oversees the policy, management, operation, and regulation of the Airport, as well as Los Angeles/Ontario International Airport, Palmdale Regional Airport, and Van Nuys Airport. This Draft EIR has been

[1] City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements*, April 2004.

prepared by LAWA, as the Lead Agency, in compliance with CEQA.[2] The Project site is located entirely within the boundaries of the LAX property.

In accordance with CEQA, all discretionary projects within the State of California that could have a physical effect on the environment are required to undergo environmental review to determine their potential environmental impacts before they are implemented.[3] CEQA was enacted in 1970 by the California legislature to require lead agencies to disclose to decision-makers and the public the significant environmental effects of proposed activities and ways to avoid or reduce the environmental effects either through implementation of feasible mitigation measures or project alternatives. CEQA applies to all California government agencies at all levels, including local agencies, regional agencies, and state agencies, boards, commissions, and special districts. LAWA is the Lead Agency for the proposed Project and as such is required to conduct an environmental review to analyze the potential environmental effects associated with the proposed Project.

1.2.2 Initial Study, Notice of Preparation and Scoping

An IS was prepared and made available to the public on October 5, 2012 for the proposed Project and is attached as Appendix A in this Draft EIR. The IS evaluated all the environmental topics required by CEQA as outlined in Appendix G of the CEQA Guidelines. The findings of the IS determined that an EIR would be prepared, with any environmental topics that were determined in the IS to have no impacts or less than significant impacts without mitigation not being carried forward for further analysis in this Draft EIR. These topics are summarized in Chapter 5, Other CEQA Considerations.

LAWA issued a Notice of Preparation (NOP) (Appendix A) to provide early consultation in the preparation of the Draft EIR and invited public agencies and the public to comment on the scope of analysis in the Draft EIR. The NOP was filed on October 5, 2012 with the California Office of Planning and Research (OPR) State Clearinghouse, the County of Los Angeles Clerk's Office, and the City of Los Angeles Clerk's Office. This began a 30-day scoping period that was to end on November 5, 2012. Due to public requests, LAWA extended the public review period for the NOP by 15 days, and comments on the IS/NOP were accepted through November 20, 2012. In addition, copies of the NOP were mailed to federal, state, regional, and local agencies, airlines, and other leaseholders at LAX. The IS/NOP was also made available on the LAWA website (http://www.ourlax.org) and at the locations listed below:

Westchester-Loyola Village Branch Library 7114 W. Manchester Avenue Los Angeles, CA 90045	El Segundo Library 111 W. Mariposa Avenue El Segundo, CA 90245

Finally, the NOP was published in the Los Angeles Times, The Argonaut, and Daily Breeze on October 5, 2012.

One public scoping meeting was held on October 17, 2012 at the Proud Bird Restaurant located at 11022 Aviation Blvd, Los Angeles, CA 90045, to receive public comment regarding the scope and content of the environmental information to be included in the Draft EIR. In response to the public outreach and participation program undertaken by LAWA, three comments from the general public and four comment letters from public agencies were received (Appendix A), which were considered in the preparation of this Draft EIR.

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2 CEQA Guidelines, Section 15050.
3 *Ibid*.

1.2.3 Intended Uses of This Draft EIR

This Draft EIR will be circulated for agency and public review and comment. A Final EIR will be prepared which will incorporate responses to comments received on the Draft EIR. In addition, the Final EIR will provide revisions to the Draft EIR, as necessary. LAWA, the BOAC, and the City of Los Angeles City Council will use the Final EIR and associated documents to evaluate and consider the environmental impacts of the proposed Project prior to certifying the Final EIR and prior to taking action on the proposed Project or one of the alternatives. Certification of the Final EIR would complete the project-level CEQA compliance review for the proposed Project as described in this Draft EIR. Information in this Draft EIR and the Final EIR may also be used by LAWA and its contractors as input for permit and other approval applications.

In addition, the Final EIR may be used by various federal, state, and local agencies in their respective decision-making and approval processes for discretionary actions (e.g., permits) regarding the proposed Project.

1.2.4 Availability of the Draft EIR

The Draft EIR for the proposed Project is being distributed directly to numerous agencies, organizations, and interested groups and persons for comment during the formal review period. The Draft EIR is also available for review for 45 calendar days at the following locations during regular business hours:

- LAWA Offices, Los Angeles International Airport, 1 World Way, Room 218, Los Angeles, CA 90045
- Westchester-Loyola Village Branch Library, 7114 West Manchester Avenue, Los Angeles, CA 90045
- El Segundo Library, 111 West Mariposa Avenue, El Segundo, CA 90245

In addition, the Draft EIR is available online at the LAWA website, http://www.ourlax.org. On the website, the Draft EIR can be accessed through the “Project-Publications” link.

Due to the time limits mandated by state law,[4] comments must be sent to LAWA at the earliest possible date but not later than November 4, 2013. Agency responses to the Draft EIR should include the name of a contact person within the commenting agency. Please send your comments by mail or email to:

Ms. Evelyn Quintanilla, Project Manager
Los Angeles World Airports
1 World Way West, 2nd Floor
Email: equintanilla@lawa.org

[4] *CEQA Guidelines*, Section 15205(d)

1.3 Organization of the Draft EIR

This Draft EIR follows the preparation and content guidance provided by CEQA and its Guidelines. Listed below is a summary of the contents of each chapter of this report.

1.0 Introduction and Executive Summary. Chapter 1 describes the proposed Project's background including refinements to the proposed Project; relationship to the LAX Master Plan; CEQA compliance requirements; the environmental review process; IS/NOP; the organization of the Draft EIR; intended uses of the Draft EIR; availability of the Draft EIR; and includes an Executive Summary that presents a brief summary of the proposed Project and alternatives, impacts, mitigation measures and areas of controversy known to the Lead Agency.

2.0 Project Description. Chapter 2 describes the boundaries of the proposed Project, the proposed Project objectives, a list of the agencies expected to use this Draft EIR, proposed Project permits and other discretionary actions, and a list of related environmental review and consultation requirements.

3.0 Overview of Project Setting. Chapter 3 provides an overview of the existing environmental setting at and around the Project site, and describes other projects proposed in the nearby area that may, in conjunction with the proposed Project, need to be considered in order to assess cumulative impacts.

4.0 Environmental Impact Analysis. Chapter 4 describes the existing conditions; methodology used in the impact analysis; thresholds of significance; commitments incorporated into the proposed Project; impacts that would result from the proposed Project; applicable mitigation measures that would eliminate or reduce significant impacts; the residual impacts after mitigation for each environmental issue; and cumulative impacts. The chapter addresses six main topics:

Chapter 4.1 Air Quality

Chapter 4.2 Greenhouse Gas Emissions

Chapter 4.3 Hazards and Hazardous Materials

Chapter 4.4 Human Health Risk Assessment

Chapter 4.5 Hydrology and Water Quality

Chapter 4.6 Noise

Chapter 4.7 Surface Construction Traffic

5.0 Other Environmental Considerations. Chapter 5 includes a discussion of issues required by CEQA that are not covered in Chapter 4. This includes growth-inducing impacts, irreversible environmental changes, unavoidable significant impacts, reasons why the proposed Project is being proposed, notwithstanding unavoidable significant impacts, and potential secondary effects. In addition, Chapter 5 includes a summary of the topics evaluated in the IS but not carried forward for further evaluation in this Draft EIR (impacts found not to be significant).

6.0 Alternatives. Chapter 6 evaluates the environmental effects of alternatives to the proposed Project including the required No Project Alternative, compares alternatives, and identifies the Environmentally Superior Alternative.

7.0 List of Preparers and Persons Consulted. Chapter 7 lists the individuals involved in preparing this Draft EIR.

8.0 References. Chapter 8 identifies the documents reviewed in preparing this Draft EIR.

9.0 Acronyms and Definitions. Chapter 9 presents a list of the acronyms and definitions used in this Draft EIR.

Appendices. The Appendices present data supporting the analysis contained in the Draft EIR. The appendices in this Draft EIR include:

Appendix A	Project Scoping
Appendix B	Air Quality and Greenhouse Gas Emissions Appendix
Appendix C	Noise Appendix
Appendix D	Traffic Analysis
Appendix E	Cultural Resources Evaluation Reports
Appendix F	Biological Technical Report

1.4 Summary of the Project

The proposed Project is described in detail in Chapter 2. The proposed Runway 7L/25R RSA improvements of the proposed Project primarily involve the west end of Runway 7L. The elements of the proposed Runway 7L/25R RSA improvements include:

- Extend the Runway 7L/25R pavement, 832 feet to the west. The Runway 7L threshold will remain at its current location for landings, resulting in an 832-foot displaced threshold;
- Implement declared distances to maintain existing take-off run available and take-off distance available;
- Grade and compact the RSA, approximately 500 feet wide by 168 feet long, beyond the new Runway 7L runway end;
- Grade but not pave an additional area approximately 500 feet wide by 957 feet long to RSA standards beyond the Runway 7L safety area to maintain the option of shifting operations to the west on the runway at a future date;
- Construct a blast pad west of the Runway 7L extension;
- Extend parallel Taxiway H 832 feet to the west;
- Construct a new taxiway connector (B17) from Taxiway H to Taxiway C;
- Decommission Taxiway B16 from Taxiway H to Taxiway B;
- Reconstruct a portion of Taxiway B at the intersection with new Taxiway B17;
- Reconstruct a portion of Taxiway U from Taxiway B to Runway 7L/25R;
- Relocate the existing Runway 25R Localizer Antenna and shelter to the west of the graded, unpaved area;
- Relocate other FAA equipment shelters west of Taxiway B17;
- Relocate existing service road west, beyond the proposed 957- foot grading extension and provide access roads to navaids and equipment shelters;

- Replace existing Approach Lighting System (ALS) towers where the new runway pavement will be constructed with in-pavement lights; and
- Modify the existing Runway and Taxiway lighting and markings in the newly constructed pavements.

For west-flow operations (the most common direction for departures at LAX Runway 7L/25R), declared distances would provide an Accelerate-Stop Distance Available (ASDA), a Take Off Run Available (TORA), and Take Off Distance Available (TODA) of 12,091 feet, and a Landing Distance Available (LDA) of 11,134 feet. For east-flow operations (the least common direction for departures at LAX Runway 7L/25R), the proposed declared distances would provide an ASDA, TORA, and TODA of 12,091 feet and an LDA of 11,259 feet. These distances are shown in Figure 2-4. This strategy allows LAWA to satisfy RSA requirements without changing the amount of runway currently available for take-off and landing operations.

Pavement reconstruction activities would be undertaken at the locations listed below:

- Full-depth reconstruction of existing pavement from the Runway 25R threshold to Taxiway F (1,225 feet long by 150 feet wide by approximately 3 feet deep);
- Full-depth reconstruction of the keel portion of Runway 7L/25R from Taxiway F westward to Taxiway J (600 feet long by 50 feet wide by approximately 3 feet deep);
- Replace existing pavement surface of the keel portion of Runway 7L/25R keel from Taxiway J west to the Taxiway N (6,447 feet long by 50 feet wide);
- Full-depth reconstruction of Taxiway B, from its terminus near the Runway 25R threshold approximately 2,128 feet west to a point between Taxiway F and Taxiway C3, including connecting Taxiway C1 (2,128 feet long by 176 feet wide by approximately 3 feet deep);
- Replace existing apron pavement in the north of Taxiway C, between Taxiway C1 and Air Freight Building No. 8;
- Replace the existing jet blast fence east of Runway 25R; and,
- Installation of in-pavement approach lights.

1.5 Summary of Environmental Impacts Related to the Runway 7L/25R RSA and Associated Improvements Project

The environmental topics evaluated in this Draft EIR include Air Quality, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, and Construction Surface Traffic.

Impacts to Aesthetics, Agricultural Resources, Biological Resources, Cultural Resources, Geology/Soils, Land Use/Planning, Mineral Resources, Population/Housing, Public Services, Recreation, Utilities and Public Systems have been found to be less than significant through the analysis in the IS and through the change in the scope of the proposed Project since the release of the IS. These environmental topics are not evaluated further in this Draft EIR.

Table 1-1 summarizes the impacts related to the proposed Project by environmental resource topic.

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
AIR QUALITY (CHAPTER 4.1)					
Construction	*Regional emissions* Potentially significant without mitigation	Tier 4 Pollution Control Measures for Construction Equipment	MM-AQ-1 General Air Quality Control Measures MM-AQ-2 Construction Related Measure	*Regional emissions* No Feasible Mitigation Exists	*Regional emissions* Significant and Unavoidable (but short-term and temporary)
	Localized Concentrations Potentially significant without mitigation			*Localized Concentrations* No Feasible Mitigation Exists	*Localized Concentrations* Significant and Unavoidable (but short-term and temporary)
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Cumulative					
Construction	Potentially significant without mitigation	Same as under Construction	Same as under Construction	No Feasible Mitigation Exists	Significant and Unavoidable (but short-term and temporary)
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
GREENHOUSE GAS EMISSIONS (CHAPTER 4.2)					
Construction	Less Than Significant	Already Included in Applicable LAX Master Plan Commitments	MM-AQ-2 Construction Related Measure	None Required	Less Than Significant
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Consistency with GHG Reduction Plans	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Cumulative					
Construction	Less Than Significant	Same as under Construction	Same as under Construction	None Required	Less Than Significant
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable	None Required	Less Than Significant

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
HAZARDS AND HAZARDOUS MATERIALS – LOCATION ON LISTED HAZARDOUS MATERIAL SITE (CHAPTER 4.3)					
Construction	Less Than Significant	Already Included in Applicable LAX Master Plan Commitments	HM-1 Ensure Continued Implementation of Existing Remediation Efforts HM-2 Handling of Contaminated Materials Encountered During Construction	None Required	Less Than Significant
Operations	No Impacts	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Cumulative					
Construction	Less Than Significant	Same as under Construction	Same as under Construction	None Required	Less Than Significant
Operations	No Impacts	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	No Impacts

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
HUMAN HEALTH RISK ASSESSMENT (CHAPTER 4.4)					
Construction					
DPM cancer and chronic non-cancer hazards risk	Less Than Significant	Already Included in Applicable LAX Master Plan Commitments	MM-AQ-1 General Air Quality Control Measures MM-AQ-2 Construction Related Measure	None Required	Less Than Significant
Formaldehyde acute non-cancer hazard risk	Less Than Significant	Already Included in Applicable LAX Master Plan Commitments	MM-AQ-1 General Air Quality Control Measures MM-AQ-2 Construction Related Measure	None Required	Less Than Significant
Health risks to on-airport workers	Less Than Significant	Already Included in Applicable LAX Master Plan Commitments	MM-AQ-1 General Air Quality Control Measures MM-AQ-2 Construction Related Measure	None Required	Less Than Significant
Cumulative	Less Than Significant	Same as under Construction	Same as under Construction	None Required	Less Than Significant

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
HYDROLOGY AND WATER QUALITY – INCREASED RUNOFF (CHAPTER 4.5)					
Construction	Less Than Significant	• Relocation of existing drainage and pipeline infrastructure. • Construction of new storm drain pipeline segments, inlets, and storm treatment filters. • Remove and replace sections of the existing storm drain pipelines, inlets, and manholes • Stormwater runoff conveyance structures • Installation of stormwater quality features and construction of erosion control pavement. • Infrastructure to accommodate the LADBS recommended 50-year event. • An orifice plate • Infield areas will be graded at approximately 1.5% - 3.0% percent slope from the edge of runway and taxiway shoulders. • New storm water filtration system. • Infiltration Systems • Bio-Filtration/Retention Systems • Stormwater Capture and Re-use • Mechanical/Hydrodynamic Units • Combination of Any of the Above	HWQ-1 Develop Detailed Drainage Plan MM-HWQ-1 Update Regional Drainage Facilities	None Required	Less Than Significant

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Cumulative					
Construction	Less Than Significant	Same as under Construction	Same as under Construction	None Required	Less Than Significant
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
NOISE (CHAPTER 4.6)					
Construction	Less Than Significant	• Haul Routes • Internal Circulation • Construction Staging Area	MM-N-7 Construction Noise Control Plan MM-N-8 Construction Staging MM-N-9 Equipment Replacement MM-N-10 Construction Scheduling ST-16 Designated Haul Routes	None Required	Less Than Significant
Operational	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant
Cumulative					
Construction	Less Than Significant	Same as under Construction	Same as under Construction	None Required	Less Than Significant
Operations	Less Than Significant	Not Applicable as Operational Capacity Would Not be Modified	Not Applicable as Operational Capacity Would Not be Modified	None Required	Less Than Significant

Table 1-1

Summary of Environmental Impacts by Resource Topic

Impact Topic	Pre-Mitigation Level of Significance	Applicable Project Design Features (Including BMPs)	Applicable LAX Master Plan Commitments	Project-Specific Mitigation	Level of Significance After Mitigation
SURFACE CONSTRUCTION TRANSPORTATION (CHAPTER 4.7)					
Construction	No Impact	Already Included in Applicable LAX Master Plan Commitments	C-1 Establishment of a Construction Coordination Office C-2 Construction Personnel Airport Orientation ST-9 Construction Deliveries ST-12 Designated Truck Delivery Hours ST-14 Construction Employee Shift Hours ST-16 Designated Haul Routes ST-18 Construction Traffic Management Plan ST-22 Designated Truck Routes	None Required	No Impact
Cumulative	No Impact	Same as under Construction	Same as under Construction	None Required	No Impact

Source: URS Corporation and Ricondo and Associates, Inc., 2013.

As shown in Table 1-1, impacts related to Air Quality (Operations), Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, and Construction Surface Traffic would be less than significant. Impacts related to construction air quality would be significant and unavoidable. Chapter 4.1 discusses these significant construction air quality impacts and Chapter 5 discusses why the proposed Project is still proposed in spite of these significant environmental effects. Although the construction air quality impacts would be significant and unavoidable, they would also be short-term and temporary, and not affect residential areas or public spaces such as parks and schools.

1.6 Areas of Known Controversy and Issues to be Resolved

The proposed Project is a safety improvement program required under federal directive. During the agency and public review periods of the IS/NOP and Draft EA, former elements of the proposed Project, mainly the proposed new GSE maintenance facility, were of concern to a commenter. In general, there was a preference from those who attended the public hearing and those who submitted written comments for the alternative proposed in the Draft EA, the Shift Runway Alternative instead of the proposed Project. Based on this public input, the proposed Project has been modified to include an additional graded area of 957 feet west of the proposed runway extension that would allow shifting the runway to the west if it is determined in the future that impacts to existing and future aircraft operations at LAX would be acceptable. LAWA needs to conduct extensive coordination with all aircraft operators at LAX to determine the effect shifting the runway would have on their operations before it can decide whether or not this is acceptable. However, in order to meet the requirements of P.L. 109-115, LAWA has identified the modified proposed Project analyzed in this Draft EIR to bring the Runway 7L/25R RSA in compliance with FAA design standards by December 31, 2015. In addition to the modifications discussed above, LAWA is also eliminating the extension of Taxiway C and the demolition of Air Freight Building No. 8 from the proposed Project. There are no other areas of known controversy or issues that need to be resolved.

2.0 PROJECT DESCRIPTION

2.1 Project Background

In accordance with Section 15124 of the CEQA Guidelines,[1] this chapter of the Draft EIR contains information describing the proposed Project. The City of Los Angeles, through its aviation department Los Angeles World Airports (LAWA), which is governed by the Board of Airport Commissioners (BOAC) is proposing the Runway 7L/25R Safety Area Project and Associated Improvements at LAX. LAX is the largest commercial service airport in Southern California, the third-busiest airport in the United States, and the sixth-busiest airport in the world. LAWA owns four airports in Southern California – LAX, Ontario International Airport, Van Nuys Airport (general aviation), and Palmdale Regional Airport (no current commercial service). LAX, Ontario, and Van Nuys are also operated by LAWA. Other airports in the Greater Los Angeles Area include Bob Hope International Airport, located in Burbank; Long Beach Municipal Airport; and John Wayne International Airport, located in Orange County. The FAA's 2012 Terminal Area Forecast (TAF)[2] shows that LAX handled approximately 605,480 itinerant aircraft operations[3] in 2012.[4] Passenger enplanements at LAX in 2012 were 31,857,135.[5] In addition to passenger service, LAX is also a major center for international air cargo. In 2011, approximately 1,866,432 tons of air cargo was handled at LAX.[6]

LAWA considers runway safety one of their highest priorities and continually puts forth effort to reduce the potential for and likelihood of compromised airfield safety. LAWA is enhancing safety at LAX by planning for and implementing long-term and short-term improvements to the runways at LAX. Related to long-term improvements to the airfields, LAWA has conducted a number of evaluations and assessments to identify the most effective means of enhancing runway safety based on current and future aircraft fleet mixes and operational characteristics, including:

- Runway 7L/25R Safety Area Practicability Study[7]
- LAX Master Plan[8]
- LAX Specific Plan Amendment Study[9]

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1 CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Section 3, §15000 et seq.) available from http://ceres.ca.gov/ceqa/guidelines/

2 The FAA Terminal Area Forecast (TAF) is the official forecast of aviation activity at FAA facilities. These forecasts are prepared to meet the budget and planning needs of FAA and provide information for use by state and local authorities, the aviation industry, and the public.

3 An aircraft operation is defined as one landing or takeoff, as defined in Appendix A of Federal Aviation Administration, Advisory Circular 150/5070-6B, *Airport Master Plans,* May 2007.

4 Federal Aviation Administration, Air Traffic Activity Data System (ATADS) website, http://aspm.faa.gov/opsnet/sys/Airport.asp, Los Angeles International Airport Report for 2012, Ran July 2013.

5 City of Los Angeles, Los Angeles World Airports, Statistics website, http://www.lawa.org/welcome_LAX.aspx?id=800, Accessed July 2013.

6 City of Los Angeles, Los Angeles World Airports, Statistics website, http://www.lawa.org/welcome_LAX.aspx?id=802, Accessed July 2013.

7 City of Los Angeles, Los Angeles World Airports, *Runway 7L/25R Safety Area (RSA) Practicability Study*, prepared by Ricondo and Associates, Inc., December 2009.

8 City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004.

2.2 Project Location

LAX is located on the western side of the Los Angeles Basin and is generally bounded on the north by the communities of Westchester and Playa Del Rey, on the east by La Cienega Boulevard and Aviation Boulevard, on the south by Imperial Highway, and on the west by the Pacific Ocean. The land area west of Pershing Drive is the former Surfridge neighborhood in the LAX/El Segundo Dunes. While the homes were demolished in the late 1960's, this area serves as a habitat for the federally-listed El Segundo Blue butterfly. The location and layout of LAX is depicted in **Figure 2-1**.

As illustrated in **Figure 2-2,** LAX has four parallel runways oriented in an east-west direction. Runways 6L/24R and 6R/24L are located north of the Central Terminal Area (CTA) in an area generally referred to as the North Airfield. Runways 7L/25R and 7R/25L are located south of the CTA in an area generally referred to as the South Airfield. All runways are equipped with an instrument approach lighting system (ALS) and other visual approach aids. **Table 2-1** includes descriptions of the existing runways at LAX.

Table 2-1

LAX Runway Information

Runway	Length x Width (feet)	Airfield	Primary Use
6L/24R	8,925 x 150	North	Arrivals
6R/24L	10,285 x 150	North	Departures
7L/25R	12,091 x 150	South	Departures
7R/25L	11,095 x 200	South	Arrivals

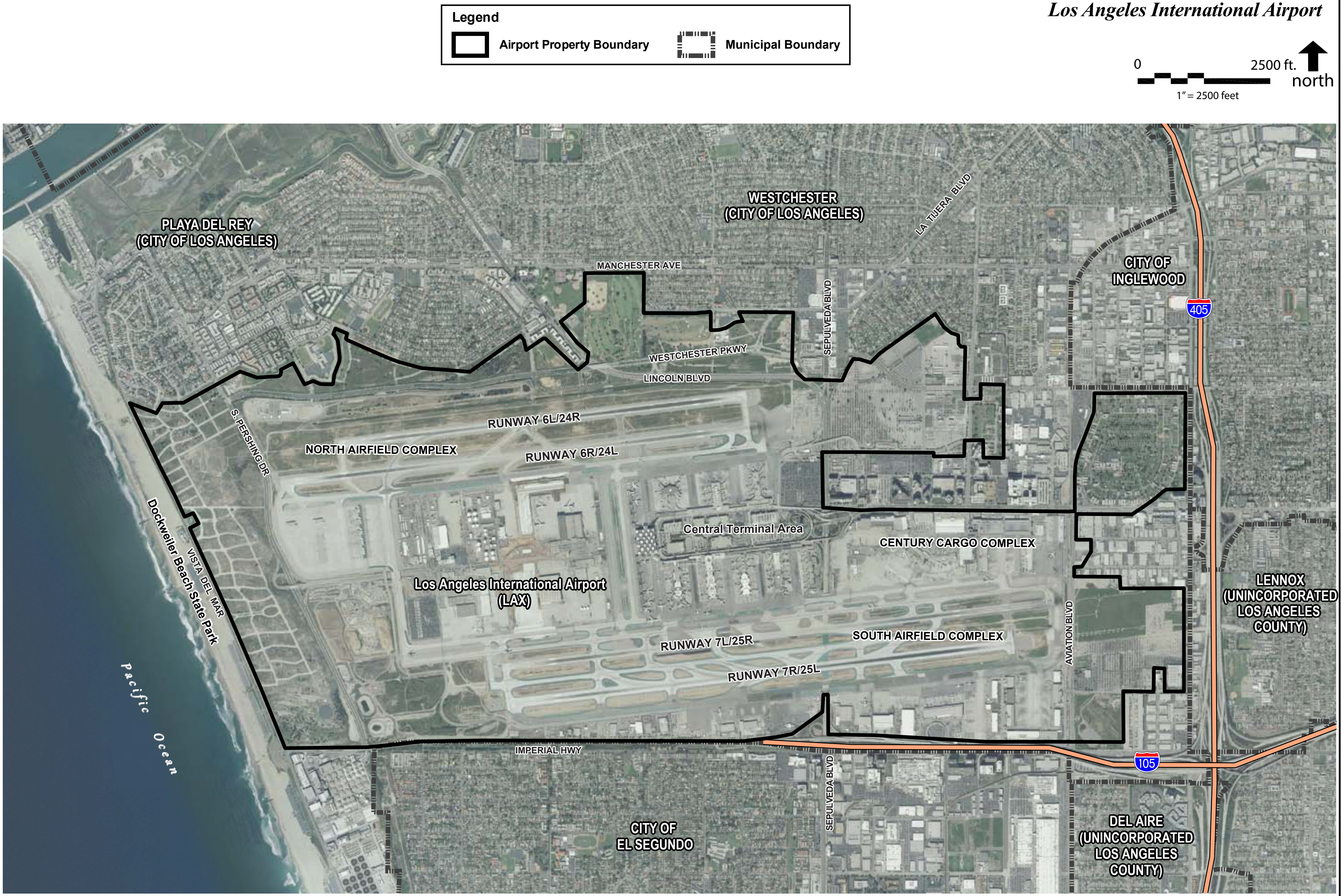
Source: Federal Aviation Administration, *LAX Airport Diagram, SW-3*, Effective from 15 December 2011 to 12 January 2012, available at *www.faa.gov*.

The Project site is located on a developed part of the South Airfield (**Figure 2-2**). The South Airfield includes two parallel runways: Runway 7R/25L (primarily used as an arrival runway) and Runway 7L/25R (primarily used as a departure runway). Runway 7L/25R is 12,091 feet long and 150 feet wide, and Runway 7R/25L is 11,095 feet long and 200 feet wide. Both runways and all taxiways are lighted and equipped with signage.

[9] City of Los Angeles, Los Angeles World Airports, *Preliminary LAX Specific Plan Amendment Study Report for Los Angeles International Airport (LAX) Specific Plan Amendment Study*, June 2012.

Source: LAWA 2012; ESRI Maps and Data - January 2012; Prepared by: URS Corporation

FIGURE 2-1	**Regional Map**	**Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project**



Sources: LAWA, 2012; ESRI Maps & Data May 2012 ; Prepared by: URS Corporation.

FIGURE 2-2

Existing Airport Layout

The proposed Project involves only the Runway 7L/25R (Runway 7L, and Runway 25R refer to the same physical Runway 7L/25R), which is the primary departing runway in the South Airfield (but is sometimes used for arrivals as well).[10] Runway 7L/25R is served by thirteen taxiways, B1, F, J, B3, G, B4, B5, B6, M, N, P, T, and U. The Project site is bordered to the north, south, and east by LAX facilities. Located to the west of the Project site is open land used for RSAs, security fencing, patrol roads, drainage, and construction laydown. This land also serves as a buffer area between LAX and Dockweiler Beach State Park. Typically, airplanes depart from LAX towards the west over Dockweiler Beach. This means that airplanes depart the Runway from the 7L end of the runway. This is called western flow. Rarely, under certain weather conditions, this is reversed and airplanes depart the Runway from the 25R end of the runway (eastern flow).

2.3 Project Objectives

2.3.1 RSA Improvement Objectives

The primary objectives of the Runway 7L/25R RSA improvements is to satisfy 14 CFR Part 139 certification requirements; bring the RSA for Runway 7L/25R into compliance with FAA airport design standards; and to satisfy P.L. 109-115, which requires all 14 CFR Part 139 certificated airports to bring their RSAs into compliance with FAA airport design standards no later than December 31, 2015. Based upon agency and public comments received, LAWA performed further analysis that resulted in the proposed Project being refined. In addition to those stated above, LAWA hopes to maintain the option to physically shift operations of Runway 7L/25R to the west at a future date without negatively affecting aircraft operations at LAX, while still providing RSAs compliant with federal requirements. Compliance with FAA airport design standards and maintaining the option to shift the runway would be accomplished by extending Runway 7L to the west, grading additional area to RSA standards west of the Runway 7L RSA, and the use of declared distances.

2.3.2 Pavement Reconstruction Objectives

The primary objective of the Pavement Reconstruction component of the proposed Project is to reconstruct old and deteriorating pavement at the eastern ends of Runway 7L/25R and Taxiway B, and in the aircraft parking apron, between Taxiway C1 and Air Freight Building No.8. The proposed Project would replace areas of pavement that are in poor condition. The existing pavement is considered to be in poor condition with a Pavement Condition Index (PCI) rating from 20 to 70 (out of 100). Pavement reconstruction activities may include, but not be limited to, demolition and removal of existing pavement and base materials, placement of new sub-base and/or base materials, installation of new Portland Cement Concrete (PCC) pavement, and application of runway and taxiway marking on the new pavement sections.

[10] In addition to “the Runway,” other nomenclature used in this document for Runway 7L/25R include Runway 7L or Runway 25R. These two terms refer to the same physical runway, but are more specific terms for the ends of the Runway. “Runway 7L” refers to the 7L (or western) end of the Runway, and “Runway 25R” refers to the 25R (or eastern) end of the Runway. As the proposed Project contains elements on both ends of the Runway, these terms will be used interchangeably with the directional terms (western or eastern).

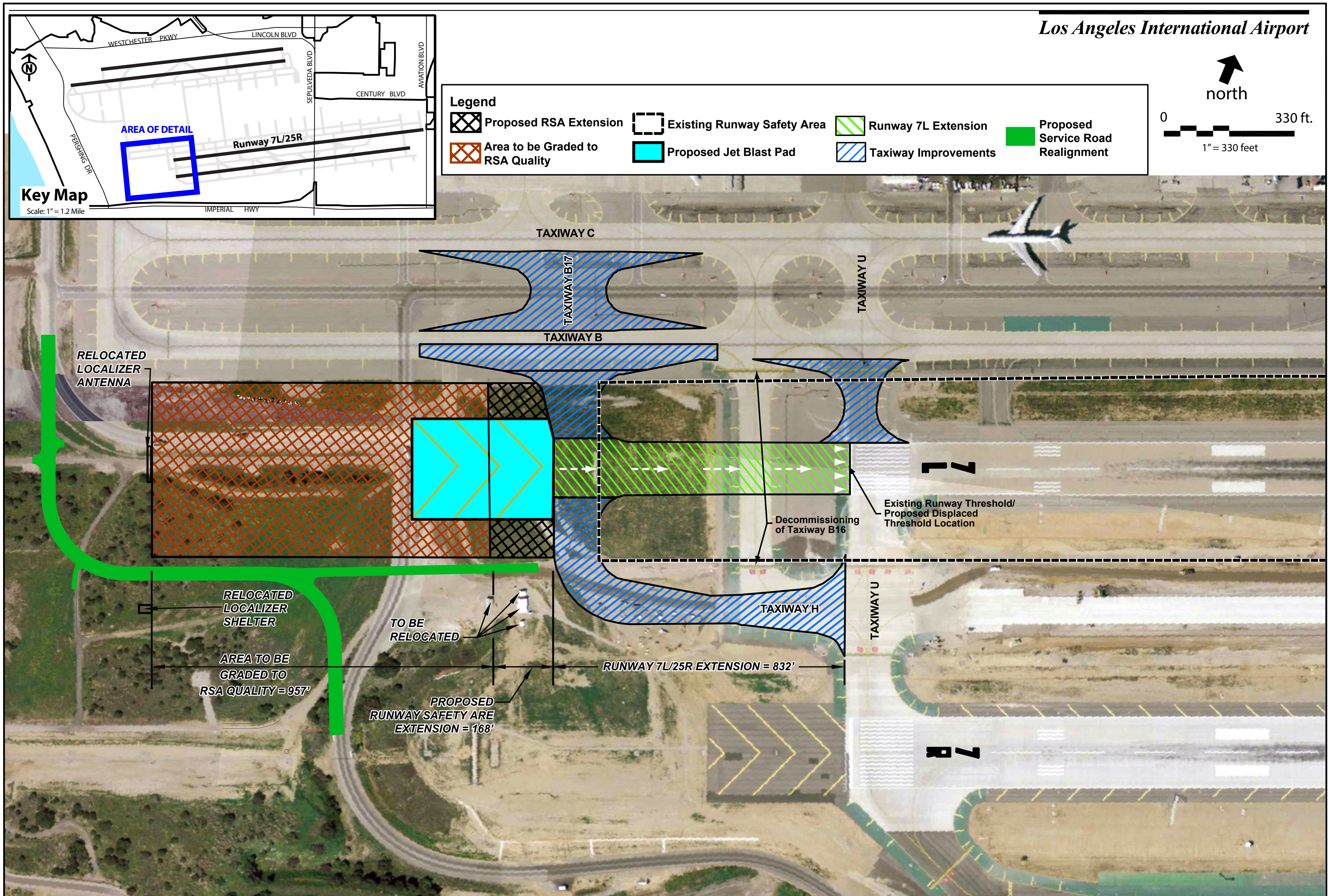
2.4 Project Characteristics

2.4.1 RSA Improvements

2.4.1.1 Elements of the Runway 7L/25R RSA Improvements

The proposed Runway 7L/25R RSA improvements primarily involve the west end of Runway 7L (**Figure 2-3**). The elements of the proposed Runway 7L/25R RSA improvements include:

- Extend the Runway 7L/25R pavement, 832 feet to the west. The Runway 7L threshold will remain at its current location for landings, resulting in an 832-foot displaced threshold;
- Implement declared distances to maintain existing take-off run available and take-off distance available;
- Grade and compact the RSA, approximately 500 feet wide by 168 feet long, beyond the new Runway 7L runway end;
- Grade but not pave an additional area approximately 500 feet wide by 957 feet long to RSA standards beyond the Runway 7L safety area to maintain the option of shifting operations to the west on the runway at a future date;
- Construct a blast pad west of the Runway 7L extension;
- Extend parallel Taxiway H 832 feet to the west;
- Construct a new taxiway connector (B17) from Taxiway H to Taxiway C;
- Decommission Taxiway B16 from Taxiway H to Taxiway B;
- Reconstruct a portion of Taxiway B at the intersection with new Taxiway B17;
- Reconstruct a portion of Taxiway U from Taxiway B to Runway 7L/25R;
- Relocate the existing Runway 25R Localizer Antenna and shelter to the west of the graded, unpaved area;
- Relocate other FAA equipment shelters west of Taxiway B17;
- Relocate existing service road west, beyond the proposed 957- foot grading extension and provide access roads to NAVAIDS and equipment shelters;
- Replace existing Approach Lighting System (ALS) towers where the new runway pavement will be constructed with in-pavement lights; and
- Modify the existing Runway and Taxiway lighting and markings in the newly constructed pavements.



Sources: *Runway 7L-25R Safety Area (RSA) Practicability Study for Los Angeles International Airport* (Ricondo & Associates, December 2009); ESRI Maps & Data May 2013 ; Prepared by: URS Corporation.

FIGURE 2-3	**Runway 7L/25R RSA Improvements**	**Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project**

The Runway 7L extension would increase the physical length of Runway 7L/25R from 12,091 feet to 12,923 feet. The new pavement would be used by pilots to begin their takeoff roll to the east in conjunction with declared distances. Therefore, the runway length available to a pilot would not increase as a result of the construction of the 832-foot long Displaced Threshold. In conjunction with the additional runway pavement, LAWA would implement the use of declared distances on Runway 7L/25R to allocate pavement at each end of the runway (along with the graded RSA areas) to provide an equivalent RSA for aircraft arrival and departure operations. Declared distances are the distances airport operators declare available on a runway for an airplane's takeoff run, takeoff distance, accelerate-stop distance, and landing distance. Where it is impracticable to provide adequate RSAs, declared distances can be used to limit the length of runway available to departing and arriving aircraft, thus making available enough runway length to provide an equivalent standard RSA (Refer to Appendix A). These distances are:

- Take Off Run Available (TORA) – The length of runway declared available and suitable for satisfying takeoff run requirements.
- Take Off Distance Available (TODA) – The TORA plus the length of any remaining runway or clearway beyond the far end of the TORA.
- Accelerate-Stop Distance Available (ASDA) – The length of runway plus stopway declared available and suitable for satisfying accelerate-stop distance requirements.
- Landing Distance Available (LDA) – The length of runway declared available and suitable for satisfying landing distance requirements.

For west-flow operations (the most common direction for departures at LAX Runway 25R), declared distances would provide an ASDA, TORA, and TODA of 12,091 feet and an LDA of 11,134 feet. For east-flow operations (the least common direction for departures at LAX Runway 7L), the proposed declared distances would provide an ASDA, TORA, and TODA of 12,091 feet and an LDA of 11,259 feet. These distances are shown in **Figure 2-4**. This strategy allows LAWA to satisfy RSA requirements without substantially affecting the amount of runway currently available for take-off and landing operations.

The existing Runway 7L/25R localizer antenna array, a component of the Instrument Landing System (ILS) that provides runway centerline guidance to landing aircraft, would be relocated approximately 1,125 feet from the Runway 7L departure threshold. The existing localizer equipment shelter and FAA equipment shelters would need to be relocated because they are located within the Object Free Area (OFA) of the extended Taxiway H. The localizer shelter would be relocated to the southwest of the new end of Runway 7L and abeam the localizer antenna (**Figure 2-3**).

When Runway 7L/25R is extended 832 feet to the west, the Runway 7L landing threshold location would remain unchanged and would be designated as a displaced threshold. Through the use of associated pavement markings and in-pavement ALS, aircraft can begin their Runway 7L departure roll at the western-most portion of the extended runway pavement.

Currently, the existing Medium Intensity Approach Light System with Runway Alignment Indicator Lights (MALSR) serving Runway 7L comprises a number of light fixtures on towers that must remain fixed at their current location and configuration (**Figure 2-5a**). Accordingly, portions of the existing tower-mounted light fixtures must be replaced with in-pavement lights when the runway pavement is extended westward (an example of in-pavement lights is shown in **Figure 2-5b**). The use of in-pavement lighting would allow Runway 7L departures west of the displaced threshold.

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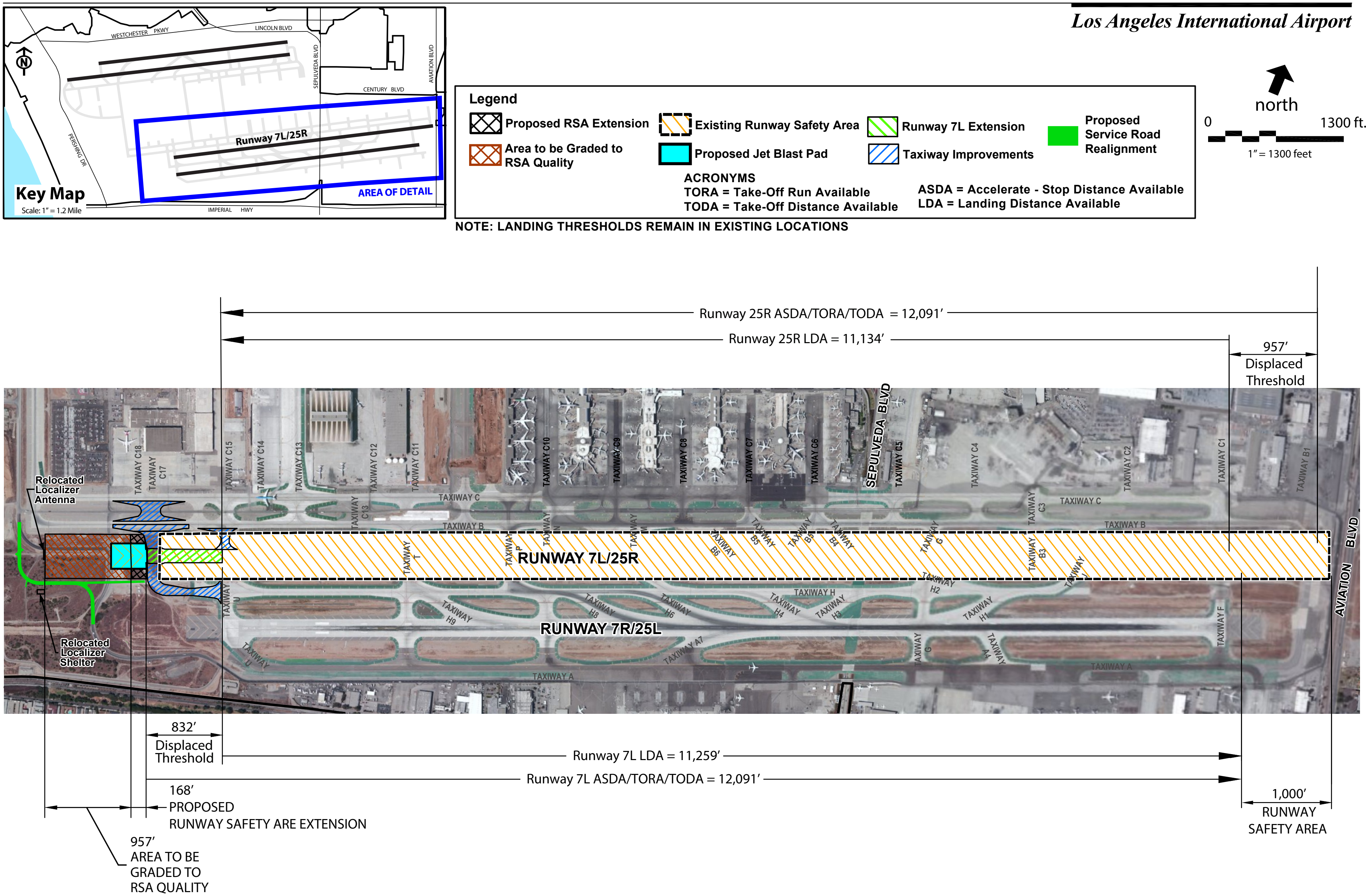


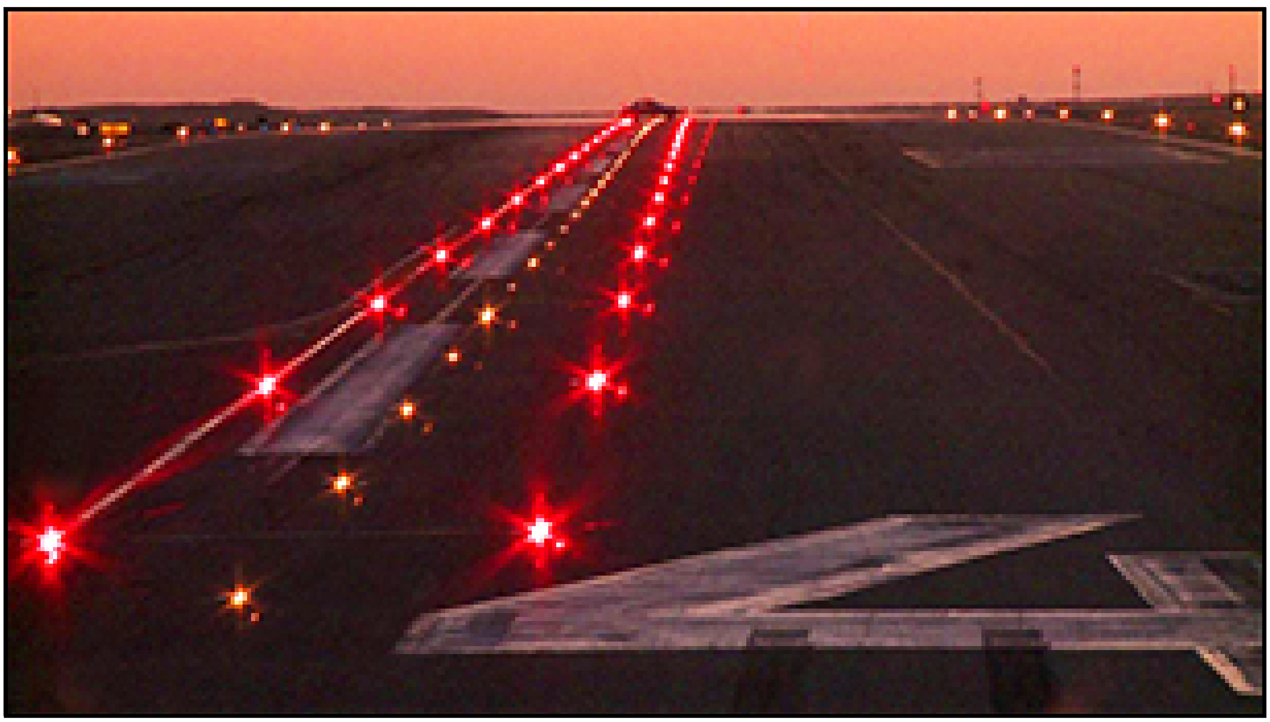
Sources: *Runway 7L-25R Safety Area (RSA) Practicability Study for Los Angeles International Airport* (Ricondo & Associates, December 2009); ESRI Maps & Data May 2013 ; Prepared by: URS Corporation.

FIGURE
2-4

Proposed Runway 7L/25R
Declared Distances

Environmental Impact Report
Runway 7L/25R RSA and
Associated Improvements Project

a. Existing Approach Light System (Towers) at South Airfield Runway 7L (Looking West).



b. Existing North Airfield Runway 24L (Looking West) In-Pavement Approach Light System, Similar to Proposed Runway 7L In-Pavement Approach Light System.

Source: LAWA 2012; URS Corporation - January 2012; Prepared by: URS Corporation

FIGURE 2-5

Existing and Proposed Airfield Lighting

2.4.2 Pavement Reconstruction

Most aircraft that utilize the South Airfield for departure begin that process on Runway 25R and its connecting taxiways (**Figure 2-2**). As such, this section of runway and its associated taxiways handle a large amount of traffic. The Runway 25R pavement and the pavement on the east end of Taxiway B were constructed in 1986. The current PCI rating for these pavements varies from 0 to 70, indicating that sections of the runway and taxiway pavements are in poor (0) to fair (70) condition.[11]

Pavement reconstruction activities would be undertaken at the locations listed below, and the proposed Project elements are shown in **Figure 2-6**.[12]

- Full-depth reconstruction of existing pavement from the Runway 25R threshold to Taxiway F (1,225 feet long by 150 feet wide by approximately 3 feet deep);
- Full-depth reconstruction of the keel portion of Runway 7L/25R from Taxiway F westward to Taxiway J (600 feet long by 50 feet wide by approximately 3 feet deep);
- Replace existing pavement surface of the keel portion of Runway 7L/25R keel from Taxiway J west to the Taxiway N (6,447 feet long by 50 feet wide);
- Full-depth reconstruction of Taxiway B, from its terminus near the Runway 25R threshold approximately 2,128 feet west to a point between Taxiway F and Taxiway C3, including connecting Taxiway C1 (2,128 feet long by 176 feet wide by approximately 3 feet deep);
- Replace existing aircraft apron pavement between Taxiway C1 and Air Freight Building No. 8;
- Replace the existing jet blast fence east of Runway 25R; and,
- Installation of in-pavement approach lights.

[11] HNTB, *Runway 25R & Taxiway B East End Rehabilitation and Taxiway C Extension Preliminary Engineer's Report*, 2011.
[12] *Ibid*.

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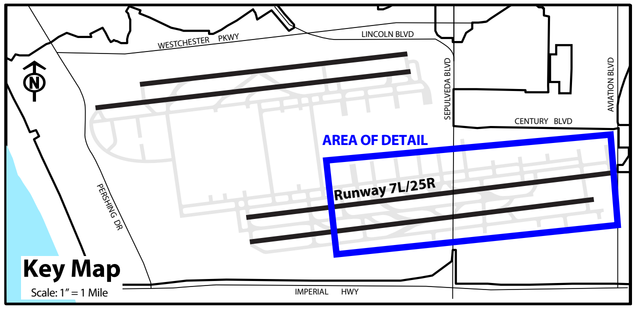


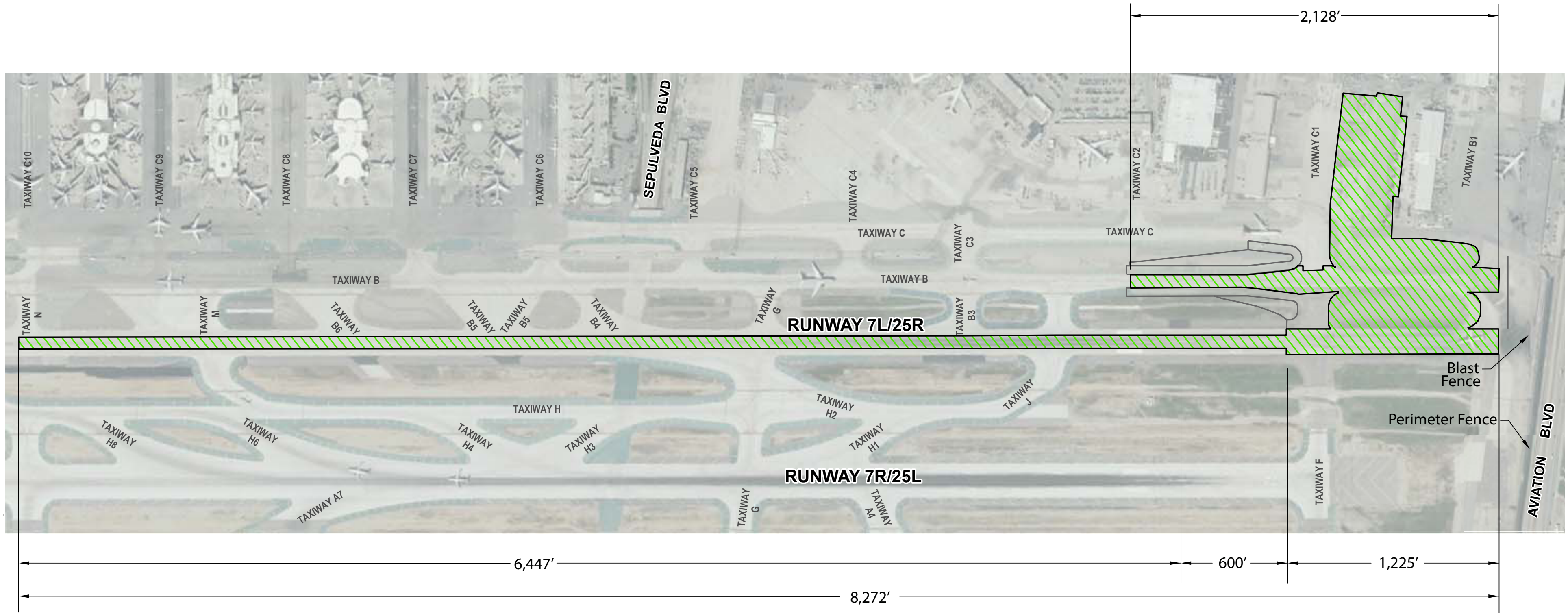
LEGEND

Areas of Pavement Reconstruction

north

0 1300 ft.

1" = 1300 feet



Sources: *Runway 7L-25R Safety Area (RSA) Practicability Study for Los Angeles International Airport* (Ricondo & Associates, December 2009); *Runway 25R Engineer's Report* (HNTB, 2011); ESRI Maps & Data June 2013 ; Prepared by: URS Corporation.

FIGURE 2-6

Pavement Reconstruction

Environmental Impact Report
Runway 7L/25R RSA and
Associated Improvements Project

2.5 Project Construction

2.5.1 Overview

Construction of the proposed Project would include, but not be limited to:

- Demolition of existing structures, pavements and utilities;
- Excavation for pavement reconstruction (up to 3 feet);
- Installation of storm drainage structures and pipes;
- Installation of stormwater quality features;
- Grading, paving, repaving, and earthworks;
- Placement of aggregate base and sub-base;
- Construction of aircraft-rated PCC pavement;
- Construction of aircraft-rated asphalt pavement;
- Construction of asphalt shoulder pavement;
- Construction of erosion control pavement;
- Installation of airfield ground lighting and signage;
- Installation of pavement markings;
- Relocation of a localizer antenna; and
- Modifications to an ALS.

2.5.2 Construction Phasing

Based on the proposed construction phasing plans, it is estimated that construction of the proposed Runway 7L RSA improvements would last approximately 13 months. Construction activities associated with the eastern elements of the proposed Project are anticipated to last approximately 3 months. The general construction sequence is listed below, although some of these elements would occur simultaneously where possible.

- Reconfiguration of perimeter service road to the west of Runway 7L/25R
- Construction of proposed RSA improvements that do not require runway closure;
- Pavement reconstruction of Taxiway B; and
- Pavement reconstruction/installation of east/west end of Runway 7L/25R, grading of some portions of the RSA, and installation of in-pavement ALS, which would require runway closure.

2.5.2.1 Runway Closure

As both west and east ends of Runway 7L/25R require either new pavement or pavement reconstruction, this work would be synchronized so as to only require one closure of the entire Runway. Because Runway 25R is the primary departure runway on the South Airfield, the proposed closure would require shifting departing aircraft traffic to other runways at LAX. The actual number and frequency of flights shifted to other runways is expected to be determined by LAX Operations and FAA Air Traffic Control. It is likely that departure flights would be diverted to the outboard runway on the South Airfield, Runway 7R/25L, or to the primary departure runway on the North Airfield, Runway 6R/24L, or some combination of the two. The loss of runway capacity during the closure of Runway 25R also has the potential to impact airfield operational efficiency during the construction period, possibly increasing delay times and affecting airlines and flight scheduling. Additionally, nighttime operations during the construction period that primarily use the inboard runways on both the South and North airfields would potentially have to be reconfigured during the closure of the Runway (the inboard runway on the South Airfield) with a possible shift of aircraft traffic to one of the outboard runways.

Three construction phasing options are being considered in this analysis of the proposed Project:

- Option 1 involves full closure of Runway 7L/25R for a period of 165 calendar days (approximately 5.5 months). During this time, reconstruction of Taxiway B from Taxiway F to the end of Runway 25R and reconstruction of the eastern portions of Runway 25R would occur in conjunction with RSA improvements.
- Option 2 involves full closure of Runway 7L/25R for a period of 120 calendar days (approximately 4 months). During this closure, Runway 25R pavement reconstruction would occur concurrently with RSA improvements, but not reconstruction of Taxiway B east of Taxiway F. Reconstruction of Taxiway B east of Taxiway F would occur prior to the runway closure. In order for aircraft to access Runway 25R for departures during the closure of Taxiway B, the usable runway would have to be temporarily shortened for 75 calendar days. During this time, the existing displaced threshold for Runway 25R would also be used as the start of the takeoff roll for 25R departures. Option 2 shortens the length of time the runway is closed, but the overall runway operation impact duration is longer at 195 days, due to 120 calendar days of full closure plus 75 calendar days of shortened departure length.
- Option 3 involves full closure of Runway 7L/25R for a period of 120 calendar days (approximately 4 months). During this closure, Runway 25R pavement reconstruction would occur concurrently with RSA improvements but not the reconstruction of Taxiway B east of Taxiway F, or reconstruction of Taxiway F. Taxiway B and F reconstruction would occur prior to the full closure of Runway 25R, by utilizing a temporary blast fence located 1,000 feet east of Taxiway J. A temporary threshold would be established at Taxiway J resulting in a reduced runway length of 9,610 feet for Runway 25R. Upon completion of the Taxiway B and F reconstruction (construction period of 115 days), the full closure of Runway 25R would occur. However, Taxiway F would remain open to provide access for departures to Runway 25L.

2.5.3 Construction Staging, Access, and Haul Routes

The proposed construction staging area (**Figure 2-7**) is located on the northeastern corner of Aviation Boulevard and Imperial Highway, the site of the formerly-proposed Continental City development. Construction employees would park in an area within Parking Lot B and would be shuttled into the South Airfield via an access road located at the intersection of 111th Street and Aviation Boulevard. Access to the South Airfield is through a controlled-access gate. Access to the eastern action site would be via the service road east and north of Taxiway C and for the western action site via the service road south of Taxiway A that rings the South Airfield. Work would occur 6 days a week, with nighttime construction likely; however, per the LAX Master Plan Final EIS/EIR commitments, work-related trips and truck deliveries shall be encouraged to use nighttime hours and shall avoid the peak periods of 7:00 a.m. to 9:00 a.m. and 4:30 p.m. to 6:30 p.m. Deliveries would be limited to the construction staging area whenever possible. Deliveries would be directed to access the construction staging area via I-105 or I-405 and Imperial Highway.

2.5.4 Construction Elements

2.5.4.1 Site Demolition

The proposed Project would require the demolition of the following facilities:

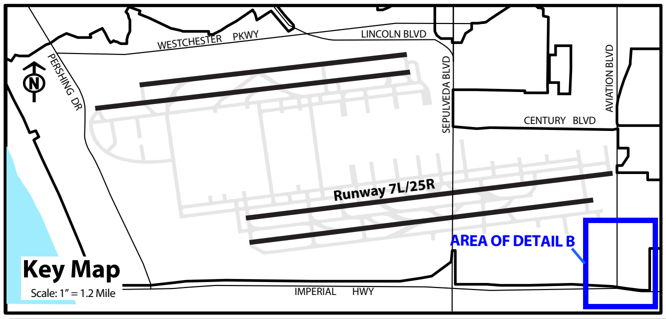
- Full-depth demolition of airfield pavements at points where connections would be made;
- Removal of storm drainage pipes, inlets, and manholes;
- Removal of taxiway lighting, signage, and cabling;
- Miscellaneous demolition of existing concrete pads and other minor site features;

Demolished pavement and base material would be transferred to the on-site concrete batch plant (located at the proposed staging area) to be recycled and reused on-site wherever possible. Other demolished materials would be taken to the nearest available recycling plant.

2.5.4.2 Storm Drainage

The proposed Project is located in the South Airfield area that drains to the Imperial Basin, which ultimately drains into the Santa Monica Bay. The Imperial Basin collects urban storm water from the storm drain outfall located on Imperial Highway between Santa Monica Bay and Pershing Drive. The Santa Monica Bay is located directly west of the proposed Project and it is the receiving water body for surface drainage from approximately 265,000 acres of land.

Drainage improvements proposed for the proposed Project include relocation of existing drainage infrastructure and construction of new storm-drain pipeline segments, inlets, and storm treatment filters. The existing drainage infrastructure improvements involve the relocation of existing pipelines that are currently located within the Project site. The proposed Project improvements require sections of the existing storm drain pipelines to be removed and replaced to meet aircraft wheel loading requirements. Stormwater runoff conveyance structures would be designed to accommodate any increased runoff volume generated by the proposed Project.



0 500 ft.
1" = 500 feet
north

Legend

- Airport Property Boundary
- Proposed Staging Area

Source: LAWA 2013; URS Corporation, 2013; ESRI Maps and Data - May 2013; Prepared by: URS Corporation

FIGURE 2-7	**Proposed Construction Staging Area**	**Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project**

2.5.4.3 Proposed RSA Improvements Not Requiring Runway Closure

The proposed RSA improvements which would not require the closure of Runway 7L/25R include:

- Grade to RSA standards an additional area 500 feet in width by 957 feet in length beyond the proposed Runway 7L RSA;
- Construct a blast pad west of the Runway 7L extension;
- Extend parallel Taxiway H 832 feet to the west;
- Construct a new taxiway connector (B17) from Taxiway H to Taxiway C;
- Decommission Taxiway B16 from Taxiway H to Taxiway B;
- Reconstruct a portion of Taxiway B at the intersection with new Taxiway B17; and,
- Relocate existing service road west, beyond the proposed 957-foot grading extension and provide access roads to NAVAIDS and equipment shelters.

Construction of these elements is anticipated to last 7 months. Some of this work can occur during other phases of work, and it can also occur during closure of the runway.

The grading, construction of a blast pad, extension of Runway 7L, Taxiway B, Taxiway H, the creation of Taxiway B17, and the relocation of the existing service road would require excavation to a depth of up to 3 feet. An 832-foot portion of the Runway 7L extension and the extensions of Taxiways B, and H and the new Taxiway B17 would be paved for use by aircraft. However, an additional1,025-feet by 500-feet area west of the Runway 7L extension would be graded but not paved.

Runway and taxiway extensions and new taxiways would have in-pavement centerline lights, elevated edge lights, and runway end lights at appropriate hold positions. Lighted guidance signs would be installed at new intersections. All new taxiway lights and signs would be equipped with LED lamps. Several existing NAVAIDS in the Project site would have to be deactivated and following construction completion would be re-certified and calibrated by FAA Flight Safety Standards.

Decommissioning of Taxiway B16

Construction of the proposed Project would decommission existing Taxiway B16. This would include removal of existing pavement south of Taxiway B (but will remain between Taxiways B and C), removal of airfield lighting and signage, installation of runway edge and shoulder pavement markings, and installation of runway edge lighting.

2.5.4.4 Pavement Reconstruction

Construction activities related to the pavement reconstruction of the eastern portions of Taxiway B and Runway 25R, as well as the aircraft parking apron pavement between Taxiway C1 and Air Freight Building No. 8, are anticipated to last approximately 3.5 months.

Runway 25R

Construction activities on the 25R end of the Runway and Taxiway B would include demolition of the existing pavement and its replacement. Some of the ancillary facilities, including the MALSR and Runway Status Light System (RWSL) would require removal and replacement. The construction north of 25R end of the Runway would be limited by the boundary of the Taxiway B Taxiway Safety Area (TSA).

Taxiway B

The construction activities associated with pavement reconstruction of the eastern end of Taxiway B include demolishing either the full depth or partial depth of the existing Portland Cement Concrete; regrading and preparing the areas of pavement removal; installing new Portland Cement Concrete; and re-marking and re-installing lighting.

Aircraft Parking Apron

The construction activities associated with pavement reconstruction of the aircraft parking apron between Taxiway C1 and Air Freight Building No. 8, include demolishing either the full depth or partial depth of the existing pavement; regrading and preparing the areas of pavement removal; installing new Portland Cement Concrete; and re-marking and re-installing lighting.

2.5.4.5 Runway 7L/25R Pavement Construction/ Reconstruction

As both west and east ends of Runway 7L/25R require pavement construction activities, this work would be synchronized so as to only require one closure of the entire runway. Because Runway 25R is the primary departure runway at LAX, the proposed closure would require shifting departing aircraft traffic to other runways. The actual number and frequency of flights shifted to other runways is expected to be determined by LAX Operations and FAA Air Traffic Control. Departure flights would be diverted to the outboard runway on the South Airfield, Runway 7R/25L, or to the primary departure runway on the North Airfield, Runway 6R/24L. The loss of runway capacity during the closure of Runway 7L/25R would impact airfield operational efficiency, increasing aircraft taxi times and possibly affecting airlines flight schedules. Additionally, nighttime operations during the runway closure would potentially have to be reconfigured with a possible shift of some operations to one of the outboard runways.

Runway 7L/25R would be closed for a period of 110 days (approximately 3.5 months). During this closure, Runway 25R pavement reconstruction would occur concurrently with RSA improvements. Reconstruction of Taxiway B east of Taxiway F would occur prior to the runway closure. In order for aircraft to access Runway 25R for departures during the closure of Taxiway B, the usable runway has to be temporarily shortened for 90 days. During this time, the existing displaced threshold for Runway 25R would also be used as the start of takeoff roll for 25R departures.

2.6 LAX Master Plan Commitments

Although the proposed Project is not part of the LAX Master Plan, LAWA requires that all of its projects incorporate by reference the mitigation commitments that were part of the LAX Master Plan EIS/EIR completed in 2004. Specific LAX Master Plan mitigation commitments that are required for a particular environmental impact are described in detail in the subchapters of Chapter 4.

2.7 Project Operations

Operationally, the proposed Project would have a minimal effect on runway use or taxi times once completed. East flow departures occur less than two percent of the time under existing and proposed conditions, and only under certain conditions (i.e., wind direction and speed). On these rare occasions, the new departure threshold for Runway 7L, located 832 feet west of the existing runway end, would be used as a start point for east flow departures on the runway, meaning that east-west flow departures would take off further west.

The proposed Project is not a capacity-enhancing project and would not result in any associated permanent increase or decrease in aviation activity at the Airport.

2.8 Project Funding

The proposed Project may be funded primarily with FAA, Airport Improvement Program (AIP) funds.

2.9 Federal, State, and Local Actions and Required Permits

Provided below is an overview of the actions and permits anticipated to be required for the proposed Project.

2.9.1 Federal Actions

LAWA has requested that FAA approve the Airport Layout Plan (ALP) for LAX to incorporate the proposed Project and plans to ask FAA for assistance in funding the proposed Project. Before FAA can take these actions, FAA must evaluate the potential environmental effects in order to comply with NEPA. To comply with NEPA, FAA is preparing an EA for the proposed Project.

2.9.2 State and Regional Actions

2.9.2.1 California Department of Transportation (Caltrans)

Permits from or actions by Caltrans required for the implementation of the proposed Project include, but may not be limited to:

- Amended/Corrected Airport Permit. In accordance with California Code of Regulations, Title 21 §3530, LAWA must submit to Caltrans an Amendment/Corrected Airport Permit

Application for approval. The airfield improvements associated with the RSA would be reflected on the application.

- Caltrans Encroachment Permit for work above the Sepulveda Tunnel

2.9.2.2 State Water Resources Control Board (SWRCB)/ Regional Water Quality Control Board (RWQCB)

The California SWRCB and nine RWQCBs administer regulations regarding water quality in the State. Permits or approvals required from the SWRCB and RWQCB for the RSA include, but may not be limited to:

- General Construction Storm Water Permit; and
- Standard Urban Stormwater Mitigation Plan (SUSMP).

2.9.2.3 Southern California Air Quality Management District (SCAQMD)

The SCAQMD is the regional agency granted the authority to regulate air pollutant emissions from stationary sources in the South Coast Air Basin, and has been involved throughout the development of the LAX Master Plan Final EIR, the General Conformity Determination for the LAX Master Plan, and the proposed Project. No new permanent stationary sources would be added as a result of the RSA extension; therefore, no additional permits for permanent facilities would be needed. A permit to construct and operate is required for each piece of equipment to be used for construction that is not specifically exempt from the permit requirements.

2.9.3 Local Actions

A number of local actions and permits may be required for the implementation of the proposed Project. The list of actions and permits is expected to include, but are not limited to:

- Certification of the Final EIR by the Board of Airport Commissioners;
- LAX Plan Compliance Review in accordance with Section 7 of the Los Angeles International Airport Specific Plan;
- Preparation of a project-specific Storm Water Management Plan or SUSMP for approval by the City of Los Angeles Department of Public Works, Bureau of Sanitation – Watershed Protection Division;
- City of Los Angeles Department of Building and Safety Electrical Permit;
- City of Los Angeles Department of Building and Safety Grading Permit;
- City of Los Angeles Department of Building and Safety Building Permit for removal and construction of structures such as electrical utilities;
- City of Los Angeles Department of Public Works, Bureau of Engineering Sewer/Storm Drain Permit; and
- City of Los Angeles Fire Department Plan Check.

2.9.4 Reviewing Agencies

Reviewing agencies include those agencies that do not have discretionary powers, but may review this Draft EIR for adequacy and accuracy. Potential Reviewing Agencies include:

2.9.4.1 State of California

- California Office of Historic Preservation
- California Department of Transportation (Caltrans)
- California Resources Agency
- California Department of Conservation
- California Department of Fish and Wildlife (CDFW)
- Native American Heritage Commission (NAHC)
- Department of Health Services
- California Coastal Commission
- Offices of Emergency Services
- Public Utilities Commission

2.9.4.2 Regional Agencies

- Los Angeles Regional Water Quality Control Board (LARWQCB)
- Department of Toxic Substances Control (DTSC)

2.9.4.3 City of Los Angeles

- Department of Building and Safety (LADBS)
- Department of City Planning (LADCP)
- Department of Public Works, Bureau of Engineering (BOE)
- Department of Transportation (LADOT)

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3.0 OVERVIEW OF PROJECT SETTING

3.1 Introduction

This section provides a description of the existing environmental setting within the Project Study Area. More detailed descriptions of the existing setting in the Project site related to specific environmental issues are provided in Chapter 4.0. In addition to providing an overview of the existing physical setting at and around the Project site, this section describes other proposed projects within the Airport boundary and in the nearby area that may, in conjunction with the proposed Project, need to be considered in assessing cumulative impacts on the existing setting.

3.1.1 Study Areas

For the purposes of describing the existing conditions in the vicinity of the Airport, two study areas were developed for this Draft EIR. These two areas comprise of the Project Study Area, which is defined by the existing Airport property boundary, and the Project site, which is a noncontiguous area where direct ground disturbance would occur. These study areas are shown in **Figure 3-1**. The specific assessment areas for these topics are defined in applicable sections of the Draft EIR.

3.1.1.1 Project Study Area

In light of the limited physical area of direct disturbance, and the fact that the proposed Project, once implemented, would not substantially change aircraft operations at LAX, the Project Study Area was defined to include the current boundary of the Airport property. The Project Study Area presented on **Figure 3-1** includes a geographic area that was established to quantify impacts that may occur from various resource categories including air quality, surface transportation, and land use. For analysis of potential noise effects only, the study area is delineated by the aircraft noise contours (Refer to Chapter 4.5).

3.1.1.2 Project Site

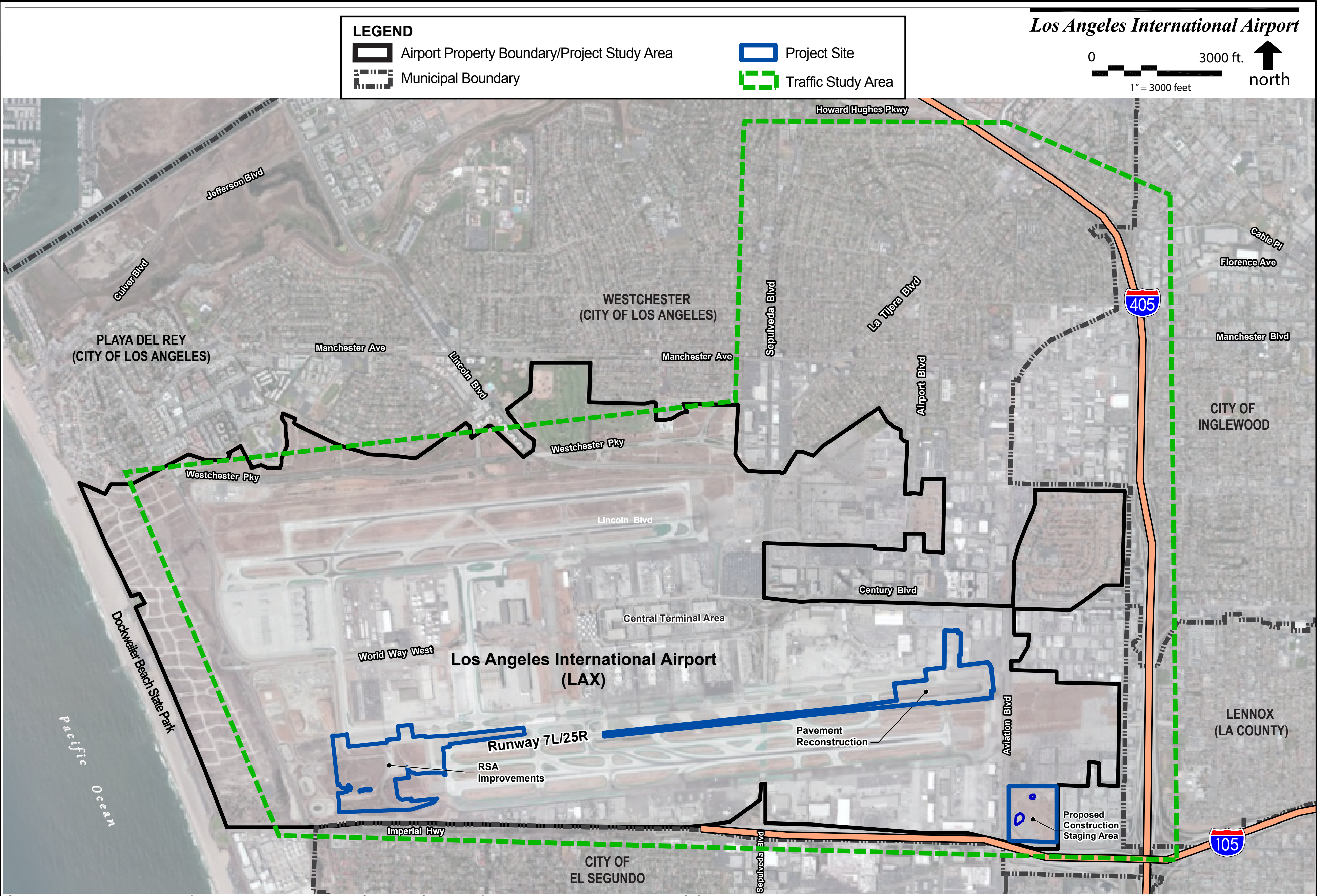
The Project site for environmental evaluation includes the direct area of disturbance related to the proposed Project elements (proposed runway safety area improvements, pavement reconstruction) and related construction impact areas. The Project site is also shown in **Figure 3-1**.

3.1.1.3 Traffic Study Area

The Traffic Study Area for environmental evaluation includes a much larger area than either the Project Site or the Project Study Area. The Traffic Study Area includes all study intersections evaluated in Chapter 4.6 Traffic and Transportation. The Traffic Study Area is shown in **Figure 3-1**.

3.1.2 Study Years

LAWA issued a Notice of Preparation (NOP) on October 5, 2012 and, as such, the baseline year used to identify existing conditions is 2012. The buildout for the proposed Project is 2015. According to P.L. 109-115, completion of RSA improvements is required by December 31, 2015 by airport sponsors that hold a certificate under Title 14 CFR, Part 139.



Sources: LAWA, 2013; Ricondo & Associates, March 2012; URS, 2013; ESRI Maps & Data, May 2013; Prepared by: URS Corporation.

FIGURE 3-1	**Project Study Areas**	**Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project**

3.2 Existing Airport Facilities

3.2.1 South Airfield Complex

The South Airfield complex includes Runway 7L/25R, Runway 7R/25L, and its associated system of taxiways and service roads. The South Airfield complex also includes visual lighting aids and NAVAIDS to provide guidance for aircraft use. **Table 3-1** shows some of the existing characteristics of the South Airfield runways.

Table 3-1

Existing Characteristics of LAX South Airfield Runways

Runway	Length x Width (feet)	Primary Use
7L/25R	12,091 x 150	Departures
7R/25L	11,095 x 200	Arrivals

Source: Federal Aviation Administration, *LAX Airport Diagram, SW-3*, effective from 15 December 2011 to 12 January 2012, online at www.faa.gov.

Runway 7L/25R is 12,091 feet long and 150 feet wide. It is equipped with high intensity runway edge lights (HIRL) and centerline lights, which aid in navigation during nighttime and when there is low-visibility. Runway 25R has a 957-foot displaced arrival threshold[1]. Each end of the runway is equipped to accommodate Category I aircraft instrument approaches[2] and each has a medium intensity runway approach light system with runway alignment indicator lights (MALSR) to support aircraft approaches in weather conditions down to a half-mile visibility and a 200-foot cloud ceiling. Runway 7 is also equipped with Touchdown Zone (TDZ)[3] lights and a 3-bar Visual Approach Slope Indicator (VASI)[4]. Runway 7L/25R is the primary departure runway in the South Airfield complex with westward takeoffs occurring 98 percent of the time. The remaining 2 percent usually occurs when wind conditions or other operational restrictions (such as late night departures) require an eastflow.

Runway 7R/25L is 11,095 feet long by 200 feet wide. Runway 25L is equipped to support Category III instrument approaches from the east. Runway 7R is equipped to support Category I

1 A displaced threshold is a threshold located at a point on the runway other than the designated beginning of the runway. Displacement of a threshold reduces the length of runway available for landings. The portion of runway behind a displaced threshold is available for takeoffs in either direction, and landings from the opposite direction (Federal Aviation Administration, *Aeronautical Information Manual*, Change 2, March 7, 2013).

2 Category I aircraft instrument approaches: A precision instrument approach and landing with a decision height not lower than 60m (200 ft) and with either a visibility not less than 800m (2,400 ft), or a runway visual range not less than 550m (1,800 ft) (Federal Aviation Administration, *Aeronautical Information Manual*, Change 2, March 7, 2013).

3 Touchdown Zone (TDZ): The portion of a runway, beyond the threshold, where it is intended landing aircraft first contact the runway (Federal Aviation Administration, *Aeronautical Information Manual*, Change 2, March 7, 2013).

4 Visual Approach Slope Indicator (VASI): An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he/she is "on path" if he/she sees red/white, "above path" if white/white, and "below path" if red/red. Some airports serving large aircraft have three-bar VASIs which provide two visual glide paths to the same runway (Federal Aviation Administration, *Aeronautical Information Manual*, Change 2, March 7, 2013).

instrument approaches from the west. The runway is grooved and equipped with HIRL and runway centerline lights. Runway 7R is equipped with a MALSR to accommodate aircraft arrivals in weather conditions down to one-half mile visibility and a 200-foot cloud ceiling. Runway 25L is equipped with an approach light system with sequenced flashing lights (ALSF-2) to accommodate aircraft arrivals in weather conditions as low as runway visual range (RVR) 1200 feet and a 100-foot cloud ceiling. Runway 7R/25L is the primary arrival runway in the South Airfield complex.

Since the completion of the South Airfield Improvement Project in 2008, Runway 7L/25R is directly connected to Runway 7R/25L with three crossover taxiways (from east to west, Taxiways F, T, and U). In addition, with the extension of Taxiway H as a center taxiway, there are several more connecting taxiways that can connect the two runways. There are four taxiways that parallel the runways. Taxiway A is the southernmost parallel taxiway, located south of Runway 7R/25L. Taxiway H is located between both south airfield runways. Taxiways B and C are located north of Runway 7L/25R, with Taxiway C being located nearest the terminals.

3.2.2 North Airfield Complex

The proposed Project would not involve the North Airfield complex. For the purpose of providing a complete environmental setting, basic information about this area is provided below.

The North Airfield complex includes Runway 6L/24R, Runway 6R/24L, and its associated system of taxiways and service roads. The North Airfield complex also includes visual lighting aids and NAVAIDS to provide guidance for its use. **Table 3-2** shows some of the existing characteristics of the North Airfield runways.

Table 3-2

Existing Characteristics of LAX North Airfield Runways

Runway	Length x Width (feet)	Primary Use
6L/24R	8,925 x 150	Arrivals
6R/24L	10,285 x 150	Departures

Source: Federal Aviation Administration, *LAX Airport Diagram, SW-3*, effective from 15 December 2011 to 12 January 2012, online at www.faa.gov.

Runway 6L/24R, the primary North Airfield arrival runway, is 8,925 feet long and 150 feet wide. Runway 6R/24L, the primary north airfield departure runway, is 10,285 feet long by 150 feet wide. Runway 6R has a 331-foot displaced arrival threshold. Both runways are grooved and have HIRL and runway centerline lights. Runways 6L, 6R, and 24L are equipped to accommodate Category I aircraft instrument approaches and have MALSRs. Runways 6R and 6L are also equipped with 3-bar VASI systems. In addition, Runway 6R is equipped with TDZ lights. Runway 24R is equipped to accommodate Category II and Category III aircraft instrument approaches in weather conditions as low as 600 feet RVR and zero cloud ceiling.

Runway 6L/24R is directly connected to Runway 6R/24L with six crossover taxiways (from east to west, Taxiways V, W, Y, Z, AA, and BB). There is no center parallel taxiway between the runways. There are two taxiways that parallel the runways. Taxiway E is located south of

Runway 6R/24L. Taxiway D is located south of Taxiway E, but does not parallel the entire length of the North Airfield runways.

3.2.3 Central Terminal Area and Midfield Complex

The proposed Project would not involve the Central Terminal Area (CTA) or Midfield complex. For the purpose of providing a complete environmental setting, basic information about this area is provided below. The CTA contains nine terminals (eight domestic and one international, including the newly opened Bradley West concourse). The CTA contains parking garages, a two-level roadway system, the Theme Building, and administrative offices. The Midfield complex includes hangars, remote gates, service facilities, Aircraft Rescue and Fire Fighting (ARFF) facilities, and a fuel farm.

3.2.4 Cargo Complexes

The airport has three areas of concentrated cargo facility development. The Century Cargo Complex is located between Century Boulevard and the South Airfield complex, east of the CTA. The Imperial Cargo Complex is located on the northwest corner of the Imperial Highway/Aviation Boulevard intersection. The South Cargo Complex is located along the north side of Imperial Highway, which serves as the southern boundary of the Airport. The proposed Project would involve improvements apron pavement in the Century Cargo Complex, north of Taxiway C, between Taxiway C1 and Air Freight Building No.8.

3.3 Project Site

3.3.1 Existing Runway Safety Areas

3.3.1.1 Introduction

LAX is a critical component of the transportation network in Southern California, the United States, and internationally. Therefore, it is the objective of the City of Los Angeles, LAWA, and FAA to ensure safety at LAX facilities for all users of the Airport. The RSA is an integral part of the runway operational safety environment. The intent of the RSA is to reduce the number of instances of runway excursions, including incidents with fatalities.

FAA defines the RSA as “a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of undershoot, overshoot, or excursion from the runway” (FAA AC 150/5300-13A, *Airport Design*). An additional safety-related function is to provide greater accessibility for firefighting and emergency rescue vehicles during such incidents. The dimensional requirements for RSAs are found in FAA AC 150/5300-13A, *Airport Design*, and are based on the runway’s Airport Reference Code (ARC). The ARC is based on the Aircraft Approach Category (AAC) and airplane design group (ADG) for which the runway was designed. The AAC, represented by letters A through D, is generally defined as the speed (measured in knots) at which the aircraft approaches the runway. The ADG refers to the type of aircraft that utilize a runway, represented by Roman numerals I through VI, which are based on aircraft wingspan measurement (**Table 3-3**).

Table 3-3

Airport Reference Codes

Aircraft Approach Category	Aircraft Approach Speed
A	Less than 91 knots
B	91 knots or more but less than 121 knots
C	121 knots or more but less than 141 knots
D	141 knots or more but less than 166 knots
E	166 knots or more
Airplane Design Group	**Aircraft Wingspan In Feet (In Meters)**
I	0 up to but not including 49 (15)
II	49 (15) up to but not including 79 (24)
III	79 (24) up to but not including 118 (36)
IV	118 (36) up to but not including 171 (52)
V	171 (52) up to but not including 214 (65)
VI	214 (65) up to but not including 262 (80)

Source: Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, September 28, 2012.

All runways at LAX, including Runway 7L/25R, have an ARC designation of D-V. The standard RSA for an ARC D-V runway is 500 feet wide (centered on the runway centerline) and extends 1,000 feet beyond the physical end of the runway. The RSA length prior to a landing threshold is 600 feet.[5]

In addition to dimensional requirements, FAA airport design standards require that RSAs are:[6]

- Cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations;
- Drained by grading or storm sewers to prevent water accumulation;
- Capable, under dry conditions, of supporting snow removal equipment, ARFF equipment, and the occasional passage of aircraft without causing damage to the aircraft; and,
- Free of objects, except for objects that need to be located in the runway safety area because of their function.

Based on the requirements of P.L. 109-115, the FAA requested that LAWA evaluate and determine whether the runways at LAX meet current FAA RSA design standards.

5 The standard RSA length may be reduced to “a standard RSA length prior to a landing threshold” if a standard Engineered Materials Arresting System (EMAS) is provided and either instrument or vertical guidance are provided for approaches in the opposite direction.

6 Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, September 28, 2012.

3.3.1.2 North Airfield

On the North Airfield, RSAs associated with Runways 24R, 24L, and 6R do not meet applicable RSA design standards. The evaluation of the North Airfield RSA improvements is being prepared separately from the RSA improvements associated with Runway 7L/25R, which are addressed in this Draft EIR.

3.3.1.3 South Airfield

Runway 7R/25L, the southernmost runway at LAX, was relocated in 2008 to reduce runway incursions and was designed to meet FAA airport design standards.[7]

LAWA prepared an RSA Practicability Study for Runway 7L/25R that included evaluations of RSA alternatives.[8] As part of this effort, LAWA established an RSA Study Working Group to provide input and evaluate the various RSA alternatives and to ensure that the needs of the various airport users were considered. The RSA Study Working Group was comprised of representatives from various divisions within LAX, FAA, and airlines operating at LAX.[9] The Study concluded that Runway 7L/25R RSA does not meet FAA standards and that improvements to the RSA were needed.[10]

As shown in **Table 3-4**, the existing Runway 7L RSA is 289 feet short of the FAA RSA standard length of 1,000 feet beyond the runway end and the existing Runway 25R RSA is 832 feet short of the same 1,000-foot RSA standard length. The Runway 7L/25R RSA is 500 feet wide along its entire length, consistent with FAA RSA design standards as shown in **Figure 3-2**.

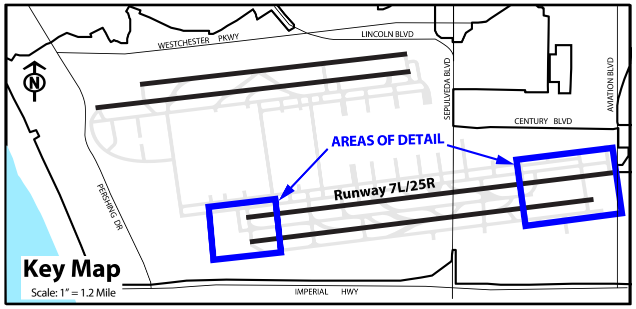
Table 3-4

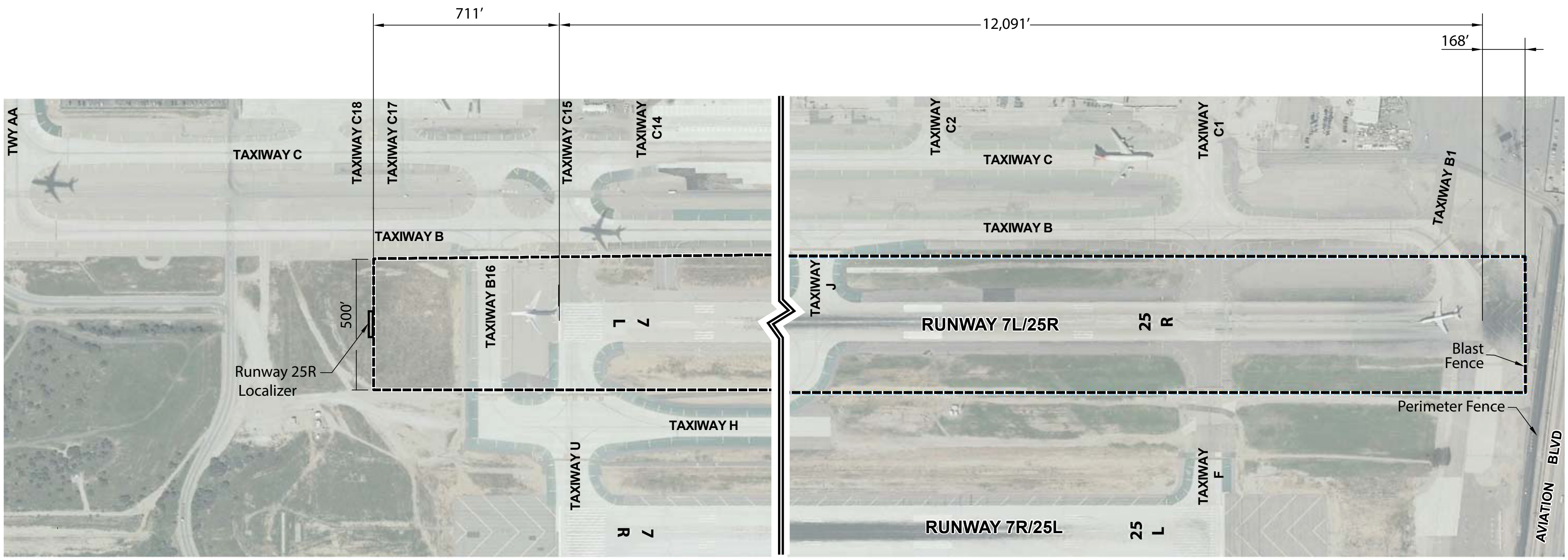
Existing LAX Runway 7L/25R RSAs Compared to FAA RSA Standards

	FAA RSA Standards for ARC D-V Runways (feet)		Existing Runway RSAs (feet)			
Runway End	**Width**	**Length Beyond Runway End**	**Width**	**Length Beyond Runway End**	**Deficient Width**	**Deficient Length**
7L	500	1,000	500	711	N/A	-289
25R	500	1,000	500	168	N/A	-832

Source: City of Los Angeles, Los Angeles World Airports, *Runway 7L/25R Safety Area (RSA) Practicability Study*, prepared by Ricondo and Associates, Inc., December 2009.

7 City of Los Angeles, Los Angeles World Airports, *South Airfield Improvements Project EIR*, 2006.
8 City of Los Angeles, Los Angeles World Airports, *Runway 7L/25R Safety Area (RSA) Practicability Study*, prepared by Ricondo and Associates, Inc., December 2009.
9 *Ibid*.
10 *Ibid*.





Sources: *Runway 7L-25R Safety Area (RSA) Practicability Study for Los Angeles International Airport* (Ricondo & Associates, December 2009); ESRI Maps & Data January 2012 ; Prepared by: URS Corporation.

FIGURE 3-2

Existing Runway 7L/25R RSA

Environmental Impact Report
Runway 7L/25R RSA and
Associated Improvements Project

3.3.2 Existing Pavement Conditions

Most aircraft that utilize the South Airfield for departure begin that process on Runway 25R and its connecting taxiways **(Figure 3-3)**. As such, this section of runway and its associated taxiways handle a large amount of traffic. The Runway 25R pavement and the pavement on the east end of Taxiway B were constructed in 1986. The current Pavement Condition Index (PCI) rating for these pavements varies from 0 to 70, indicating that sections of the runway and taxiway pavements are in a poor (0) to fair (70) condition.[11] Through implementation of the proposed Project, LAWA intends to reconstruct sections of the concrete surfaces that are in poor condition on the eastern side of Runway 7L/25R and the existing pavement on Taxiway B. Approximately 1,225 feet of the eastern portion of Runway 25R and 2,128 feet of the eastern portion of Taxiway B would have their entire existing pavement (full width, six-foot depth) demolished and reconstructed. Additionally, another 1,600 feet of Runway 25R's keel (or center) section would be demolished and reconstructed, and another 6,447 feet of Runway 25R's keel section would have its surface reconstructed. Details regarding the pavement reconstruction of Runway 7L/25R and Taxiway B are provided in Section 2.4.2 of this Draft EIR.

3.4 Land Use Setting

The Airport is located on the western end of the Los Angeles Basin and is bounded on the north by the City of Los Angeles communities of Westchester and Playa Del Rey (which form the Westchester-Playa Del Rey Community Plan Area), on the east by the City of Inglewood and the community of Lennox (unincorporated Los Angeles County), to the south by the City of El Segundo and the community of Del Aire (unincorporated Los Angeles County), and to the west by the Pacific Ocean (**Figure 3-1**).

The Project site is located on the South Airfield at LAX (**Figure 3-1**) in the City of Los Angeles, generally south of Westchester Parkway, west of I-405, north of Imperial Highway, and east of Pershing Drive.

The Project site is located within the area of the LAX Plan, which is one of 35 Community Plans that are part of the Land Use Element of the City of Los Angeles General Plan. The LAX Plan is intended to promote an arrangement of airport uses that encourages and contributes to the modernization of the Airport in an orderly and flexible manner within the context of the City and region. It provides goals, objectives, policies, and programs that establish a framework for the development of facilities that promote the movement and processing of passengers and cargo within a safe and secure environment. The LAX Plan is intended to allow the Airport to respond to emerging new technologies, economic trends, and functional needs. This plan also includes the area known as Manchester Square and the Airport Northside Area, which are all part of the Project Study Area.[12] Land uses in the LAX property are divided into Airport Airside, Airport Landside, and LAX Northside sub-areas.

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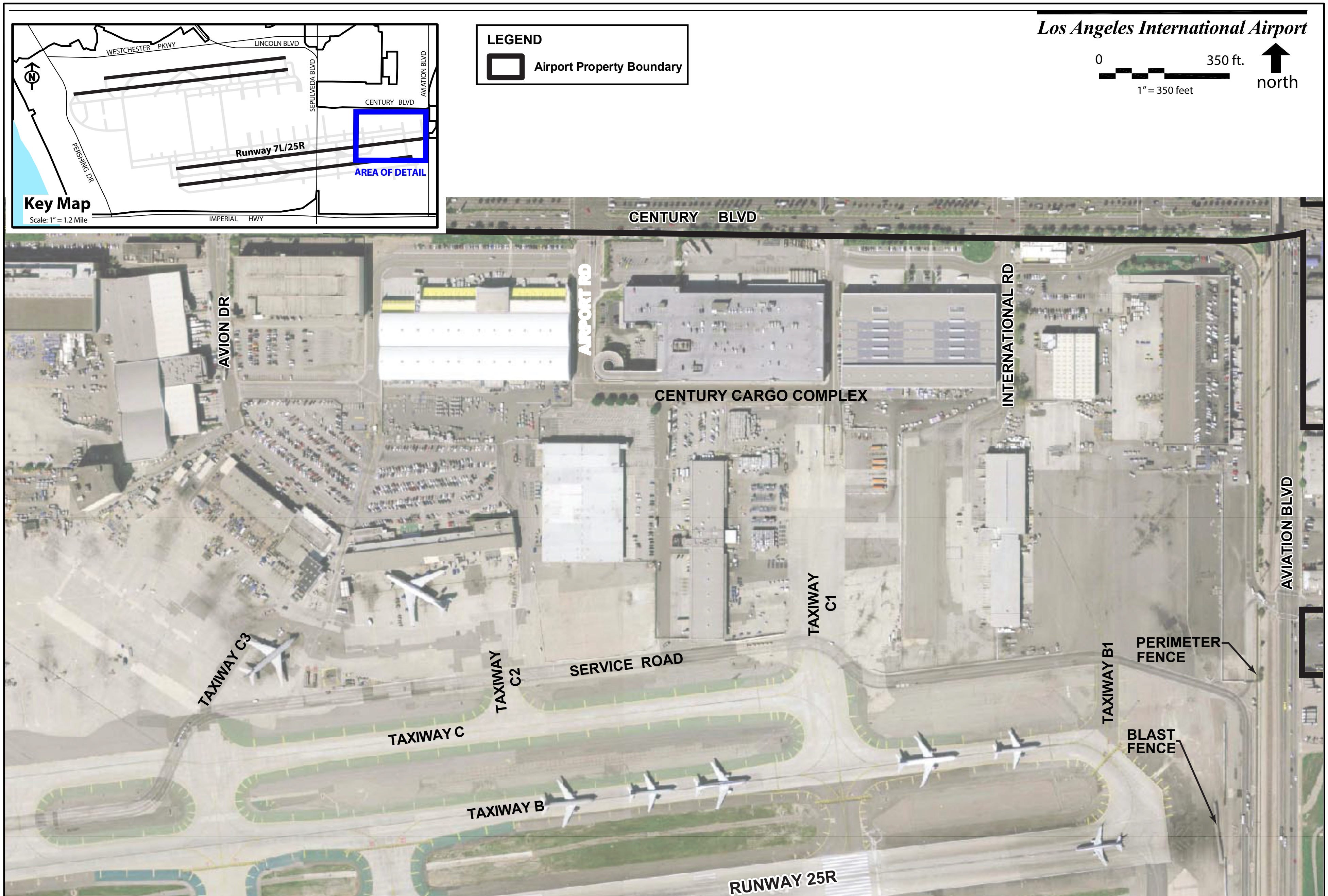
[11] HNTB, *Runway 25R & Taxiway B East End Rehabilitation and Taxiway C Extension Preliminary Engineer's Report*, 2011.

[12] City of Los Angeles, *LAX Plan*, September 2004.



Sources: *Los Angeles International Airport Layout Plan*, December 2009; ESRI Maps and Data, January 2012; Prepared by: URS Corporation.

FIGURE 3-3	**Existing Eastern End of Runway 25R and Taxiway Complex**	**Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project**

The currently adopted LAX Plan land use designation for the majority of the Project site is Airport Airside (the proposed construction staging area at the northeast corner of the Aviation Boulevard/Imperial Highway intersection is classified as Airport Landside). This land use designation provides for passenger and cargo movement that are associated with aircraft operating under power and related airfield support services. Allowable uses within the Airport Airside designated area include four runways, taxiways, aircraft gates, maintenance areas, airfield operation areas, air cargo areas, passenger handling facilities, fire protection facilities, and other ancillary airport facilities.[13]

The Airport is also governed by the LAX Specific Plan, which achieves the goals and objectives of the LAX Plan through zoning and development standards, and contains specific provisions for the Project site. The LAX Specific Plan also establishes the procedures for processing future specific projects and activities anticipated under the LAX Master Plan. The currently adopted LAX Specific Plan zoning for the Project site is LAX-A Zone Airport Airside. The purpose of the LAX-A Zone is to allow for the safe and efficient operation of airfield activities. Permitted uses include those permitted in the C2 and M2 Zones (Sections 12.14 and 12.19 of the Los Angeles Municipal Code), as well as additional uses listed in the LAX Specific Plan.[14] Although the Project site is governed by the LAX Specific Plan, it is not being re-evaluated as part of the *2006 Stipulated Settlement Agreement* between the City of Los Angeles and the petitioners concerning the LAX Master Plan. The Specific Plan Amendment Study (SPAS) was the subject of a separate environmental analysis pursuant to CEQA.

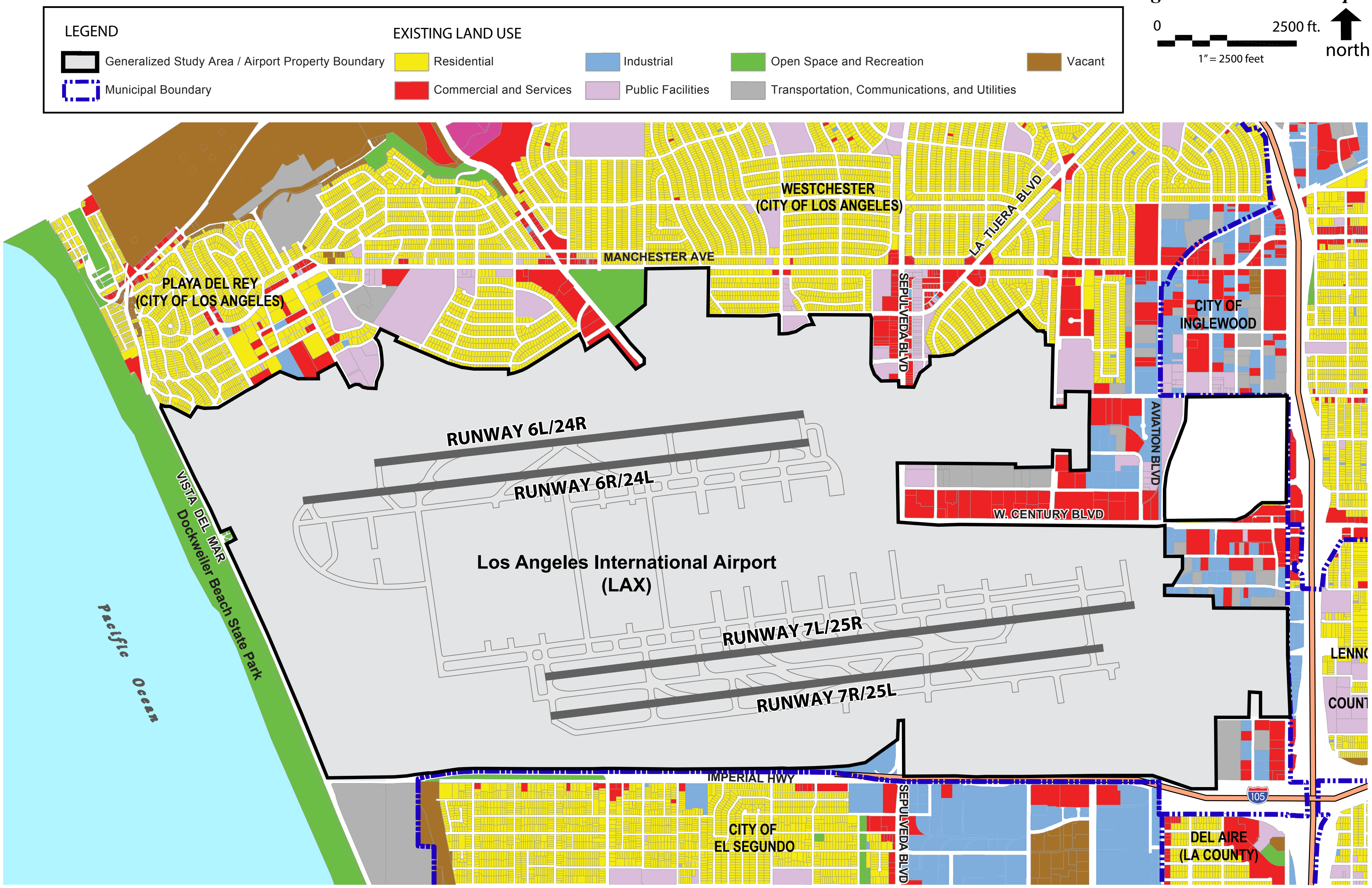
3.4.1 Project Site Land Uses

The Project site is surrounded by Airport facilities and Airport-related uses to the south and east (Figure 2-2). Areas to the north and west are open Airport land used for runway safety areas, security fencing and service roads, drainage, construction laydown, and the El Segundo Blue Butterfly Habitat Restoration Area. This area serves as a buffer between LAX and Dockweiler Beach State Park on the west.

3.4.2 Surrounding Land Uses

To the north and south of the Airport, within the Cities of Los Angeles and El Segundo, land use is dominated by single-family residential use with commercial and light industrial uses concentrated along major corridors, including Lincoln Boulevard, Sepulveda Boulevard, and Imperial Highway (**Figure 3-4**). To the east, land uses are primarily commercial and industrial, with many airport accessory uses such as hotels, car rental businesses, parking lots being concentrated on Sepulveda Boulevard, Century Boulevard, Aviation Boulevard, and Arbor Vitae Avenue/98th Street in the cities of Los Angeles and Inglewood.

[13] City of Los Angeles, *LAX Plan*, September 2004.
[14] City of Los Angeles, *LAX Specific Plan*, September 2004.



Source: LAWA, 2012; ESRI Maps and Data, January 2012; Southern California Association of Governments 2008; Prepared by: URS Corporation.

FIGURE 3-4

Existing Surrounding Land Uses

3.5 Environmental Setting

This section provides an overview of the physical and environmental setting at the Project site, as it existed at the time the Notice of Preparation (NOP) was published (October 2012), in compliance with State CEQA Guidelines Section 15125(a). Additional information regarding the environmental setting is provided in the discussion of each resource area in Chapter 4 Environmental Impact Analysis for those resources which are evaluated further in this Draft EIR. For those resources areas which were found to have no or less than significant effects in the Initial Study (IS), the existing settings are summarized in Chapter 5 Other CEQA Considerations.

3.5.1 Aesthetics

The Project site is located directly south of the LAX CTA. The majority of the Project site is characterized by airport development. A majority of this development is runway or associated taxiways, which are two-dimensional. Three-dimensional elements in the Project site include runway approach lights in towers (Refer to Figure 2-5). The Airport and most of the Project site is generally flat, although it follows the general southeastern sloping of the Los Angeles Basin in this area. The proposed staging area contains portions where the land has been previously excavated. The Project site has been extensively disturbed by development activities and its visual character is dominated by Airport facilities, level, graded surfaces, and paved runways.

The visual character in the vicinity of the Airport is highly urbanized and primarily characterized by residential and commercial development on the north; hotel, airport-support, and commercial development on the east; residential, commercial, and industrial development on the south; and open space on the west (**Figure 3-4**). High-rise development (more than three stories) is limited to the east of the Project Study Area (hotels and commercial buildings between the approach paths of the North and South Airfields) and south of the Project Study Area, east of the I-105 terminus (aerospace industries). Otherwise, the surrounding area is primarily low-rise, with structures of 1 to 2 stories. There are hills located north, west, and south of the Airport, along Westchester Parkway, S. Pershing Drive, and Imperial Avenue, respectively. Residences located on hilltops have views of the Airport.

Lighting is used throughout the Project Study Area and on the Airport to support existing operations during nighttime periods, and other periods of low visibility. Lighting at the Airport consists of in-pavement lights along taxiways and runways, and lights mounted on towers used for the ALS (Refer to Figure 2-5). Lighting shielding in the Airport is currently implemented per the LAX Master Plan Final EIS/EIR mitigation commitments.[15]

3.5.2 Air Quality

The existing air quality setting in the Project site is dominated by emissions related to aircraft activities, vehicles on surrounding roads and highways, and surrounding land uses, including industrial and commercial uses. Sources of existing air pollutant emissions on the Project site include aircrafts, aircraft support vehicles, and employee and visitor transportation vehicles. The Project site is part of the South Coast Air Basin, which is a sub-region of the South Coast Air

[15] City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004.

Quality Management District's (SCAQMD) jurisdiction and includes all of Orange County and the urban, non-desert portions of the counties of Los Angeles, Riverside, and San Bernardino. At the federal level, the South Coast Air Basin is designated as a nonattainment area that does not meet National Ambient Air Quality Standards (NAAQS) for ozone (O_3), respirable particulate matter (PM_{10}), fine Particulate matter ($PM_{2.5}$), and lead (Pb). At the state level, the South Coast Air Basin is designated as a nonattainment area that does not meet California Ambient Air Quality Standards (CAAQS) for O_3, PM_{10}, $PM_{2.5}$, Pb, and nitrogen dioxide (NO_2). A more detailed environmental setting for Air Quality is presented in Chapter 4.1 Air Quality.

3.5.3 Biological Resources

LAX and the area surrounding the Project site have been extensively studied for the presence of species and habitats of special concern. The Project site is primarily developed with airport-related uses. According to previous studies and field research, no species or habitats of special concern have been found or observed in the Project site. The Project site primarily contains non-native grassland and disturbed/bare ground land cover types that are modified and maintained by LAX in order to comply with FAA mandates for safe airport operations.[16] Maintenance activities include elimination of standing water, controlling and reducing vegetation through mowing and disking, and reducing wildlife attractants.

The El Segundo Blue Butterfly, a federally-listed endangered wildlife species, is not present within the footprint of the proposed Project.[17] The species is found on coastal dunes of the entire Los Angeles/El Segundo Dunes and in the El Segundo Blue Butterfly Habitat Restoration Area approximately 3,345 feet west of the Project site. There is no critical habitat for this species within the Project site.

In the past, Riverside fairy shrimp cysts were found in soil samples taken during dry-season sampling at nine Ephemeral Wetland (EW) areas within the LAX Airport Operations Area (AOA). Two of the EW areas (identified as EW 15 and EW 16) are located approximately 650 feet southwest of the Project site. Subsequent to certification of the LAX Master Plan Final EIS/EIR, the Riverside fairy shrimp at LAX were removed in accordance with two U.S. Fish and Wildlife Service (USFWS) Biological Opinions.[18] On April 12, 2005, the USFWS excluded LAX from critical habitat for Riverside fairy shrimp because the primary constituent elements required for the Riverside fairy shrimp to complete its life cycle are not met at LAX.[19] Additional details, including database lists of species and habitats, are provided in the Biological Technical Report included as Appendix F of this Draft EIR.

3.5.4 Cultural Resources

The nearest building in the general vicinity of the Project site that meets the typical criteria for historic structures (i.e., 50 years old, possessing significance in American/California history and culture, architecture, or archaeology at the national, state, or local levels) is the LAX Theme Building. The LAX Master Plan Final EIR/EIS reports six archaeological sites (four of which were also reported by the South Central Coastal Information Center (SCCIC)) and two isolates

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16 Federal Aviation Administration, in cooperation with the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, *Wildlife Hazard Management at Airports, Second edition*, July 2005.

17 City of Los Angeles, Los Angeles World Airports, *Final Environmental Impact Statement/Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements, SCH#1997061047*, April 2004.

18 City of Los Angeles, Los Angeles World Airports, *Draft Environmental Impact Report, LAX Bradley West Project, SCH#2008121080*, May 2009.

19 *Ibid*.

(also reported by the SCCIC) within the search area, of which one is within the Area of Potential Effect (APE). However, in letters dated September 20, 2012 and August 2, 2013, the State Historic Preservation Officer (SHPO) concurred that there are no known historic or archaeological resources that would be affected by the proposed Project (Refer to Appendix E of this Draft EIR). For paleontological resources, a record search by the Natural History Museum of Los Angeles County revealed that no fossils have been previously collected from within the Project site. However, there are vertebrate fossils recorded from the same type of sediments within a one-mile distance of the Project site. Additional details are provided in the Cultural Resources Technical Report included as Appendix E of this Draft EIR.

3.5.5 Geology and Soils

Regionally, the Project site is located in the Los Angeles Coastal Plain. The geomorphology of the Project site and vicinity is a coastal plain of the Los Angeles basin. The Los Angeles basin is bounded on the north by the Santa Monica Mountains, on the east by the Santa Ana Mountains and associated hills, on the south by the San Joaquin Hills and the Pacific Ocean, and on the west by the Palos Verdes Hills and the Pacific Ocean. Locally, the Project site lies entirely on the physiographic area known as the El Segundo Sand Hills, an ancient floodplain. The El Segundo Sand Hills overlap onto the relatively flat Torrance Plain to the east of the Project site and both physiographic areas continue south from the Project site.

3.5.6 Greenhouse Gas Emissions

The primary greenhouse gas (GHG) emission sources at the Project site are emissions of carbon dioxide (CO_2) from combustion of fuels associated with aircraft use, area traffic, and lighting operations. Mobile and area sources and indirect emissions from energy and water use, wastewater, and waste management also contribute to the Project site’s GHG emissions. A more detailed environmental setting for GHG is presented in Chapter 4.2 Greenhouse Gas Emissions.

3.5.7 Hazards and Hazardous Materials

The types, characteristics, and occurrences of hazardous materials and other regulated substances at LAX are typical of large metropolitan airports that offer commercial and cargo services. These services include the fueling, servicing, and repair of aircraft, GSE, and motor vehicles; the operation and maintenance of the airfield, main terminal complex and parking facilities; and a range of other special-purpose facilities and operations connected with aviation (i.e., air cargo facilities, navigation and air traffic control functions). Off-airport activities within the Project Study Area include a mixture of industrial, commercial, and warehousing activities.

The substances that are used in large quantities at LAX that are classifiable as hazardous include aircraft and motor vehicle fuels. Other, smaller amounts of petroleum-products (e.g., lubricants and solvents), waste materials (e.g., used oils, filters, cleaning residues, and spent batteries) and manufactured chemicals (e.g., herbicides, fertilizers, paints, fire-fighting foam, deicing fluids) are stored in various locations throughout the Airport. These materials and substances are characteristically used on a routine basis in support of aircraft, GSE, and motor vehicle maintenance activities and for a range of other similar functions to operate the Airport and to meet aviation safety requirements.

Several sites and facilities at LAX and off-airport are known, or have the potential to contain hazardous materials and/or other regulated substances. Others sites and facilities have been identified as confirmed hazardous waste release sites, and have been included in several federal and state databases. These databases form the basis for the identification of hazardous waste sites in the Project Study Area.[20] The databases include known hazardous materials release sites, generators of hazardous waste(s), and underground storage tank (UST) sites. These databases identified a total of 71 sites listed within the Project Study Area that would potentially be disturbed during construction of the proposed Project or its alternatives. Of these, 12 are located in areas adjacent to the Project site. However, there are no hazardous waste sites located within the Project site. A more detailed environmental setting for Hazards and Hazardous Materials is presented in Chapter 4.3 Hazards and Hazardous Materials.

3.5.8 Hydrology and Water Quality

The Project site contains primarily impermeable surfaces related to existing developments such as runways, taxiways, aprons, and service roads. Surface water discharge from the Project site goes to both City of Los Angeles and County of Los Angeles flood control and drainage structures that empty into Santa Monica Bay. The Project site uses the Imperial and Dominguez Channel Sub-Basins. The Imperial Sub-Basin drains west of Sepulveda Boulevard and discharges directly into Santa Monica Bay. The Dominguez Channel Sub-Basin drains into the Dominguez Channel and ultimately into the San Pedro Harbor.

Existing water quality pollutants from the Project Study Area includes typical discharges from aircraft and related vehicle operations. No 100-year floodplain areas are located within the Project site. A more detailed environmental setting for Hydrology and Water Quality is presented in Chapter 4.4 Hydrology and Water Quality.

3.5.9 Noise

The existing noise environment at and around the 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.

The dominant source of noise heard on the Project site is related to aircraft operations at LAX. Sources of noise heard on the Project site also include secondary roadways and point (or stationary) sources of noise associated with existing airport-support uses on-site. LAX has a system of continuously-operating monitors that record noise levels at 38 locations in the vicinity of the Airport. Based on the second quarter of the 2012 LAX Community Noise Equivalent Level (CNEL) contours, the Project site is generally exposed to airport noise levels of 75 dB CNEL. Noise data from noise monitors combined with the most recent LAX CNEL contours indicate that the existing cumulative noise exposure at the nearest noise-sensitive areas in El Segundo south of Imperial Highway approach 75 dBA CNEL. The nearest noise-sensitive area to the Project site consists of residential uses in the City of El Segundo, south of the Airport, multi-family homes along Century Boulevard just east of Aviation Boulevard and a small area east of the Airport containing hotels and single-family homes at the northeast corner of South La Cienega Boulevard and West 104th Street. The closest noise-sensitive land uses to Runway 25R, near the pavement reconstruction component of the proposed Project, include multi-family homes along Century Boulevard just east of Aviation Boulevard and pockets of single- and multi-family homes west of I-405. The homes along Century Boulevard are currently exposed to aircraft noise levels of approximately 65 to 72 dB CNEL. Airport noise exposure at the homes

[20] GeoTracker website, http://geotracker.waterboards.ca.gov/default.asp, Accessed January 2012.

west of I-405 is in the range of 65 to 68 dBA CNEL. A more detailed environmental setting for Noise is presented in Chapter 4.5 Noise.

3.5.10 Population and Housing

The Project site consists entirely of developed land uses. Existing uses include aircraft and airport operations. There are no existing residential uses within the Project site and, therefore, no existing housing units or households are present. As discussed in the land use setting and noise setting above, residential uses are primarily located to the north and south of the Project site, with a small amount of residences in the Manchester Square area to the east of LAX. According to the 2010 US Census, there are approximately 6,500 persons living in the Census tracts that are directly adjacent to LAX.

3.5.11 Public Services

The City of Los Angeles Fire Department (LAFD) provides fire protection services to the Project site. Four LAFD stations serve the Project site and surrounding vicinity, and include Fire Stations Number 5, 51, 80, and 95. Fire Station Number 80 only responds to incidents at LAX and not within the neighboring communities, except in response to aircraft incidents off the Airport property. Fire Stations Number 5 and 95 serve portions of the neighboring communities as well as LAX, and Fire Station Number 51 serves Dockweiler Beach State Park in addition to a majority of LAX. Fire Station Number 5 provides structural fire backup to the on-airport fire stations, while also serving the Project site.

The LAWA Police Department (LAWAPD) provides law enforcement services, preliminary crime investigations, aircraft safety and traffic enforcement, security services, and emergency response on airport property; whereas LAPD retains primary duties to provide criminal investigation and enforce penal provisions of city, state, and federal codes. All LAWAPD and LAPD officers, with the exception of LAWAPD security officers, are sworn peace officers and have the power to arrest. LAWAPD security officers do not have peace officer status, but they can make citizen’s arrests.

Other public services located in the Project Study Area include two City of Los Angeles public parks (Carl E. Nielsen Youth Park and Westchester Golf Course). Within a quarter mile of the Project Study Area, there are 8 parks/areas of open space and 27 schools.

3.5.12 Transportation and Traffic

The traffic study area for the proposed Project is generally bound by I-405 to the east, I-105 and Imperial Highway to the south, Pershing Drive to the west, and Westchester and Howard Hughes Parkways to the north (**Figure 3-1**). The principal freeways and roadways serving as access routes within the Project Study Area are I-405 (San Diego Freeway), I-105 (Glenn M. Anderson/Century Freeway), Aviation Boulevard, Century Boulevard, Imperial Highway, La Cienega Boulevard, Pershing Drive, Westchester Parkway, Sepulveda Boulevard, and 111th Street.

Public transit service to the LAX area is provided by several municipalities, including the Los Angeles County Metropolitan Transportation Authority (Metro), Beach Cities Transit, City of Los Angeles Department of Transportation (LADOT), Torrance Transit, Culver City Transit, and the Santa Monica Big Blue Bus. These transit providers have various bus stops near the Airport, including at the LAX City Bus Center located on the north side of 96th Street between Airport Boulevard and Sepulveda Boulevard and at the Green Line Light Rail Aviation/LAX Station located on the Southeast corner of Aviation Boulevard and Imperial Highway. Passengers at the 96th Street LAX City Bus center can access the airport terminals by using LAWA-operated shuttles in the adjacent Parking Lot C at no charge. Similarly, passengers at the Aviation/LAX Light Rail Station can access the airport terminal by using the LAWA-operated "G" shuttle bus at no charge. LAWA also operates FlyAway shuttle service between the LAX CTA and Union Station in downtown Los Angeles, Van Nuys, Westwood and the Exposition Light Rail Line at the LA Brea Station.

There is no public transit service to most of the Project site, as it has restricted access. A more detailed environmental setting for Traffic and Transportation is presented in Chapter 4.6 Traffic and Transportation.

3.5.13 Utility and Service Systems

The City of Los Angeles' wastewater service area consists of two distinct drainage basin areas: the Hyperion Service Area and the Terminal Island Service Area. As the Project site is located in the Hyperion Service Area it is served by the Hyperion Treatment Plant. Wastewater is delivered to the Hyperion Treatment Plant through five major sewer lines, four of which are scheduled to receive wastewater discharge from LAX, including the Project site. Two of the sewer lines, the North Central Outfall Sewer and North Outfall Relief Sewer, pass under the Project site.

The City of Los Angeles Department of Water and Power (LADWP) is the water purveyor for most areas in the City of Los Angeles, including the Project site. Water for the LADWP service area comes primarily from purchased Metropolitan Water District imports, the Los Angeles Aqueducts, and local groundwater. LAX, including the Project site, receives water through a 36-inch trunk line in Sepulveda Boulevard.

The City of Los Angeles Bureau of Sanitation and a number of private companies provide solid waste disposal and recycling services within the City of Los Angeles. There are 13 major landfills currently accepting municipal solid waste in the County of Los Angeles. The Project site is served by the Consolidated Disposal Service, a City-permitted private waste hauler.

Electric power within the City of Los Angeles, including the Project site, is supplied by LADWP. Coal provides the single largest source of power to LADWP, followed by purchased power, oil, natural gas, nuclear, and hydroelectricity. The Project site is located in LADWP's Receiving Station N service area, which is served by four 138-kilovolt underground transmission lines. Power is distributed from the Receiving Station N to distributing stations in the vicinity of the Project site.

3.6 Related Projects

Sections 15126 and 15130 of the State CEQA Guidelines provide that EIRs consider the significant environmental effects of a project as well as "cumulative impacts." Cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA Guidelines Section 15355). Cumulative impacts may be analyzed by considering a list of past, present, and probable future projects producing related or cumulative impacts or a summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect (CEQA Guidelines Section 15130 [b][1][A][B]). The analysis of cumulative impacts need not be as in-depth as what is performed relative to the proposed Project, but instead is to "be guided by the standards of practicality and reasonableness (CEQA Guidelines Section 15130 [b])."

As the proposed Project is wholly contained within the LAX airfield, the cumulative impacts analysis presented in this Draft EIR identifies and addresses specific projects at LAX that could produce a cumulative impact on the local environment when considered in conjunction with the proposed Project. For an analysis of the cumulative impacts, refer to Chapter 5 Other CEQA Considerations of this Draft EIR.

Spatial and temporal boundaries were delineated to ascertain appropriate parameters for analysis of cumulative effects. Projects considered in this evaluation meet three criteria:

- The proposed Project has the potential for impacts to all or some of the resource categories evaluated in this Draft EIR;
- The spatial boundary includes a geographic area close enough to the Project site that there may be a potential for it and the proposed Project to have additive impacts to any resource category; and,
- The temporal scope includes projects that have occurred or will occur in a timeframe similar to that of the proposed Project, such that there is the potential for additive impacts on any resource category.

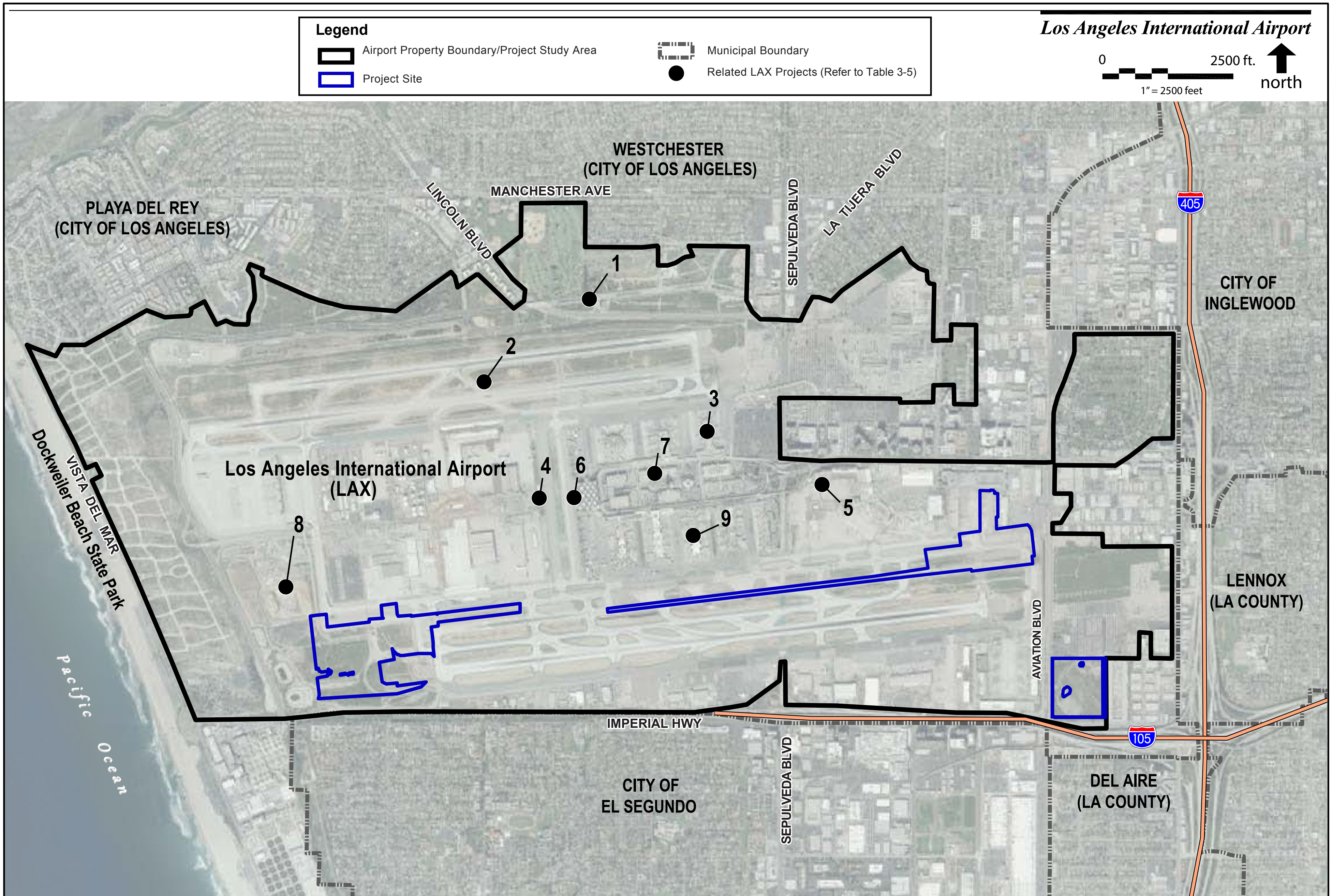
Table 3-5 lists and describes past, present, and reasonably foreseeable future on-Airport projects that have been considered for potential cumulative impacts in the resource categories evaluated. **Figure 3-5** shows where these related projects are relative to the Project site.

Table 3-5

On-Airport Related Projects

Figure 3-5 ID#	Project Name	Estimated Year: Start of Construction	Estimated Year: Completion/ Implementation
1	LAX Northside Plan	2015	2022
2	North Airfield RSA Improvements	2014	2019
3	North Terminals Improvements	2013	2017
4	Midfield Satellite Concourse: Phase 1 - North Concourse	2014	2020
5	American Eagle Commuter Facility Improvements	2011	2012
6	LAX Bradley West Project (Terminal Building)	2009	2013
6	LAX Bradley West Project (Remaining Work)	2013	2017
7	Central Utility Plant Replacement Project (CUP - RP)- Remaining Work	2014	2014
8	West Aircraft Maintenance Area Project	2014	2018
9	South Terminals Improvements	2011	2018
N/A[a]	LAX Master Plan Alt. D/SPAS Development [b]	2015	2025
N/A[a]	Miscellaneous Improvements and Projects	2014	2020

Notes:
[a] These improvements and projects would occur in various places on the landside and airside portions of LAX.
[b] LAWA evaluated nine development alternatives for the LAX Specific Plan Amendment Study and in February 2013 the Board of Airport Commissioners (BOAC) selected one alternative; however, all the approvals necessary to implement that alternative have not yet occurred. For the purposes of the WAMA cumulative construction impacts analysis, an assumption is made that the LAX Master Plan improvements, as previously approved, are implemented, which provides a more conservative analysis that if one were to assume the BOAC-selected alternative (i.e., more development would occur under the LAX Master Plan scenario than under the BOAC-selected alternative.
Source: LAWA and Ricondo and Associates, Inc., 2013.



Source: LAWA, 2013; URS Corporation, 2013; ESRI Maps & Data, May 2013; Prepared by: URS Corporation.

FIGURE
3-5

Related LAX Projects

Environmental Impact Report
Runway 7L/25R RSA and
Associated Improvements Project

3.6.1 On-Airport Related Projects

- **American Eagle Commuter Facility Improvements (Table/Figure 3-5 #5)** – The project being proposed is a new lease with American Airlines concerning regional aircraft operations (commuter facility) at LAX. The lease is proposed to include provisions relating to the improvement of existing facilities at the project site by American Airlines. These improvements consist of a new passenger holdroom facility (passenger terminal), upgrades to four existing gates, and related support structures. This project was started in 2011 and completed in 2012.
- **Bradley West Project (Table/Figure 3-5 #6)** – Replacement of existing concourses and aprons at the Tom Bradley International Airport (TBIT), including addition of gates designed to accommodate Aircraft Design Group (ADG) VI aircraft, such as the Airbus A380 and the Boeing 747-8, along the west side of concourse and modernization/improvement of the existing TBIT core. Secure/sterile passenger and baggage connections between the TBIT core and Terminals 3 and 4 are also included. The Bradley West Project is currently under construction, with concourse/gates and terminal improvements projected to be completed in 2013-2014. The Terminal 4 connector to TBIT is currently in design and is scheduled to be completed in 2015. The Bradley West Project was preceded by the TBIT Interior Improvements Program, completed in 2010.
- **Bradley West Project (Remaining Work) (Table/Figure 3-5 #6)** – Completion of replacing existing concourses and aprons at the TBIT with new concourses and gates at Bradley West. Remaining work includes demolition of existing TBIT concourses and installation of east gates/aprons along Bradley West concourses. Also includes Taxiway T project and construction of secure/sterile passenger and baggage connection between the TBIT core and Terminal 4 (T-4). Although construction of similar connection between TBIT core and T-3 is also part of the overall Bradley West Project, it is broken out separately below, as its construction would not begin until well after the other Bradley West improvements are completed.
- **Central Utility Plant (CUP) Replacement Project – Remaining Work (Table/Figure 3-5 #7)** – Completion of replacement CUP and related underground piping network within CTA.
- **LAX Master Plan Alternative D/SPAS Development** – In accordance with the LAX Master Plan Stipulated Settlement and Section 7.H. of the LAX Specific Plan, LAWA is completing the LAX Specific Plan Amendment Study (SPAS) to identify and evaluate alternatives to certain improvements delineated in the LAX Master Plan. Those proposed Master Plan improvements, generally referred to as the "Yellow-Light Projects," include the Ground Transportation Center (GTC), the Automated People Mover (APM) between the GTC and the CTA, demolition of Terminals 1, 2, and 3, reconfiguration of the north runway complex, and on-airport road improvements associated with the GTC. Nine alternatives comprised of various combinations of airfield, terminal, and ground access improvements are addressed within the SPAS Final EIR, and a Staff-Recommended Alternative (Combination of SPAS Alternatives 1 and 9) was approved by the LA City Council in April 2013. That alternative must still undergo review and approval by FAA in order to be implemented. As such, for related projects included in this EIR, the existing LAX Master Alternative D, which is SPAS Alternative 3, is assumed.
- **LAX Northside (Table/Figure 3-5 #1)** – Development of LAX Northside area with a mix of employment, retail, restaurant, office, hotel, research and development, education, civic, airport support, recreation, and buffer uses that support the needs of surrounding

communities and LAWA. The approved development plan provides entitlements for up to 4.5 million square feet of development, subject to a limitation on the total number of vehicle trips (a "trip cap"). Formulation of a new reduced land use development program for the subject area is currently in process, which will be followed by completion of environmental review studies. Schedule for development to be determined.

- **Midfield Satellite Concourse (MSC) Program (Table/Figure 3-5 #4)** – Development of north concourse portion of MSC west of the Bradley West Project, along with construction of a connection system for moving passengers, baggage, and materials between MSC, Bradley West, and the CTA.
- **Miscellaneous Projects and Improvements** – This includes a wide variety of smaller miscellaneous projects and improvements mostly related to repair/replacement of, and upgrades to, existing facilities at LAX, including, but not limited to, runway repair/ rehabilitation, elevators/escalators replacement, CTA second level roadway repairs, terminal taxilanes and aprons rehabilitation, passenger boarding bridge replacements, terminals electrical, plumbing, and facilities upgrades, miscellaneous demolition, and more.
- **North Airfield RSA Improvements (Table/Figure 3-5 #2)** – This project consists of improvements at east end of Runway 6L/24R to meet FAA RSA design requirements, and rehabilitate concrete pavement. In addition, this project includes improvements to the Runway 6R/24L RSA to meet FAA requirements, and runway rehabilitation including shoulders and limited taxiways.
- **North Terminals Improvements (Table/Figure 3-5 #3)** – Major interior improvements and building system upgrades within the North Terminal, particularly Terminal 1 (Southwest Airlines). Anticipated to be completed in 2017.
- **South Terminals Improvements (Table/Figure 3-5 #9)** – Major interior improvements and building system upgrades to Terminal 6 were completed in spring 2012 and similar improvements to Terminal 5 are underway. Improvements and modifications are also anticipated for Terminals 7 and 8. Anticipated to be completed in 2018.
- **West Aircraft Maintenance Area Project (Table/Figure 3-5 #8)** – The project entails the construction of approximately 200,000 square yards (41 acres) of aircraft apron that will tie into the west side of Taxiway AA south of World Way West Road and Taxiway B, and 100,000 square yards (21 acres) of area rough grading for proposed hangar and parking improvements, that may be developed by a third party. Associated ancillary improvements include: demolition of existing facilities; ground run-up enclosure; edge lighting, signage, flood lighting, wash rack and recycling system; RON kits (ground power, potable water, pre-conditioned air); vehicle charging stations; storm drainage; etc.

3.6.2 Other Related Projects

- **Metro Crenshaw/LAX Transit Corridor and Station** – Metro recently approved the proposed Crenshaw/LAX Transit Corridor Project, which includes an 8.5-mile light-rail transit line that would connect the existing Metro Green Line and the Metro Expo Line at Crenshaw and Exposition Boulevards. A station is proposed in proximity to LAX, near the intersection of Century Boulevard and Aviation Boulevard.

4.0 ENVIRONMENTAL IMPACT ANALYSIS

Chapter 4 presents the discussion of potential environmental impacts, including cumulative impacts, related to the following environmental topics in separate sub-chapters:

- 4.1 Air Quality
- 4.2 Green House Gas Emissions
- 4.3 Hazards and Hazardous Materials
- 4.4 Human Health Risk Assessment
- 4.5 Hydrology and Water Quality
- 4.6 Noise
- 4.7 Transportation and Traffic

As discussed in the introduction, all other environmental topics were determined not to be significant in the IS prepared for the proposed Project. These environmental topics include aesthetics, agricultural and forestry resources, biological resources, cultural resources, geology and soils, hazard and hazardous materials (except for listed sites), hydrology and water quality (except for drainage), land use and planning, mineral resources, population and housing, public services, recreation, and utilities and service systems. The impacts associated with all of these environmental topics are addressed in this Draft EIR in Chapter 5 Other CEQA Considerations.

Each sub-chapter is organized to include the following major subsections:

- **Introduction**. This subsection includes an explanation of the particular topics discussed in the sub-chapter and the sources or methods utilized in its preparation.
- **Regulatory Setting.** This subsection identifies applicable federal, state, regional and local regulations.
- **Environmental Setting.** This subsection includes a description of the existing conditions that precede the implementation of the proposed project.
- **Methodology.** This subsection identifies the methods for research and gathering data that is used in assessing potential impacts.
- **CEQA Thresholds of Significance.** This subsection identifies the criteria by which the proposed Project components are measured to determine if the proposed Project would cause a potentially significant impact.
- **Project Design Features.** This subsection identifies features that are part of design of the proposed Project, including any pertinent Best Management Practices and LAX Master Plan EIR/EIS Mitigation Commitments.
- **Impact Analysis.** This subsection includes an assessment of the potential beneficial and/or adverse effects of the proposed Project relative to established thresholds (relative to existing conditions per CEQA). A discussion of features of the proposed Project that are relevant to the topic which could have impacts
- **Mitigation Measures.** This subsection presents recommended, appropriate, and feasible measures to avoid or minimize significant impacts identified in the Environmental Impact subsection.

- **Level of Significance After Mitigation.** This subsection includes a discussion of whether a potentially significant impact would be reduced to a less-than-significant level upon implementation of the proposed feasible mitigation measures.

4.1 Air Quality

4.1.1 Introduction

This air quality analysis examines potential air quality impacts that could result from the proposed Project. The analysis addresses the change in criteria pollutant emissions from construction activities and operational activities as a result of the proposed Project. Potential impacts related to greenhouse gases are addressed in Chapter 4.2 Greenhouse Gases of this Draft EIR. Potential impacts related to human health risks from inhalation of toxic air contaminant emissions are addressed in Chapter 4.4 Human Health Risk Assessment of this Draft EIR.

The air quality impact analyses for criteria pollutants presented below include development of emission inventories for the proposed Project (i.e., the quantities of specific pollutants, typically expressed in pounds per day or tons per year) based on emission modeling and assessment of localized concentrations (i.e., the concentrations of specific pollutants within ambient air, typically expressed in terms of micrograms per cubic meter) based on screening criteria and dispersion modeling. The criteria pollutant emissions inventories and ambient concentrations were developed using standard industry software/models and federal-, state-, and locally-approved methodologies; results of the emission inventories were compared to daily thresholds established by the South Coast Air Quality Management District (SCAQMD) for the South Coast Air Basin (Basin)[1] and results of the ambient concentrations were compared to the national and state ambient air quality standards. This section is based in part on more comprehensive information provided in the Air Quality and Greenhouse Gas Emissions Appendix (Appendix B).

4.1.1.1 Pollutants of Interest

Six criteria pollutants were evaluated for the proposed Project, including carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), and ozone (O_3), using as surrogates volatile organic compounds (VOCs)[2] and oxides of nitrogen (NO_x). These pollutants were analyzed because they were shown to have potentially significant impacts in the air quality analysis documented in Chapter 4.6, *Air Quality*, of the Los Angeles International Airport (LAX) Master Plan Final EIR.[3] In addition, these six criteria pollutants are considered to be pollutants of concern based on the type of emission sources associated with construction and operation of the proposed Project, and are thus included in this assessment. Although lead (Pb) is a criteria pollutant, it was not evaluated in this Draft EIR because the proposed Project would have a negligible impact on Pb levels in the Basin. The only source of lead emissions from LAX is from aviation gasoline (AvGas) associated with piston-engine general aviation aircraft; however, due to the low number

1 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993; as updated by *SCAQMD Air Quality Significance Thresholds*, March 2011, available at http://www.aqmd.gov/CEQA/handbook/signthres.pdf, Accessed May 2013.

2 The emissions of volatile organic compounds (VOC) and reactive organic gases (ROG) are essentially the same for the combustion emission sources that are considered in this EIR. This EIR will typically refer to organic emissions as VOC.

3 City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004.

of piston-engine general aviation aircraft operations at LAX, AvGas quantities are low and emissions from these sources would not be materially affected by the Project. Sulfate compounds (e.g., ammonium sulfate) are generally not emitted directly into the air but are formed through various chemical reactions in the atmosphere; thus, sulfate is considered a secondary pollutant. All sulfur emitted by airport-related sources included in this analysis was assumed to be released and to remain in the atmosphere as SO_2. Therefore, no sulfate inventories or concentrations were estimated.

Following standard industry practice, the evaluation of O_3 was conducted by evaluating emissions of VOCs and NO_X, which are precursors in the formation of O_3. O_3 is a regional pollutant and ambient concentrations can only be predicted using regional photochemical models that account for all sources of precursors, which is beyond the scope of this analysis. Therefore, no photochemical O_3 modeling was conducted for the proposed Project. Additional information regarding the six criteria pollutants that were evaluated in the air quality analysis is presented below.

Ozone (O_3)

Ozone (O_3), commonly referred to as smog, is formed in the atmosphere rather than being directly emitted from pollutant sources. O_3 forms as a result of VOCs and NO_x reacting in the presence of sunlight in the atmosphere. Ozone levels are highest in warm-weather months. VOCs and NO_x are termed "ozone precursors" and their emissions are regulated in order to control the creation of O_3.

O_3 damages lung tissue and reduces lung function. Scientific evidence indicates that ambient levels of ozone not only affect people with impaired respiratory systems (e.g., asthmatics), but also healthy children and adults. O_3 can cause health effects such as chest discomfort, coughing, nausea, respiratory tract and eye irritation, and decreased pulmonary functions.

Nitrogen Dioxide (NO_2)

Nitrogen dioxide (NO_2) is a poisonous, reddish-brown to dark brown gas with an irritating odor. NO_2 forms when nitric oxide (NO) reacts with atmospheric oxygen. Most sources of NO_2 are man-made; the primary source of NO_2 is high-temperature combustion. Significant sources of NO_2 at airports are boilers, aircraft operations, and vehicle movements. NO_2 emissions from these sources are highest during high-temperature combustion, such as aircraft takeoff mode.

NO_2 may produce adverse health effects such as nose and throat irritation, coughing, choking, headaches, nausea, stomach or chest pains, and lung inflammation (e.g., bronchitis, pneumonia).

Carbon monoxide (CO)

Carbon monoxide (CO) is an odorless, colorless gas that is toxic. It is formed by the incomplete combustion of fuels. The primary sources of this pollutant in Los Angeles County are automobiles and other mobile vehicles. The health effects associated with exposure to CO are related to its interaction with hemoglobin once it enters the bloodstream. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity, impaired mental abilities, and death.

Particulate Matter (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$)

Particulate matter (PM) consists of solid and liquid particles of dust, soot, aerosols, and other matter small enough to remain suspended in the air for a long period of time. PM_{10} refers to PM with an aerodynamic diameter less than or equal to 10 micrometers and $PM_{2.5}$ refers to PM with an aerodynamic diameter less than or equal to 2.5 micrometers. Particulates smaller than 10 micrometers (i.e., PM_{10} and $PM_{2.5}$) represent that portion of PM thought to represent the greatest hazard to public health. PM_{10} and $PM_{2.5}$ can accumulate in the respiratory system and are associated with a variety of negative health effects. Exposure to particulates can aggravate existing respiratory conditions, increase respiratory symptoms and disease, decrease long-term lung function, and possibly cause premature death. The segments of the population that are most sensitive to the negative effects of PM in the air are the elderly, individuals with cardiopulmonary disease, and children. Aside from adverse health effects, PM in the air causes a reduction of visibility and damage to paints and building materials.

A portion of the PM in the air comes from natural sources such as windblown dust and pollen. Man-made sources of PM include fuel combustion, automobile exhaust, field burning, factories, and vehicle movement or other man-made disturbances of unpaved areas. Secondary formation of PM may occur in some cases where gases such as sulfur oxides (SO_x) and NO_x interact with other compounds in the air to form PM. Fugitive dust generated by construction activities is a major source of suspended PM.

The secondary creators of particulate matter, SO_X and NO_X, are also major precursors to acidic deposition (acid rain). While SO_X is a major precursor to particulate matter formation, NO_X has other environmental effects. NO_X reacts with ammonia, moisture, and other compounds to form nitric acid and related particles. Human health concerns include effects on breathing and the respiratory system, damage to lung tissue, and premature death. Small particles penetrate into sensitive parts of the lungs and can cause or worsen respiratory disease. NO_X has the potential to change the composition of some species of vegetation in wetland and terrestrial systems, to create the acidification of freshwater bodies, impair aquatic visibility, create eutrophication of estuarine and coastal waters, and increase the levels of toxins harmful to aquatic life.

Sulfur Dioxide (SO_2)

Sulfur dioxide (SO_2) is formed when fuel containing sulfur (typically, coal and oil) is burned, and during other industrial processes. The term "sulfur oxides" accounts for distinct but related compounds, primarily SO_2 and sulfur trioxide. As a conservative assumption for this analysis, it was assumed that all SO_X are emitted as SO_2; therefore, SO_X and SO_2 are considered equivalent in this document. Higher SO_2 concentrations are found in the vicinity of large industrial facilities. The physical effects of SO_2 include temporary breathing impairment, respiratory illness, and aggravation of existing cardiovascular disease. Children and the elderly are most susceptible to the negative effects of exposure to SO_2.

4.1.1.2 Scope of Analysis

The air quality analysis conducted for the proposed Project addresses construction-related impacts for the peak day of proposed construction activities and operations-related impacts for the future year of 2015. The basic steps involved in performing the analysis are listed below.

Construction:

- Identify construction-related emissions sources for the identified sources.
- Develop peak daily construction emissions inventories.
- Compare emissions inventory with appropriate CEQA thresholds for construction.
- Conduct dispersion modeling for the peak year of Project construction emissions.
- Obtain background concentration data from SCAQMD and estimate future concentrations with the proposed Project.
- Identify potential construction-related mitigation measures if warranted beyond what is already required through LAX Master Plan commitments and mitigation measures.

Operations:

- Identify operational-related emissions sources associated with the proposed Project.
- Develop peak daily operational emissions inventories for the identified sources.
- Compare emissions inventories with appropriate CEQA thresholds for operations.
- Identify potential operations-related mitigation measures if warranted beyond what is already required through LAX Master Plan commitments and mitigation measures.

4.1.2 Methodology

The air quality assessment for the proposed Project was conducted in accordance with the City of Los Angeles *L.A. CEQA Thresholds Guide*[4] and the SCAQMD's 1993 *CEQA Air Quality Handbook*.[5] The City of Los Angeles has not adopted specific City-wide significance thresholds for air quality impacts; however, its *L.A. CEQA Thresholds Guide* references the thresholds and methodologies contained in the SCAQMD *CEQA Air Quality Handbook* for evaluating proposed projects in the City. Thus, the determinations and assessments contained herein are based on the SCAQMD's *CEQA Air Quality Handbook* as well as information presented in the following documents:

- *LAX Master Plan Final EIR,* Chapter 4.6, Air Quality, April 2004;
- *LAX Master Plan Final EIR, Chapter 4.24.1, Human Health Risk Assessment,* April 2004;
- *LAX Master Plan Final EIR, Section 4.20, Construction Impacts*, April 2004; and
- *LAX Master Plan Final EIR, Appendix F-B, Air Quality Appendix*, April 2004.

4.1.2.1 Construction

Air emissions occurring as the result of construction activity vary, based on the proposed Project's duration and level of activity. Construction emissions occur mostly as exhaust products from the operation of construction equipment and vehicles, but can also occur as

4 City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006, B-1.
5 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993; as updated by *SCAQMD Air Quality Significance Thresholds*, March 2011, available at http://www.aqmd.gov/CEQA/handbook/signthres.pdf, Accessed May 2013.

fugitive dust emissions from land disturbance during material staging, demolition, and movement. Evaporative emissions also result from asphalt paving operations. The type of construction equipment commonly used can be categorized as both off-road and on-road equipment. Off-road equipment is typically used for earthwork, paving, demolition, and other onsite activities, while on-road equipment is typically used to transport and deliver supplies, materials, and employees.

Daily emissions during construction were forecast from a construction schedule and applicable emissions factors from various EPA, FAA, California Air Resources Board (CARB) and SCAQMD references. In order to estimate construction emissions, resource requirements and activity schedules were developed by the LAX Development Program Team, an integrated team of the Los Angeles World Airports (LAWA) and consultant staff responsible for oversight and program management. Monthly estimates of equipment usage (in hours) were also developed for each piece of equipment expected to be used during construction of the proposed Project. From the resource information provided, peak daily emissions estimates were developed for the construction period. Peak-daily emissions estimates were also developed for each construction phase. Construction activity emissions inventories for criteria pollutants were developed for emissions sources including off-road on-site equipment, on-road on-site equipment, fugitive dust, fugitive VOCs, and worker commute trips. Emissions inventories were also developed for the aircraft operational emissions during construction. A complete listing of the construction equipment by phase, construction phase duration, emissions estimation model and dispersion model input assumptions used in this analysis is included within the emissions calculation worksheets that are provided in Appendix B of this Draft EIR.

Emissions estimates for the proposed Project's construction activities included the application of emission reduction measures required by the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP), the LAX Master Plan-Mitigation Plan for Air Quality (LAX MP-MPAQ) and SCAQMD rules, as well as additional control measures set forth in the LAX Master Plan Community Benefits Agreement. These measures are applicable to PM_{10} and $PM_{2.5}$ emissions and to a lesser degree to NO_X emissions. The measures that would result in reductions of NO_X, PM_{10} and $PM_{2.5}$ are discussed in Section 4.1.5 below.

As further described in Chapter 2, *Project Description, c*onstruction of the proposed Project is expected to occur in 2014 and 2015.

<u>Emission Source Types</u>

Off-Road Equipment

Off-road construction equipment includes dozers, loaders, sweepers, and other heavy-duty construction equipment that is not licensed to travel on public roadways. Off-road construction equipment and fuel types, estimated horsepower, and estimated annual hours of operation were developed by construction subtasks. The annual hours of operation were based on the material use and production rates; generally as a result of a 10-hour-per-day, 6-day-per-week workweek. Non-road exhaust emission factors were developed based on calendar year 2014 emissions rates from the CARB OFFROAD2011 emissions model.

Emissions for off-road equipment were calculated by multiplying these emission factors by the horsepower, usage factor, and operational hours for each type of equipment. Select equipment was assumed to be equipped with diesel particulate filters (DPFs) achieving PM_{10} emissions reductions ranging from 8.5 to 76.5 percent, as required by the LAX Master Plan mitigation program.

On-Road Equipment

On-road equipment emissions are generated from on-site pick-up trucks, water trucks, dump trucks, haul trucks, cement trucks, and other on-road vehicles. Activity levels and engine assignments for on-road construction vehicles were developed based on the requirements and schedule for the proposed Project. On-road emission factors were computed using calendar year 2014 emissions factors[6] by the CARB EMFAC2011 emissions model. A schedule of planned construction activities, including vehicle miles traveled estimates for on-road construction vehicles, was developed by construction subtask. Criteria pollutant emissions associated with these activities were computed by factoring these data against County of Los Angeles-specific emissions factors within EMFAC2011, in grams per mile and grams per idle hour.

Fugitive Dust

Fugitive dust emissions occur as the result of travel on unpaved roads, site preparation, grading activities, wind erosion, and other land disturbances. The EPA provides a worst-case uncontrolled PM_{10} emissions rate of 38.2 pounds per acre-day. This emissions rate was used to calculate uncontrolled PM_{10} emissions using construction task acreage assumptions, as well as construction task durations. Notably, CARB specifies in the CalEEMod[7] model that a maximum of 25 percent of this acreage would be disturbed on any given construction day, and that 20 percent of the PM_{10} emissions would occur as $PM_{2.5}$. Watering, as required under LAWA construction contracts and also being one of the main dust suppression measures recognized in SCAQMD Rule 403, was assumed to reduce fugitive dust emissions by 61 percent.[8]

Fugitive VOCs

Based on the CARB default data contained within CalEEMod, an emission factor of 2.62 pounds of VOC (from asphalt curing) per acre of asphalt material was used to determine VOC emissions from asphalt paving. The construction schedule provided the required tons of bituminous surface material. Equivalent acreage was calculated using a weight of asphalt of 2,111 tons per acre, assuming an 8-inch pavement depth, based on data available from the National Asphalt Pavement Association and FAA Advisory Circular 150/5320-6E, *Airport Pavement Design and Evaluation*.

Worker Commute Trips

Emissions from worker commute trips were calculated using emission factors and assumed default commute distances, as provided in CalEEMod. The number of workers during each construction phase was calculated using the construction resource schedule (see Appendix B). Construction-worker vehicle emissions were calculated using SCAQMD default assumptions for vehicle fleet mix, travel distance, and average travel speeds.[9] Assumptions included:

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6 Year 2014 is the assumed date for the start of construction and represents a conservative assumption for later years.

7 CalEEMOD, the California Emissions Estimator Model (CalEEMod), Version 2013.2, is an emissions inventory software program recommended by the SCAQMD. CalEEMod is based on outputs from OFFROAD2011 and EMFAC2011, which are emissions estimation models developed by CARB to calculate emissions from construction activities.

8 South Coast Air Quality Management District, *Fugitive Dust, Table XI-A: Construction & Demolition*, Available: http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html, Accessed May 2013.

9 ENVIRON International Corporation, *CalEEMod Appendix A - Calculation Details*, February 2011, Section 4.5, pages 13-15. Available: http://caleemod.com/, Accessed May 2013.

- 1 out of every 11 workers participate in a carpool; and
- An average commute distance for construction employees of 13.3 miles (26.6 miles round trip).

Aircraft Operations during Construction

To allow for the rehabilitation of portions of the Runway 7L/25R pavement, the runway must be temporarily closed for a period of time estimated at 3.5 months. During this time, the aircraft operations from this runway must be accommodated through the use of other runways at LAX. This shift in operations may cause airfield and/or airspace delays resulting in increased arrival and departure taxi times. An increase in taxi travel times can result in increased emissions.

To determine the taxi times during the runway closure period, real-time ASDE-X data from LAX was used from a period of seven days in 2013 for which Runway 7L/25R was closed due to the installation of runway status lights. Based on conversations with FAA air traffic controllers at LAX, this historical data would be a reasonable indicator of operations with the runway closure required for the proposed improvements. The taxi-in and taxi-out times for arrivals and departures were averaged over the period for which the runway was closed (January 26, 2013 – February 2, 2013) and when the runway was operating (January 1, 2013 – January 25, 2013; February 3, 2013 – March 31, 2013). The resulting difference in taxi times were added to the 2015 Without Project taxi times as shown in **Table 4.1-1** to establish the construction period taxi times for the runway closure period. The 2015 Without Project data was adjusted for the runway closure period taxi times. Annual emissions for the runway closure, and normal operations, were then normalized based on a 110-day closure. With the exception of aircraft taxi times, aircraft times in mode (i.e., approach, climbout, and takeoff) do not change during the runway closure period.

Table 4.1-1

Assumed Taxi Times During Runway Closure

		Taxi-In Time (minutes)		Taxi-Out Time (minutes)	
Year	**Operations**	**Without Project**	**During Runway Closure**	**Without Project**	**During Runway Closure**
2015	637,903	9.0	9.80	14.40	15.98

Source: FAA, Terminal Area Forecast, 2012; FAA, FAA's Aviation System Performance Metrics (ASPM) database for January 1, 2013 through March 31, 2013; ; ASDE-X radar data from ATAC Corporation, June 2013; URS Corporation, 2013; Ricondo & Associates, Inc., 2013.

Localized Construction Concentration Modeling

The localized effects from the on-site portion of daily emissions from the sources described above were evaluated at nearby sensitive receptor locations potentially impacted by the proposed Project according to the SCAQMD's localized significance threshold (LST) methodology,[10] which uses on-site mass emission rate look-up tables with Project-specific daily

[10] South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, 2008. Available at http://www.aqmd.gov/ceqa/handbook/LST/Method_final.pdf, Accessed May 2013.

construction site areas (acres) and receptor distances. LSTs are only applicable to on-site emissions of the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA) and distance to the nearest sensitive receptor. The mass rate look-up tables were developed for each SRA and can be used to determine whether or not a project may generate significant adverse localized air quality impacts. The LST mass rate look-up tables apply to projects that are less than or equal to five acres. If the project exceeds five acres or any applicable LST when the mass rate look-up tables are used as a screening analysis, then project-specific air quality modeling model may be performed. The SCAQMD recommends that lead agencies perform project-specific air quality modeling for larger projects.[11] The Project area exceeds five acres in total size; therefore, Project-specific dispersion modeling was used to assess localized construction impacts rather than the mass emission rate look-up tables.

The project-specific air quality modeling of localized construction impacts was conducted consistent with SCAQMD methodology. The USEPA and SCAQMD-approved dispersion model, AMS/EPA Regulatory Model (AERMOD),[12] was used to model the air quality impacts of NO_X, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions. AERMOD can estimate the air quality impacts of single or multiple point, area, or volume sources using historical meteorological conditions. Volume sources were used to represent the emissions from trucks, heavy-duty construction equipment, and fugitive dust. Volume sources are three-dimensional sources of emissions that can be used to model releases from a variety of industrial uses, including moving diesel trucks and equipment.[13] Area sources were used to model fugitive dust emissions of PM_{10} and $PM_{2.5}$. Area sources are two-dimensional surface-based sources of emissions that can be used to model releases from emissions that occur over a wide area, such as fugitive dust. Although the SCAQMD calculated PM_{10} deposition when it developed its mass emission LSTs, this analysis did not calculate PM_{10} deposition as a conservative approach. For the purpose of the dispersion modeling, the maximum daily emissions that could occur due to construction activities from any construction phase were selected for the LST analysis. It was assumed that an average workday would result in 10 hours of emissions-generating activity. Therefore, the maximum daily emissions were divided by 10 to convert the maximum daily emissions into emission rates in units of pounds per hour.

Dispersion of the on-airport aircraft emissions was modeled using FAA's Emissions and Dispersion Modeling System (EDMS).[14] EDMS is the FAA-required model for airport air quality analysis of aviation sources and was used to develop projected concentrations of aircraft air pollutants associated with the proposed Project.

The SCAQMD requires that AERMOD be run using USEPA regulatory default options, unless non-default options are justified; therefore, AERMOD was run using USEPA regulatory default options. Additional modeling options are listed below:

- Urban dispersion (Los Angeles County population of 9,862,049, as per SCAQMD guidance);

[11] *Ibid*, 1-5.
[12] Lakes Environmental, AERMOD VIEW Software.
[13] California Air Resources Board, *ARB Health Risk Assessment Guidance for Rail Yards and Intermodal Facilities*, 2006.
[14] Federal Aviation Administration, *Emissions and Dispersion Modeling System User's Manual with Supplements, EDMS Version 5.1.4*, June 2013.

- Averaging periods: 1-hour (CO and NO_2), 8-hour (CO), 24-hour (PM_{10} and $PM_{2.5}$); Annual (NO_2, PM_{10} and $PM_{2.5}$)
- Flagpole receptor heights: 1.8 meters; and
- No building downwash (no point sources modeled).

Source and Receptor Locations

Construction activities were assumed to be located in the Project site and the construction staging area. Aircraft operations during construction were located on respective taxiways and runways.

Receptor points are the geographic locations where the air dispersion model calculates air pollutant concentrations. These discrete Cartesian receptors were used to determine air quality impacts in the vicinity of the Project site. Field receptors were placed at the boundary of LAX (along the fence line), as well as at the Theme Building.

Meteorology

The meteorological data from the monitoring station located at the LAX Hastings site was used in the analysis. The meteorological data were obtained from the SCAQMD website and have been preprocessed using AERMET.[15] AERMET is a meteorological preprocessor for organizing available meteorological data into a format suitable for use in AERMOD air quality dispersion model. These files were also developed by the SCAQMD using site specific surface characteristics (i.e., surface albedo, surface roughness, and Bowen ratio) obtained using AERSURFACE. AERSURFACE is a tool that provides realistic and reproducible surface characteristic values, including albedo, Bowen ratio, and surface roughness length, for input into AERMET. The dataset used consisted of five years of hourly surface data collected at LAX for calendar years 2005 through 2009; 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. All five years of data were run using AERMOD to determine the meteorological year that is most conducive to air pollutant formation based on the proposed Project construction schedule. Based on the AERMOD results, met year 2005 was determined to be most conducive to air pollutant formation and was conservatively used for this analysis.

Ozone Limiting Method for NO_2 Modeling

AERMOD contains the ozone limiting method (OLM) and Plume Volume Molar Ratio Method (PVMRM) options, which are used to model the conversion of NO_X to NO_2. The OLM option was used in this modeling analysis. The SCAQMD provides hourly O_3 data for modeling conversion of NO_X to NO_2 using the OLM option. In addition, the following values were used in the analysis:

- Ambient Equilibrium NO_2/NO_X Ratio: 0.90 (default)

[15] South Coast Air Quality Management District, *AQMD Meteorological Data for AERMOD* website http://www.aqmd.gov/smog/metdata/AERMOD.html. 2010, Accessed May 2013.

- In-stack NO_2/NO_X Ratio: 0.10 (default)[16]
- Default Ozone Value: 40 parts per billion (used only for missing data in the hourly O_3 data file provided by the SCAQMD)

Localized Significance Thresholds

The LSTs for NO_2 were developed based on the 1-hour NO_2 CAAQS of 0.18 parts per million (ppm). An exceedance of the 1-hour NO_2 NAAQS is determined based on the USEPA standard, which is the 3-year average of the 98th percentile of the daily maximum 1-hour average. Because the 1-hour NO_2 NAAQS is evaluated over a three-year period, it is appropriately considered for construction activities that could last for multiple years. The 1-hour NO_2 NAAQS was considered in this analysis because of the anticipated construction duration of the proposed Project. The LSTs for CO were developed based on the 1-hour and 8-hour CAAQS of 20 ppm and 9.0 ppm, respectively. With respect to CO, the CAAQS are more stringent than the NAAQS; therefore, the NAAQS need not be specifically addressed. For PM_{10} and $PM_{2.5}$, the LSTs were derived based on requirements in SCAQMD Rule 403, Fugitive Dust.

4.1.2.2 Operations

This operational air quality assessment was conducted in accordance with the *L.A. CEQA Thresholds Guide*[17] and the SCAQMD's *CEQA Air Quality Handbook*[18] for evaluating air quality impacts. The methodology for determining baseline conditions, estimating airport-related emissions, and assessing the significance of impacts followed standard practices for determining impacts of aviation sources that have been found acceptable by USEPA, CARB, and SCAQMD; this methodology is summarized below.

Regional and localized operational air quality impacts were assessed based on the net new incremental increase in emissions compared to existing conditions. In accordance with the State *CEQA Guidelines* and the *L.A. CEQA Thresholds Guide*, the impacts of the proposed Project were compared to baseline conditions to determine significance under CEQA.

Emission Source Types

The sources of air emissions associated with LAX are typical of sources associated with most large commercial service airports. Typical sources include aircraft during the landing/takeoff cycle, ground support equipment (GSE), auxiliary power units (APUs), airport-related motor vehicles (from passengers, employees, shuttle vans, fleet vehicles, buses, etc.) within the airport roadway network, construction-related emissions, and stationary sources (e.g., boilers and generators).

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16 U.S. Environmental Protection Agency, "NO_2/NO_X In-Stack Ratio (ISR) Database," http://www.epa.gov/ttn/scram/no2_isr_database.htm. Accessed April 2013. If no equipment-specific information is available, the default NO2/NOX In-Stack Ratio is 0.10. Data provided in the "NO2_ISR_alpha_database.xlsx" file downloaded from the website does not include information specifically for construction equipment. Values for diesel internal combustion engines (ICE) for a water pump indicate ratios ranging from 0.0 to 0.5. However, the upper and lower-end ratios are based on very low average NOX values and were considered not representative of the project. Two of the ICE water pumps with higher average NOX values had ratios of approximately 0.09 and 0.16. Given that none of the data specifically applies to construction equipment, a default value of 0.10 was used in the analysis.

17 City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006, B-1.

18 South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993; as updated by *SCAQMD Air Quality Significance Thresholds*, March 2011, available at http://www.aqmd.gov/CEQA/handbook/signthres.pdf, Accessed May 2013.

The incremental increase in regional daily air pollutant emissions of CO, VOC, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ were compared to the existing airport uses. Sources of emissions are generally divided into two categories: mobile and stationary. Examples of LAX-related mobile sources include aircraft, ground support equipment (GSE), and on-road motor vehicles. Examples of LAX-related stationary sources include hangar utility equipment such as air conditioning and water heating/cooling units.

As noted in Chapter 2, *Project Description*, neither the fleet composition nor operational levels of aircraft serving LAX would change as a result of the proposed Project. Criteria pollutant emissions from aircraft were computed for the 2015 proposed Project using the FAA's Emissions and Dispersion Modeling System (EDMS), the FAA-required and EPA-preferred model to calculate emissions from aircraft.[19]

Table 4.1-2 depicts the total aircraft operations utilized in the emissions inventories for calendar year 2015. As mentioned, these operational levels do not differ between the Without Project and the With Project scenarios for a given year, and are based upon total operations reported in the FAA Terminal Area Forecast (TAF). Also summarized on **Table 4.1-2** are taxi times utilized in the operational emissions analysis; as shown, implementation of the proposed Project would slightly increase taxi time (by 0.01 minutes) over the Without Project scenario.[20]

Table 4.1-2

Aircraft Operations and Taxi Times, Operations

		Taxi-In Time (minutes)		Taxi-Out Time (minutes)	
Year	Operations	Without Project	With Project	Without Project	With Project
2015	637,903	9.0	9.0	14.40	14.41

Source: FAA, Terminal Area Forecast, 2012; FAA's Aviation System Performance Metrics (ASPM) database for calendar year 2010; Ricondo & Associates, Inc., 2013; URS Corporation, 2013.

The aircraft fleet mix and operational levels were assigned within the EDMS in a manner consistent with the noise assessment developed concurrently for this Draft EIR (see Section 4.6 and Appendix C). Where possible, aircraft engines representing the actual in-use fleet at LAX were applied in EDMS using LAWA's Aircraft Noise and Operations Monitoring System (ANOMS) data, cross-referenced with proprietary fleet data for air carrier and business jet operations, on the basis of reported aircraft tail number. In segments of the fleet where such matches were not possible, EDMS default engine selections were retained. The taxi times for

19 Federal Aviation Administration, *Emissions and Dispersion Modeling System User's Manual with Supplements, EDMS Version 5.1.4*, June 2013.

20 Note these taxi times are with and without the project. Table 4.1-1 lists taxi times for the without project condition and the period of time during construction when Runway 7L-25R would be closed.

existing conditions[21] were adjusted to future year conditions on the basis of additional estimated taxi distance, holding taxi speed, runway utilization, and delay assumptions.[22]

Aircraft emissions occur during approach, taxi-in (from runway to apron including landing roll), engine startup at the apron, taxi-out (from apron to runway), takeoff, and climb-out. As previously noted, the LAX Runway 7L/25R RSA improvements would result in a slight change taxi-out times of 0.01 minutes.

The proposed Project would have no effect on any stationary sources; thus, stationary sources were not included in the operational air quality emissions analysis.

Localized Operations

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Carbon monoxide is produced in greatest quantities from vehicle combustion and is usually concentrated at or near ground level because it does not readily disperse into the atmosphere.

As stated previously, operation of the proposed Project would not result in additional or increased operational activities and would not result in net new trips to LAX. The SCAQMD recommends an evaluation of potential localized CO impacts when vehicle to capacity (V/C) ratios are increased by two percent or more at intersections with a level of service (LOS) of C or worse or when LOS declines from A through C to D or worse. The proposed Project would not cause an increase in vehicular traffic compared to existing conditions and would not result in long-term operational changes to traffic activity and traffic flows within the airport study area. Therefore, a CO hotspots modeling analysis is not required and is not included in this assessment as the proposed Project would not cause or contribute to the formation of CO hotspots.

The on-site portion of daily emissions from the sources described above would not result in localized effects at off-site sensitive receptors. Operation of the proposed Project would not result in additional or increased operations activities at LAX. The future operation of the proposed Project would not result in long-term operational changes to traffic activity and traffic flows within the airport study area as, in the long-term, the proposed Project would not increase the number of employees or airline passengers traveling to/through LAX. Only the difference in taxi distance for aircraft departing from Runway 7L changes between the existing conditions and the proposed Project. Therefore, impacts will be determined based on the minimal contribution of net new emissions from taxiing emissions associated with this incremental increase in distance between the gates and the end of Runway 7L (i.e., for aircraft departing from Runway 7L).

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21 FAA's Aviation System Performance Metrics (ASPM) database for calendar year 2010, equating to 9 minutes on taxi-out and 14.4 minutes on taxi-in (including delay).

22 The only difference in the airfield layout associated with the With Project condition is the 832-foot extension to Runway 7L. With implementation of declared distances, the departure and landing point for aircraft remains the same except for aircraft departing from Runway 7L. Because aircraft departures from Runway 7L annually occur less than 1 percent, there is only a slight change in the average taxi-out times per aircraft operation. Note that the proposed Project would result in no change to taxi-in times.

4.1.2.3 Odor Impacts (Construction and Operations)

Potential odor impacts were evaluated by conducting a screening-level analysis; if necessary this would be followed by a more detailed analysis (i.e., dispersion modeling). The screening-level analysis consisted of reviewing the Project site plan and proposed Project elements to identify new or modified odor sources. If it is determined that the proposed Project would introduce a potentially significant new odor source, or significantly modify an existing odor source, then downwind sensitive receptor locations would be identified and site-specific dispersion modeling conducted to determine proposed Project impacts.

4.1.3 Existing Conditions

4.1.3.1 Climatological Conditions

The airport is located within the South Coast Air Basin of California, a 6,745 square-mile area encompassing all of Orange County and the urban, non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The meteorological conditions at the airport are heavily influenced by the proximity of the airport to the Pacific Ocean to the west and the mountains to the north and east. This location tends to produce a regular daily reversal of wind direction: onshore (westerly) during the day and offshore (easterly) at night. Comparatively warm, moist Pacific air masses drifting over cooler air resulting from coastal upwelling of cooler water often form a bank of fog that is generally swept inland by the prevailing westerly winds. The "marine layer" is generally 1,500 to 2,000 feet deep, extending only a short distance inland and rising during the morning hours producing a deck of low clouds. The air above is usually relatively warm, dry, and cloudless. The prevalent temperature inversion in the Basin tends to prevent vertical mixing of air through more than a shallow layer.

A dominating factor in the weather of California is the semi-permanent high-pressure area of the North Pacific Ocean. This pressure center moves northward in summer, holding storm tracks well to the north, and minimizing precipitation. Changes in the circulation pattern allow storm centers to approach California from the southwest during the winter months and large amounts of moisture are carried ashore. The Los Angeles region receives on average 10 to 15 inches of precipitation per year, of which 83 percent occurs during the months of November through March. Thunderstorms are light and infrequent, and on very rare occasions, trace amounts of snowfall have been reported at the airport.

The annual minimum mean, maximum mean, and overall mean temperatures at the airport are 55 degrees Fahrenheit (^{o}F), 70 ^{o}F, and 63°F, respectively. The prevailing wind direction at the airport is from the west-southwest with an average wind speed of roughly 6.4 knots (7.4 miles per hour [mph] or 3.3 meters per second [m/s]). Maximum recorded gusts range from 27 knots (31 mph or 13.9 m/s) in July to 54 knots (62 mph or 27.8 m/s) in March. The monthly average wind speeds range from 5.7 knots (6.5 mph or 2.9 m/s) in December to 7.4 knots (8.5 mph or 3.8 m/s) in April. [23]

[23] Ruffner, J.A., *Climates of the States: National Oceanic and Atmospheric Administration Narrative Summaries, Table, and Maps for Each State with Overview of State Climatologist Programs*, Third Edition, Volume 1: Alabama-New Mexico, Gale Research Company, 1985.

4.1.3.2 Regulatory Setting

Air quality is regulated by federal, state, and local laws. In addition to rules and standards contained in the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA), air quality in the Los Angeles region is subject to the rules and regulations established by the California Air Resource Board (CARB) and the South Coast Air Quality Management District (SCAQMD) with oversight provided by the U.S. Environmental Protection Agency (EPA), Region IX.

Federal

The EPA is responsible for implementation of the federal CAA. Under the authority granted by the CAA, EPA has established National Ambient Air Quality Standards (NAAQS) for the following criteria pollutants: CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, SO_2, and Pb. **Table 4.1-3** presents the NAAQS that are currently in effect for criteria air pollutants. As discussed previously, O_3 is a secondary pollutant, meaning that it is formed from reactions of precursor compounds under certain conditions. The primary precursor compounds that can lead to the formation of O_3 include VOC and NO_x.

Table 4.1-3

National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Ozone (O_3)	8-Hour	0.070 ppm (137 μg/m^3)	0.075 ppm (147 μg/m^3)	Same as Primary Standard
	1-Hour	0.09 ppm (180 μg/m^3)	N/A	N/A
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	N/A
	1-Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	N/A
Nitrogen Dioxide (NO_2)	Annual	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)	Same as Primary Standard
	1-Hour	0.18 ppm (339 μg/m^3)	100 ppb (188 μg/m^3)	N/A[a]
Sulfur Dioxide (SO_2)[b]	Annual	N/A	0.030 ppm (80 μg/m^3)	N/A
	24-Hour	0.04 ppm (105 μg/m^3)	0.14 ppm (365 μg/m^3)	N/A
	3-Hour	N/A	N/A	0.5 ppm (1300 μg/m^3)
	1-Hour	0.25 ppm (655 μg/m^3)	75 ppb (196 μg/m^3)	N/A

Table 4.1-3

National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards Primary	National Standards Secondary
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 μg/m^3	N/A	N/A
	24-Hour	50 μg/m^3	150 μg/m^3	Same as Primary Standard
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 μg/m^3	12.0 μg/m^3	15 μg/m^3
	24-Hour	N/A	35 μg/m^3	Same as Primary Standard
Lead (Pb)	Rolling 3-Month Average	N/A	0.15 μg/m^3	Same as Primary Standard
	Quarterly	N/A[c]	1.5 μg/m^3 (for certain areas)	N/A
	30-Day Average	1.5 μg/m^3	N/A	N/A
Visibility Reducing Particles	8-Hour (State)	Extinction of 0.23 per km	N/A	N/A
	8-Hour (Lake Tahoe)	Extinction of 0.07 per km	N/A	N/A
Sulfates	24-Hour	25 μg/m^3	N/A	N/A
Hydrogen Sulfide	1-Hour	0.03 ppm (42 μg/m^3)	N/A	N/A
Vinyl Chloride	24-Hour	0.01 ppm (26 μg/m^3)	N/A	N/A

Notes:
NAAQS = National Ambient Air Quality Standards
CAAQS = California Ambient Air Quality Standards
ppm = parts per million (by volume)
μg/m^3 = micrograms per cubic meter
N/A = Not applicable
mg/m^3 = milligrams per cubic meter

[a] On August 1, 2011, the USEPA proposed a 1-hour secondary NO_2 standard that would be set at a level of 100 parts per billion (ppb) and a 1-hour secondary SO_2 standard that would be set at 75 ppb. These secondary standards would be identical to the NO_2 and SO_2 primary 1-hour standards (76 Federal Register [FR] 46084).

[b] On June 22, 2010, the 1-hour SO_2 NAAQS was updated and the previous 24-hour and annual primary NAAQS were revoked. The previous 1971 SO_2 NAAQS (24-hour: 0.14 ppm; annual: 0.030 ppm) remain in effect until one year after an area is designated for the 2010 NAAQS (75 FR 35520). On June 20, 2011, CARB recommended to USEPA that all of California be designated attainment; however, USEPA has not yet finalized area designations (Goldstene, James N., Executive Officer, CARB, Letter to Jared Blumenfeld, Regional Administrator, USEPA, June 20, 2011). On June 29, 2011, the USEPA responded that the USEPA intends to designate all areas of California as unclassifiable/attainment (Blumenfeld, Jared, Regional Administrator, USEPA, Letter to Governor Brown, California, June 29, 2011).

[c] The NAAQS for Pb is no longer applicable in California since the final area designations for the 2008 Pb NAAQS became effective on December 31, 2010 (75 FR 3086).

Source: California Air Resources Board, 2013.

The CAA also specifies future dates for achieving compliance with the NAAQS and mandates that states submit and implement a State Implementation Plan (SIP) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met. The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones.

The Project site is located within the South Coast Air Basin (Basin), which is a sub-region of the SCAQMD's jurisdiction including all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Los Angeles Basin is designated as a federal non-attainment area for O_3, $PM_{2.5}$, and Pb. The nonattainment designation under the CAA for O_3 is categorized into levels of severity based on the level of concentration above the standard, which is also used to set the required attainment date. The Los Angeles Basin is classified as an extreme nonattainment area for O_3. The Basin was reclassified on September 22, 1998 to attainment/maintenance for NO_2 and on June 11, 2007 for CO since concentrations of these pollutants dropped below the NO_2 and CO NAAQS for several years. More recently, the Los Angeles Basin was reclassified to attainment/maintenance for PM_{10} on July 26, 2013.[24] Attainment/maintenance means that the pollutant is currently in attainment and that measures are included in the SIP to ensure that the NAAQS for that pollutant are not exceeded again. **Table 4.1-4** presents the attainment designation for each of the federal criteria air pollutants.

Table 4.1-4

Los Angeles - South Coast Air Basin Criteria Pollutant Attainment Status

Criteria Pollutant	National Standards	California Standards
Ozone (O_3)	Nonattainment - Extreme	Nonattainment
Carbon Monoxide (CO)	Attainment - Maintenance	Attainment
Nitrogen Dioxide (NO_2)	Attainment - Maintenance	Nonattainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Respirable Particulate Matter (PM_{10})	Attainment - Maintenance	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment
Lead (Pb)	Nonattainment	Nonattainment

Source: U.S. Environmental Protection Agency, Green Book, Available at http://www.epa.gov/air/oaqps/greenbook/index.html. As of July 31, 2013; California Air Resources Board. "Area Designations Maps/State and National," Available at www.arb.ca.gov/desig/adm/adm.htm, Effective 04/01/1013.

[24] U.S. Environmental Protection Agency, "Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; California; South Coast Air Basin; Approval of PM_{10} Maintenance Plan and Redesignation to Attainment for the PM_{10} Standard," *Federal Register,* Vol. 78, No. 123, June 26, 2013, pp. 38223-38226.

State

The CCAA, signed into law in 1988, requires all areas of the state to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The CAAQS are at least as stringent as, and in several cases more stringent than, the NAAQS and include several more pollutants such as visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The currently applicable CAAQS are presented with the NAAQS in **Table 4.1-3**. The attainment status with regard to the CAAQS is presented in **Table 4.1-3** along with the federal attainment status for each criteria pollutant. The area is attainment for sulfates and unclassified for hydrogen sulfide and visibility reducing particles.

CARB has been granted jurisdiction over a number of air pollutant emission sources that operate in the state. Specifically, CARB has the authority to develop emission standards for on-road motor vehicles, as well as for stationary sources and some off-road mobile sources. In turn, CARB has granted authority to the regional air pollution control and air quality management districts to develop stationary source emission standards, issue air quality permits, and enforce permit conditions.

Regional/Local

South Coast Air Quality Management District

The SCAQMD has jurisdiction over an area of 10,743 square miles consisting of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties, and the Riverside County portions of the Salton Sea Air Basin and Mojave Desert Air Basin. The Basin is a sub-region of SCAQMD's jurisdiction and covers an area of 6,745 square miles. While air quality in this area has improved, the Basin requires continued diligence to meet air quality standards.

The SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the CAAQS and NAAQS. SCAQMD and CARB have adopted the 2012 AQMP which incorporates the latest scientific and technological information and planning assumptions, including the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), and updated emission inventory methodologies for various source categories.[25] The Final 2012 AQMP was adopted by the AQMD Governing Board on December 7, 2012. Therefore, the 2012 AQMP is the most appropriate plan to use for consistency analysis. The AQMP builds upon other agencies' plans to achieve federal standards for air quality in the Basin. It incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, and on-road and off-road mobile sources. The 2012 AQMP builds upon improvements in previous plans, and includes new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches. In addition, it highlights the significant amount of emission reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the federal CAA.

The 2012 AQMP's key undertaking is to bring the Basin into attainment with NAAQS for 24-hour $PM_{2.5}$ by 2014. It also intensifies the scope and pace of continued air quality improvement efforts toward meeting the 2023 8-hour O_3 standard deadline with new measures designed to

25 South Coast Air Quality Management District, 2012 Air Quality Management Plan (AQMP) website, http://www.aqmd.gov/aqmp/2012aqmp/index.htm, Accessed May 2013.

reduce reliance on the CAA Section 182(e)(5) long-term measures for NO_X and VOC reductions. SCAQMD expects exposure reductions to be achieved through implementation of new and advanced control technologies as well as improvement of existing technologies.

The control measures in the 2012 AQMP consist of four components: 1) Basin-wide and Episodic Short-term $PM_{2.5}$ Measures; 2) Contingency Measures; 3) 8-hour O_3 Implementation Measures; and 4) Transportation and Control Measures provided by the Southern California Association of Governments (SCAG). The Plan includes eight short-term $PM_{2.5}$ control measures, 16 stationary source 8-hour O_3 measures, 10 early action measures for mobile sources and seven early action measures proposed to accelerate near-zero and zero emission technologies for goods movement related sources, and five on-road and five off-road mobile source control measures. In general, the District's control strategy for stationary and mobile sources is based on the following approaches: 1) available cleaner technologies; 2) best management practices; 3) incentive programs; 4) development and implementation of zero-near-zero technologies and vehicles and control methods; and 5) emission reductions from mobile sources.

SCAQMD also adopts rules to implement portions of the AQMP. At least one of these rules is applicable to the construction phase of the RSA. Rule 403 requires the implementation of best available fugitive dust control measures during active construction activities capable of generating fugitive dust emissions from on-site earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads. Also, SCAQMD Rule 1113 limits the amount of volatile organic compounds from architectural coatings and solvents, which lowers the emissions of odorous compounds.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the metropolitan planning organization (MPO) for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for the discussion of regional issues related to transportation, the economy, community development, and the environment. As the federally designated metropolitan planning organization (MPO) for the southern California region, SCAG is mandated by the federal government to research and develop plans for transportation, hazardous waste management, growth management, and air quality. SCAG is also responsible under the federal CAA for determining conformity of transportation projects, plans, and programs with applicable air quality plans. With regard to air quality planning, SCAG has prepared the 2012-2035 RTP/SCS, which addresses regional development and growth forecasts.

City of Los Angeles General Plan Air Quality Element

The City of Los Angeles General Plan was prepared in response to California State law requiring that each city and county adopt a long-term comprehensive general plan. According to State Guidelines, a general plan must be integrated, internally consistent, and present goals, objectives, policies, and implementation guidelines for decision makers to use. The City of Los Angeles addresses air quality issues in the Air Quality Element, which is part of the City's General Plan. The planning area for the City's Air Quality Element covers the entire City of Los Angeles, which encompasses an area of about 465 square miles. The City's General Plan Air Quality Element serves to aid the greater Los Angeles region in attaining federal and State ambient air quality standards at the earliest feasible date, while still maintaining economic growth and improving the quality of life. The City's Air Quality Element and its accompanying Clean Air Program acknowledge the interrelationships between transportation and land use planning in meeting the City's mobility and clean air goals. With the City's adoption of the Air Quality Element and the accompanying Clean Air Program, the City is seeking to achieve consistency with regional Air Quality, Growth Management, Mobility, and Congestion Management Plans.

In the Basin, the City of Los Angeles, CARB, and the SCAQMD have adopted or proposed additional rules and policies governing the use of cleaner fuels in public vehicle fleets. The City of Los Angeles Policy CF#00-0157 requires that all city-owned or operated diesel-fueled vehicles be equipped with particulate traps and that they use ultra-low-sulfur diesel fuel. CARB adopted a Risk Reduction Plan for diesel-fueled engines and vehicles. The SCAQMD has proposed a series of rules that would require the use of clean fuel technologies in on-road school buses, on-road heavy-duty public fleets, and street sweepers.

4.1.3.3 Existing Ambient Air Quality

In an effort to monitor the various concentrations of air pollutants throughout the basin, the SCAQMD has divided the region into 38 SRAs in which monitoring stations operate. The monitoring station nearest to LAX is the Southwest Coastal Los Angeles monitoring station, located at 7201 W. Westchester Parkway (referred to as the LAX Hastings site), approximately 1.5 miles northwest of the Central Terminal Area. Criteria pollutants monitored at this location include O_3, CO, NO_2, SO_2, and PM_{10}. A summary of the monitored pollutants from 2008 through 2012 is provided in **Table 4.1-5**. Since $PM_{2.5}$ has not been monitored at the Southwest Coastal Los Angeles Monitoring Station, data for this pollutant were obtained from North Long Beach Monitoring Station located at 3648 North Long Beach Boulevard, 12 miles to the southeast of the airport. As shown, the data show a trend of generally improving (i.e., lower) concentrations of criteria pollutants at LAX and, consequently, in the Project site, with the exception of ozone, which shows an up and down pattern from year to year.

Table 4.1-5

Southwest Coastal Los Angeles and South Coastal Los Angeles County Monitoring Station Ambient Air Quality Data

Pollutant	Monitoring Data by Calendar Year				
	2008	2009	2010	2011	2012
Ozone (O_3)					
Maximum Concentration 1-Hour Period (ppm)	0.086	0.077	0.089	0.078	0.106
Days over State Standard (0.09 ppm)	0	0	0	0	1
Maximum Concentration 8-Hour Period (ppm)	0.075[1]	0.070	0.070	0.067	0.075
Days over State Standard (0.07 ppm)	1	0	0	0	1
Days over Federal Standard (0.075 ppm)	0	0	0	0	0
Nitrogen Dioxide (NO_2)					
Maximum Concentration 1-Hour Period (ppm)	0.094	0.077	0.076	0.098	0.077
98th Percentile 1-Hour Average (ppm)	0.076	0.069	0.061	0.065	0.055
Days over State Standard (0.18 ppm)	0	0	0	0	0
Annual Arithmetic Mean (ppm)	0.014	*	0.012	0.013	*
Exceed State Standard? (0.030 ppm)	No	No	No	No	No

Table 4.1-5

Southwest Coastal Los Angeles and South Coastal Los Angeles County Monitoring Station Ambient Air Quality Data

Pollutant	Monitoring Data by Calendar Year				
	2008	2009	2010	2011	2012
Carbon Monoxide (CO)					
Maximum Concentration 1-Hour Period (ppm)	4	3	3	2	3
Days over State Standard (20.0 ppm)	0	0	0	0	0
Maximum Concentration 8-Hour Period (ppm)	3	2	2	2	2
Days over State Standard (9.0 ppm)	0	0	0	0	0
Sulfur Dioxide (SO_2)					
Maximum Concentration 1-Hour Period (ppb)	15	12	16	8	5
Days over State Standard (75 ppb)	0	0	0	0	0
Maximum Concentration 24-Hour Period (ppb)	4	6	2	2	1
Days over State Standard (140 ppb)	0	0	0	0	0
Respirable Particulate Matter (PM_{10})					
Maximum Concentration 24-Hour Period (μg/m^3)	50	52	37	41	31
Days over State Standard (50 μg/m^3)	0	6	*	0	0
Days over Federal Standard (150 μg/m^3)	0	0	0	0	0
Annual Concentration (μg/m^3)	25.5	25.5	*	21.4	19.6
Exceed State Standard? (20 μg/m^3)	Yes	Yes	*	Yes	No
Fine Particulate Matter ($PM_{2.5}$)[2]					
Maximum Concentration 24-Hour Period (μg/m^3)	57.2	63.0	35.0	39.7	49.8
Days over Federal Standard (35 μg/m^3)	8	6	0	2	4
Annual Concentration (μg/m^3)	14.1	12.8	10.3	11.3	10.6
Exceed State Standard? (12 μg/m^3)	Yes	Yes	No	No	No

Notes:
μg/m^3 = micrograms per cubic meter
PM_{10} = particulate matter equal to less than 10 microns in diameter
$PM_{2.5}$ = particulate matter equal to less than 2.5 microns in diameter
ppm = parts per million
* Insufficient data to determine the value
[1] State and federal statistics may differ for the following reasons: State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers. In 2008, the federal method resulted in an ozone concentration of 0.075 ppm (which does not exceed the federal standard); the State method resulted in an ozone concentration of 0.076 and there is 1 day that exceeded the State standard.
[2] $PM_{2.5}$ data not recorded at the Westchester Parkway Monitoring Station. For informational purposes, data from North Long Beach monitoring station located 12 miles to the southeast of the airport is provided.
Source: California Air Resources Board, State and Local Air Quality Monitoring Plan, iAdam, Air Quality Data Statistics, http://www.arb.ca.gov/adam/netrpt, 2013; United States Environmental Protection Agency, AirData Monitor Values Report, http://www.epa.gov/airdata/, 2013.

The data shows the following pollutant trends (refer to **Table 4.1-3** for NAAQS and CAAQS standards):

Ozone - The maximum 1-hour O_3 concentration recorded during the 2008 to 2012 period was 0.106 ppm, recorded in 2012. During this period, the California standard was not exceeded. The maximum 8-hour O_3 concentration was 0.075 ppm recorded in 2008 and 2012. The California standards were exceeded once during the reporting period, while the NAAQS were not violated.

Nitrogen Dioxide - The highest 1-hour NO_2 concentration recorded was 0.098 ppm in 2011. The highest recorded NO_2 annual arithmetic mean was 0.014 ppm recorded in 2008. As shown, the standards were not exceeded during the five-year period.

Carbon Monoxide - The highest 1-hour CO concentration recorded was 4 ppm, recorded in 2008. The maximum 8-hour CO concentration recorded was 3 ppm recorded in 2008. As demonstrated by the data, the standards were not exceeded during the five-year period.

Sulfur Dioxide - The highest 1-hour concentration of SO_2 was 16 ppb recorded in 2010. The maximum 24-hour concentration was 6 ppb, recorded in 2009. As shown, the standards were not exceeded during the five-year period.

Respirable Particulate Matter (PM_{10}) - The highest recorded 24-hour PM_{10} concentration recorded was 52 $\mu g/m^3$ in 2009. During the period 2008 to 2012, the CAAQS for 24-hour PM_{10} was exceeded between 0 and 1.6 percent of the time; the NAAQS was not violated. The maximum annual arithmetic mean recorded was 25.5 $\mu g/m^3$ in 2008 and 2009.

Fine Particulates ($PM_{2.5}$) - The maximum 24-hour $PM_{2.5}$ concentration recorded was 63.0 $\mu g/m^3$ in 2008. The 24-hour NAAQS was exceeded between 0 and 2.2 percent annually from 2008-2012. The highest annual geometric mean of 14.1 was recorded in 2008.

Lead (Pb) – The monitored area for the proposed Project site is in compliance with the CAAQS and NAAQS for ambient concentrations of lead. The Los Angeles County portion of the Basin is currently in nonattainment with the California and National standards for Pb primarily as the result of lead emissions from an industrial lead-acid battery recycling facility in the City of Commerce. The SCAQMD currently maintains a network of three source-oriented lead monitors around the facility. Monitoring is only conducted periodically elsewhere in the Basin because the primary sources of atmospheric Pb, leaded gasoline and lead-based paint, are no longer available in the Basin.

4.1.4 CEQA Thresholds of Significance

As noted in the Initial Study, for the purposes of this Draft EIR, and in accordance with Appendix G of the CEQA Guidelines, which is also incorporated in the City of Los Angeles *CEQA Thresholds Guide*[26], an impact to air quality is considered significant if the proposed project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality

[26] City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006, B-1.

standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

- Expose sensitive receptors to substantial pollutant concentrations; and
- Create objectionable odors affecting a substantial number of people.

The SCAQMD has developed operational and construction-related thresholds of significance for air quality impacts of projects proposed in the Basin. These thresholds, which are included in the SCAQMD *Air Quality Analysis Guidance Handbook*, are utilized for purposes of CEQA, and are summarized in **Table 4.1-6**. In accordance with the SCAQMD *Air Quality Analysis Guidance Handbook*, a significant air quality impact would occur if the estimated incremental increase in operational or construction-related emissions attributable to the project would be greater than the daily operational or construction emission thresholds presented in **Table 4.1-6**.

Table 4.1-6

South Coast Air Quality Management District Thresholds of Significance for Air Pollutant Emissions in the South Coast Air Basin

	Mass Daily Thresholds (lbs/day)	
Pollutant	**Construction**	**Operation**
Carbon Monoxide (CO)	550	550
Nitrogen Oxides (NO_x)	100	55
Volatile Organic Compounds (VOC)[a]	75	55
Sulfur Oxides (SO_x)	150	150
Respirable Particulate Matter (PM_{10})	150	150
Fine Particulate Matter ($PM_{2.5}$)	55	55
Lead (Pb)[b]	3	3

Notes:
lbs/day = pounds per day
[a] The emissions of VOCs and reactive organic gases are essentially the same for the combustion emission sources that are considered in this EIR. This EIR will typically refer to organic emissions as VOCs.
[b] The only source of lead emissions from LAX is from aviation gasoline (AvGas) associated with piston-engine general aviation aircraft; however, due to the low number of piston-engine general aviation aircraft operations at LAX, AvGas quantities are low and emissions from these sources would not be materially affected by the Project.
Source: SCAQMD Air Quality Significance Thresholds. Available at www.aqmd.gov/ceqa/handbook/signthres.pdf, March 2011.

The SCAQMD has also developed operational and construction-related thresholds of significance for local project air pollutant concentrations. These thresholds are summarized in **Table 4.1-7**. In accordance with the SCAQMD *Air Quality Analysis Guidance Handbook,* a significant air quality impact would occur if the estimated incremental ambient concentrations due to construction-related or operations-related emissions would be greater than the concentration thresholds presented in **Table 4.1-7**. The SCAQMD's recommended thresholds for the evaluation of localized air quality impacts are based on the difference between the maximum monitored ambient pollutant concentrations in the area and the CAAQS or NAAQS. Therefore, the thresholds depend upon the concentrations of pollutants monitored locally with respect to a project site. For pollutants that already exceed the CAAQS or NAAQS (e.g., PM_{10} and $PM_{2.5}$), the thresholds are based on SCAQMD Rule 403 for construction and Rule 1303, Table A-2 for operations as described in the SCAQMD *Final Localized Significance Threshold Methodology*. The methodology requires that the anticipated increase in ambient air concentrations, determined using a computer-based air quality dispersion model, be compared to localized significance thresholds for PM_{10}, $PM_{2.5}$, NO_2, and CO.[27] The significance threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust) for construction and Rule 1303 (New Source Review Requirements) for operations, while the thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of the Project site that would not cause or contribute to an exceedance of the relevant ambient air quality standards. The significance thresholds for $PM_{2.5}$ are intended to constrain emissions so as to aid in the progress toward attainment of the ambient air quality standards.[28] The applicable thresholds are shown below in **Table 4.1-7**. For the purposes of this analysis, the localized construction emissions resulting from development of the proposed Project are assessed with respect to the thresholds in **Table 4.1-7** using detailed dispersion modeling (i.e., AERMOD).

The SCAQMD provides mass rate look-up tables in Appendix C of the *Final Localized Significance Threshold Methodology*, which allows a lead agency to readily determine if the daily emissions for proposed construction or operational activities could result in significant localized air quality impacts that could exceed the concentration-based thresholds in **Table 4.1-7**. For the purposes of this analysis, the incremental localized operational emissions resulting from the difference in taxi times for aircraft taxiing to Runway 7L-25R between the existing conditions and the proposed Project are assessed with respect to the mass rate look-up tables in Appendix C of the *Final Localized Significance Threshold Methodology*.

Table 4.1-7

SCAQMD CEQA Threshold of Significance for Air Pollutant Concentrations
Project Related Concentration Thresholds

Pollutant	Averaging Period	Construction	Operation	Project Only or Total[a]
PM_{10}	Annual	1.0 μg/m^3	1.0 μg/m^3	Project Only
	24-hour	10.4 μg/m^3	2.5 μg/m^3	Project Only
$PM_{2.5}$	24-hour	10.4 μg/m^3	2.5 μg/m^3	Project Only
CO	1-hour	20 ppm (23 mg/m^3)	20 ppm (23 mg/m^3)	Total including Background
	8-hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)	Total including Background
NO_2	1-hour (State)	0.18 ppm (339 μg/m^3)	0.18 ppm (339 μg/m^3)	Total including Background
	1-hour (Federal)[b]	0.100 ppm (188 μg/m^3)	0.100 ppm (188 μg/m^3)	Total including Background
	Annual (State)[c]	0.030 ppm (57 μg/m^3)	0.030 ppm (57 μg/m^3)	Total including Background

27 South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, 2008. Available at http://www.aqmd.gov/ceqa/handbook/LST/Method_final.pdf, Accessed May 2013.

28 South Coast Air Quality Management District, *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds*, (2006).

Table 4.1-7

**SCAQMD CEQA Threshold of Significance for Air Pollutant Concentrations
Project Related Concentration Thresholds**

Pollutant	Averaging Period	Construction	Operation	Project Only or Total[a]
SO_2	1-hour (State)	0.25 ppm (655 μg/m^3)	0.25 ppm (655 μg/m^3)	Total including Background
	1-hour (Federal)[d]	0.075 ppm (196 μg/m^3)	0.075 ppm (196 μg/m^3)	Total including Background
	24-hour	0.04 ppm (105 μg/m^3)	0.04 ppm (105 μg/m^3)	Total including Background

Notes:
[a] The concentration threshold for attainment pollutants (CO, PM_{10}, and NO_2) is the CAAQS, which is at least as stringent as the NAAQS. The concentration threshold for nonattainment pollutants ($PM_{2.5}$) has been developed by SCAQMD for project construction or operational impacts.
[b] To evaluate project impacts to ambient 1-hour NO_2 levels, the analysis includes both the current SCAQMD 1-hour state NO_2 threshold and the more stringent revised 1-hour federal ambient air quality standard of 188 μg/m^3. To attain this standard, the 3-year average of 98th percentile of the daily maximum 1-hour average at a receptor must not exceed 0.100 ppm.
[c] The state standard is more stringent than the federal standard.
[d] To attain the SO_2 federal 1-hour standard, the 3-year average of the 99th percentile of the daily maximum 1-hour averages at a receptor must not exceed 0.075 ppm.
Source: SCAQMD, 1993, 2011; USEPA, 2010a (75 FR 6474, "Primary National Ambient Air Quality Standards for Nitrogen Dioxide, Final Rule," February 8, 2010) and 2010b (75 FR 35520, "Primary' National Ambient Air Quality Standard for Sulfur Dioxide, Final Rule," June 22, 2010).

4.1.5 Project Design Features

4.1.5.1 LAX Master Plan EIS/EIR Commitments

As part of the LAX Master Plan, LAWA adopted several mitigation measures and commitments pertaining to air quality to avoid or reduce environmental impacts, as described in the LAX Master Plan MMRP. Although the proposed Project is not part of the LAX Master Plan, LAWA is committed to implementing the applicable LAX Master Plan commitments to all LAWA projects, including the proposed Project. Of the three commitments and four mitigation measures that were designed to address air quality impacts related to implementation of the LAX Master Plan, none of the commitments are applicable to the proposed Project, but three of the control measures are applicable to the proposed Project and were considered in the air quality analysis herein (denoted below as LAX-AQ-1, LAX-AQ-2, and LAX-AQ-4). The transportation-related control measure (denoted as LAX-AQ-3) is not applicable to the proposed Project because the Project does not include ground transportation access components; thus LAX-AQ-3 was not considered in the air quality analysis herein. The portions of the three air quality control measures that would be applicable to the proposed Project are summarized below in **Table 4.1-8**, **Table 4.1-9**, and **Table 4.1-10**.

- **LAX-AQ-1 – General Air Quality Control Measures.** This measure describes a variety of specific actions to reduce air quality impacts associated with projects at LAX, and applies to all projects. Some components of LAX-AQ-1 are not readily quantifiable, but would be implemented as part of LAX Master Plan projects. Specific measures are identified in **Table 4.1-8**.

Table 4.1-8

General Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Quantified Emissions Reduction
1a	Watering (per SCAQMD Rule 403) – twice daily	Fugitive Dust	55% PM_{10} and $PM_{2.5}$
1b	Ultra-low sulfur diesel (ULSD) fuel will be used in construction equipment.	Off-Road Mobile	Assumed in modeling
1c	Post a publicly visible sign with the telephone number and person to contact regarding dust complaints; this person shall respond and take corrective action within 24 hours.	Fugitive Dust	NQ
1d	Prior to final occupancy, the applicant demonstrates that all ground surfaces are covered or treated sufficiently to minimize fugitive dust emissions.	Fugitive Dust	NQ
1e	All roadways, driveways, sidewalks, etc., being installed as part of the project should be completed as soon as possible; in addition, building pads should be laid as soon as possible after grading.	Fugitive Dust	NQ
1f	Prohibit idling or queuing of diesel-fueled vehicles and equipment in excess of five minutes. This requirement will be included in specifications for any LAX projects requiring on-site construction.[b]	Nonroad Mobile	NQ
1g	Require that all construction equipment working on-site is properly maintained (including engine tuning) at all times in accordance with manufacturers' specifications and schedules.	Mobile and Stationary	NQ

Notes:
NQ = Not Quantified
[a] These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.
[b] From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.M.
Source: Los Angeles World Airports, *LAX Master Plan Final EIS/EIR*, April 2004; Los Angeles World Airports, *Community Benefits Agreement*, 2006.

- **LAX-AQ-2 - Construction-Related Control Measures.[29]** This measure describes numerous specific actions to reduce fugitive dust emissions and exhaust emissions from on-road and off-road mobile and stationary sources used in construction. Some components of LAX-AQ-2 are not readily quantifiable, but would be implemented as part of LAX projects.

29 The mitigation elements presented in LAX-AQ-2 were derived from LAX Master Plan EIS/EIR Mitigation Measure MM-AQ-3.

These control strategies are expected to reduce construction-related emissions. Specific measures are identified in **Table 4.1-9**.

Table 4.1-9

Construction-Related Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Potential Emissions Reduction by Equipment
2a	All diesel-fueled equipment used for construction will be outfitted with the best available emission control devices, where technologically feasible, primarily to reduce emissions of diesel particulate matter (PM), including fine PM (PM2.5), and secondarily, to reduce emissions of NO_x. This requirement shall apply to diesel-fueled off-road equipment (such as construction machinery), diesel-fueled on-road vehicles (such as trucks), and stationary diesel-fueled engines (such as electric generators). (It is unlikely that this measure will apply to equipment with Tier 4 engines.) The emission control devices utilized in construction equipment shall be verified or certified by California Air Resources Board or US Environmental Protection Agency for use in on-road or off-road vehicles or engines. For multi-year construction projects, a reassessment shall be conducted annually to determine what constitutes a best available emissions control device.[b]	Off-Road Mobile	85% PM10 PM2.5, adjusted for compatibility
2b	Watering (per SCAQMD Rule 403) – three times daily	Fugitive Dust	61% PM_{10} and 61% $PM_{2.5}$
2c	Pave all construction access roads at least 100 feet onto the site from the main road.	Fugitive Dust	NQ
2d	To the extent feasible, have construction employees' work/commute during off-peak hours.	On-Road Mobile	NQ
2e	Make available on-site lunch trucks during construction to minimize off-site worker vehicle trips.	On-Road Mobile	NQ
2f	Utilize on-site rock crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck haul trips.	Nonroad Mobile	NQ
2g	Specify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using "clean burning diesel" fuel and exhaust emission controls.	Stationary Point Source Controls	NQ
2h	Suspend use of all construction equipment during a second-stage smog alert in the immediate vicinity of LAX.	Mobile and Stationary	NQ
2i	Utilize construction equipment having the minimum practical engine size (i.e., lowest appropriate horsepower rating for intended job).	Mobile and Stationary	NQ
2j	Prohibit tampering with construction equipment to increase horsepower or to defeat emission control devices.	Mobile and Stationary	NQ
2k	The contractor or builder shall designate a person or persons to ensure the implementation of all components of the construction-related measure through direct inspections, record reviews, and investigations of complaints.	Administrative	NQ

Table 4.1-9

Construction-Related Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Potential Emissions Reduction by Equipment
2l	LAWA will locate rock-crushing operations and construction material stockpiles for all LAX-related construction in areas away from LAX-adjacent residents, to the extent possible, to reduce impacts from emissions of fugitive dust.[c]	Stationary	Can be quantified in modeling assumptions
2m	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[d]	Mobile	NQ
2n	On-road trucks used on LAX construction projects with a gross vehicle weight rating of at least 19,500 pounds shall, at a minimum, comply with USEPA 2007 on-road emissions standards for PM10 and NO_x.[e]	On-Road Mobile	Assumed in modeling
2o	Prior to January 1, 2015, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet USEPA Tier 3 off-road emission standards. After December 31, 2014, all off-road diesel-power construction equipment greater than 50 horsepower shall meet USEPA Tier 4 off-road emissions standards. Tier 4 equipment shall be considered based on availability at the time the construction bid is issued. LAWA will encourage construction contractors to apply for SCAQMD “SOON” funds to accelerate clean-up of off-road diesel engine emissions.[f]	Off-Road Mobile	Assumed in modeling

Notes:

[a] These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.

[b] From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.F.

[c] From Community Benefits Agreement Measure X.L.

[d] From Community Benefits Agreement Measure X.N.

[e] From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.

[f] From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.

Source: Los Angeles World Airports, *LAX Master Plan Final EIS/EIR*, April 2004; Los Angeles World Airports, *Community Benefits Agreement*, 2006; Los Angeles World Airports, *Preliminary LAX Specific Plan Amendment Study Report for Los Angeles International Airport (LAX) Specific Plan Amendment Study*, June 2012.

- **LAX-AQ-4 – Operations-Related Control Measures.** The principle feature of this measure is the conversion of LAX GSE to low and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). It should be noted that no estimate of the air quality benefit (i.e., emission reductions) of other secondary measures is made in this analysis. Specific measures are identified in **Table 4.1-10**.

Table 4.1-10

Operations-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
4a	LAX GSE will be converted to low- and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). Both LAWA- and tenant-owned equipment will be included in this conversion program, which will be implemented in phases. LAWA will assign a GSE coordinator whose responsibility it will be to ensure the successful conversion of GSE in a timely manner. This coordinator will have adequate authority to negotiate on behalf of the City and have sufficient technical support to evaluate technical issues that arise during the implementation of this measure.2	Airside Operations
4d	LAWA will require the use of electric lawn mowers and leaf blowers, as these units become available for commercial use, for landscape maintenance associated with the proposed project.3	General
4e	LAWA will require the conversion of sweepers to alternative fuels or electric power for ongoing airfield and roadway maintenance. In the 2006 GSE inventory, two of ten sweepers were electric powered and one was either CNG or LPG fueled. HEPA filters will be installed on airport sweepers where the use of HEPA filters is technologically and financially feasible and does not pose a safety hazard to airport operations.4	General
4f	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.5	Operational Vehicles.

Notes:

NQ = Not Quantified

1. These measures are from LAX Master Plan Mitigation Measure MM-AQ-4, unless otherwise noted.
2. From Community Benefits Agreement Measure X.F.
3. From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-3.
4. From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-3.
5. From Community Benefits Agreement Measure X.N.

4.1.6 Impact Analysis

4.1.6.1 Construction Emissions

Regional Construction Emissions

The peak daily emissions were calculated for each phase of construction, and are presented in **Table 4.1-11** for all criteria and precursor pollutants studied (VOC, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$). As shown therein, construction-related daily (short-term) emissions of NO_X would exceed SCAQMD significance thresholds for unmitigated construction emissions. These calculations include reductions achieved with implementation of mandated dust control measures, as required by SCAQMD Rule 403 (Fugitive Dust).

These calculations also include reductions achieved with implementation of exhaust controls. The proposed Project would implement measures to reduce emissions from the combustion of fossil fuels. The proposed Project would use equipment that meet stringent emission standards for NO_X, PM_{10}, and $PM_{2.5}$, which would result in emission reductions compared to fleet-wide average emissions for heavy-duty construction equipment and trucks in the southern California region. As discussed in Section 4.1.5, on-road trucks would comply with the USEPA 2007 on-road emissions standards for NO_2 and diesel particulate matter or DPM (primarily $PM_{2.5}$). Compliance with the USEPA 2007 on-road emission standards result in a reduction of NO_2 and DPM by approximately 40 percent and 22 percent, respectively, compared to fleet-wide average emissions for heavy-duty trucks. Due to the high number of trucks needed for the grading work, the proposed Project has additionally committed to using only haul trucks that would comply with the USEPA 2007 on-road emissions standards for NO_2 and DPM during the mass grading phase of construction. Off-road diesel-powered construction equipment greater than 50 horsepower (hp) would meet USEPA Tier 3 off-road emissions standards prior to January 1, 2015, and Tier 4 standards after December 31, 2014. Compliance with the USEPA Tier 3 and Tier 4 off-road emissions standards would also result in substantial reduction in emissions of NO_2 and DPM compared to fleet-wide average emissions for heavy-duty construction equipment.

Table 4.1-11

Peak Daily Construction Emissions

Pollutant	Emissions (lbs/day)	SCAQMD Threshold (lbs/day)	Significant?
CO	529	550	No
VOC	39	75	No
NO_x	**190**	100	**Yes**
SO_2	2	150	No
PM_{10}	52	150	No
$PM_{2.5}$	11	55	No

Source: URS Corporation and Ricondo and Associates, Inc., August 2013.

As indicated in **Table 4.1-11**, the proposed Project's peak daily emissions of NO_x would exceed the SCAQMD regional construction emissions threshold. Peak daily emissions of CO, VOC, PM_{10}, $PM_{2.5}$, and SO_2 were found to below the SCAQMD construction thresholds. The majority of the construction emissions for the proposed Project would be associated with pavement reconstruction of Taxiways B and F and with improvements to Runway 25R. To a lesser extent the service road relocation on the west side of the Project site and reconstruction of the apron on the eastern Project site would also contribute to the exceedance. As discussed in Section 4.1.6, Tier 4 pollution control measures were included in the evaluation of construction emissions; however, an exceedance of NOx would still occur during construction. Therefore, construction emissions of NO_x would be significant.

Localized Construction Impacts

As discussed in Section 4.1.2, Methodology, above, the localized effects from the on-site portion of daily emissions are evaluated at nearby sensitive receptor locations potentially impacted by the proposed Project consistent with the methodologies in the SCAQMD's *Final Localized Significance Threshold Methodology.* The SCAQMD recommends that lead agencies perform project-specific air quality modeling for larger projects.[30] The Project area exceeds five acres in total size; therefore, Project-specific dispersion modeling was used to assess localized construction impacts rather than the mass emission rate look-up tables. The project-specific air quality modeling of localized construction impacts was done in a manner consistent with the mass emission rate look-up tables in the SCAQMD's *Final Localized Significance Threshold Methodology* (June 2008).

Ambient concentrations resulting from construction-related activities for the proposed Project are presented in **Tables 4.1-12** and **4.1-13**. **Table 4.1-12** addresses CO, NO_2, and SO_2, for which the applicable thresholds of significance require the inclusion of background concentrations (see **Table 4.1-7**). **Table 4.1-13** addresses PM_{10} and $PM_{2.5}$, which include only the Project-related concentrations, without background concentrations, pursuant to the applicable thresholds of significance (see **Table 4.1-7**).

The air pollutant concentrations shown in **Tables 4.1-12** and **4.1-13**, represent the highest concentrations at the fence line of the Airport, as shown in **Figure 4.1-1**. With the exception of NO_2, all the analyzed air pollutants were found to be below the NAAQS and CAAQS thresholds. 1-hour concentrations of NO_2 were found to exceed the CAAQS thresholds at three of the 327 LAX fence line locations that were evaluated (**Figure 4.1-2**). All of these were located at offsite worker locations closest to the eastern end of Runway 6L-24R and 6R-24L and not at residential locations or other sensitive receptors (see **Figure 4.1-2**). The three exceedances of the 1-hour NO_2 concentrations included both Project-related emissions and background ambient levels and were found to be five to six percent above the CAAQS thresholds. NO_2 concentrations were found to be below the 1-hour NAAQS and annual CAAQS thresholds. The cause of the exceedance of the 1-hour NO_2 CAAQS threshold is due to the shift in runway use for aircraft operations that would occur during the proposed 3.5-month closure of Runway 7L/25R. Therefore, construction concentrations for NO_2 would be significant. Construction concentrations for all other criteria pollutants would be less than significant.

[30] South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, 2008. Available at http://www.aqmd.gov/ceqa/handbook/LST/Method_final.pdf, Accessed May 2013, 1-5.

Table 4.1-12

Peak Construction Concentrations for CO, NO_2, and SO_2 Pollutants

Pollutant	Averaging Period	Project ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total ($\mu g/m^3$)	Threshold ($\mu g/m^3$)	Significant?
CO	CAAQS 1-Hour	1	3	4	20	No
	CAAQS/ NAAQS 8-Hour	<1	2.19	3	9	No
NO_2	CAAQS 1-Hour	0.92	0.98	**0.19**	0.18	**Yes**
	CAAQS Annual	0.007	0.014	0.021	0.030	No
	NAAQS 1-Hour	0.031	0.065	0.096	0.100	No
SO_2	CAAQS 1-Hour	0.051	0.012	0.063	0.25	No
	CAAQS 24-Hour	0.004	0.006	0.01	0.04	No
	NAAQS 1-Hour	0.051	0.012	0.063	0.075	No

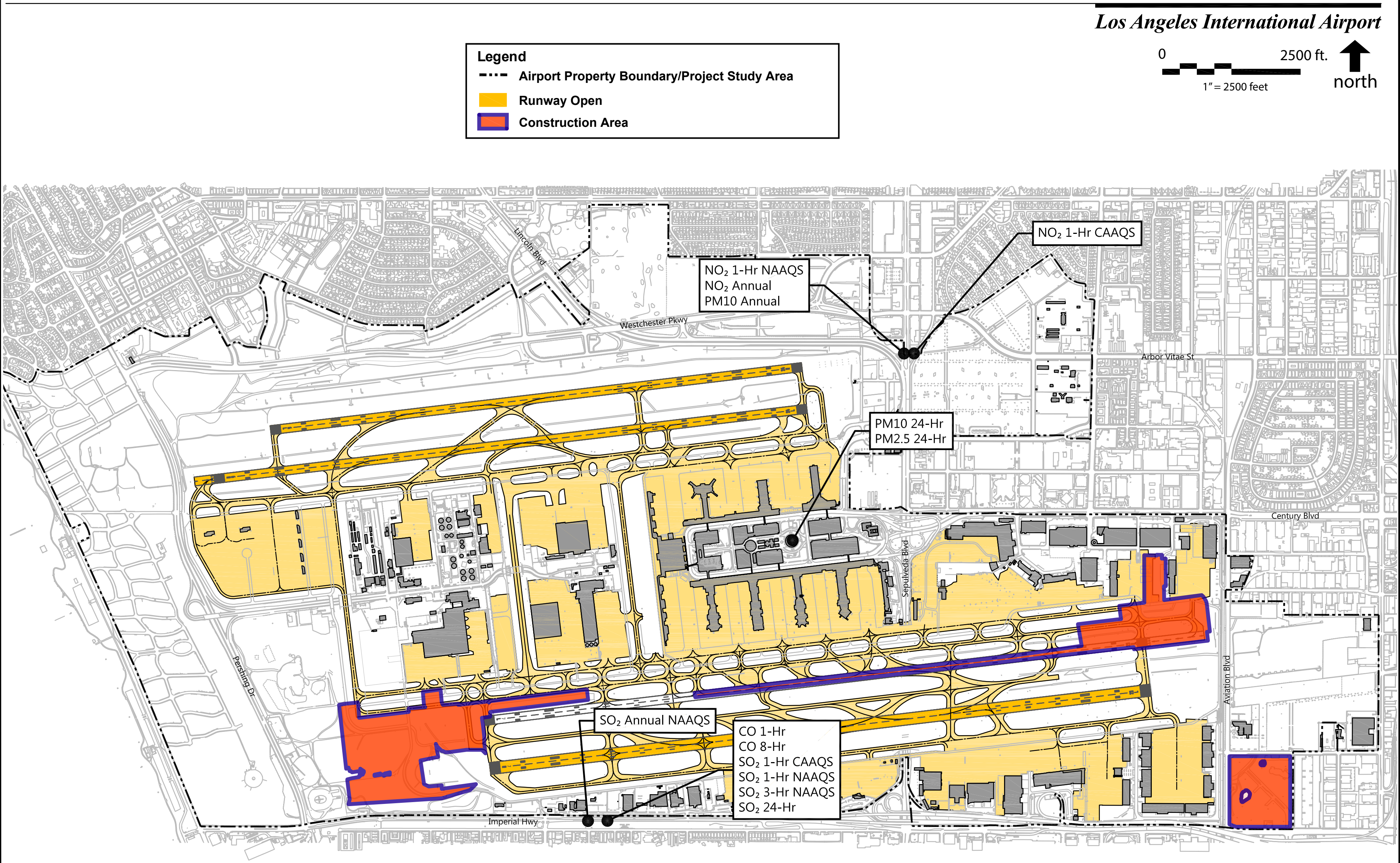
Source: URS Corporation and Ricondo and Associates, Inc., August 2013.

Table 4.1-13

Peak Construction Concentration of PM_{10} and $PM_{2.5}$

Pollutant	Averaging Period	Project ($\mu g/m^3$)	Threshold ($\mu g/m^3$)	Significant?
PM_{10}	24-Hour	1.4	10.4	No
	Annual	0.2	1.0	No
$PM_{2.5}$	24-Hour	1.4	10.4[a]	No
	Annual	0.2	1.0	No

Notes:
[a] The threshold for $PM_{2.5}$ is for a 1-Hour Averaging Period.
Source: URS Corporation and Ricondo and Associates, Inc., August 2013.



Sources: LAWA, 2013; Ricondo & Associates, Inc., August 2013 ; Prepared by: Ricondo & Associates, Inc., August 2013.

FIGURE 4.1-1

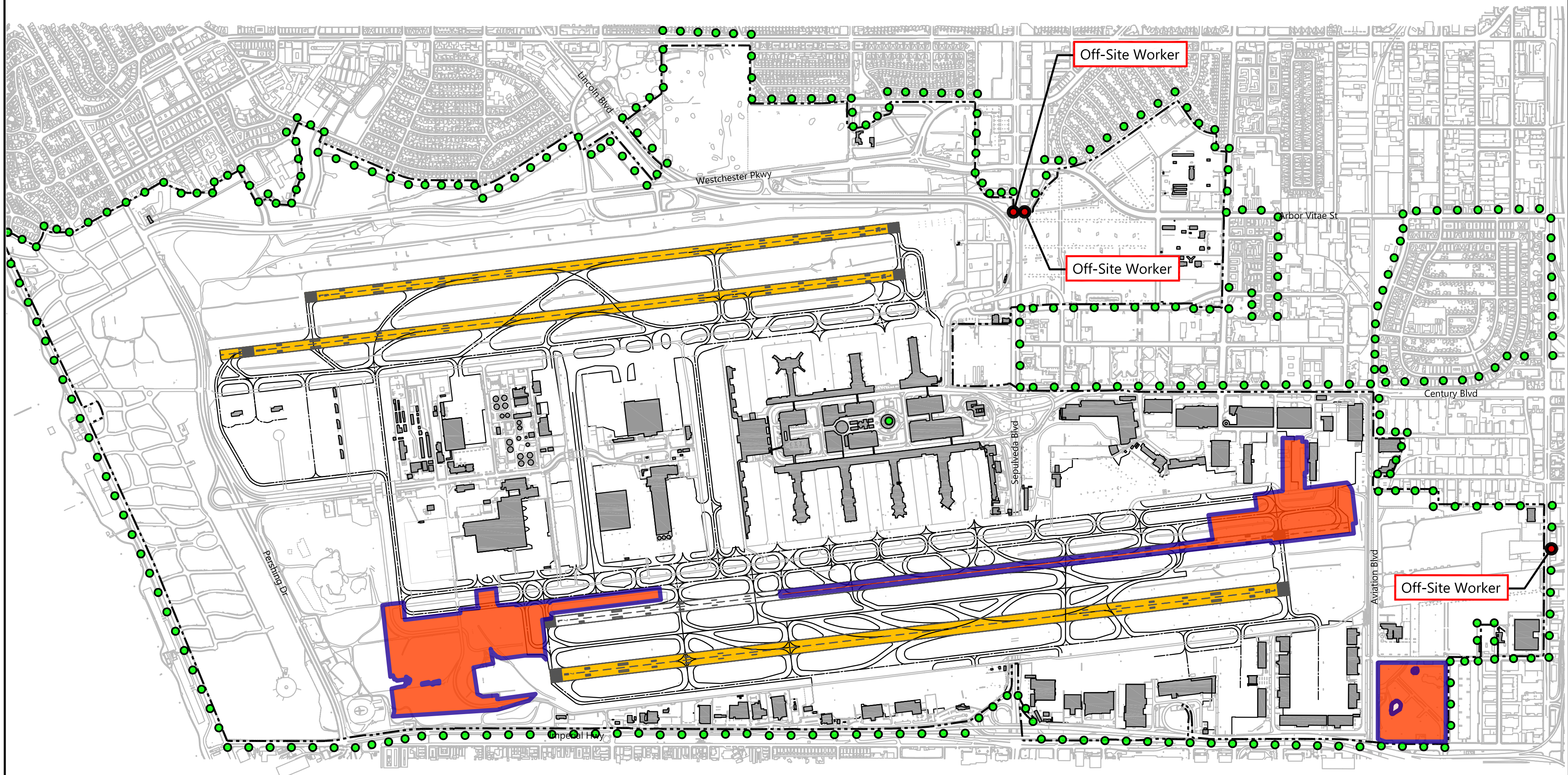
Peak Construction Concentrations

Environmental Impact Report
Runway 7L/25R RSA and
Associated Improvements Project

Los Angeles International Airport

Legend
- Airport Property Boundary/Project Study Area
- Below NO_2 1-Hr CAAQS
- Above NO_2 1-Hr CAAQS
- Runway Open
- Construction Area

0 2000 ft.
1" = 2000 feet
north



Sources: LAWA, 2013; Ricondo & Associates, Inc., August 2013 ; Prepared by: Ricondo & Associates, Inc., August 2013.

FIGURE 4.1-2	NO_2 1-Hr CAAQS Threshold Significant Points	Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project

Odors

Potential sources that may emit odors during construction activities include the use of architectural coatings and solvents and from diesel emissions. SCAQMD Rule 1113 limits the amount of VOCs from architectural coatings and solvents. The proposed Project would comply with DPM reduction strategies such as compliance with USEPA 2007 on-road emission standards for heavy-duty trucks and USEPA Tier 3 and Tier 4 off-road emission standards for heavy-duty construction equipment. Due to mandatory compliance with SCAQMD Rules and compliance with the DPM reduction strategies, no construction activities or materials are proposed which would create objectionable odors affecting a substantial number of people. In addition, the nearest sensitive receptors are located beyond the LAX property line and would be further buffered by the dissipation of odors with distance and prevailing winds. Therefore, no impact would occur and no mitigation measures would be required.

4.1.6.2 Operations

Regional Operational Emissions

Upon completion of the proposed Project, there is an anticipated increase in the taxi-out time of 0.01 minutes, as discussed in Section 4.1.2.2. For a comparison to baseline conditions, the incremental change in taxi times that would result if the Project were operational was compared to existing baseline conditions; the results are presented in **Table 4.1-14**. As shown in **Table 4.1-14**, the incremental Project operational emissions after implementation of the proposed Project subtracting the baseline (2011) conditions does not exceed the significance thresholds that are presented in **Table 4.1-6**.

Table 4.1-14

Incremental Project Operational Emissions Compared to Baseline (2011) Conditions

	Criteria Pollutant					
Source	**CO**	**VOC**	**NOx**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	6	<1	1	<1	<1	<1
Threshold	*550*	*55*	*55*	*150*	*150*	*55*
Significant?	No	No	No	No	No	No

Source: URS Corporation and Ricondo and Associates, Inc., September 2013.

For **Table 4.1-15**, the incremental project operational emissions were determined by calculating the aircraft emissions in 2015 after implementation of the proposed Project, then subtracting the 2015 Without Project conditions. The incremental project emissions were then compared to the significance thresholds that are presented in **Table 4.1-6**.

Table 4.1-15

Incremental Project Operational Emissions Compared to 2015 Without Project Conditions

	Criteria Pollutant					
Source	**CO**	**VOC**	**NOx**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project	6	<1	1	<1	<1	<1
Threshold	*550*	*55*	*55*	*150*	*150*	*55*
Significant?	No	No	No	No	No	No

Source: URS Corporation and Ricondo and Associates, Inc., August 2013.

As indicated in **Table 4.1-14**, operational emissions associated with the Project would not be significant when compared to baseline conditions. In comparison to the 2015 Without Project scenario, the proposed Project would also not have significant impacts for any criteria pollutant (**Table 4.1-15**).

Localized Operational Concentrations

The proposed Project would not increase aircraft operational levels as compared to the Without Project scenario for the same year. An increase of 0.01 minutes in the taxi time out would result in a small incremental increase in emissions associated with the operational phase that would not substantially increase air pollutant concentrations at sensitive receptors proximate to the Airport. Therefore, operational concentrations would be less than significant.

Odors

According to the SCAQMD CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed Project does not include any uses identified by the SCAQMD as being associated with odors. As the proposed Project activities would not be a source of odors, potential odor impacts would be less than significant.

4.1.7 Cumulative Impacts

The SCAQMD has provided guidance on an acceptable approach to addressing the cumulative impacts issue for air quality.[31]

> "As Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR…Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that

[31] South Coast Air Quality Management District, Cumulative Working Group White Paper website, http://www.aqmd.gov/rules/CIWG/index.html, Accessed March 2013.

do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

As shown in **Table 4.1-11**, construction of the proposed Project would exceed the Project-specific significance thresholds for emissions of NO_X. As a result, the proposed Project would have a cumulatively considerable contribution for construction emissions and would result in a cumulatively significant construction impact. As shown in **Tables 4.1-14** and **4.1-15**, emissions attributable to the proposed Project would not exceed the Project-specific significance thresholds. Thus, the proposed Project would not have a cumulatively considerable contribution for operational emissions and would result in a cumulatively less than significant operational impact.

For disclosure purposes, a list of past, present, and probable future LAWA projects that could overlap in time for construction are provided in **Table 4.1-16** along with estimated mass emissions. The projects listed in **Table 4.1-16** include related LAWA projects planned on the entire LAX property (3,650 acres) and not just the proposed Project site. Emissions for several of these related LAWA projects were estimated or obtained from publicly available and readily accessible environmental documents. Construction emissions for other projects were estimated based on the ratio of the project costs as compared to the proposed Project, the ratio of construction trip intensity, and the ratio of the emissions using the proposed Project as a reference baseline. As shown in **Table 4.1-16**, the cumulative construction project emissions would exceed the SCAQMD daily thresholds of significance. Calculation details are provided in Appendix B. The calculations are considered to be conservative because it assumes overlapping construction emissions from the related LAWA projects listed in **Table 4.1-16**.

Table 4.1-16

Cumulative Construction Projects Peak Daily Emissions Estimates

	Peak Potentially Overlapping Daily Emissions (lbs/day)					
Construction-Period Related LAWA Projects[a]	**VOC**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
1. West Aircraft Maintenance Area	23	133	245	<1	11	6
2. Runway Safety Area Improvements-North Airfield	37	306	366	1	17	9
3. LAX Bradley West Project – Remaining Work	128	580	531	1	137	43
4. T-3 Connector (Part of BWP)	--[b]	--[b]	--[b]	--[b]	--[b]	--[b]
5. North Terminals Major Renovation (T-1)	100	836	999	2	48	24
6. South Terminals Major Renovation (T-5 through T-8)	175	1,463	1,748	4	84	42
7. Midfield Satellite Concourse: Phase 1 - North Concourse Project	175	1,466	1,752	4	84	42
8. Central Utility Plant Replacement Project – Remaining Work	--[b]	--[b]	--[b]	--[b]	--[b]	--[b]
9. Miscellaneous Projects/Improvements	62	520	621	1	30	15
10. LAX Northside Area Development	N/A[c]	N/A[c]	N/A[c]	N/A[c]	N/A[c]	N/A[c]

Table 4.1-16

Cumulative Construction Projects Peak Daily Emissions Estimates

Construction-Period Related LAWA Projects[a]	Peak Potentially Overlapping Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
11. LAX Master Plan Alt. D/SPAS Alt. 3	369	4,765	1,869	5	1,956	309
12. Metro Crenshaw / LAX Transit Corridor and Station	--[b]	--[b]	--[b]	1	29	18
Total from Other Construction Projects	1,069	10,069	8,131	19	2,396	508
Proposed Project Peak Overlapping Daily Emissions	**39**	**190**	**529**	**2**	**52**	**11**
Total Cumulative Construction Project Emissions	**1,108**	**10,259**	**8,660**	**21**	**2,448**	**519**
SCAQMD Construction Emission Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Emissions Exceed SCAQMD Project-Level Threshold?	**Yes**	**Yes**	**Yes**	No	**Yes**	**Yes**

Notes:
[a] Project construction is estimated to occur from 2014 to 2018, with the primary construction activity occurring in 2014 and 2015.
[b] Project is not anticipated to result in overlapping construction emissions from this related project during the estimated combined peak day.
[c] Estimated construction emissions not available.
Sources: CDM Smith (list and characteristics of proposed Project and concurrent projects), August 2013; Crenshaw/LAX Transit Corridor Project FEIR (Metro Crenshaw/LAX Transit Corridor cost), August 2011; www.metro.net/projects/crenshaw_corridor.com (Metro Crenshaw/LAX Transit Corridor schedule), accessed November 12, 2012; Ricondo & Associates, Inc., August 2013.

4.1.8 Mitigation Measures

LAWA is committed to mitigating temporary construction-related emissions to the extent practicable and has established some of the most aggressive construction emissions reduction measures in southern California, particularly with regard to requiring construction equipment to be equipped with emissions control devices. The specific means for implementing the project design features described in Section 4.1.5 were first approved and implemented as part of the South Airfield Improvement Project, and would also be applied to the proposed Project.

Project design features described in Section 4.1.5 also include those required by the CBA. These measures establish a commitment and process for incorporating all technically feasible air quality mitigation measures into each component of the LAX Master Plan, as well as LAX projects that are independent of the LAX Master Plan. In addition, the Los Angeles Green Building Code Tier 1 standards, which are applicable to all projects with an Los Angeles Department of Building and Safety permit-valuation over $200,000, require the proposed Project to implement a number of measures that would reduce criteria pollutant and greenhouse gas emissions. These include measures such as: further reduce vehicle and equipment idling times; comply with Tier 4 emission standards for non-road diesel equipment; retrofit existing diesel equipment with particulate filters and oxidation catalysts; replace aging equipment with new low-emission models; and consider the use of alternative fuels for construction equipment. LAWA has not identified any additional feasible measures that could be adopted at this time.

Therefore, no additional project-specific mitigation measures are recommended in connection with the proposed Project.

It is estimated that the proposed Project would have significant impacts relative to concentrations of NO_2 during the construction period (specifically during the 3.5-month closure of the runway). As indicated in the impacts discussion above, the vast majority (over 95 percent) of the emissions contributing to those significant impacts (i.e., causing exceedances of the 1-hour CAAQS) would occur from the shifting of aircraft operations to other runways when Runway 7L-25R is closed. Other than potential future improvements in aircraft engine technology and associated reductions in air pollutant emissions, there are no feasible means to mitigate emissions during aircraft takeoff because the only measures are related to aircraft operational options, such as reduced thrust take-off, which are at the sole discretion of the pilot. However, as noted above, LAWA is committed to mitigating operational air quality impacts to the maximum extent feasible. The specific measures described in Section 4.1.5 would also be applied to the proposed Project. Although these measures would not mitigate impacts to a level that is less than significant, they would reduce impacts associated with the proposed Project to the extent feasible.

4.1.9 Level of Significance after Mitigation

Even with incorporation of feasible construction-related project design features as described above, the peak daily construction-related regional mass emissions resulting from the proposed Project would be significant for NO_X during the proposed 3.5-month runway closure required during Project construction. LAWA has not identified any additional feasible mitigation measures that could be adopted at this time.

4.2 GREENHOUSE GAS EMISSIONS

4.2.1 Introduction

This section describes applicable federal, state, and local regulations that address greenhouse gas (GHG) emissions and global climate change (GCC) in California and the City of Los Angeles. Existing climate conditions and influences on GCC are also described, and an analysis is provided to assess potential cumulative and project-related contributions to GCC that could result from the proposed Project. The analysis accounts for energy and resource conservation measures that have been incorporated into the proposed Project and pertinent state-mandated GHG emission reduction measures. Air quality effects associated with criteria pollutant (ambient air pollutant) emissions are discussed in Chapter 4.1, *Air Quality*, of this EIR. GHG emission calculations prepared for the proposed Project are provided in Appendix B of this Draft EIR.

4.2.1.1 Global Climate Change

Briefly stated, GCC is a change in the average climatic conditions of the earth, as characterized by changes in wind patterns, storms, precipitation, and temperature. The baseline by which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. Many of the recent concerns over GCC use these data to extrapolate a level of statistical significance, specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) developed several emission projections of GHGs needed to stabilize global temperatures and climate change impacts. The IPCC predicted that the range of global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 to 6.4 degrees Celsius (ºC).[1] Regardless of analytical methodology, global average temperature and mean sea level are expected to rise under all scenarios.

Climate models applied to California's conditions project that, under different scenarios, temperatures in California are expected to increase by 3 to 10.5 degrees Fahrenheit (ºF).[2] Almost all climate scenarios include a continuing trend of warming through the end of the century given the substantial amounts of GHGs already released, and the difficulties associated with reducing emissions to a level that would stabilize the climate. According to the *2006 California Climate Action Team Report*, the following climate change effects are predicted in California over the course of the next century[3]:

- A diminishing Sierra snowpack declining by 70 to 90 percent, threatening the state's water supply.

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1 Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, 2007.

2 California Climate Change Center, *Our Changing Climate: Assessing the Risks to California*, 2006.

3 California Environmental Protection Agency, Climate Action Team, *Report to Governor Schwarzenegger and the California Legislature,* March 2006.

- Increasing temperatures, as noted above, of up to approximately 10 ºF under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas.
- Coastal erosion along the length of California and seawater intrusion into the Sacramento-San Joaquin River Delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions.
- Increased vulnerability of forests due to pest infestation and increased temperatures.
- Increased challenges for the state's important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Sacramento-San Joaquin River Delta.
- Increased electricity demand, particularly in the hot summer months.

As such, temperature increases would lead to adverse environmental impacts in a wide variety of areas, including: sea level rise, reduced snowpack resulting in changes to existing water resources, increased risk of wildfires, and public health hazards associated with higher peak temperatures, heat waves, and decreased air quality.

4.2.1.2 Greenhouse Gases

Parts of the earth's atmosphere act as an insulating blanket, trapping sufficient solar energy to keep the global average temperature in a suitable range. The blanket is a collection of atmospheric gases called GHGs. These gases – primarily water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) – all act as effective global insulators, reflecting back to earth visible light and infrared radiation. Human activities, such as producing electricity and driving vehicles, have elevated the concentrations of these gases in the atmosphere. Many scientists believe that these elevated levels, in turn, are causing the earth's temperature to rise. A warmer earth may lead to changes in rainfall patterns, much smaller polar ice caps, a rise in sea level, and a wide range of impacts on plants, wildlife, and humans.

Climate change is driven by "forcings" and "feedbacks." Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. A feedback is "an internal climate process that amplifies or dampens the climate response to a specific forcing."[4] The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas."[5] Individual GHG species have varying GWP and atmospheric lifetimes. The carbon dioxide equivalent (CO_2e) -- the mass emissions of an individual GHG multiplied by its GWP -- is a consistent methodology for comparing GHG emissions because it normalizes various GHG emissions to a consistent metric. The reference gas for GWP is CO_2; CO_2 has a GWP of 1. Compared to CH_4's GWP of

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[4] National Research Council of the National Academies, *Radiative Forcing of Climate Change: Expanding the Concept and Addressing Uncertainties*, 2005.

[5] U.S. Environmental Protection Agency, Glossary of Climate Terms, Online at http://www.epa.gov/climatechange/glossary.html, accessed February 14, 2012.

21,[6] CH_4 has a greater global warming effect than CO_2 on a molecule-per-molecule basis. **Table 4.2-1** identifies the GWP of several select GHGs.

Table 4.2-1

Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100 Year Time Horizon)
Carbon Dioxide	50 - 200	1
Methane	12 $\pm$ 3	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: Perfluromethane (CF_4)	50,000	6,500
PFC: Perfluoroethane (C_2F_6)	10,000	9,200
Sulfur Hexafluoride (SF_6)	3,200	23,900

Source: Intergovernmental Panel on Climate Change*, Climate Change 1995: The Science of Climate Change. Contribution of Working Group I to the Second Assessment Report (SAR) of the Intergovernmental Panel on Climate Change*, 1996.[7]

4.2.2 Methodology

4.2.2.1 Construction

Air emissions occurring as the result of construction activity vary, based on projects' duration and level of activity. Construction emissions occur mostly as exhaust products from the operation of construction equipment and vehicles, but can also occur as fugitive dust emissions from land disturbance during material staging, demolition, and movement. Evaporative emissions also result from asphalt paving operations. The type of construction equipment commonly used can be categorized as both off-road and on-road equipment. Off-road equipment is typically used for earthwork, paving, demolition, and other onsite activities, while on-road equipment is typically used to transport and deliver supplies, materials, and employees.

Activity levels and aircraft/engine assignments for on-road construction vehicles were developed based on requirements and schedules developed for both build alternatives. On-road emission factors were computed using region-specific data developed by the CARB EMFAC2011 emissions model. A schedule of planned construction activities, including vehicle miles traveled estimates for on-road construction vehicles, was developed by construction subtask. GHG emissions associated with these activities were computed by factoring these data against

6 Intergovernmental Panel on Climate Change (IPCC), *Climate Change 1995: The Science of Climate Change. Contribution of Working Group I to the Second Assessment Report (SAR) of the Intergovernmental Panel on Climate Change*, 1996.

7 GWP values have been updated in IPCC's subsequent assessment reports (e.g., Third Assessment Report [TAR], etc.). However, in accordance with international and U.S. convention to maintain the value of the carbon dioxide 'currency', GHG emission inventories are calculated using the GWPs from the IPCC SAR.

County of Los Angeles-specific emissions factors within EMFAC2011, in grams per mile and grams per idle hour.

Construction equipment and fuel type, estimated horsepower, and estimated annual hours of operation required for the construction subtasks were also developed. The annual hours of operation were based on the material use and production rates; generally as a result of an 8-hour-per-day, 6-day-per-week work week. Non-road exhaust emission factors were calculated using the CARB OFFROAD2007 and OFFROAD2011 emissions model. This information was applied to criteria pollutant emissions factors, in grams per horsepower-hour, using a combination of the OFFROAD2011 and supplementing additional emission rates from the OFFROAD2007 model. Based on the SCAQMD emissions model default data (CalEEMod, Version 9.2.4), the average commute distance for construction employees was set to 13.3 miles (26.6 miles round trip).

Emissions inventories were also developed for the aircraft operational emissions during construction. To allow for the rehabilitation of portions of the Runway 7L/25R pavement, the runway must be temporarily closed for an extended period of time (estimated at 3.5 months). During this time, the operations from this runway must be accommodated through the use of other runways at LAX. This shift in operations may cause airfield and/or airspace delays resulting in increased arrival and departure taxi times. An increase in taxi travel times can result in increased emissions.

GHG emissions were calculated for the years for which construction activity would occur in combination with the increase in emissions associated with the shift in aircraft operations. The total emissions associated with both construction activities and shifted aircraft operations were amortized over a 30-year period based on SCAQMD guidance.[8] The total GHG emissions associated with the proposed Project were then compared to the CARB, SCAQMD, and SPAS project significance thresholds to determine if an exceedance would occur. Exceedances of this thresholds are considered to result in a significant impact to climate change.

4.2.2.2 Operations

Neither the fleet composition nor operational levels of aircraft serving LAX would change as a result of the proposed Project. The operational emissions are only related to the extension of the western end of Runway 7L/25R and the resultant decrease/increase in taxi travel distance from the runway ends to the terminal areas as a function of runway usage.

Thus, criteria pollutant emissions from aircraft were computed for the proposed Project using the FAA's Emissions and Dispersion Modeling System (EDMS), the FAA-required and USEPA-preferred model to calculate emissions from aircraft. The aircraft fleet mix and operational levels for the proposed Project were assigned within the EDMS in a manner consistent with the noise assessment (see Appendix B, Noise Technical Report) developed concurrently. Where possible, aircraft engines representing the actual in-use fleet at LAX were applied in EDMS using LAWA's Aircraft Noise and Operations Monitoring System (ANOMS) data, cross-referenced with proprietary fleet data for air carrier and business jet operations, on the basis of reported aircraft tail number. In segments of the fleet where such matches were not possible, EDMS default engine selections were retained. The taxi times for existing conditions were adjusted to future year conditions on the basis of additional estimated taxi distance, holding taxi speed, runway utilization, and delay assumptions.

8 The South Coast Air Quality Management District (SCAQMD), *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (pdf doc.), released October 2008.

Aircraft emissions occur during approach, taxi-in (from runway to apron including landing roll), engine startup at the apron, taxi-out (from apron to runway), takeoff, climb-out, and idling at the gates. However, the proposed Project would only result in slight changes in taxi distances for aircraft departing on Runway 7L, which occurs infrequently.

4.2.3 Existing Conditions

4.2.3.1 Regulatory Setting

International and Federal

International Governmental Panel on Climate Change

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess "the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation."

United Nations Framework Convention on Climate Change

On March 21, 1994, the U.S. joined other countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the UNFCCC, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol

The Kyoto Protocol (or Protocol) is a treaty made under the UNFCCC. Countries can sign the treaty to demonstrate their commitment to reduce their emissions of GHGs or engage in emissions trading. More than 160 countries, accounting for 55 percent of global emissions, are under the protocol. The U.S. symbolically signed the Protocol in 1998. However, in order for the Protocol to be formally ratified, it must be adopted by the U.S. Senate, which has not been done to date. The original GHG reduction commitments made under the Protocol expired at the end of 2012. A second commitment period was agreed to at the Doha, Qatar, meeting held December 8, 2012, which extended the commitment period to December 31, 2020.

Massachusetts *et al.* v. United States Environmental Protection Agency *et al.*

Massachusetts et. al. v. Environmental Protection Agency et. al. (549 U.S. 497 [2007]) was argued before the U.S. Supreme Court on November 29, 2006, in which it was petitioned that USEPA regulate four GHGs, including CO_2, under Section 202(a)(1) of the Clean Air Act (CAA). The Court issued an opinion on April 2, 2007, in which it held that petitioners have standing to challenge the USEPA and that the USEPA has statutory authority to regulate emissions of GHGs from motor vehicles.

Endangerment Finding

The USEPA subsequently published its endangerment finding for GHGs in the Federal Register,[9] which responds to *Massachusetts et. al. v. Environmental Protection Agency et. al*. The USEPA Administrator determined that six GHGs, taken in combination, endanger both the public health and welfare of current and future generations. Although the endangerment finding discusses the effects of six GHGs, it acknowledges that transportation sources only emit four of the key GHGs: CO_2, CH_4, N_2O, and HFCs. Further, the USEPA Administrator found that the combined emissions of these GHGs from new motor vehicles contribute to air pollution that endangers the public health and welfare under the CAA, Section 202(a).

GHG and Fuel Efficiency Standards for Passenger Cars and Light-Duty Trucks

In April 2010, the USEPA and National Highway Traffic Safety Administration (NHTSA) finalized GHG standards for new (model year 2012 through 2016) passenger cars, light-duty trucks, and medium-duty passenger vehicles. Under these standards, CO_2 emission limits would decrease from 295 grams per mile (g/mi) in 2012 to 250 g/mi in 2016 for a combined fleet of cars and light trucks. If all of the necessary emission reductions were made from fuel economy improvements, then the standards would correspond to a combined fuel economy of 30.1 miles per gallon (mpg) in 2012 and 35.5 mpg in 2016. The agencies issued a joint Final Rule for a coordinated National Program for model years 2017 to 2025 light-duty vehicles on August 28, 2012, that would correspond to a combined fuel economy of 36.6 mpg in 2017 and 54.5 mpg in 2025.

GHG and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles

In October 2010, the USEPA and NHTSA announced a program to reduce GHG emissions and to improve fuel efficiency for medium- and heavy-duty vehicles (model years 2014 through 2018). These standards were signed into law on August 9, 2011. The two agencies' complementary standards form a new Heavy-Duty National Program that has the potential to reduce GHG emissions by 270 million metric tons and to reduce oil consumption by 530 million barrels over the life of the affected vehicles.

State

California Assembly Bill 1493 (AB 1493) - Pavley

Enacted on July 22, 2002, this bill required California Air Resources Board (CARB) to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Regulations adopted by CARB apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce GHG emissions from the light-duty and passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030, compared to recent years. In 2011, the U.S. Department of Transportation, USEPA, and California announced a single timeframe for proposing fuel and economy standards, thereby aligning the Pavley standards with the federal standards for passenger cars and light-duty trucks.

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[9] U.S. Environmental Protection Agency, *Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the CAA*, Federal Register 74 (15 December 2009): 66496-66546.

Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following GHG emission reduction targets for all of California: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

California Assembly Bill 32 (AB 32)

AB 32, titled The California Global Warming Solutions Act of 2006 and signed by Governor Schwarzenegger in September 2006, requires CARB to adopt regulations to require the reporting and verification of Statewide GHG emissions and to monitor and enforce compliance with the program. In general, the bill requires CARB to reduce Statewide GHG emissions to the equivalent of those in 1990 by 2020. CARB adopted regulations in December 2007 for mandatory GHG emissions reporting. On August 24, 2011, CARB adopted the scoping plan indicating how emission reductions will be achieved. Part of the scoping plan includes an economy-wide cap-and-trade program. The final cap-and-trade plan was approved on October 21, 2011 and went into effect on January 1, 2013.

California Senate Bill 375 (SB 375)

SB 375 requires CARB to set regional targets for 2020 and 2035 to reduce GHG emissions from passenger vehicles. A regional target was developed for each of the 18 metropolitan planning organizations (MPOs) in the State; the Southern California Association of Governments (SCAG) is the MPO that has jurisdiction over the Project Study Area. A Regional Targets Advisory Committee (RTAC) was appointed by CARB to provide recommendations to be considered and methodologies to be used in CARB's target setting process. The final RTAC report was released on January 23, 2009.

Each MPO is required to develop Sustainable Community Strategies through integrated land use and transportation planning and to demonstrate an ability to attain the proposed reduction targets by 2020 and 2035. CARB issued an eight percent per capita reduction target to the SCAG region for 2020 and a target of 13 percent by 2035. SCAG adopted the Regional Transportation Plan/Sustainable Community Strategies for the six-county Southern California region on April 4, 2012.

Executive Order S-01-07 and the Low Carbon Fuel Standard (LCFS)

California Executive Order S-01-07 established a statewide goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020 from 2005. The Executive Order also mandated the creation of an LCFS for transportation fuels. The LCFS requires that the life-cycle GHG emissions for the mix of fuels sold in California decline on average. Each fuel provider may meet the standard by selling fuel with lower carbon content, using previously banked credits from selling fuel that exceeded the LCFS, or purchasing credit from other fuel providers who have earned credits.[10] On December 29, 2011, U.S. District Judge Lawrence O'Neill granted an injunction to prevent CARB from implementing the LCFS because it violates a federal law on interstate commerce. CARB's motion to stay the decision was also subsequently denied on January 24, 2012 (*Rocky Mountain Farmers Union v. Goldstene, E.D. Cal., No. 09-cv-02234*).

[10] 17 California Code of Regulations, Section 95480 et seq., "Low Carbon Fuel Standard."

California Senate Bill 97 (SB 97)

SB 97 requires the Office of Planning and Research (OPR) to prepare guidelines to submit to the California Natural Resources Agency (CNRA) regarding feasible mitigation of GHG emissions or the effects of GHG emissions as required by CEQA. The CNRA adopted amendments to the *State CEQA Guidelines* for GHG emissions on December 30, 2009. The amendments became effective on March 18, 2010. The guidelines apply retroactively to any incomplete EIR, negative declaration, mitigated negative declaration, or other related document, and are reflected in this EIR.[11]

California Senate Bill 1078 (SB 1078)

SB 1078, also known as The Renewables Portfolio Standard (RPS), requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expands the State's RPS to 33 percent renewable power by 2020. Pursuant to Executive Order S-21-09, CARB was also preparing regulations to supplement the RPS with a Renewable Energy Standard that will result in a total renewable energy requirement for utilities of 33 percent by 2020. But on April 12, 2011, Governor Jerry Brown signed SB X1-2 to increase California's RPS to 33 percent by 2020. Notably, unlike the prior 20 percent RPS, the current 33 percent RPS applies to Publicly Owned Utilities, such as Los Angeles Department of Water and Power (LADWP), which is the utility provider for the City of Los Angeles.

CARB Guidance

The CARB has published draft guidance for setting interim GHG significance thresholds (October 24, 2008). The guidance is the first step toward developing the recommended statewide interim thresholds of significance for GHG emissions that may be adopted by local agencies for their own use. The guidance does not attempt to address every type of project that may be subject to CEQA, but instead focuses on common project types that are responsible for substantial GHG emissions (i.e., industrial, residential, and commercial projects). The CARB believes that thresholds in these important sectors will advance climate objectives, streamline project review, and encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state.

Regional

California Air Pollution Control Officers Association (CAPCOA) Guidance

CAPCOA published a white paper to provide a common platform of information and tools to address climate change in CEQA analyses, including the evaluation and mitigation of GHG emissions from proposed projects and identifying significance thresholds options. The white paper addresses issues inherent in establishing CEQA thresholds, evaluates tools, catalogues mitigation measures, and provides air districts and lead agencies with options for incorporating climate change into their programs.

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[11] Senate Bill 97, August 24, 2007.

SCAQMD Guidance

The South Coast Air Quality Management District (SCAQMD) has convened a GHG CEQA Significance Threshold Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. Members of the working group include government agencies implementing CEQA and representatives from various stakeholder groups that will provide input to the SCAQMD staff on developing GHG CEQA significance thresholds. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD has not adopted guidance for CEQA projects under other lead agencies.

<u>Local</u>

Green LA

In May 2007, the City of Los Angeles introduced *Green LA - An Action Plan to Lead the Nation in Fighting Global Warming*.[12] *Green LA* presents a framework targeted to reduce the City's GHG emissions by 35 percent below 1990 levels by 2030. The plan calls for an increase in the City's use of renewable energy to 35 percent by 2020 in combination with promoting water conservation, improving the transportation system, reducing waste generation, greening the ports and airports, creating more parks and open space, and greening the economic sector. *Green LA* identifies objectives and actions in various focus areas, including airports. The goal for airports is to "green the airports," and the following actions are identified: 1) fully implement the Sustainability Performance Improvement Management System (discussed below); 2) develop and implement policies to meet the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) green building rating standards in future construction; 3) improve recycling, increase use of alternative fuel sources, increase use of recycled water, increase water conservation, reduce energy needs, and reduce GHG emissions; and 4) evaluate options to reduce aircraft-related GHG emissions.

Climate LA

In 2008, the City of Los Angeles followed up *Green LA* with an implementation plan called *Climate LA - Municipal Program Implementing the Green LA Climate Action Plan*.[13] A Departmental Action Plan for LAWA is included in *Climate LA*, which identifies goals to reduce CO_2 emissions 35 percent below 1990 levels by 2030 at LAX and the other three LAWA airports, implement sustainability practices, and develop programs to reduce the generation of waste and pollutants. Actions are specified in the areas of aircraft operations, ground vehicles, electrical consumption, building, and other actions.

Executive Directive No. 10

In July 2007, Mayor Antonio Villaraigosa issued Executive Directive No. 10 regarding environmental stewardship practices. Executive Directive No. 10 requires that City departments, including LAWA, create and adopt a "Statement of Sustainable Building Policies," which should encompass sustainable design, energy and atmosphere, materials and resources, water efficiency, landscaping, and transportation resources. In addition, City departments and

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[12] City of Los Angeles, *Green LA - An Action Plan to Lead the Nation in Fighting Global Warming*, 2007.
[13] City of Los Angeles, *Climate LA - Municipal Program Implementing the Green LA Climate Action Plan*, 2008.

offices must create and adopt sustainability plans that include all the policies, procedures, programs, and policies that are designed to improve internal environmental efficiency. Finally, City departments are required to submit annual sustainability reports to the Mayor for review.[14]

LAWA Sustainability Plan

LAWA's Sustainability Plan developed in April 2008[15] describes LAWA's current sustainability practices and sets goals and actions that LAWA will undertake to implement the initiatives described above (Green LA, Climate LA, and Sustainability Visions and Principles Policy). The Sustainability Plan presents initiatives for the fiscal year 2008-2009 and long-term objectives and targets to meet the fundamental objectives identified above.

LAWA has developed Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects.[16] The Guidelines were developed to provide a comprehensive set of performance standards focusing on sustainability specifically for Airport projects on a project-level basis. A portion of the Guidelines is based on the LEED® rating systems for buildings. The Guidelines incorporate a "LAWA-Sustainable Rating System" based on the number of planning and design points and construction points a project achieves, as based on the criteria and performance standards defined in the Guidelines.

Based on the above, LAWA has taken steps to increase its sustainability practices related to daily Airport operations, many of which directly or indirectly contribute to a reduction in GHG emissions. Actions that LAWA has been undertaking include promoting and expanding the Fly Away non-stop shuttle service to the Airport in an effort to reduce the number of vehicle trips to the Airport, establishment of an employee Rideshare Program, use of alternative fuel vehicles, purchasing renewably generated Green Power from LADWP, and reducing electricity consumption by installing energy-efficient lighting, variable demand motors on terminal escalators, and variable frequency drives on fan units at terminals and LAWA buildings.

LAWA completed a comprehensive emissions inventory in 2008.Additionally, LAWA has completed an Air Quality Apportionment Study that seeks to quantify contribution by LAX to the total emissions and concentrations of air pollutants in the surrounding communities. This study provides an updated baseline to be used for measuring the effectiveness of LAWA's efforts to reduce adverse air emissions.

LAWA defines sustainability (and measures our sustainable performance) as the Triple Bottom Line, consistent with the Global Reporting Initiative (GRI) and CEQA, which are the social, economic, and environmental impacts of our organization. All projects are subject to various sustainable requirements in the City of Los Angeles and at LAWA, including, but not limited to:

- Los Angeles Green Building Code (LAGBC) (Ordinance 181479);
- Low Impact Development (Ordinance 181899);
- Standard Urban Stormwater Mitigation Plan (Ordinance 173494);
- Demolition Debris Recycling Program (Ordinance 181519);
- LAX Construction & Maintenance Services – Recycling Program; and

[14] Antonio R. Villaraigosa, *Executive Directive No. 10, Sustainable Practices in the City of Los Angeles,* July 2007.
[15] City of Los Angeles, Los Angeles World Airports, *Sustainability Plan*, April 2008.
[16] City of Los Angeles, Los Angeles World Airports, *Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects,* February 2010.

- LAX Master Plan – Mitigation Monitoring and Reporting Program (MMRP). Highlights of the LAX Master Plan MMRP include, but are not limited to the following measures:
  - C-1: Work with LAWA to approve and coordinate staging areas, haul routes, etc.;
  - MM-AQ-2: Utilize on-site rock-crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck-haul trips; and
  - W-1: Maximize use of Reclaimed Water.

All building projects in the City of Los Angeles are subject to the LAGBC, which is based on CALGreen with some modifications unique to the City of Los Angeles. The LAGBC is a code-requirement that is part of Title 24, and is enforced by the Los Angeles Department of Building & Safety (LADBS).

Given that the LAGBC has replaced LEED® in the Los Angeles Municipal Code (LAMC), LAWA has based its new sustainable construction standards on the mandatory and voluntary tiers defined in the LAGBC. All building projects with an LADBS permit-valuation over $200,000 shall achieve LAGBC Tier 1 conformance, to be certified by LADBS during final plan check (on the issued building permit) and validated by the LADBS inspector during final inspection. Should a project pose unique issues/circumstances based on the scope and/or location of work, LAWA may require more prescriptive approaches to resolving issues such as energy performance, site drainage, etc.

Sustainability Vision and Principles Policy

In 2007, the Los Angeles Board of Airport Commissioners adopted a Sustainability Vision and Principles Policy that includes a commitment to integrating sustainable practices into operations and administration processes under a set of six principles related to environmental stewardship, economic growth, and social responsibility.[17] LAWA has since adopted several plans and policies aimed at implementing the Sustainability Vision and Principles Policy.

4.2.3.2 Existing Greenhouse Gas Setting

According to most international reviews, aviation-related emissions account for a small but potentially important percentage of anthropogenic GHGs and other emissions that contribute to global warming. The IPCC estimates that global aircraft emissions account for about 3.5 percent of the total GHGs produced from human activities, as referenced in the U.S. General Accounting Office (GAO) 2000 publication, *Aviation and the Environment - Aviation's Effects on the Global Atmosphere Are Potentially Significant and Expected to Grow*.

In terms of U.S. activities contributing to GHG emissions, the GAO reports that aviation accounts for about 3 percent of total U.S. GHG emissions from human sources as compared with other industrial sources, including the remainder of the transportation sector (23 percent) and industry (41 percent). LAX, therefore, is assumed to contribute to the 3 percent of total GHG emissions from aviation activities.

The baseline airport-related operational emissions (2011), including those from aircraft, GSE, and Auxiliary Power Units (APU) operations, on-airport and off-airport roadways, and parking lots and structures are shown in **Table 4.2-2**.

17 City of Los Angeles, Los Angeles World Airports, *Sustainability Vision and Principles*, 2007.

Table 4.2-2

Existing Operational GHG Emissions

Emission Source	Annual Emissions metric tons CO_2e [a,b] per year CO_2 [c]	CH_4 [d]	N_2O [e]	Total	Baseline Emissions Percent of Total
Aircraft [f]	625,910	2,098	6,416	634,424	27.99%
Ground Support Equipment	59,778	192	581	60,551	2.67%
Auxiliary Power Units [g]	N/A	N/A	N/A	0	N/A
Parking Facilities [f]	104,740	1,285	2,759	108,784	4.80%
On-Airport Roadways [f]	47,049	577	1,239	48,865	2.16%
On-Airport Stationary	7,738	4	22	7,763	0.34%
On-Airport Subtotal	**845,215**	**4,155**	**11,017**	**860,387**	**37.97%**
Building Electricity	66	<1	<1	66	<0.01%
Solid Waste Disposal	154	191	<1	345	0.02%
Indoor/Outdoor Water Usage	597	35	16	646	0.03%
Off-Airport Roadways	1,315,179	18,577	71,021	1,404,778	61.99%
Off-Airport Subtotal	**1,315,996**	**18,803**	**71,037**	**1,405,835**	**62.03%**
Total Baseline Emissions	**2,161,211**	**22,959**	**82,053**	**2,266,222**	**100.00%**

Notes:
Totals may not add due to rounding.
[a] CO_2e = carbon dioxide equivalent
[b] CO_2e emissions are determined by multiplying the individual pollutant emissions by its respective GWP. The GWPs used in this analysis are from the IPCC's *Second Assessment Report* (1995). The GWP for CH_4 is 21 and the GWP for N_2O is 310.
[c] CO_2 = carbon dioxide
[d] CH_4 = methane
[e] N_2O = nitrous oxide
[f] CH_4 and N_2O emissions were estimated from the Los Angeles World Airports *GHG Emissions Inventory* (CDM, 2008).
[g] The EDMS model does not provide GHG emissions or fuel consumption data for APUs; therefore, GHG emissions cannot be estimated.
Source: City of Los Angeles, Los Angeles World Airports, *Preliminary LAX Specific Plan Amendment Study Report for Los Angeles International Airport (LAX) Specific Plan Amendment Study*, June 2012.

4.2.4 CEQA Thresholds of Significance

As noted in the Initial Study, for the purposes of this Draft EIR, and in accordance with Appendix G of the CEQA Guidelines, an impact to GHG emissions is considered significant if the proposed Project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; and
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

The *L.A. CEQA Thresholds Guide* does not contain significance thresholds or criteria for use in evaluating environmental impacts related to GHG emissions.

CEQA gives wide latitude to lead agencies in determining what impacts are significant and does not prescribe thresholds of significance, analytical methodologies, or specific mitigation measures. CEQA leaves the determination of significance to the reasonable discretion of the lead agency and encourages lead agencies to develop and publish thresholds of significance to use in determining the significance of environmental effects. However, the City of Los Angeles has yet established specific quantitative significance thresholds for GHG emissions for residential or commercial projects. In the latest CEQA Guidelines amendments, which went into effect on March 18, 2010, OPR encourages lead agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses. However, the City of Los Angeles has not yet developed a Greenhouse Reduction Plan meeting the requirements set forth in the latest OPR guidelines.

In addition to the above guidelines, in October 2008, CARB published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions in *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases under the California Environmental Quality Act*.[18] For industrial projects, the CARB guidance proposed that projects that emit less than 7,000 MT of CO_2 per year (amortized), as well as meeting performance standards for construction and transportation, may be considered less than significant.

SCAQMD released a draft guidance document regarding interim CEQA GHG significance thresholds in October 2008 and adopted this proposal in December 2008. SCAQMD proposed a tiered approach, whereby the level of detail and refinement needed to determine significance increases with a project's total GHG emissions. SCAQMD also proposed a screening level of 10,000 metric tons CO_2e ($MTCO_2e$) per year for industrial projects, under which project impacts are considered "less than significant." The 10,000 $MTCO_2e$ per year screening level was intended to achieve the same policy objective of capturing 90 percent of the GHG emissions from new development projects in the industrial sector.[19] For projects with GHG emissions increases greater than 10,000 $MTCO_2e$ per year, the use of a percent emission reduction target (e.g., 30 percent) was proposed to determine significance. This emission reduction target is a reduction below what is considered "business as usual." SCAQMD also proposes that projects amortize construction emissions over the 30-year lifetime of any given project. Proposed Project construction emissions can be amortized by calculating total construction period emissions and dividing by the 30-year lifetime of the project. Given that the proposed Project consists of aircraft maintenance facilities, it is reasonable to consider it as an industrial project; hence, the threshold of 10,000 $MTCO_2e$ per year will be used for determining significance on a project level.

Since there are currently no formally adopted significance thresholds for daily GHG emissions for either construction or transportation operations, proposed Project emissions were compared to the 7,000 MT of CO_2 interim threshold and the 10,000 MT of CO_2 SCAQMD threshold.

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[18] California Air Resources Board, *Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act (CEQA)*, October 24, 2008.

[19] South Coast Air Quality Management District, *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, 2008.

4.2.5 Project Design Features

The proposed Project does not include project design features that are specific to GHG emissions.

4.2.5.1 LAX Master Plan EIS/EIR Commitments

As part of the LAX Master Plan EIS/EIR, LAWA committed to implementing the following portions of an Air Quality mitigation measure that pertains to GHG emissions to avoid or reduce environmental impacts. Since the Project site is located within the LAX Master Plan boundaries, LAWA will also fulfill this mitigation measure for the proposed Project. Thus, the following mitigation measure is applicable to the proposed Project and is considered in the GHG emissions analysis herein.

- **MM-AQ-2: Construction-Related Measure.** The required components of the construction-related air quality mitigation measure are itemized below. These components include numerous specific actions to reduce exhaust emissions from on-road and nonroad mobile sources and stationary engines. All of these components must be in place prior to commencement of the first Master Plan construction project and must remain in place through build out of the Master Plan. An implementation plan will be developed which provides available details as to how each of the elements of this construction-related mitigation measure will be implemented and monitored. Each construction subcontractor will be responsible to implement all measures that apply to the equipment and activities under his/her control, an obligation which will be formalized in the contractual documents, with financial penalties for noncompliance. LAWA will assign one or more environmental coordinators whose responsibility it will be to ensure compliance with the construction-related measure by use of direct inspections, records reviews, and investigation of complaints with reporting to LAWA management for follow-up action.

2. <u>On Road Mobile Source Controls</u>

  - To the extent feasible, have construction employee's work/commute during off-peak hours.
  - Make available on-site lunch trucks during construction to minimize off-site worker vehicle trips.

3. <u>Nonroad Mobile Source Controls</u>

  - Prohibit construction vehicle idling in excess of 10 minutes.

4. <u>Stationary Point Source Controls</u>

  - Specify combination of electricity from power poles and portable diesel or gasoline fueled generators using "cleaner burning diesel" fuel and exhaust emission controls.

5. <u>Mobile and Stationary Source Controls</u>

  - Utilize construction equipment having the minimum practical engine size (i.e. lowest appropriate horsepower rating for intended job).
  - Require that all construction equipment working on site is properly maintained (including engine tuning) at all times in accordance with manufacturers specifications and schedules.

- Prohibit tampering with construction equipment to increase horsepower or to defeat emission control devices.

4.2.6 Impact Analysis

4.2.6.1 Construction Impacts

Project-related construction GHG emissions are associated with construction equipment/vehicle exhaust and from the increase in taxi times when aircraft operations are shifted to other runways during the temporary runway closure. The proposed Project would generate a total of 7,510 MT of GHG emissions from construction equipment/vehicles and 4,792 MT of CO_2e from increased taxiing due to the temporary runway closure, for a total of 12,302 MT of CO_2e (**Table 4.2-3**).

Table 4.2-3

Project-Related Construction GHG Emissions

	Emissions (in MT of CO_2e)		
Emission Source	**2014**	**2015**	**Total**
Construction Activities	6,356	1,154	7,510
Taxi Times During Runway Closure	-0.79 [a]	4,793	4,792
Total	6,355	5,947	12,302
Amortized over 30 years	**211**	**198**	**410**

Note:
[a] A decrease in taxi times would result for part of 2014 when Runway 7L/25R is temporarily shortened; aircraft taxi distance to this runway for takeoff would be shorter than existing conditions.
Source: URS Corporation and Ricondo and Associates, 2013 (Refer to Appendix B).

The SCAQMD recommends that construction emissions be amortized over the life of the proposed Project which is assumed to be 30 years. When amortized over 30 years, proposed Project construction activities would result in a total of 410 MT CO_2e per year. Construction-related significance is not determined on an individual basis for GHG emissions; rather, Section 4.2.6.2 below evaluates the significance of the combined construction-related and operations-related GHG emissions for the proposed Project.

4.2.6.2 Operational Impacts

The proposed Project involves the extension of runway 7L/25R to the west. However, with the use of declared distances, the usable runway distances would remain similar to existing conditions. The only difference in taxi distance under the proposed Project would be for aircraft taking off from Runway 7L, which occurs infrequently. Therefore, because of this and because the proposed Project would not increase airport operational capacity, it is anticipated that taxi times during operations would be similar to existing conditions. The estimated taxi times are shown in **Table 4.2-4**. Operational GHG emissions, plus amortized construction GHG emissions, for the proposed Project are presented in **Table 4.2-5**.

Table 4.2-4

Total Aircraft Operations and Taxi Times, by Calendar Year

		Taxi-In Time (minutes)		Taxi-Out Time (minutes)	
Year	**Operations**	**Without Project**	**Proposed Project**	**Without Project**	**Proposed Project**
2015	637,903	9.0	9.0	14.40	14.41
2020	705,281				

Source: Federal Aviation Administration, *Terminal Area Forecast*, 2012.

Table 4.2-5

Project-Related Operational GHG Emissions

	Net New Emissions (in Metric Tons of CO_2e)	
Emission Source	**2014**	**2015**
Construction Activity (Amortized)	410	410
Electricity	Negligible	Negligible
Total	**410**	**410**
CARB Significance Threshold	*7,000*	*7,000*
Exceeds Significance Threshold?	**No**	**No**
SCAQMD Significance Threshold	*10,000*	*10,000*
Exceeds Significance Threshold?	**No**	**No**

Source: URS Corporation and Ricondo and Associates, 2013 (Refer to Appendix B).

The proposed Project would extend a runway, but through the use of declared distances, no net increase in usable runway length would occur. The proposed Project would not increase operational capacity at LAX. Since the activities that would occur on the runway already generate GHG emissions through their current activities on the runway, any net change in such emissions due to the proposed Project would be negligible. For the purposes of this assessment, the proposed Project is assumed to result in no new net GHG emissions. When combined with the amortized construction emissions indicated above, the proposed Project would contribute a total of 410 MT CO_2e net emissions per year during operations. As shown in **Table 4.2-5**, GHG emissions from the combination of amortized construction activity and operations are less than the significance threshold established by the CARB. Therefore, impacts related to GHG emissions during operations would be less than significant.

4.2.6.3 Consistency with GHG Reduction Plans

As discussed previously, the proposed Project would comply with the LAGBC Tier 1 requirements. LAWA has based its new sustainable construction standards on the mandatory and voluntary tiers defined in the LAGBC. Certain measures of note include but are not limited to compliance with enhanced construction waste reduction goals, exceeding the California Energy Code requirements (based on the 2008 Energy Efficiency Standards) by 15 percent and collection of non-hazardous materials for recycling, and use of low-emitting adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, caulks, and other materials. Therefore, the proposed Project would be consistent with plans to reduce GHG emissions and impacts would be less than significant.

4.2.7 Cumulative Impacts

As discussed previously in Section 4.2.4 (Thresholds of Significance), the *CEQA Guidelines* do not include or recommend any particular threshold of significance; instead, they leave that decision to the discretion of the lead agency (§15064.4).[20] The CNRA noted in its Public Notice for the added sections on GHG, that the impacts of GHG emissions should be considered in the context of a cumulative impact, rather than a project impact. The Public Notice states:[21]

> "While the Proposed Amendments do not foreclose the possibility that a single project may result in greenhouse gas emissions with a direct impact on the environment, the evidence before [CNRA] indicates that in most cases, the impact will be cumulative. Therefore, the Proposed Amendments emphasize that the analysis of greenhouse gas emissions should center on whether a project's incremental contribution of greenhouse gas emissions is cumulatively considerable."

It is the accumulation of GHGs in the atmosphere that may result in global climate change. Climate change impacts are cumulative in nature, and thus no typical single project would result in emissions of such a magnitude that it, in and of itself, will be significant on project basis. A typical single project's GHG emissions will be small relative to total global or even statewide GHG emissions. Thus, the analysis of significance of potential impacts from GHG emissions related to a single project is already representative of the long-term impacts on a cumulative basis.

The SCAQMD has published a "White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution" that specifically addresses how cumulative impacts are evaluated in CEQA documents. In Appendix D – Cumulative Impact Requirements Pursuant to the California Environmental Quality Act of the White Paper, the following is stated relative to cumulative impacts:

"Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

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[20] Natural Resources Agency, *Guidelines for Implementation of the California Environmental Quality Act* website, http://ceres.ca.gov/ceqa/docs/FINAL_Text_of_Proposed_Amendemts.pdf, Accessed March, 2013.
[21] *Ibid*.

As discussed in Section 4.2.6, *Impact Analysis*, the proposed Project's combined amortized construction and operational GHG emissions would not exceed the threshold of 7,000 $MTCO_2e$ per year promulgated by CARB for industrial projects. Therefore, in accordance with the discussion above, the proposed Project would not cause cumulatively considerable impacts with respect to GHG emissions.

4.2.8 Mitigation Measures

The proposed Project would result in less than significant impacts related to GHG emissions and, therefore, no mitigation measures are required.

4.2.9 Level of Significance After Mitigation

The proposed Project would result in less than significant impacts related to GHG emissions without mitigation.

4.3 Hazards and Hazardous Materials

4.3.1 Introduction

This section addresses the potential impacts of the proposed Project that relate to hazards and hazardous materials. Based on the information contained in the Initial Study (IS) (included in Appendix A), the following Hazards and Hazardous Materials environmental topics are not evaluated further in this Draft EIR.

- Transport, use, or disposal of hazardous materials
- Emission/handling of hazardous materials, substances or waste
- Exposing people in an airport land use plan to hazardous materials
- Hazards from private airfields
- Emergency access and response plans
- Wildland fires

The focus of this chapter is hazardous materials release sites. All the other Hazards and Hazardous Materials environmental subtopics are summarized in Chapter 5.0 Section 5.7, "Impacts Found Not to Be Significant". The description and assessment of hazardous materials, pollution prevention, and solid wastes at LAX is largely based on the compilation and evaluation of information previously developed or disclosed by others, as well as an independent electronic database survey of federal, state, and local agency files pertaining to hazardous waste sites and environmental contamination in the vicinity of LAX. The databases consulted were GeoTracker and EnviroStor.

4.3.2 Methodology

An assessment was conducted in order to identify sites and facilities that are known, suspected, or likely to contain or store hazardous substances and to identify areas of known subsurface soil and/or groundwater contamination. For the purposes of this assessment, the term hazardous materials also includes the regulatory-defined terms of hazardous wastes, hazardous substances, and dangerous goods; contamination to soil, surface waters and groundwater; as well as the assortment of similarly regulated substances such as fuel and other petroleum-based products. Because the description and assessment of hazardous materials, pollution prevention, and solid wastes at LAX is largely based on the compilation and evaluation of information previously developed or disclosed by others, the approach to completing this assessment consisted of an independent electronic database survey of federal, state, and local agency files pertaining to hazardous waste sites and environmental contamination in the vicinity of LAX. The databases consulted were GeoTracker and EnviroStor.[1,2] The databases include known hazardous materials release sites, generators of hazardous waste(s), and UST sites. For the purpose of this analysis, locations of facilities that involve hazardous materials and sites of known or potential environmental contamination, located within or adjacent to the Project Study Area, were identified (**Figure 4.3-1**). The types of hazardous materials, environmental

1 GeoTracker website, http://geotracker.waterboards.ca.gov/default.asp, Accessed June 2013.
2 EnviroStor website, http://www.envirostor.dtsc.ca.gov/public/, Accessed June 2013.

contamination and/or other regulated substances potentially associated with implementation of the proposed Project were also evaluated. This assessment was developed from what is known about existing land uses and facilities at the Airport, as well as the design and other construction requirements of the proposed Project. The potential for impacts was further evaluated for situations where the disturbance areas were located on, or adjacent to, areas where these substances and materials may be encountered.

The findings of these evaluations were compared to appropriate regulatory guidelines, significance thresholds and other appropriate criteria. Relevant safeguards, or precautions, undertaken to help avoid or minimize the potential environmental impacts associated with hazardous materials and/or environmental contamination during both the construction and operational phases of the proposed Project were also evaluated.

4.3.3 Existing Conditions

4.3.3.1 Regulatory Setting

The following subsections present the regulatory framework, laws, ordinances, and regulations governing the proposed Project.

Federal

The United States Environmental Protection Agency (USEPA) sets national policies for solid and hazardous wastes, hazardous materials and environmental contamination under the Federal Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and other federal regulations. The purpose of CERCLA, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. RCRA provides for “cradle to grave” regulation of hazardous wastes. Other federal laws relevant to hazards include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act (CWA)
- Clean Air Act (CAA)
- Occupational Safety and Health Act (OSHA)
- Toxic Substances Control Act (TSCA)

In addition to the acts listed above, Executive Order 12088, *Federal Compliance with Pollution Control* mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

State

The State of California Environmental Protection Agency (Cal/EPA) establishes statewide policies and rules governing solid wastes, hazardous materials and environmental contamination through the Department of Toxic Substances Control (DTSC) and Office of Environmental Health Hazard Assessment (OEHHA).

Hazardous Materials Release Response Plans & Inventory Act

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act (BPA), requires businesses using hazardous materials to prepare a hazardous materials business plan that describes their facilities, inventories, emergency response plans, and training programs. Disclosure of hazardous materials inventories is required. Under the BPA, hazardous materials are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste, although the health concerns pertaining to the release or inappropriate disposal of these materials are similar to those relating to hazardous waste. In the State of California, DTSC has the primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state.

Safe Drinking Water & Toxic Enforcement Act

The Safe Drinking Water and Toxic Enforcement Act (Proposition 65) has been in effect since 1986 to promote clean drinking water and keep toxic substances that cause cancer or birth defects out of consumer products. Proposition 65 prohibits persons within the course of doing business from knowingly discharging listed chemicals known to have these toxic characteristics into any source or of drinking water or onto land in which the material may come into contact with drinking water. Proposition 65 also requires businesses to warn any person exposed to chemicals known to cause cancer or reproductive toxicity. Furthermore, no persons within the course of doing business shall purposefully expose people to chemicals known to cause cancer or reproductive toxicity without clear and full disclosure.

Hazardous Waste Control Law

Individual states may implement hazardous waste programs under RCRA with USEPA approval; however, California has not yet received this approval from the USEPA. Therefore, the California Hazardous Waste Control Law (HWCL) of 1972 was administered by Cal/EPA and is the original hazardous waste control law in California to regulate hazardous wastes. This law initiated programs that track hazardous waste generators and their hazardous waste streams and handling practices. While the California HWCL is more stringent than RCRA, until the USEPA approves the California program, both state and federal laws apply in California.

Titles 14, 22, 23, and 27 of the California Code of Regulations (CCR)

The California Code of Regulations (CCR) is the official compilation and publication of the regulations adopted, amended or repealed by California agencies pursuant to the Administrative Procedure Act. Title 14 requires that gas storage fields be closely monitored by facility operators to ensure their safe operation and to establish that no damage to health, property, or natural resources occurs. Titles 22 and 23 of the CCR address hazardous materials and wastes. Title 22 defines, categorizes, and lists hazardous materials and wastes including universal wastes. Title 23 addresses public health and safety issues related to hazardous materials and wastes, and specifies disposal options. Title 27 of the CCR addresses landfill closure standards and landfill-related public health and safety issues.

California Government Code Section 65962.5

The Hazardous Waste and Substances Sites List, California Government Code Section 65962.5, requires the DTSC to compile and maintain a list of potentially contaminated sites located throughout California. Commonly referred to as the Cortese List, the list is a planning document used by the state, local agencies and developers to comply with the CEQA requirements in providing information about the location of hazardous materials release sites. DTSC is responsible for a portion of the information contained in the Cortese List. Other state and local government agencies are required to provide additional hazardous material release information for the Cortese List. DTSC's site mitigation and brownfields reuse program EnviroStor database provides DTSC's component of the Cortese List data by identifying Annual Workplan (now referred to State Response and/or Federal Superfund), and backlog sites listed under Health and Safety Code Section 25356.

Unified Program

Administration of the Unified Program (UP) is authorized by the California Health and Safety Code. The UP is implemented at the local government level by agencies that have been certified by the Secretary of Cal/EPA. The UP consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs. The state agencies responsible for these programs set the standards for their program while local governments implement those standards. The City of Los Angeles Fire Department (LAFD) is the designated Certified Unified Program Agency (or CUPA) that oversees the implementation of the UP in the area of the proposed Project.[3]

Local

Los Angeles City Fire Code

The LAFD, the lead agency that regulates hazardous materials, issues permits for hazardous materials handling, enforces AB 2185 (which mandates coverage of pediatric asthma self-management training and education) for the City of Los Angeles, and administers the applicable sections of the Los Angeles City Fire Code, including Division 8, Hazardous Materials Disclosures. Those businesses that store hazardous waste or hazardous materials in the City of Los Angeles must submit a Certificate of Disclosure to the LAFD.

The LAX Plan and Specific Plan

The LAX Plan, an element of the City of Los Angeles General Plan, provides goals, objectives, policies, and programs that establish a framework for the development of facilities for movement and processing of passengers and cargo at LAX. The LAX Plan is intended to promote an arrangement of LAX uses that encourages and contributes to the modernization of LAX in an orderly and flexible manner within the context of the City of Los Angeles region. The LAX Specific Plan is the zoning code which implements the LAX Plan. The LAX Master Plan provides a development program for modernizing LAX.

[3] California Environmental Protection Agency (CalEPA), *Unified Program,* online at http://www.calepa.ca.gov/cupa/, Accessed March 2013.

Section 3.8 of the LAX Plan states that LAX will comply with local, state, and federal regulations and procedures for handling and storing hazardous materials generated at LAX such as motor oil, cleaning solvents, and wastes from spills and leaks.

4.3.3.2 Existing Listed Hazardous Sites

The types, characteristics, and occurrences of hazardous materials and other regulated substances at LAX are typical of large metropolitan airports that offer commercial and cargo services. These services include the fueling, servicing, and repair of aircraft, ground support equipment (GSE), and motor vehicles; the operation and maintenance of the airfield, main terminal complex and parking facilities; and a range of other special-purpose facilities and operations connected with aviation (i.e., air cargo facilities, navigation and air traffic control functions). Off airport activities within the Project Study Area include a mix of industrial, commercial, and warehousing activities.

The substances that are used in large quantities at LAX that can be classified as hazardous include aircraft and motor vehicle fuels. Other, smaller amounts of petroleum-products (e.g., lubricants and solvents), waste materials (e.g., used oils, filters, cleaning residues, and spent batteries) and manufactured chemicals (e.g., herbicides, fertilizers, paints, fire-fighting foam, deicing fluids) are stored in various locations throughout LAX. These materials and substances are characteristically used on a routine basis in support of aircraft, GSE, and motor vehicle maintenance activities and for a range of other similar functions to operate LAX and to meet aviation safety requirements.

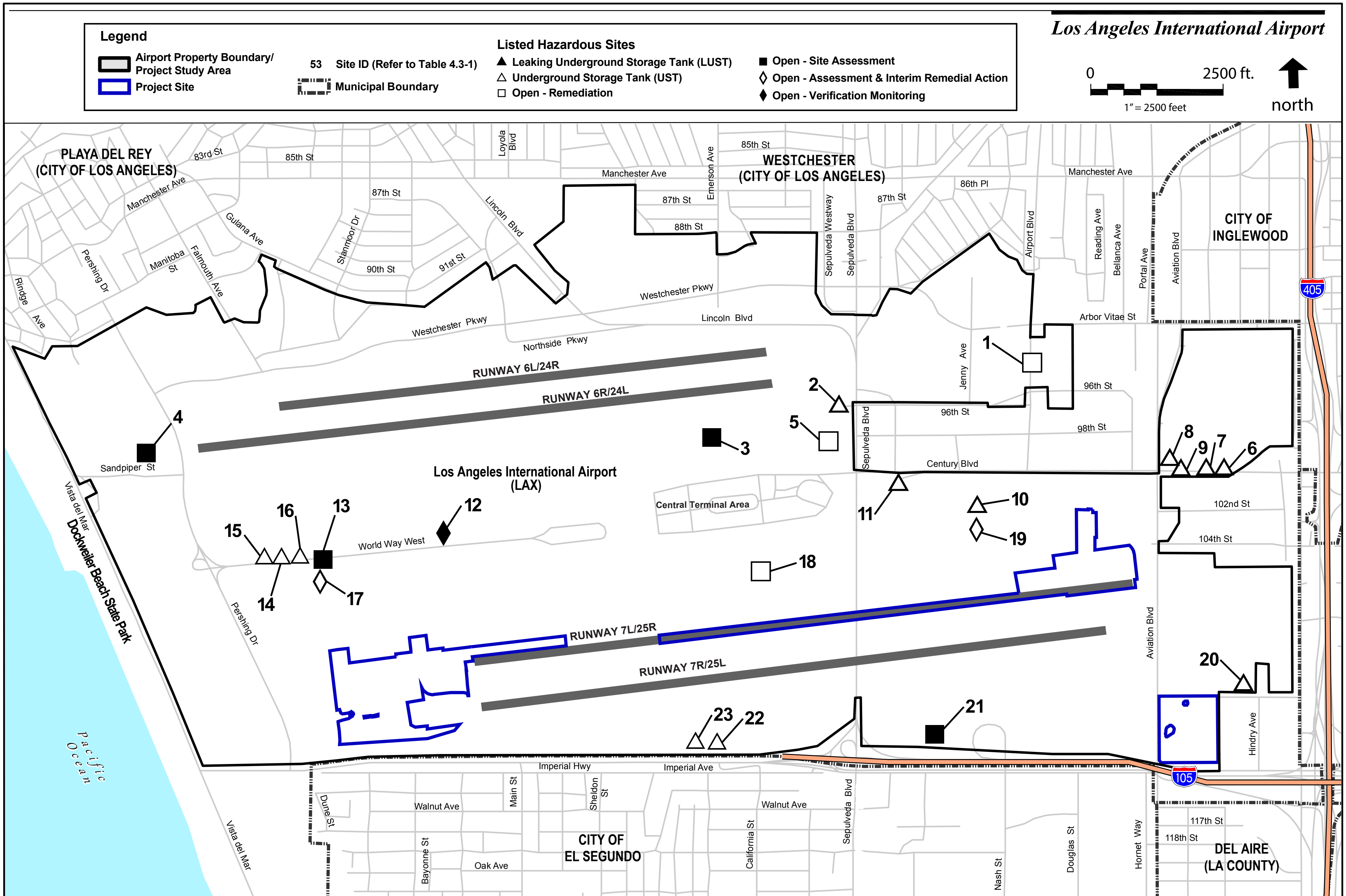
Based on a review of previously published reports and electronic databases, several sites and facilities at LAX and off-airport are known, or have the potential to contain hazardous materials and/or other regulated substances (**Figure 4.3-1**). Other sites and facilities have been identified as confirmed hazardous substance clean-up sites, and have been included in several federal and state databases. A total of 53 hazardous substance clean-up sites were identified as listed within the Project Study Area (**Table 4.3-1**). However, there were no clean-up sites located within the Project site.

Table 4.3-1

Listed Hazardous Substance Cleanup Sites Within the Project Study Area

Site ID	Site Name	Cleanup Status	Address	Distance to Nearest Portion of Project Site
1	National Car Rental System Inc.	Open-Remediation	9419 Airport Blvd.	0.53
2	Allied Aviation Service Co.	UST	6401 W 96TH St.	0.71
3	Terminal 2 Fuel Hydrant Facility	Open-Site Assessment	200 World Way	0.66
4	Del Rey Cleaners	Open-Site Assessment	310 Culver Blvd.	0.91
5	Allied Signal (Park One)- LA	Open-Remediation	9851 S Sepulveda Blvd.	0.60
6	The Westin LAX	UST	5400 W Century Blvd.	0.40
7	Thrifty Car Rentals	UST	5440 W Century Blvd.	0.38
8	LAX Texaco Station	UST	5551 W Century Blvd.	0.27
9	Circle K Stores Inc. #5624	UST	5552 W Century Blvd.	0.28
10	Delta Airlines	UST	6060 Avion Dr.	0.27
11	Hyatt Hotel LAX	UST	6225 W Century Blvd.	0.46
12	LAX Fuel – BFSF	Open-Verification Monitoring	9900 LAX Fuel Road	0.35
13	Continental Airlines Maintenance Facility (19 Sites)	Open-Site Assessment	7300 W World Way	0.32
14	Federal Express Corp	UST	7401 World Way W.	0.35
15	LAFD Training Center Facility	UST	7411 World Way W.	0.35
16	LAWA	UST	7350 World Way W.	0.33
17	Continental Airlines Maintenance (Former Hydrant System)	Open-Assessment & Interim Remedial Action	7300 World Way W.	0.28
18	Terminal 6 Hydrant Fueling System	Open-Remediation	600 World Way W.	0.19
19	United Airlines Maintenance Operations Center	Open-Interim Remedial Action	6020 Avion Dr.	0.20
20	Westchester Maintenance Yard	UST	5323 W 111th St.	0.11
21	Korean Airlines	Open-Site Assessment	6101 W Imperial Hwy.	0.47
22	LAXFUEL South Cargo Truck Rack	UST	5811 W Imperial Hwy.	0.39
23	Federal Express	UST	5927 W Imperial Hwy.	0.38

Notes:
LAFD = Los Angeles Fire Department
BFSF = Bulk Fuel Storage Facility
LUST = Leaking Underground Storage Tank
UST = Permitted Underground Storage Tank
Source: GeoTracker website, online at http://geotracker.waterboards.ca.gov/default.asp, accessed June 2013.



Sources: LAWA, 2013; Geo Tracker, 2013; ESRI Maps & Data, May 2013; Prepared by: URS Corporation.

FIGURE 4.3-1

Listed Hazardous Substance Cleanup Sites Within the Project Study Area

4.3.4 CEQA Thresholds of Significance

As discussed in the introduction to this chapter, only one of the Hazards and Hazardous Materials environmental subtopics found in Appendix G of the CEQA Guidelines was carried forward for further analysis in this EIR. In accordance with Appendix G of the CEQA Guidelines, an impact to Hazards and Hazardous Materials is considered significant if the proposed project would:

- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and as a result, would it create a significant hazard to the public or the environment

The *2006 City of Los Angeles CEQA Thresholds Guide* does not contain any thresholds that are different than those contained in Appendix G of the CEQA Guidelines. Therefore, no additional CEQA thresholds are included in this analysis.

4.3.5 Project Design Features

The proposed Project does not include project design features that are specific to hazards and hazardous materials with respect to work on a listed hazardous site. However, all applicable federal, state, and local requirements for the discovery and disposal of contaminated soils at LAX will be required to be incorporated into the final design plans, including the LAX Master Plan Commitments listed in Section 4.3.5.1.

4.3.5.1 LAX Master Plan Commitments

As part of the LAX Master Plan Environmental Impact Statement/Environmental Impact Report (EIS/EIR), Los Angeles World Airports (LAWA) adopted several mitigation measures and commitments pertaining to Hazards and Hazardous Materials to avoid or reduce environmental impacts. Although the proposed Project is not part of the LAX Master Plan, LAWA is committed to implement the applicable LAX Master Plan commitments to all LAWA projects, including the proposed Project. The following commitments are applicable to the proposed Project with respect to Hazards and Hazardous Materials.

- **Hazardous Materials (HM)-1: Ensure Continued Implementation of Existing Remediation Efforts.** Prior to initiating construction of a Master Plan component, LAWA will conduct a pre-construction evaluation to determine if the proposed construction will interfere with existing soil or ground water remediation efforts. For sites currently on LAX property, LAWA will work with tenants to ensure that, to the extent possible, remediation is complete prior to the construction. If remediation must be interrupted to allow for Master Plan-related construction, LAWA will notify and obtain approval from the regulatory agency with jurisdiction, as required, and will evaluate whether new or increased monitoring will be necessary. If it is determined that contamination has migrated during construction, temporary measures will be taken to stop the migration. As soon as practicable following completion of construction in the area, remediation will be reinstated, if required by the RWQCB or another agency with jurisdiction. In such cases, LAWA will coordinate the design of the Master Plan component and the re-design of the remediation systems to ensure that they are compatible, and to ensure that the proposed remediation system is comparable to the system currently in place. If it is determined during the pre-construction evaluation that construction will preclude reinstatement of the remediation effort, LAWA will obtain approval to initiate construction from the agency with jurisdiction. For properties to be acquired as part of the Master Plan, LAWA will evaluate the status of all existing soil and groundwater remediation efforts. As part of this evaluation, LAWA will assess the projected time required to complete the remediation activities and will coordinate with the land owner and the agency with jurisdiction to ensure that remediation is completed prior to schedule demolition and construction activities, if possible. In cases where remediation cannot be completed prior to demolition and construction activities, LAWA will undertake the same steps required above, namely, an evaluation of the need to conduct monitoring; implementation of temporary measures to stop migration, if required; and reinstatement of remediation following completion of construction, if required.

- **HM-2: Handling of Contaminated Materials Encountered During Construction.** Prior to the initiation of construction, LAWA will develop a program to coordinate all efforts associated with the handling of contaminated materials encountered during construction. The intent of this program will be to ensure that all contaminated soils and/or groundwater encountered during construction are handled in accordance with all applicable regulations. As part of this program, LAWA will identify the nature and extent of contamination in all areas where excavation, grading, and pile-driving activities are to be performed. LAWA will notify the appropriate regulatory agency when contamination has been identified. If warranted by the extent of the contamination, as determined by the regulatory agency with jurisdiction, LAWA will conduct remediation prior to initiation of construction. Otherwise, LAWA will incorporate provisions for the identification, segregation, handling and disposal of contaminated materials within the construction bid documents. In addition, LAWA will include a provision in all construction bid documents requiring all construction contractors to prepare site-specific Health and Safety Plans prior to the initiation of grading or excavation. Each Health and Safety Plan would include, at a minimum, identification/description of the following: site description and features; site map; site history; waste types encountered; waste characteristics; hazards of concern; disposal methods and practices; hazardous material summary; hazard evaluation; required protective equipment; decontamination procedures; emergency contacts; hospital map and contingency plan. In the event that any threshold of significance listed in the Hazardous Materials section of the EIS/EIR for the LAX Master Plan is exceeded due to the discovery of soil or groundwater contaminated by hazardous materials, or if previously unknown contaminants are discovered during construction or a spill occurs during construction, LAWA will notify the lead agency(ies) with jurisdiction and take immediate and effective measures to ensure the health and safety of the public and workers and to protect the environment, including, as necessary and appropriate, stopping work in the affected area until the appropriate agency has been notified.

4.3.6 Impact Analysis

4.3.6.1 Construction Impacts

RSA Improvements

Construction activities associated with the RSA improvements of the proposed Project would involve grading, paving taxiways and 832 feet of new runway, as well as installation of in-pavement lighting. Excavation for construction of runway pavement would be up to three feet in depth. As discussed in Section 4.3.3 Existing Conditions, the Project site is not listed as a hazardous waste site. However, given the historical uses of LAX, there is potential for encountering soil contamination due to typical uses of runways and taxiways. In addition, in the vicinity of the RSA improvements, the nearest listed site is Site #17, the Continental Airlines Maintenance site, which is listed as an Open-Site Assessment site (**Figure 4.3-2**). Given the existing grade at LAX (downward slope to the south), there exists the potential that some contamination may indirectly be present at the Project site. The contaminants anticipated to be present at Site #17 are typical aviation related hazardous materials such as fuels and other fluids. However, the Airport has a defined methodology and protocol in place for handling hazardous materials encountered during construction, including regulatory requirements (enforced by DTSC) and LAX Master Plan commitments HM-1 and HM-2.[4] Additionally, the Airport also has a methodology and protocol in place for the disposal and recycling of contaminated concrete and soils.[5] Therefore, impacts related to hazardous materials sites would be less than significant.

Pavement Reconstruction

Construction activities associated with the pavement reconstruction of the eastern portions of Taxiway B and Runway 25R would include excavation of up to six feet in depth. In addition, the demolition of the runway concrete would generate debris. As stated in Section 4.3.3 Existing Conditions, the Project site is not a listed hazardous site. However, given the historical uses of LAX, there is potential for encountering soil contamination during excavation. In addition, in the vicinity of the proposed pavement reconstruction areas, the nearest listed sites are Site #18, LAX Terminal 6 site, an Open Remediation site and Site #19, United Airlines Maintenance Operations Center, an Open Interim Remedial Action site (**Figure 4.3-3**).

For both cleanup sites, the contaminants anticipated to be present are typical aviation related hazardous materials such as fuels and other fluids. According to the Human Health Risk Assessment prepared for Site #19, the areas closest to the Project site did not contain contaminant levels higher than those already present at LAX for the same types of uses, and no further action was required in these areas.[6] As discussed for the RSA improvements, the Airport has a defined methodology and protocol in place for handling hazardous materials encountered during construction. Additionally, the Airport also has a methodology and protocol in place for the disposal and recycling of contaminated concrete and soils. Therefore, impacts related to hazardous materials sites would be less than significant.

Construction Staging Area

The proposed construction staging area is not located on a listed hazardous site. Furthermore, no ground disturbing activities would occur at the proposed construction staging area. Therefore, direct or indirect impacts related to hazardous materials sites would not occur.

4.3.6.2 Operational Impacts

The proposed Project would not increase airport capacity nor change the type of operations that currently exist at LAX. As discussed under construction, the Project site is not located on or adjacent to a listed site and, therefore, operational impacts related to existing hazards and hazardous materials release sites would not occur.

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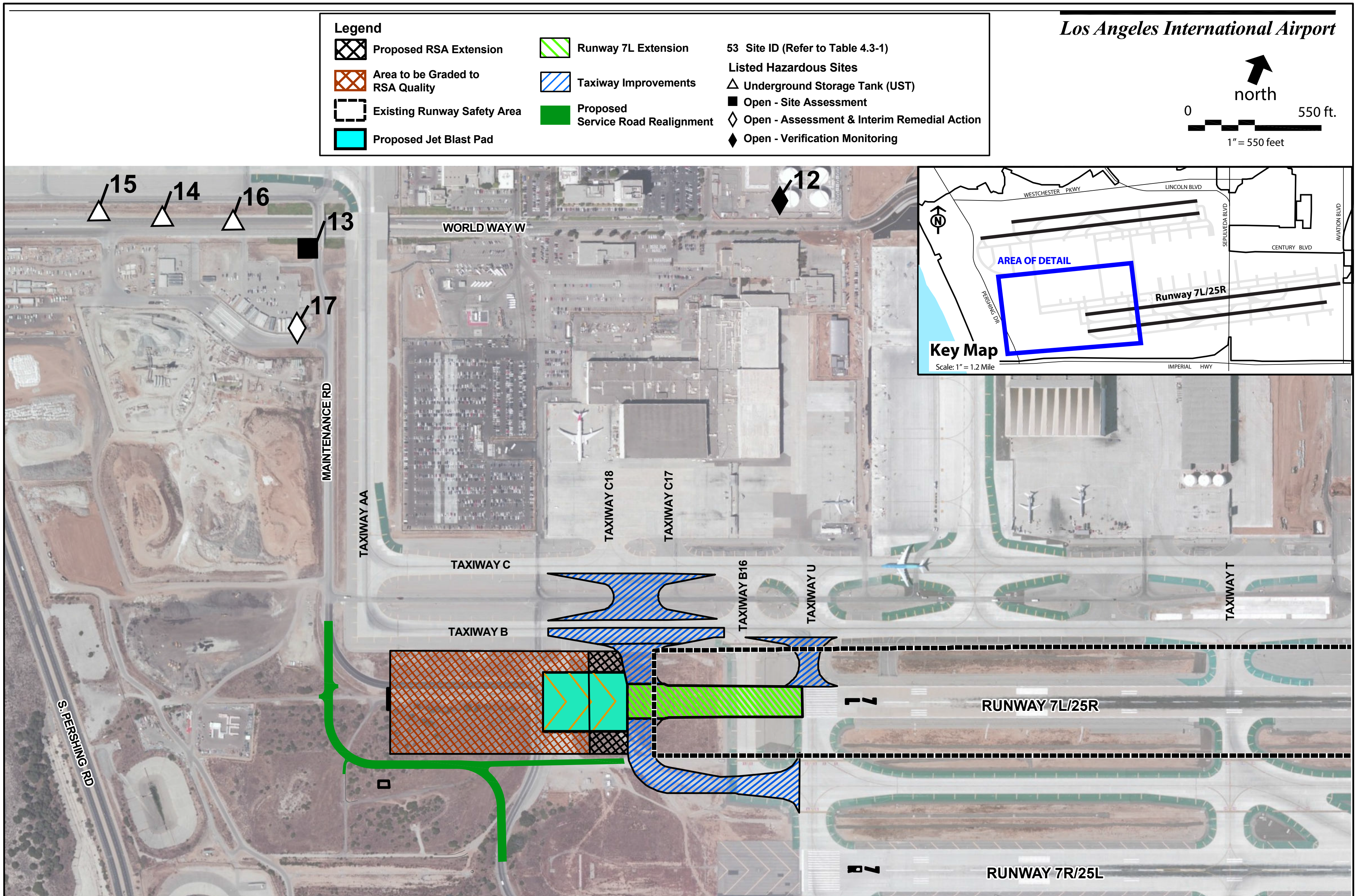
4 City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004.

5 *Ibid.*

6 United Airlines, *Human Health Risk Assessment United Airlines Maintenance Operations Center Prepared for Los Angeles International Airport*, prepared by Environmental Resources Management, January 2011.

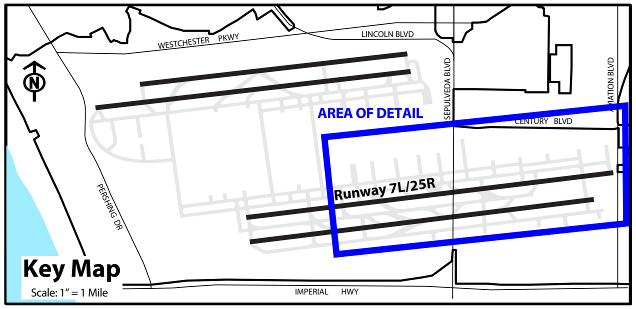


Sources: *Runway 7L-25R Safety Area (RSA) Practicability Study for Los Angeles International Airport* (Ricondo & Associates, December 2009); *Runway 25R Engineer's Report* (HNTB, 2011); Geo Tracker, 2013; ESRI Maps & Data June 2013 ; Prepared by: URS Corporation.

FIGURE 4.3-2

Listed Hazardous Substance Cleanup Sites In Vicinity of Proposed RSA Improvements

Environmental Impact Report
Runway 7L/25R RSA and Associated Improvements Project



LEGEND

- Airport Property Boundary/ Project Study Area
- Areas of Pavement Reconstruction
- 56 Site ID (Refer to Table 4.3-1)

Listed Hazardous Sites

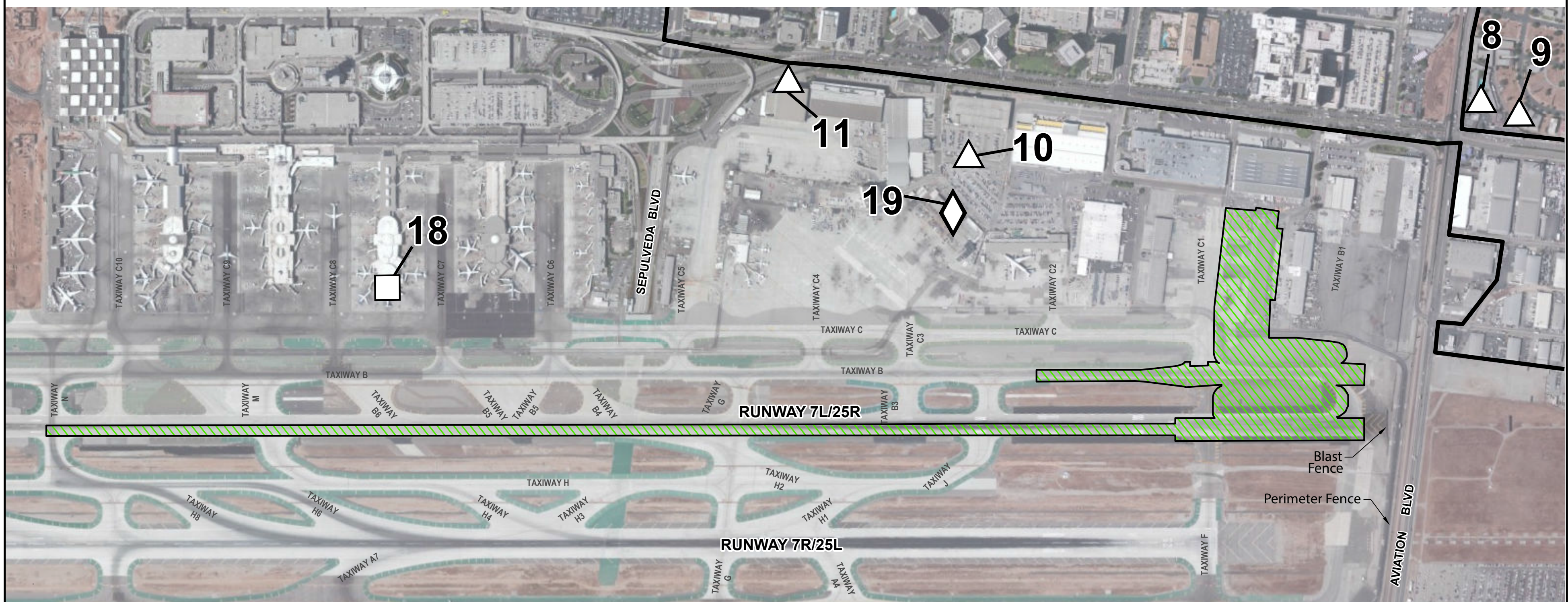
- △ Underground Storage Tank (UST)
- □ Open - Remediation
- ◇ Open - Assessment & Interim Remedial Action

Los Angeles International Airport

north

0 1300 ft.

1" = 1300 feet



Sources: *Runway 7L-25R Safety Area (RSA) Practicability Study for Los Angeles International Airport* (Ricondo & Associates, December 2009); *Runway 25R Engineer's Report* (HNTB, 2011); Geo Tracker, 2013; ESRI Maps & Data June 2013 ; Prepared by: URS Corporation.

FIGURE 4.3-3	**Listed Hazardous Substance Cleanup Sites In Vicinity of Proposed Pavement Reconstruction Area**	**Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project**

4.3.7 Cumulative Impacts

The On-Airport Related Projects described in **Table 4.3-2** and shown in **Figure 4.3-4** have the potential to be located on a site that is a listed hazardous site.

Table 4.3-2

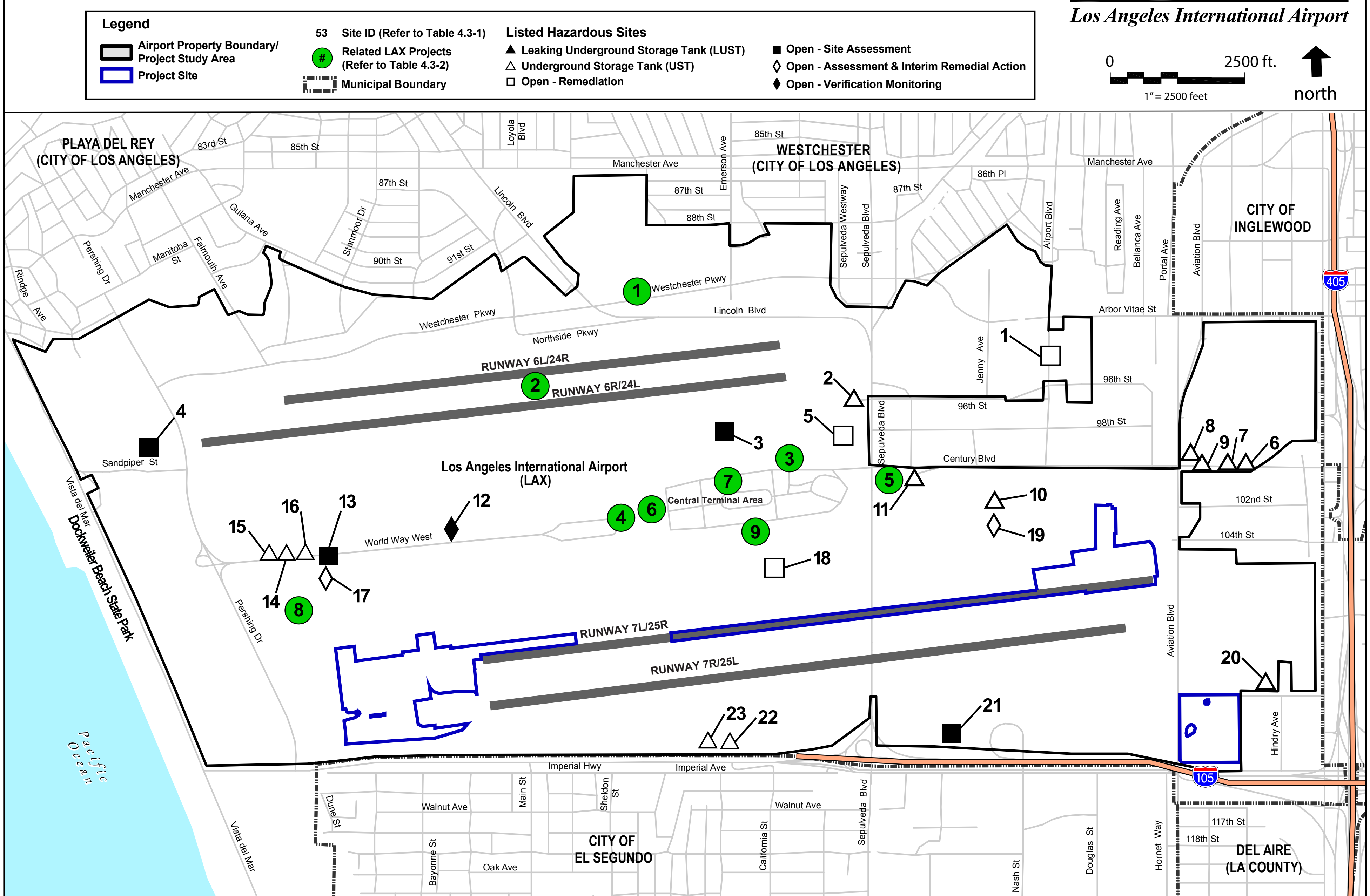
On-Airport Related Projects Located on Listed Hazardous Sites

Figure 4.3-2 ID#	Project Name	Listed Hazardous Site Project Site Located on/ Adjacent to (Figure 4.3-2 Site ID #)
1	LAX Northside Plan	None Listed
2	North Airfield RSA Improvements	None Listed
3	North Terminals Improvements	2, 3, 5
4	Midfield Satellite Concourse: Phase 1 - North Concourse Project	None Listed
5	American Eagle Commuter Facility Improvements	11
6	LAX Bradley West Project (Remaining Work)	None Listed
7	Central Utility Plant Replacement Project (CUP-RP) Remaining Work	3
8	West Aircraft Maintenance Area Project	None Listed
9	South Terminals Improvements	18
N/A[a]	LAX Master Plan Alt. D/SPAS Development [b]	1-3, 5-9
N/A[a]	Miscellaneous Improvements and Projects	Various

Notes:

[a] These improvements and projects would occur in various places on the landside and airside portions of LAX.
[b] LAWA evaluated nine development alternatives for the LAX Specific Plan Amendment Study and in February 2013 the Board of Airport Commissioners (BOAC) selected one alternative; however, all the approvals necessary to implement that alternative have not yet occurred. For the purposes of the WAMA cumulative construction impacts analysis, an assumption is made that the LAX Master Plan improvements, as previously approved, are implemented, which provides a more conservative analysis that if one were to assume the BOAC-selected alternative (i.e., more development would occur under the LAX Master Plan scenario than under the BOAC-selected alternative.
Source: LAWA, Ricondo and Associates, and URS Corporation, 2013.

As shown in Table 4.3-2, 6 of the 11 related on-Airport projects would be located on or adjacent to listed hazardous sites. Most of these sites are USTs, which are regulated to avoid leaks and spills. As discussed above, the Project site is not located on a listed hazardous site. Typically, impacts related to being located on a hazardous site are location-specific. As the Project site is not located on a listed hazardous site, it would not contribute cumulatively to impacts. Furthermore, all LAX projects would require implementation of LAX Master Plan Commitments HM-1 and HM-2. LAX Master Plan Commitment HM-1 ensures that existing remediation efforts at LAX would be continued during construction of Master Plan components. LAX Master Plan Commitment HM-2 specifies commitments and policies regarding the handling of contaminated materials that may be encountered during construction. Therefore, cumulative impacts related to being located on a listed hazardous site would not occur.



Sources: LAWA, 2013; Geo Tracker, 2013; ESRI Maps & Data, May 2013; Prepared by: URS Corporation.

FIGURE 4.3-4

Listed Hazardous Substance Cleanup Sites In Vicinity of Related Projects

4.3.8 Mitigation Measures

Direct and indirect impacts related to hazards and hazardous materials would be less than significant due to regulatory requirements already in place at LAX, the lack of hazardous sites located within the Project site, and due to implementation of LAX Master Plan commitments HM-1 and HM-2. Therefore, no additional mitigation measures are required.

4.3.9 Level of Significance After Mitigation

Direct and indirect impacts related to hazards and hazardous materials would be less than significant due to regulatory requirements already in place at LAX, the lack of hazardous sites located within the Project site, and due to implementation of LAX Master Plan commitments HM-1 and HM-2.

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4.4 Human Health Risk Assessment

4.4.1 Introduction

The Human Health Risk Assessment (HHRA) addresses potential impacts to people exposed to toxic air contaminants (TACs) anticipated to be released as a result of the proposed Project. Potential impacts to human health associated with releases of TACs may include increased cancer risks and increased chronic (long-term) and acute (short-term) non-cancer health hazards from inhalation of TACs by people working, living, recreating, or attending school on or near the Project site. The objective of this HHRA is to estimate increased incremental health risk associated with construction activities of the proposed Project. Given that the proposed Project would not increase operational capacity at LAX nor would it substantially affect airport operations during operations, this HHRA only assesses the health impacts to people exposed to TACs during the construction phase of the proposed Project.

The HHRA was conducted in four steps as defined in South Coast Air Quality Management District[1] (SCAQMD), California Environmental Protection Agency[2] (CalEPA) and U.S. Environmental Protection Agency[3] (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 activities.
- Quantitative evaluation of possible acute non-cancer health hazards due to the release of TACs associated with the proposed Project construction activities.

Risk assessment is an evolving and uncertain process, which includes important uncertainties emanating from the estimation of emissions of TACs, the dispersion of such TACs in the air,

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1 South Coast Air Quality Management District, *Supplemental Guidelines for preparing Risk Assessment for the Air Toxics Hot Spots Information and Assessment Act (AB2588)*, July 2005.

2 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I: Technical Support Document for the Determination of Acute Reference Exposure Levels for Airborne Toxicants*, March 1999; *Air Toxic Hot Spots Program Risk Assessment Guidelines, Part IV: Technical Support Document for Exposure Assessment and Stochastic Analysis*, September 2000; *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part III: The Determination of Chronic Reference Exposure Levels for Airborne Toxicants*, February 23, 2000; *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II: Technical Support Document for Describing Available Cancer Potency Factors*, updated August 2003; *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

3 U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, *Risk Assessment Guidance for Superfund, Vol I, Human Health Evaluation Manual (Part A), Interim Final, EPA/540/1-89/002*, December, 1989.

actual human exposure to such TACs, and health effects associated with such exposure. There are also uncertainties associated with evaluation of the combined effects of exposure to multiple chemicals, as well as interactions among pollutants. These uncertainties were discussed in detail in the LAX Master Plan Final EIR Technical Report 14a and Technical Report S-9a.[4] This HHRA relied upon the best data and methodologies available; however, the nature and types of uncertainties described in the LAX Master Plan Final EIR Technical Reports also apply to this HHRA.

To help address uncertainties, conservative methods were used to estimate cancer risks and chronic non-cancer hazards. That is, methods were used that are much more likely to overestimate possible health risks. For example, risks were calculated for individuals at locations where TAC concentrations are predicted to be highest (maximally exposed individual or MEI). Further, these individuals were assumed to be exposed to TACs for almost all days of the year and for many years to maximize estimates of possible exposure.

Resulting incremental risk estimates represent upper-bound predictions of exposure and, therefore, health risk, which may be associated with living near, and breathing TACs released during the construction phase of the proposed Project. By protecting hypothetical individuals that receive the highest exposures, the risk assessment is also protective for actual members of the population near LAX that would not be as highly exposed.

The HHRA for the proposed Project also evaluates potential short-term (1-hour) exposures and associated acute, health impacts. These estimates are also intentionally conservative; for example, maximum concentrations were used to assess possible hazards for receptors that live, work, go to school, or recreate off-airport. Actual exposure concentrations in off-airport areas are, again, overestimated by this approach.

4.4.2 Methodology

Cancer risk and chronic and acute non-cancer health hazard assessments for this HHRA consisted of two steps: (1) estimation of emissions of TACs associated with project construction, and subsequent air dispersion modeling of those emissions; and (2) estimation of incremental health risks associated with those emissions. The estimated emission rates were used, along with meteorological and geographic information, as inputs to the EPA AERMOD air dispersion model to predict ambient concentrations of TACs released during construction of the proposed Project. The predicted concentrations were in turn used to calculate human health risks and hazards.

The results of the analysis were then interpreted by comparing 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 MEI at locations where maximum concentrations of TAC were predicted by the air dispersion modeling. An impact was considered significant if cancer risks and/or chronic non-cancer health hazards for MEI exceeded regulatory thresholds. Acute non-cancer health hazards were estimated by comparing modeled maximum 1-hour concentrations with acute Reference Exposure Levels (RELs).

[4] City of Los Angeles, Los Angeles World Airports, and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004.

4.4.2.1 Exposure Assessment

The exposure assessment includes identification of exposed populations, selection of exposure pathways, and calculation of exposure concentrations and total dose. For the HHRA analysis of the proposed Project construction phase, receptors selected for quantitative evaluation were: off-airport workers, off-airport adult residents, off-airport child residents, off-airport school children, and on-airport workers. 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 the construction phase emissions of the proposed Project. Receptors for which exposure scenarios were prepared were selected to provide protective risks and hazards estimated 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.

Different receptors could be exposed to TAC in several ways, called exposure pathways. An exposure pathway consists of four basic parts: a TAC source (e.g., diesel engines); a release mechanism (e.g., diesel engine exhaust); a means of transport from the release point to the receptor (e.g., local winds); and a route of exposure (e.g., inhalation). 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 construction, and was therefore quantitatively evaluated for all receptors. Other exposure pathways, including deposition of TACs onto soils and subsequent exposure via incidental ingestion of this soil, uptake from soil into plants, and other indirect pathways, were addressed quantitatively in the programmatic HHRA developed for the LAX Plan EIR (see LAX Master Plan Final EIR Technical Report 14a and Technical Report S-9a).

Modeled concentrations were used for estimating human health risks and hazards, which serve as the basis for significance determinations for the proposed Project. To estimate cancer risks and the potential for adverse acute and chronic non-cancer health hazards, TAC intake via inhalation for each receptor were estimated. Average long-term daily intakes were used to estimate risk and hazards. Cancer risk was evaluated as the lifetime average daily dose (LADD) according to CalEPA and EPA guidance. Non-cancer health hazards were evaluated as average daily dose (ADD) over the period of exposure, again, following CalEPA and USEPA guidance.

The assessment of chronic non-cancer health hazard impacts due to the release of TACs associated with the construction of the proposed Project assumes that exposure concentrations of TACs are constant over a 70-year period for residential receptors. Exposure parameters used to calculate LADD and ADD for all receptors for the inhalation pathway are summarized in **Table 4.4-1**.

Table 4.4-1

Parameters Used to Estimate Exposures to TACs of Concern

	Off-Airport Receptors				
	Off-Site Resident			Off-Site School Child	Off-Site Worker
Exposure Pathway Inhalation of Particulates and Gases	Adult (70 years)	Adult (30 years)	Child		
Daily Breathing Rate (m^3/day)	20[b]	20[b]	15[b]	6[b]	10[b]
Exposure Frequency (days/yr)	350[a,c]	350[a,c]	350[a,c]	200[d]	245[a]
Exposure Duration (years)	70[a,e]	30[a,e]	6[b]	6[d]	40[a]
Body Weight (kg)	70[a,f]	70[a,f]	15[b]	40	70[a,f]
Averaging Time - Non-cancer (days)	25,550[a,f]	10,929	2,190[f]	2,190[f]	14,600[f]
Averaging Time - Cancer (days)	25,550[a,f]	25,550	25,550[a,f]	25,550[a,f]	25,550[a,f]

Notes:

[a] California Environmental Protection Agency (Cal/EPA), *Air Toxic Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

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

[c] U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors*, August, 1991.

[d] Site-specific. See Appendix D, Attachment C.

[e] 70 year exposure duration will be used as basis for determining significance.

[f] U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, *Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual, Part A, USEPA/540/1-89/002*, 1989.

Source: URS Corporation, 2013.

4.4.2.2 Toxicity Assessment

Toxicity cancer risk factor and chronic REL of TACs developed by the State of California were used to characterize cancer risks and chronic non-cancer health associated with longer term exposure to construction emissions. Acute REL for each analyzed TAC developed by the State of California were used in the characterization of potential acute non-cancer health hazards associated with the construction of the proposed Project.

4.4.2.3 Risk Characterization

Evaluation of Cancer Risks and Chronic Non-Cancer Health Hazard

Cancer risks of TACs were estimated by multiplying exposure estimates for TACs by the pollutant-specific cancer risk factor. The result is a risk estimate expressed as the odds of developing cancer. Cancer risks were based on exposure durations of 70, 30, and 6 years for residential adults and child exposures respectively. Offsite school and worker exposure durations are 40 and 70 years respectively. Chronic non-cancer health hazard estimates of TACs were calculated by dividing exposure estimate of each TAC by the chronic REL. RELs are estimates of the highest exposure levels that would not cause adverse health effects even if exposures continue over a lifetime. A ratio that is less than one indicates that the proposed

Project exposure was less than the highest exposure level that would not cause adverse health effects and, hence, no impact to human health would be expected.

For this evaluation, 327 grid points were analyzed along the airport fence-line and within the airport property. Concentrations of TACs at these grid nodes were used in the 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. These locations represent MEI and were used in the significance determinations.

Evaluation of Acute Non-Cancer Health Hazard Impacts

Acute non-cancer health hazards of TACs were also analyzed at 327 grid points in the vicinity of LAX. They were estimated at each grid point by comparison of the modeled pollutant concentration at each grid point with the acute REL. Short-term (1-hour and 8-hour average) concentrations of formaldehyde associated with the construction of the proposed Project were used to assess acute non-cancer health hazards. Acute non-cancer health hazards for formaldehyde were then estimated at each grid point by dividing the estimated maximum 1-hour and 8-hour average formaldehyde concentrations by acute formaldehyde REL. In the case of 8-hour average concentration, a CARB-approved persistence value (per CARB Hotspots Analysis Reporting Program [HARP] guidance) of 0.7 was applied to the 1-hour concentrations to calculate 8-hour concentration. A hazard index equal to or greater than 1, the EPA 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.

Evaluation of Health Effects for On-Airport Construction Workers

Impacts to construction workers were evaluated by comparing estimated acute 8-hour concentrations at the LAX Theme Building to the CalOSHA 8-hour average time-weighted average permissible exposure level (PEL-TWA) standard for formaldehyde.

4.4.2.4 Overview of Risk Assessment

The HHRA was conducted on TAC emissions associated with the proposed Project construction activities. The HHRA followed state and federal guidance for performance of risk assessments and was conducted in four steps described above, as defined in SCAQMD, CalEPA, and EPA guidance, consisting of selection of TAC of concern, exposure assessment, toxicity assessment, and risk characterization. These steps are summarized below.

Selection of Toxic Air Contaminants of Concern

TACs of concern evaluated in this HHRA are shown in **Table 4.4-2**. They were selected based on emissions estimates and human toxicity information, results of the LAX Master Plan HHRA, and a review of health risk assessments included in the Crossfield Taxiway Project (CFTP) Final EIR, LAX Bradley West Project Final EIR, and LAX Specific Plan Assessment study (SPAS) Final EIR. The primary TACs that contribute to health risk from diesel exhaust are from diesel particulate matter (DPM) and formaldehyde. However, all the TACs listed in **Table 4.4-2** were included within this HHRA. These TACs represent those pollutants that are most conducive to cancer risk, as well as adverse chronic and acute health exposure.

Table 4.4-2

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
Sources: URS Corporation, 2013.

Emissions of Toxic Air Contaminants

During the construction phase of the proposed Project, emissions of DPM are expected to contribute the majority to total incremental cancer risks. 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 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.

Construction DPM emissions were assumed to be equal to the engine exhaust component of particulates less than 10 microns in diameter (PM_{10}) emissions. Emissions of organic TACs were developed from VOC emission inventories. PM_{10} is the focus for PM emissions because this size fraction can deposit in the deep lung and is therefore responsible for most inhalation exposure. Organic speciation profile No. 818 for diesel-fueled motor vehicles and off-road equipment for VOC emissions, developed by the California Air Resources Board (CARB), was used to calculate organic TAC emissions. The CARB PM speciation profile No. 6159 for diesel-fueled offroad equipment was used to estimate particulate TAC emissions.

Exposure Concentrations

Air dispersion modeling was used to estimate TACs concentrations from construction sources of the proposed Project. Concentrations of TACs were estimated using the air dispersion model (AERMOD, Version 12345) with model options for 1-hour maximum and annual average concentrations selected. Incremental short-term 1-hour concentrations were then used to estimate acute non-cancer health hazard impacts and incremental annual average concentrations were used to estimate cancer risk and chronic non-cancer health hazards.

Concentrations were estimated at 327 grid nodes at or near the LAX property line (fenceline) and at one grid node at the LAX Theme Building. Receptor type (i.e., recreational, residential, commercial, or school) for each grid node was dictated by land use at or near the grid node location. Modeled concentrations at the fenceline is higher than concentrations modeled concentrations farther out from the airport where people currently reside, work, recreate, and go to school due to pollutant dispersion over distance. Concentrations at these fenceline locations reasonably represent concentrations of TACs for use in evaluating MEI.

Nineteen of the 327 grid nodes are located close to school sites nearest to the LAX fenceline (i.e., Saint Bernard High School at 9100 Falmouth Avenue in Playa Del Rey, Visitation Catholic Elementary School north of LAX at 8740 Emerson Avenue in Westchester, and Imperial Avenue School located south of LAX at 540 East Imperial Avenue in El Segundo). These grid nodes were selected to assess risks and hazards for sensitive receptors attending or working at schools near the fenceline.

The one grid node near the center of LAX (LAX Theme Building) was evaluated to represent where on-airport workers might receive the greatest exposure to TACs. TAC concentrations at the LAX Theme Building were compared to the California Occupational Safety and Health Administration (CalOSHA) 8-hour PEL-TWAs.

4.4.3 Existing Conditions

4.4.3.1 Regulatory Setting

Federal

The EPA provides guidance on performing an HHRA through its Office of Emergency and Remedial Response publication, *Risk Assessment Guidance for Superfund, Vol I, Human Health Evaluation Manual (Part A), Interim Final, EPA/540/1-89/002*, published December, 1989.

State

The CARB's statewide comprehensive air toxics program was established in the early 1980's. The Toxic Air Contaminant Identification and Control Act (AB 1807) created California's program to reduce exposure to air toxics. The South Coast Air Quality Management District (SCAQMD) has jurisdiction over the air quality of the Basin and has released a draft final Basin-wide air toxics study (Multiple Air Toxics Exposure Study [MATES] III, May 2008). As part of the MATES III study, a series of maps showing regional trends in estimated outdoor inhalation cancer risk from toxic emissions was prepared and indicates that the City of Los Angeles is exposed to an inhalation cancer risk of 500 – 3,692 persons per million. These risk maps depict inhalation cancer risk due to modeled outdoor TAC pollutant levels, and do not account for cancer risk due to other types of exposure. The largest contributors to inhalation cancer risk are diesel engines.

In September 1987, the California Legislature established the AB 2588 air toxics "Hot Spots" program. It requires facilities to report their air toxics emissions, ascertain health risks, and to notify nearby residents of significant risks. The SCAQMD has determined that the significance criterion for cancer health risks is a ten in one million increase in the chance of developing cancer. The SCAQMD has also adopted a significance criterion for cancer burden. The cancer burden is the estimated increase in the occurrence of cancer cases in a population as a result of exposures to TAC emissions. The SCAQMD has determined that the significance criterion for cancer burden is greater than 0.5 excess cancer cases in areas with an incremental increase in cancer risk greater than or equal to 1 in 1 million. The significance of non-cancer (acute and chronic) risks is evaluated in terms of hazard indices (HI) for different endpoints. The SCAQMD threshold for non–cancer risk for both acute and chronic HI is 1.0. In September 1992, the "Hot Spots" Act was amended by Senate Bill 1731 which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan. Beginning In 2000, the CARB has adopted diesel risk reduction plans and measures to reduce DPM emissions and the associated health risk. These are discussed in more detail in the following section.

California Air Resources Board Air Toxics Control Measure (ATCM)

In 2004, CARB adopted a control measure to limit commercial heavy duty diesel motor vehicle idling in order to reduce public exposure to DPM and other TACs. The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. In general, it prohibits idling for more than 5 minutes at any location.

In addition to limiting exhaust from idling trucks, CARB promulgated emission standards for off-road diesel construction equipment such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. A CARB regulation that became effective on June 15, 2008, aims to reduce emissions by installation of diesel soot filters and encouraging the replacement of older, dirtier engines with newer emission controlled models. The regulation requires that fleets limit their unnecessary idling to 5 minutes; there are exceptions for vehicles that need to idle to perform work (such as a crane providing hydraulic power to the boom), vehicles being serviced, or in a queue waiting for work. A prohibition against acquiring certain vehicles (e.g., Tier 0 and Tier 1) began on March 1, 2009; however, CARB is not enforcing this part of the regulation until "it receives authorization from U.S. EPA."[5] Implementation of the fleet averaging emission standards is staggered based on fleet size, with the largest operators to begin compliance in 2014.[6] By 2020, CARB estimates that DPM will be reduced by 74 percent and smog forming NO_X (an ozone precursor emitted from diesel engines) by 32 percent, compared to what emissions would be without the regulation.[7]

The CalEPA provides guidance on performing an HHRA through its Office of Environmental Health Hazard Assessment publications:

- *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I: Technical Support Document for the Determination of Acute Reference Exposure Levels for Airborne Toxicants*, March 1999;
- *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II: Technical Support Document for Describing Available Cancer Potency Factors*, updated August 2003;
- *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part III: The Determination of Chronic Reference Exposure Levels for Airborne Toxicants*, February 23, 2000;
- *Air Toxic Hot Spots Program Risk Assessment Guidelines, Part IV: Technical Support Document for Exposure Assessment and Stochastic Analysis*, September 2000; and
- *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

Regional/Local

The SCAQMD provides guidance on performing an HHRA through its publication, *Supplemental Guidelines for preparing Risk Assessment for the Air Toxics Hot Spots Information and Assessment Act (AB2588)*. July 2005.

4.4.3.2 Existing Health Risk in the Project Area

The SCAQMD has released a draft final Basin-wide air toxics study (MATES III, Multiple Air Toxics Exposure Study, May 2008). The MATES III Study represents one of the most comprehensive air toxics studies ever conducted in an urban environment. The Study was aimed at estimating the cancer risk from TAC emissions throughout the Basin by conducting a comprehensive monitoring program, an updated emissions inventory of TACs, and a modeling effort to fully characterize health risks for those living in the Basin. The Study concluded that the average carcinogenic risk from air pollution in the Basin is approximately 1,200 in one

[5] Office of Administrative Law, "California Regulatory Notice Register, February 26, 2010," http://www.oal.ca.gov/res/docs/pdf/notice/9z-2010.pdf, Accessed March 2013.

[6] California Air Resources Board, In-Use Off-Road Diesel Vehicle Regulation, Overview, Revised May 2012, http://www.arb.ca.gov/msprog/ordiesel/faq/overview_fact_sheet_dec_2010-final.pdf, Accessed June 2013.

[7] California Air Resources Board, "Emissions and Health Benefits of Regulation for In-Use Off-Road Diesel Vehicles," http://www.arb.ca.gov/msprog/ordiesel/documents/OFRDDIESELhealthFS.pdf, Accessed March 2013.

million. Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors. Approximately 85 percent of the risk is attributed to DPM emissions, approximately 10 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde), and approximately 5 percent of all carcinogenic risk is attributed to stationary sources (which include industries and other certain businesses, such as dry cleaners and chrome plating operations).

As part of the MATES III study, the SCAQMD has prepared a series of maps that show regional trends in estimated outdoor inhalation cancer risk from toxic emissions, as part of an ongoing effort to provide insight into relative risks. The maps' estimates represent the number of potential cancers per million people associated with a lifetime of breathing air toxics (24 hours per day outdoors for 70 years) in parts of the area. The estimated lifetime cancer risk from exposure to TACs for those residing within the vicinity of the proposed Project is estimated at 884 cancers per million, while the vast majority of the area surrounding LAX ranges between 500 to 1,200 cancers per million.[8] However, the visual resolution available in the map is 1 kilometer by 1 kilometer and, thus, impacts for individual neighborhoods are not discernible on this map. In general, the risk of the Project site is comparable with other areas in the Los Angeles area; the risk from air toxics is lower near the coastline, and increases inland, with higher risks concentrated near large diesel sources (e.g., freeways, airports, and ports).

The CARB also prepares a series of maps that show regional trends in estimated outdoor inhalable cancer risk from air toxic emissions. The Year 2010 Los Angeles County Central map, which is the most recently available map to represent existing conditions, shows cancer risk ranging from 500 to 1,500 cancers per million in the Project area, which is generally consistent with the SCAQMD's risk maps.[9]

The data from the SCAQMD and CARB provide a slightly different range of risk. This difference is primarily related to the fact that the SCAQMD risk is based on monitored pollutant concentrations and the CARB risk is based on dispersion modeling and emission inventories. Regardless, the SCAQMD and CARB data shows that there is an inherent health risk associated with living in urbanized areas of the Basin, where mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors to the overall risk.

Sources of Toxic Air Contaminants of Concern

As indicated in the LAX Master Plan Final EIR, baseline sources of TACs at LAX include both stationary and mobile sources. Stationary sources consist of aircraft maintenance facilities, the existing fuel farm, and the Central Utility Plant. Mobile sources of TACs include aircraft, ground service equipment, and on- and off-airport vehicles. These sources generate a number of TACs of concern, including volatile organics, polycyclic aromatic hydrocarbons, metals, and other constituents.

Exposed Populations

Screening-level air dispersion modeling conducted for the LAX Master Plan Final EIS/EIR indicated that the greatest area of human health impact from airport activities is confined to the airport property. However, health risks from LAX may accrue to populations in the nearby area. The exposed population within this potential area of impact includes workers, residents, and

8 South Coast Air Quality Management District, Multiple Air Toxics Exposure Study III Model Estimated Carcinogenic Risk website available at http://www3.aqmd.gov/webappl/matesiii/, Accessed September 2013.

9 California Air Resources Board, Cancer Inhalation Risk: Local Trend Maps website available at http://www.arb.ca.gov/ch/communities/hlthrisk/cncrinhl/rskmapvwtrend.htm.400, Accessed September 2013.

sensitive receptors such as schools, hospitals, and nursing. The airport is bound to the north and south by residential areas which are likely to contain populations that are particularly sensitive to air pollution. These population groups include children, elderly, and acutely and chronically ill persons (especially those with cardio-respiratory diseases). Sensitive land uses in close proximity to the Project site include the following:

- The El Segundo residential neighborhood located approximately 1,300 feet to the south of the Project area.

4.4.4 CEQA Thresholds of Significance

There are no significance thresholds related to a HHRA within Appendix G of the CEQA Guidelines. Significance determinations for health impacts were assessed as incremental increases in cancer risks and non-cancer health hazards associated with the construction of the proposed Project, based on guidance from SCAQMD, CalEPA, and EPA. A significant impact to human health would occur if construction activities of the proposed Project would result in one or more of the following conditions:

- An incremental TAC cancer risk greater than, or equal to, 10 in one million (10×10^{-6}) people for potentially exposed off-site workers, residents, or school children.
- An incremental TAC chronic hazard index greater than, or equal to, one (1) person at any receptor location.
- An incremental acute hazard index greater than, or equal to, one (1) person at any receptor location.
- Exceedance of PEL-TWA for on-airport workers.

The above thresholds utilized for this HHRA are based on SCAQMD guidance. The SCAQMD is in the process of developing an “Air Quality Analysis Guidance Handbook” (Handbook) to replace the 1993 SCAQMD CEQA Air Quality Handbook. Although not yet published, SCAQMD has made certain sections of the Handbook available, including their air quality significance thresholds, which provide thresholds for TACs.[10] The threshold for workers is based on standards developed by CalOSHA.[11]

4.4.5 Project Design Features

4.4.5.1 LAX Master Plan EIS/EIR Commitments

As part of the LAX Master Plan, LAWA adopted several mitigation measures and commitments pertaining to air quality to avoid or reduce environmental impacts, as described in the LAX Master Plan MMRP. Although the proposed Project is not part of the LAX Master Plan, LAWA is committed to implementing the applicable LAX Master Plan commitments to all LAWA projects, including the proposed Project. Of the three commitments and four mitigation measures that were designed to address air quality impacts related to implementation of the LAX Master Plan, none of the commitments are applicable to the proposed Project, but two of

[10] South Coast Air Quality Management District, *CEQA Air Quality Handbook*, 1993, as updated by “SCAQMD Air Quality Significance Thresholds,” March 2011, Available: http://www.aqmd.gov/ceqa/handbook/signthres.pdf, Accessed August 2013.

[11] California Occupational Safety and Health Administration (CalOSHA), Permissible Exposure Limits for Chemical Contaminants, Table AC-1, Available: http://www.dir.ca.gov/Title8/5155table_ac1.html, Accessed August 2013.

the mitigation measures are applicable to the proposed Project and were considered in the air quality analysis herein.

LAWA has identified air quality control measures that it requires on all projects based on the LAX Master Plan commitments and mitigation measures, subsequent measures identified during the implementation of Master Plan projects, the LAX Master Plan Community Benefits Agreement (CBA) and Settlement Agreement, recommendations from the SCAQMD, and the City of Los Angeles Green Building Code Tier 1 standards. Applicable air quality control measures for the proposed Project include:

- **LAX-AQ-1 – General Air Quality Control Measures.** This measure describes a variety of specific actions to reduce air quality impacts associated with projects at LAX, and applies to all projects. Some components of LAX-AQ-1 are not readily quantifiable, but would be implemented as part of LAX Master Plan projects. Specific measures are identified in **Table 4.4-3**.

Table 4.4-3

General Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Quantified Emissions Reduction
1a	Watering (per SCAQMD Rule 403) – twice daily	Fugitive Dust	50% PM_{10} and $PM_{2.5}$
1b	Ultra-low sulfur diesel (ULSD) fuel will be used in construction equipment.	Off-Road Mobile	Assumed in modeling
1c	Post a publicly visible sign with the telephone number and person to contact regarding dust complaints; this person shall respond and take corrective action within 24 hours.	Fugitive Dust	NQ
1d	Prior to final occupancy, the applicant demonstrates that all ground surfaces are covered or treated sufficiently to minimize fugitive dust emissions.	Fugitive Dust	NQ
1e	All roadways, driveways, sidewalks, etc., being installed as part of the project should be completed as soon as possible; in addition, building pads should be laid as soon as possible after grading.	Fugitive Dust	NQ
1f	Prohibit idling or queuing of diesel-fueled vehicles and equipment in excess of five minutes. This requirement will be included in specifications for any LAX projects requiring on-site construction.[b]	Nonroad Mobile	NQ

Table 4.4-3

General Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Quantified Emissions Reduction
1g	Require that all construction equipment working on-site is properly maintained (including engine tuning) at all times in accordance with manufacturers' specifications and schedules.	Mobile and Stationary	NQ

Notes:
NQ = Not Quantified
[a] These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.
[b] From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.M.
Source: City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004; City of Los Angeles, Los Angeles World Airports, *Community Benefits Agreement*, 2006.

- **LAX-AQ-2 - Construction-Related Control Measures.**[12] This measure describes numerous specific actions to reduce fugitive dust emissions and exhaust emissions from on-road and off-road mobile and stationary sources used in construction. Some components of LAX-AQ-2 are not readily quantifiable, but would be implemented as part of LAX projects. These control strategies are expected to reduce construction-related emissions. Specific measures are identified in **Table 4.4-4.**

Table 4.4-4

Construction-Related Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Potential Emissions Reduction by Equipment
2a	All diesel-fueled equipment used for construction will be outfitted with the best available emission control devices, where technologically feasible, primarily to reduce emissions of diesel particulate matter (PM), including fine PM (PM2.5), and secondarily, to reduce emissions of NO_x. This requirement shall apply to diesel-fueled off-road equipment (such as construction machinery), diesel-fueled on-road vehicles (such as trucks), and stationary diesel-fueled engines (such as electric generators). (It is unlikely that this measure will apply to equipment with Tier 4 engines.) The emission control devices utilized in construction equipment shall be verified or certified by California Air Resources Board or US Environmental Protection Agency for use in on-road or off-road vehicles or engines. For multi-year construction projects, a reassessment shall be conducted annually to determine what constitutes a best available emissions control device.[b]	Off-Road Mobile	85% PM10 PM2.5, adjusted for compatibility

[12] The mitigation elements presented in LAX-AQ-2 were derived from LAX Master Plan EIS/EIR Mitigation Measure MM-AQ-3.

Table 4.4-4

Construction-Related Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Potential Emissions Reduction by Equipment
2b	Watering (per SCAQMD Rule 403) – three times daily	Fugitive Dust	61% PM_{10} and 61% $PM_{2.5}$
2c	Pave all construction access roads at least 100 feet onto the site from the main road.	Fugitive Dust	NQ
2d	To the extent feasible, have construction employees' work/commute during off-peak hours.	On-Road Mobile	NQ
2e	Make available on-site lunch trucks during construction to minimize off-site worker vehicle trips.	On-Road Mobile	NQ
2f	Utilize on-site rock crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck haul trips.	Nonroad Mobile	NQ
2g	Specify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using "clean burning diesel" fuel and exhaust emission controls.	Stationary Point Source Controls	NQ
2h	Suspend use of all construction equipment during a second-stage smog alert in the immediate vicinity of LAX.	Mobile and Stationary	NQ
2i	Utilize construction equipment having the minimum practical engine size (i.e., lowest appropriate horsepower rating for intended job).	Mobile and Stationary	NQ
2j	Prohibit tampering with construction equipment to increase horsepower or to defeat emission control devices.	Mobile and Stationary	NQ
2k	The contractor or builder shall designate a person or persons to ensure the implementation of all components of the construction-related measure through direct inspections, record reviews, and investigations of complaints.	Administrative	NQ
2l	LAWA will locate rock-crushing operations and construction material stockpiles for all LAX-related construction in areas away from LAX-adjacent residents, to the extent possible, to reduce impacts from emissions of fugitive dust.[c]	Stationary	Can be quantified in modeling assumptions
2m	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[d]	Mobile	NQ

Table 4.4-4

Construction-Related Air Quality Control Measures[a]

Measure Number	Measure	Type of Measure	Potential Emissions Reduction by Equipment
2n	On-road trucks used on LAX construction projects with a gross vehicle weight rating of at least 19,500 pounds shall, at a minimum, comply with USEPA 2007 on-road emissions standards for PM10 and NO_x.[e]	On-Road Mobile	Assumed in modeling
2o	Prior to January 1, 2015, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet USEPA Tier 3 off-road emission standards. After December 31, 2014, all off-road diesel-power construction equipment greater than 50 horsepower shall meet USEPA Tier 4 off-road emissions standards. Tier 4 equipment shall be considered based on availability at the time the construction bid is issued. LAWA will encourage construction contractors to apply for SCAQMD "SOON" funds to accelerate clean-up of off-road diesel engine emissions.[f]	Off-Road Mobile	Assumed in modeling

Notes:
[a] These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.
[b] From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.F.
[c] From Community Benefits Agreement Measure X.L.
[d] From Community Benefits Agreement Measure X.N.
[e] From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.
[f] From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.
Source: City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004; City of Los Angeles, Los Angeles World Airports, *Community Benefits Agreement*, 2006; City of Los Angeles, Los Angeles World Airports, *Preliminary LAX Specific Plan Amendment Study Report for Los Angeles International Airport (LAX) Specific Plan Amendment Study*, June 2012.

4.4.6 Impact Analysis

Cancer risk estimates from exposure to construction sources are presented below for on-airport workers (occupational exposure), and off-airport workers, residents, and school children. Acute and chronic non-cancer health hazards are also presented.

4.4.6.1 Health Risks to On-Airport Workers

Effects on on-airport workers were evaluated by comparing estimated maximum 8-hour average TAC concentration to the CalOSHA 8-hour PEL-TWA. The estimated maximum 8-hour average TAC concentration at the on-airport grid point is several orders of magnitude below the PEL-TWA and, thus would not exceed those considered acceptable by CalOSHA standards, as shown in **Table 4.4-5**. Therefore, impacts related to health risks to on-airport workers would be less than significant.

Table 4.4-5

Comparison of CalOSHA Permissible Exposure Limits to Maximum Estimated 8-Hour On-Site Air Concentrations

Toxic Air Contaminant[a]	Controlled Project Concentrations (mg/m^3) [b]	CalOSHA PEL TWA (mg/m^3) [c]
Acetaldehyde	0.000032503	45
Benzene	0.000008844	0.32[d]
Butadiene, 1-3-	0.000000840	2.2
Ethylbenzene	0.000001371	435
Formaldehyde	0.000065050	0.37[d]
Hexane, n-	0.000000708	180
Methanol	0.000000133	260
Methyl ethyl ketone (mek) (2-butanone)	0.000006545	590
Naphthalene	0.000000398	50
Propylene	0.000011498	NA[5]
Styrene	0.000000265	215
Toluene	0.000006501	37
Xylene (total)	0.000004643	435
Arsenic	0.000000000	0.01
Cadmium	0.000000001	0.005
Chlorine	0.000000001	1.5
Copper	0.000000003	1
Lead	0.000000000	0.05
Manganese	0.000000002	0.2
Mercury	0.000000000	0.025
Nickel	0.000000000	0.5
Selenium	0.000000000	0.2
Silicon	0.000000000	6
Sulfates	0.000000575	NA[e]
Vanadium	0.000000000	0.05

Notes:
a All TACs for which PEL-TWAs are available are listed. PEL-TWAs are not available for diesel exhaust, propylene, and sulfates.
b Maximum 1-hour concentrations at on-airport location converted to 8-hour averages by multiplying by a factor of 0.7..
c 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.
d 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.
e NA = Not Available
Source: URS Corporation, 2013.

4.4.6.2 Cancer Risks and Chronic Non-Cancer Hazards

For the proposed Project, 326 grid points were analyzed along the airport fence-line and one within the airport property (at the Theme Building). 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 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 where air concentrations for TAC were predicted. Offsite worker risks and hazards were estimated at the fence-line receptors, and at three on-airport locations to represent LAWA, tenant, and contractor personnel. Peak cancer risks and chronic non-cancer health hazards for MEI at the fence-line and on-airport locations are summarized in **Table 4.4-6**.

Residents and school children were evaluated at all 326 off-airport grid nodes. Estimated peak incremental cancer risks for adult residents and child residents for the proposed Project range from 0.05 in one million to 0.6 in one million. Estimated incremental cancer risks are higher for adults than for children, because exposure duration for adults is longer. Incremental cancer risk for school children at the peak location was estimated to be 0.05 in one million. Adult worker risks were evaluated at all 326 off-airport grid nodes as well as at 1 on-airport grid node. The peak adult (non-Project) worker cancer risk would be 0.6 in one million. These estimates indicate that project-related cancer risks for adults and for young children would be below the threshold of significance of 10 in one million for controlled Project construction.[13]

Project-related chronic non-cancer hazard indices for construction impacts associated with the Project for adult residents and child residents living at the peak TAC concentration location were estimated to be 0.0007. Project-related chronic non-cancer hazard index for chemicals affecting the same target (i.e., the respiratory system) for MEI school children is 0.0007. The peak adult (non-Project) worker chronic hazard index was estimated to be 0.002. These estimates indicate that project-related chronic non-cancer hazards would be less than the hazard index threshold of 1.

[13] Controlled emissions include emission reductions associated with control measures required by the South Coast Air Quality Management District, as well as mitigation measures required as part of the LAX Master Plan Mitigation Monitoring & Report Program, Community Benefits Agreement, and Stipulated Settlement Agreement.

Table 4.4-6

Maximum Incremental Cancer and Chronic Non-Cancer Hazards Risk for MEIs During Construction

Receptor Type	Incremental Cancer Risk[a] (per million people)	Significance Threshold (per million people)	Significant?
Child Resident	0.05	10	No
School Child	0.003	10	No
Adult Resident (70 years)	0.59	10	No
Adult Resident (30 years)	0.25	10	No
Offsite Workers	0.25	10	No
	Incremental Chronic Non-Cancer Hazards Risk	**Significance Threshold**	**Significant?**
Child Resident	0.0007	1	No
School Child	0.0002	1	No
Adult Resident	0.0007	1	No
Offsite Workers	0.002	1	No

Notes:
[a] Values provided are the maximum number of cancer cases per million people exposed.
Source: URS Corporation, 2013.

4.4.6.3 Acute Non-Cancer Hazards Risk

As with cancer risks and chronic non-cancer health hazards, acute health hazards were analyzed at 327 grid points within the study area. 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 irrelevant 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. The one on-airport grid point was assumed to be commercial receptors (workers).

The proposed Project construction-related acute non-cancer hazard risk for the MEIs are summarized in **Table 4.4-7**. As shown in **Table 4.4-7**, construction emissions of TACs from the proposed Project would not result in incremental acute non-cancer hazard risk greater than, or equal to the threshold of significance of one (1) for all exposure types. Therefore, impacts related to the acute non-cancer hazard risk during construction of the proposed Project would be less than significant.

Table 4.4-7

Maximum Incremental Acute Non-Cancer Hazards Risk for MEIs During Construction

Receptor Type	Incremental Acute Non-Cancer Hazards Risk (1-hour / 8-hour values)[a]	Significance Threshold	Significant?
Child Resident	0.005 / 0.02	1	No
School Child	0.001 / 0.006	1	No
Adult Resident	0.005 / 0.02	1	No
Offsite Workers	0.009 / 0.03	1	No

Notes:
[a] Values provided are the maximum values.
Source: URS Corporation, 2013.

4.4.7 Cumulative Impacts

Construction activities associated with the proposed Project would result in less than significant impacts related to cancer and chronic non-cancer hazards risk, acute non-cancer hazard risk, and to health risks to on-airport workers. As such, the proposed Project would not contribute cumulatively to potential health risks from other related projects. Therefore, cumulative impacts would be less than significant.

4.4.8 Mitigation Measures

The assessment of health risk for the construction phase of the proposed Project found that impacts related to health risks including cancer risk and chronic and acute exposures to TACs would be less than significant. As such, no project-specific mitigation measures are required.

4.4.9 Level of Significance after Mitigation

The assessment of health risk for the construction phase of the proposed Project found that impacts related to health risks including cancer risk and chronic and acute exposures to TACs would be less than significant, and no mitigations are required. Impacts would remain less than significant.

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4.5 Hydrology and Water Quality

4.5.1 Introduction

This section presents an analysis of the potential hydrology and water quality impacts of the proposed Project. Based on the information contained in the Initial Study (IS), the following Hydrology and Water Quality environmental topics found that the proposed Project would result in a "less than significant" or "no impact", and thus, no further analysis of these topics in an EIR is required.

- Wastewater discharge requirements
- Groundwater
- Alteration of drainage pattern
- Degradation of water quality
- Flooding
- Inundation by seiche, tsunami, or mudflow

The focus of Chapter 4.5 is runoff and pollutant discharge as it relates to water quality. All of the other Hydrology and Water Quality environmental subtopics are summarized in Chapter 5.0 Other CEQA Considerations, Section 5.6 Impacts Found Not to Be Significant.

4.5.2 Methodology

4.5.2.1 Resources Used

Federal, state, and local statutes regulating water resources were reviewed for the analysis of potential water quality impacts. The applicable statutes establish water quality standards, control discharges and pollution sources, protect drinking water systems, prevent or minimize the loss of wetlands, and protect aquifers and other sensitive ecological areas. The Project site is located within the jurisdictions of the County of Los Angeles Flood Control District and the LARWQCB. Reports and documents previously prepared by LAWA were used to assess whether the proposed Project would impact water quality and water resources. These included:

- HNTB, *Runway 25R and Taxiway B East End Rehabilitation and Taxiway Extension, Preliminary Engineer's Report, 30% Submittal*, August 2011
- Parsons Brinkerhoff, *Final On-Site Hydrology Report for LAX*, October 2002.
- PSOMAS, *South Airfield Improvement Project Draft EIR, Appendix A – Conceptual Drainage Plan, Los Angeles International Airport,* June 2005.
- URS Corporation, *Runway 7L-25R Safety Area (RSA) Project, Los Angeles International Airport, Engineer's Design Report, 30% Design Final Submittal*, Appendix 3, April 8, 2011.

4.5.2.2 Design Criteria

The surface water hydrology analysis considered potential changes to stormwater runoff and drainage due to the change in pervious surfaces under the proposed Project. Existing impervious areas and locations within the Project site were reviewed to evaluate potential direct and indirect impacts to surface water resources due to stormwater runoff. Direct effects include increased turbidity and erosion during construction and increased runoff during operations. Indirect effects can occur when changes in the planned development of an area result in increased water needs or reduced water quality.

Details for the application of BMPs at LAX properties are contained in LAWA's *Sustainable Airport Planning, Design and Construction Guidelines Version 5 (LSAG)* and in the City of Los Angeles Green Building Code (LAGBC). On an annual basis, LAWA manages the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP), including the mitigation commitments that implement LSAG and the LAGBC,[1] which monitors the progress of BMPs during a project's lifespan. The City of Los Angeles requirements, along with previous airport reports and documents, provide the tools and guidance on addressing potential effects on water resources.

The recommended storm design flow for the proposed Project is a 25-year frequency design storm which is in conformance with Los Angeles County Department of Public Works (LACDWP) Hydrology Manual, Chapter 4.3 (Page 30), LACDWP, January 2006. Under this requirement, existing in-field drainage facilities that have the capacity to convey at least the 25-year storm event flow based on the future Master Plan project conditions would not need upgrading. Existing facilities that could not convey at least a 25-year flow would be replaced or upgraded to convey at least the 25-year storm event flow to prevent any in-field flooding under this condition.

The Pre-Development flows shown on the LAWA Drawing No. 85067-301 were calculated based on a 5-year design storm using an outdated and more conservative hydrology method (as per the LACDWP Hydrology Manual 2006) than the more refined Modified Rational Method (MODRAT). MODRAT, in use since the 1930's is based on the Rational Method, but uses a time of concentration and a design storm to determine intensities throughout the storm period. The intensities are used to determine the soil runoff coefficient. The rational formula then provides a flow rate for a specific time. Plotting the time specific flow rate provides a hydrograph and an associated flow volume. MODRAT is the standard method for hydrologic studies within the Los Angeles County. Computer programs implement MODRAT to compute runoff data from input parameters. MODRAT relies on a design storm defined by a time-intensity relationship and a spatial precipitation pattern. The temporal and spatial distributions of rainfall used with MODRAT have changed over the years based on analysis of historic rainfall records. Hence, the refined MODRAT has replaced the outdated MODRAT to accommodate the changes in the temporal and spatial distributions of rainfall.

Additionally, based on the design experience of prior LAWA drainage projects at LAX, the design team (who developed the 30% Design Report- Appendix 3) determined that the assumption of surface runoff for 25-year design storm to be approximately 2 cfs/acre would be realistic. Hence, in order to determine the Pre-development and Post-development flows at the end of the Line E2, the design team used the assumption of approximately 2 cfs/acre to determine the cumulative flows from watershed areas located upstream and outside of the Project Study Area limits.

Approximately 55 acres of the Project Study Area on the western side of the runway was not part of the original Project Study Area analyzed in the 30% Design Report prepared in 2011. For the additional 55 acres, the assumption of surface runoff for 25-year design storm to be 2 cfs/acre was applied to take into consideration of the additional runoff from this portion of the Project Study Area which was not originally analyzed in the 30% Design Report. Based on the

[1] City of Los Angeles, Department of Building and Safety Codes website, online at http://ladbs.org/LADBSWeb/codes.jsf, accessed March 2012.

assumption, the additional area referenced above would generate an additional flow of 110 cfs. This would be a highly conservative approach in determining the additional runoff because the assumption of 2 cfs/acre has been applied to a larger area involving longer flow paths, thereby reducing the flow rate even further.

For drainage impacts, peak flow rates for the proposed Project drainage were calculated and compared with the existing drainage capacity. The Modified Rational Method (MODRAT) was used to calculate drainage rates for flows into the Imperial Drain Sub-Basin. These calculations took into account the peak discharge, in cubic feet per second (cfs), the MODRAT runoff coefficient, rainfall intensity (in inches per hour), and the drainage area (in acres). The Rational Method runoff coefficient (c) is a function of the soil type, land use, and drainage basin slope. The MODRAT runoff coefficient was calculated for both existing and proposed Project conditions based on land uses, and their associated changes in impervious surfaces. The differences within the methods (outdated and conservative versus the refined method) have been discussed earlier.

Using the design criteria described above as a minimum threshold equivalent to 25-year capacity, the modified existing MODRAT runs, and a factor of safety, the existing storm drains were evaluated with 25-year and ¾-inch capacities. The ¾-inch flows are considered for water quality. Existing, on-airport drainage facilities that have the capacity to convey at least the 25-year storm event flow based on the future LAX Master Plan conditions would not be considered as needing to be upgraded. Existing facilities that could not convey at least a 25-year flow would be considered as potential candidates for needing to be replaced or upgraded to convey at least the 25-year storm event flow. Storm drains that do not achieve a capacity greater than or equal to 25-year flows were considered deficient. The total outfall capacity from Pershing and Imperial sub-areas are limited to 1,145 cubic feet per second (cfs) in the existing conditions.

The methodology and criteria used in the analysis to determine the Project site run-off to the Dominguez Channel is based on the Los Angeles County Department of Public Works' (LACDPW) Hydrology Manual (January, 2006), Modified Rational Method (MODRAT). FAA AC 150/5320-5C Surface Drainage requires that the proposed storm drain systems in the airfields be designed to accommodate a 5-year event. However, LAX has historically designed drainage improvements with a high degree of protection, due to the importance of the facility, minimizing the likelihood of a possible operational hazard. Hence, as per the Preliminary Engineer's Report, proposed drainage infrastructure installed will be designed to accommodate a 25-year design storm. The proposed storm drain system will be designed to accommodate the ultimate runway/taxiway configuration for the Project site. As needed, existing systems will be upgraded using large-diameter pipe to accommodate the higher design flow rates established for this proposed Project (i.e., 25- year design storm).

4.5.3 Existing Conditions

4.5.3.1 Regulatory Setting

Development that discharges stormwater runoff into and/or results in encroachment upon natural drainages, wetlands, and/or floodplains is subject to the requirements of federal, state, and local agencies, including the United States Environmental Protection Agency (USEPA) and United States Army Corp of Engineers (USACE), pursuant to the Clean Water Act (CWA); the State Water Resources Control Board (SWRCB), and the Los Angeles Regional Water Quality Control Board (LARWQCB) pursuant to the Porter-Cologne Water Quality Control Act; the California Department of Fish and Wildlife (CDFW) pursuant to the Fish and Game Code; and the Los Angeles County Department of Public Works (LACDPW) pursuant to the Level of Flood Protection and Drainage Protection Standards.

Federal

Clean Water Act of 1972

The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. The statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The nationwide implementation of the CWA is the responsibility of the USEPA.

Section 402 of the CWA, National Pollutant Discharge Elimination System Program

The CWA makes it illegal to discharge pollutants from a point source to Waters of the U.S. Section 402 of the CWA creates the National Pollutant Discharge Elimination System (NPDES) regulatory program. This is the primary implementation program for regulating discharges of pollutants into Waters of the U.S. Point sources must obtain a discharge permit from the proper authority (usually a state, but sometimes the USEPA, a tribe, or a territory). Though the CWA does contain a long-range goal of zero discharge of pollutants, the NPDES permits set limits on the amount of various pollutants that a source can discharge at a given time. In addition, through the NPDES regulatory program, an NPDES permit is required for stormwater discharge from storm drain systems, construction sites that disturb one acre or more, and industrial facilities (which includes airports).

State

Porter-Cologne Water Quality Control Act

Division 7 of the California Water Code, also known as the Porter-Cologne Water Quality Control Act, contains provisions that cover water quality protection and management for Waters of the State. The Porter-Cologne Water Quality Control Act establishes the SWRCB and the nine RWQCBs as the principal state agencies responsible for the protection, and, where possible, the enhancement of water quality. The SWRCB sets statewide policy, and together with the RWQCBs, implements state and federal laws and regulations pertaining to water quality. In California, the NPDES permit program is administered by the SWRCB and the RWQCBs.

NPDES General Industrial Permit

The NPDES permit programs in California are administered by the SWRCB and by nine RWQCBs that issue NPDES permits and enforce regulations within their respective region. LAX is located within the jurisdiction of the Los Angeles Regional Water Quality Control Board (LARWQCB). A statewide General Permit for Discharges of Stormwater Associated with Industrial Activities (SWRCB Water Quality Order No. 97-09-DWQ) may apply to the proposed Project. Qualifying industrial sites are required to prepare Storm Water Pollution Prevention Plans (SWPPPs) that describe the Best Management Practices (BMPs) that will be employed to protect water quality. Industrial facilities are required to use best practicable control technology (BCT) for control of conventional pollutants and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. Monitoring of runoff leaving the site is also required. For transportation facilities, the General Industrial Permit only applies to vehicle maintenance shops and equipment-cleaning operations. The SWRCB has posted the Final Draft Industrial General Permit for public comment. Changes to the General Industrial Permit are expected to include the establishment of numeric action levels (NALs) that reflect the USEPA benchmark values for selected parameters, a compliance storm event (the 10-year, 24-hour event), minimum BMP requirements, a revised monitoring protocol, and three levels of corrective actions if an NAL is exceeded.

NPDES General Construction Activity Stormwater Permit (GCASP)

The SWRCB adopted a General Construction Activity Stormwater Permit (GCASP) on September 2, 2009 for projects that disturb one or more acres of soil or whose projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres. Projects are required to obtain coverage under the GCASP for Discharges of Stormwater Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ). The GCASP permit became effective on July 1, 2010. All dischargers are required to obtain coverage under this GCASP. Construction activities subject to this permit includes clearing, grading and disturbances to the ground such as stockpiling or excavation. The SWRCB permits all regulated construction activities under NPDES GCASP for stormwater discharges associated with construction activity (Order No. 98-08-DWQ (1999)). Order No. 98-08-DWQ requires that, prior to beginning any construction activity, the permit applicant must obtain coverage under the NPDES GCASP by preparing and submitting a Notice of Intent (NOI) and appropriate fee to the SWRCB. Additionally, coverage would not occur until an adequate SWPPP has been prepared. A separate NOI needs to be submitted to the SWRCB for each construction site.

The NPDES GCASP requires the development and implementation of a site-specific SWPPP. The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges. BMPs are intended to diminish impacts to the Maximum Extent Practicable (MEP), a standard developed by Congress to allow regulators the flexibility needed to shape programs to the site-specific nature of municipal stormwater discharges. Reducing impacts to the MEP generally relies on BMPs that emphasize pollution prevention and source control, with additional structural controls as needed.

The SWPPP must include BMPs that address source control, and, if necessary, must also include BMPs that address specific pollutant control. Dischargers are also required to inspect their construction sites before and after storms to identify stormwater discharge associated with construction activity and to identify and implement controls where necessary. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the GCASP describes the elements that must be contained in a SWPPP.

The NPDES GCASP requires the analysis of risk based on the soil characteristics that covers the Project Study Area, the receiving water risk (beneficial uses) and any impaired water bodies for sediment. The selection of BMPs needs to be based on the proposed Project's overall risk assessment. Projects that exceed 30 acres are required to conduct biological assessment monitoring before and after the project.

A Rain Event Action Plan (REAP) is also required to cover the Project site throughout the rainy season(s). The proposed Project developer is required to submit a copy of the proposed Project's documents (i.e. SWPPP, Notice of Intent [NOI], Risk Assessments, etc.) to the Stormwater Multi-Application, Reporting, and Tracking System (SMARTS).

As of September 2, 2012, all projects located outside of a Phase I Municipal Separate Storm Sewer Systems (MS4) permitted jurisdiction that do not require a permanent water quality management plan are required to provide permanent water quality BMPs in the SWPPP. The required measures include Low Impact Development (LID) design and water conservation practices.

Regional/Local

LARWQCB Order No. R4-2012-0175/NPDES Permit No. CAS004001

The LARWQCB reissued the County of Los Angeles Municipal NPDES Permit (Order No. R4-2012-0175), which became effective on December 28, 2012. This Order supersedes Order No. 01-182 (the old MS4 Permit), and will serve as the NPDES Permit for MS4 storm water and non-storm water discharges within the County of Los Angeles. Order No. R4-2012-0175 includes prohibitions on Non-Stormwater Discharges, effluent limitations, and receiving water limitations. Effluent limitations include Technology Based Effluent Limitations to reduce pollutants in storm water discharges from the MS4s to the MEP and Water Quality-Based Effluent Limitations (WQBELs) consistent with the assumptions and requirements of all available total maximum daily loads (TMDL) waste load allocations assigned to discharges from the County of Los Angeles MS4.

The NPDES MS4 Permit covers an area of approximately 3,100 square miles and serves a population of about 10 million (2012 census). The County of Los Angeles and 84 incorporated cities are the listed permittees. The County of Los Angeles Municipal Stormwater NPDES Permit contains a requirement for permittees to develop and implement programs for stormwater management within the County of Los Angeles. One specific requirement from the Development Planning Model Program is to develop a Standard Urban Stormwater Mitigation Plan (SUSMP). The SUSMP serves as a model guidance document for use by builders, land developers, engineers, planners, and others in selecting post-construction BMPs and in obtaining municipal approval for the urban storm water runoff mitigation plan for a designated project prior to the issuance of building and grading permits.

Projects including commercial development of 100,000 square feet or more, parking lots of 5,000 square feet or more, and redevelopment in which land-disturbing activity results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface require implementation of a County of Los Angeles MS4 Permit SUSMP. The County of Los Angeles MS4 Permit also requires the City of Los Angeles and the County of Los Angeles to implement these measures for their own projects.

The proposed Project is under the jurisdiction of the City of Los Angeles and, as such, treatment-control BMPs for the catchments associated with new connections may be required. Such treatment control BMPs, if required, include volume-based treatment control BMPs and flow-based treatment control BMPs.

Basin Plan for the California Regional Water Quality Control Board, Los Angeles Region (Basin Plan)

The proposed Project is within the jurisdiction of the LARWQCB. Under Section 303(d) of the CWA, the LARWQCB is responsible for protecting surface waters and groundwater from both point and non-point sources of pollution within the Project Study Area and for establishing water quality standards and objectives in its Basin Plan that protect the beneficial uses of various waters. The state has developed TMDLs, which are a calculation of the maximum amount of a pollutant that a water body can have and still meet Water Quality Objectives (WQOs) established in the Basin Plan, in order to protect the valuable uses of its waters.

The Basin Plan applies to all waters of the Los Angeles Region (including surface waters, wetlands, and ground waters.) On October 28, 1968, the SWRCB adopted Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," establishing a non-degradation policy for the protection of water quality. This policy, referred to in this Basin Plan as the Non-degradation Objective, requires continued maintenance of existing high quality waters. Whenever the existing quality of water is better than the quality of water established in this Basin Plan as objectives (both narrative and numerical), such existing quality shall be maintained unless appropriate findings are made under the policy. The USEPA, Region IX, has also issued detailed guidelines for implementation of federal anti-degradation regulations for surface waters (40 CFR § 131.12).

The LARWQCB Basin Plan contains both numeric and narrative surface water quality objectives. The discharge of waste into receiving surface waters must not violate either of these objectives. Table 4.5-1 lists the various narrative water quality objectives applicable to all inland surface waters and enclosed bays and estuaries.[2]

Table 4.5-1

Narrative & Numeric Water Quality Objectives for Watershed Receiving Waters

Parameter	Objective
Ammonia	Ammonia concentrations in receiving waters shall not exceed values listed in the Basin Plan (Tables 3-1 to 3-4, calculated for specific pH and temperature).
Bacteria, Coliform	In waters designated for noncontact water recreation (REC-2), the fecal coliform concentration shall not exceed 200/100 mL, based on a minimum of not less than four samples for any 30-day period, nor shall more than 10 percent of total samples during any 30-day period exceed 4000/10 mL.
Biostimulatory Substances	No biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.
Biochemical Oxygen Demand (BOD)	No substances that result in increases in the biochemical oxygen demand that adversely affect beneficial uses.
Chemical Constituents	No concentrations of chemical constituents in amounts that adversely affect any designated beneficial use. Chemical constituents in excessive amounts in drinking water are harmful to human health. Chemical constituents in excess of limits contained in Title 22 of the California Code of Regulations are prohibited.

2 Los Angeles Regional Water Quality Control Board, *Water Quality Control Plan for the Los Angeles Region*, June 1994.

Table 4.5-1

Narrative & Numeric Water Quality Objectives for Watershed Receiving Waters

Parameter	Objective
Chlorine	Chlorine residual shall not be present in surface water discharges at concentrations that exceed 1.0 milligram per liter (mg/L) or impair beneficial uses.
Color	No coloration that causes nuisance or adversely affects beneficial uses.
Exotic Vegetation	Exotic vegetation shall not be introduced around stream courses to the extent that such growth causes nuisance or adversely affects beneficial uses.
Floating Material	No floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affects beneficial uses.
Dissolved Oxygen	Waters shall be free of substances that result in increases in the BOD, which adversely affect beneficial uses. At a minimum, the mean annual dissolved oxygen concentration for all waters shall be greater than 7mg/L and no single determination shall be less than 5.0mg/L, except when natural conditions cause lesser concentrations. Dissolved oxygen content for all surface waters designated as WARM shall not be depressed below 5mg/L as a result of waste discharges. Dissolved oxygen content of all surface waters designated as COLD shall not be depressed below 6mg/L as a result of waste discharges. Dissolved oxygen content of all surface waters designated as both COLD and SPWN shall not be depressed below 7mg/L as a result of waste discharges.
Methylene Blue Activated Substances (MBAS)	No MBAs in concentrations greater than 0.5-mg/L in waters designated municipal water use (MUN).[a]
Mineral Quality	There are no waterbody specific mineral quality objectives identified for this watershed in the Basin Plan.
Nitrogen	Nitrogen levels shall not exceed 10 mg/L (nitrate-nitrogen plus nitrate-nitrogen), 45 mg/L (as nitrate), 10 mg/L (as nitrate-nitrogen), or 1 mg/L (as nitrite-nitrogen).
Oil and Grease	No oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, cause nuisance, or otherwise adversely affect beneficial uses.
Polychlorinated Biphenyls (PCBs)	The purposeful discharge of PCBs to waters of the Region, or at locations where the waste can subsequently reach waters of the Region, is prohibited.
Pesticides	Waters designated as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the limiting concentrations contained in Title 22 of the California Code of Regulations, listed in Table 3-7 of the Basin Plan.[a]
pH	Not less than 6.5 or more than 8.5. No changes in normal ambient pH levels to exceed 0.2 unit from natural conditions as a result of waste discharge.
Radioactivity	Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
Suspended Material	No suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Settleable Material	No settleable material that causes nuisance or adversely affects beneficial uses.

Table 4.5-1

Narrative & Numeric Water Quality Objectives for Watershed Receiving Waters

Parameter	Objective
Tastes and Odors	No taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible aquatic resources, cause nuisance, or adversely affect beneficial uses.
Temperature	The natural receiving water temperature of all regional waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperatures does not adversely affect beneficial uses.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to or produce detrimental physiological responses to human, plant, or aquatic life.
Turbidity	Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20 percent. Where natural turbidity is greater than 50 NTU, increases shall not exceed 10 percent.[b]

Notes:

[a] Municipal and Domestic Use is identified as a 'potential' use for this watershed.

[b] The Los Angeles Water Board may issue specific Waste Discharge Requirements (WDRs) permit allowing higher concentrations within zones of dilution.

Source: California Regional Water Quality Control Board, Chapter 3, *Water Quality Control Plan for the Los Angeles Region,* June 1994

Regulatory and Permitting Requirements for TMDLs

Section 303(d) of the CWA requires that states make a list of waters that are not attaining established water quality standards after technology-based limits are initiated. The regulation requires states to develop TMDLs for all sources of the pollutants that caused the water to be listed. Water bodies on the CWA Section 303(d) list require additional controls to maintain their established water quality standards. **Table 4.5-2** presents receiving waters on the 2010 CWA Section 303(d) List of Water Quality Limited Segments.

Table 4.5-2

2010 303(d) List of Water Quality Limited Segments

Receiving Water Body	Listing Details	Source
Santa Monica Beach	Indicator Bacteria	Unspecified Nonpoint Source
Santa Monica offshore/Nearshore	DDT (tissue and Sediment)	Unspecified Point and Nonpoint Source
	Debris	Unspecified Point and Nonpoint Source
	Fish Consumption Advisory. The Fish Consumption Advisory is due to DDT and PCBs.	Unspecified Point and Nonpoint Source
	PCBs (Polychlorinated biphenyls) (tissue & sediment)	Unspecified Point and Nonpoint Source
	Sediment Toxicity	Unspecified Point and Nonpoint Source

Table 4.5-2

2010 303(d) List of Water Quality Limited Segments

Receiving Water Body	Listing Details	Source
Dominguez Channel (lined portion above Vermont Ave.)	Ammonia	Nonpoint/Point Source
	Copper	Nonpoint/Point Source
	Dieldrin (tissue)	Nonpoint/Point Source
	Indicator bacteria	Nonpoint/Point Source
	Lead (tissue)	Nonpoint/Point Source
	Sediment Toxicity	Source Unknown
	Zinc (sediment)	Nonpoint/Point Source

Source: *California 303(d) List Of Water Quality Limited Segments,* 2010.

TMDL Program

A TMDL is a calculation of the maximum amount of a pollutant that a body of water can receive and still meet water quality standards. A TMDL is determined by summing the individual pollutant point sources, nonpoint sources,[3] and natural background conditions while taking into account an appropriate margin of safety. Under Section 303(d) of the CWA,[4] states are required to identify a list of impaired waters, ranked by priority, each with calculated TMDLs. Part 130 of Title 40 of the CFRs, Section 130.7 contains the regulatory framework currently governing the TMDL Program, issued in 1992. TMDL standards are regularly updated. While the NPDES program focuses on reducing the discharge of pollutants through BMPs, the TMDLs provide a quantitative analytical basis for controlling water quality.

A 303(d) list is an individual water body's list of priority pollutants and their respective TMDLs that is updated and re-adopted on a regular basis to maintain constant knowledge of the water quality of individual water bodies. According to the Santa Monica Bay's and Dominguez Channel's 2007 and 2010 303(d) lists, both non-point and point sources of pollution are degrading the Santa Monica Bay's and Dominguez Channel's water quality.[5] The TMDLs that have been completed and those in progress of being developed by the LARWQCB for Santa Monica Bay and Dominguez Channel are shown in **Table 4.5-3**.

City of Los Angeles Stormwater Program

NPDES requirements mandate that stormwater BMPs be implemented during the proposed Project's construction into SWPPPs and during the proposed Project's operation into SUSMPs. The requirements are enforced through the City's plan review and approval process. During the review process, the proposed Project's plans are reviewed for compliance with the City of Los

[3] Discharges originating from single sources, like power and wastewater treatment plants, are referred to as point source discharges, while stormwater and/or urban runoff are non-point sources of water pollution since their origins cannot be attributed to a single identifiable source.

[4] 33 U.S.C. §1251 et seq. section 303(d), 1972

[5] California State Water Resources Control Board (SWRCB), *2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report) Statewide, 2010 California 303(d) List of Water Quality Limited Segments*, 2010, available at http://www.waterboards.ca.gov/water_issues/programs/tmdl/ integrated2010.shtml, Accessed February 5, 2012.

Angeles' General Plan, zoning ordinances, and other applicable local ordinances and codes, including stormwater requirements. Plans and specifications are reviewed to ensure that the appropriate BMPs are incorporated to address stormwater pollution prevention goals. The purpose of the SWPPP is to identify potential pollutant sources that may affect the quality of discharge associated with construction activity, identify non-stormwater discharges, and design the use and placement of BMPs to effectively prohibit the entry of pollutants from the site into the public storm drain system during construction. The purpose of SUSMP is to reduce the discharge of pollutants in stormwater by outlining BMPs which must be incorporated into the design plans of new development and redevelopment. The SUSMP provisions that are applicable to new residential and commercial developments include, but are not limited to, peak stormwater runoff discharge rate and design standards for structural or treatment control BMPs.

Table 4.5-3

List of TMDLs within the Los Angeles Region

Location	Pollutant	Status
Santa Monica offshore/nearshore	DDT (tissue and Sediment)	Expected TMDL completion in 2019
	Debris	Expected TMDL completion in 2019
	Fish Consumption Advisory. The Fish Consumption Advisory is due to DDT and PCBs.	Expected TMDL completion in 2019
	PCBs (Polychlorinated biphenyls) (tissue & sediment)	Expected TMDL completion in 2019
	Sediment Toxicity	Expected TMDL completion in 2019
Santa Monica Beach	Indicator Bacteria	USEPA TMDL approved in 2003
Dominguez Channel (lined portion above Vermont Ave.)	Ammonia	Expected TMDL completion in 2019
	Copper	Expected TMDL completion in 2019
	Dieldrin (tissue)	Expected TMDL completion in 2019
	Indicator bacteria	In Progress
	Lead (tissue)	Expected TMDL completion in 2019
	Sediment Toxicity	Expected TMDL completion in 2021
	Zinc (sediment)	Expected TMDL completion in 2019

Source: *California 303(d) List Of Water Quality Limited Segments, 2010.*

4.5.3.2 Existing Hydrology Setting

The major surface drainage features within the boundaries of LAX consists of five stormwater Sub-Basins: Argo, Culver, Dominguez, Imperial, and Vista del Mar Sub-Basins (**Figure 4.5-1**). The Project site drains from north to south into three stormwater Sub-Basins: Dominguez Channel, Argo, and Imperial Sub-Basins.

Dominguez Channel Sub-Basin

The Dominguez Channel Sub-Basin is bounded generally by Sepulveda Boulevard to the west, Interstate 405 to the east, Manchester Boulevard to the north, and Interstate 105/Imperial Highway to the south. Approximately 1,600 acres of LAX property drain into the Dominguez Channel Sub-Basin. The Dominguez Channel Sub-Basin is part of the Dominguez Channel Watershed. Surface runoff within the Dominguez Watershed is collected via a series of paved ditches and closed pipe systems before being discharged to the concrete-lined Dominguez Channel. All of the stormwater from the Dominguez Channel Watershed ultimately discharges to an outfall off San Pedro Harbor, located approximately 17 miles southeast of LAX, which is under the jurisdiction of the Los Angeles County Flood Control District (LACFCD).

The portion of the Project site that drains into the Dominguez Channel Sub-Basin includes the area east of Sepulveda Tunnel to the property boundary. The outfall for the area of LAX in the Dominguez Channel Sub-Basin is an 8-foot by 8-foot reinforced concrete box (RCB) culvert located south of Taxiway A. The box culvert flows east where it turns to the south and runs under the west side of Aviation Boulevard. This RCB is fed by an upstream concrete-lined trapezoidal channel that parallels the Burlington North-Santa Fe (BNSF) rail line (Harbor Subdivision) that runs on the west side of Aviation Boulevard.

Argo and Imperial Sub-Basins

The Argo and Imperial Sub-Basins drain west of Sepulveda Boulevard and both Sub-Basins discharge directly into Santa Monica Bay. These Sub-Basins are generally bounded by Sepulveda Boulevard to the east, the El Segundo Blue Butterfly Habitat Area to the west, Manchester Avenue to the north, and Imperial Highway to the south. Approximately 2,450 and 1,300 acres of LAX property drain into the Argo and Imperial Sub-Basins, respectively. The Imperial Basin collects urban stormwater from the storm drain outfall located on Imperial Highway between Santa Monica Bay and S. Pershing Drive. Santa Monica Bay is the primary receiving water body for runoff from LAX west of Sepulveda Boulevard. The Santa Monica Bay is located 0.5 miles west of the Project site and the Santa Monica Bay Watershed extends from Malibu to the north to El Segundo to the south.

The portion of the Project site within the Imperial Sub-Basin drains to an existing 8.5-foot-wide by 10-foot-high RCB via a 24-inch reinforced concrete pipe (RCP). The portion of the Project site that drains into the Argo Sub-Basin drains to an existing 9.2-foot-wide by 11-foot-high RCB owned by City of Los Angeles, via a 45-inch RCP owned by LAWA.[6] All flows converge to a 90-inch RCP ocean outfall owned by the County of Los Angeles. The South Airfield drainage system under portions of the Imperial Sub-Basin requires improvements.[7]

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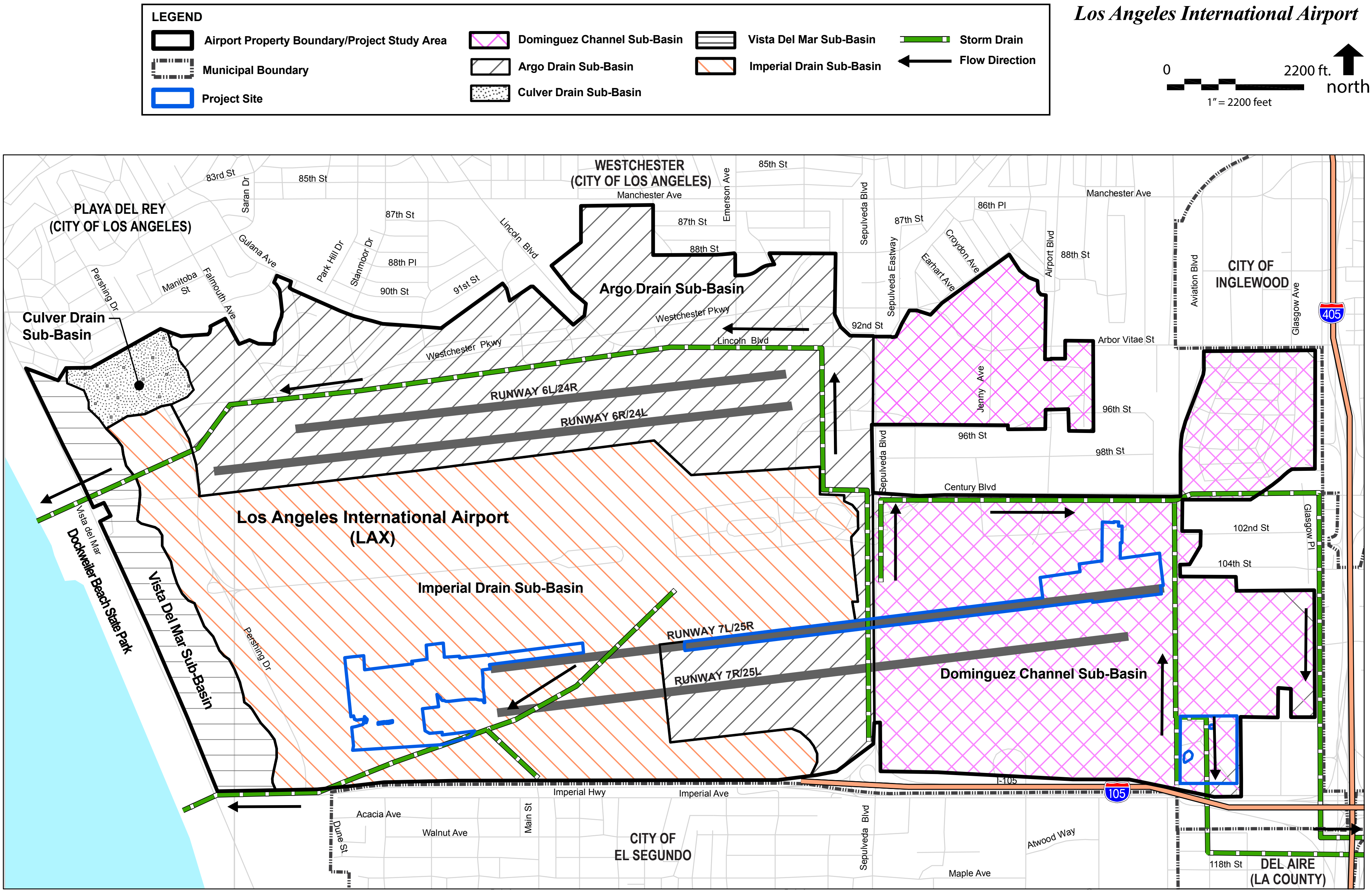
[6] URS Corporation, *Runway 7L-25R Safety Area (RSA) Project Los Angeles International Airport Engineer's Design Report-Appendix 3 Drainage Report*, Figures 3-1 and 3-2, April 2011.

[7] URS Corporation, *Runway 7L-25R Safety Area (RSA) Project Los Angeles International Airport Engineer's Design Report-Appendix 3 Drainage Report*, April 2011.

Los Angeles International Airport



Sources: LAWA, 2013; ESRI Maps & Data, May 2013; Prepared by: URS Corporation.

FIGURE 4.5-1	**Stormwater Detention Sub-Basins Within the Project Study Area**	**Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project**

Impervious Surfaces

As shown in **Figure 4.5-2** and **Table 4.5-4**, the majority of the western end of the Project site (where the RSA improvements are proposed) is permeable (55.5 acres or 72 percent of the total acreage of 77.5 acres). The eastern end of the Project site is primarily impermeable (47.7 acres or 94 percent of the total acreage of 50.8 percent). The construction staging area is primarily permeable (98 percent of the total area acreage) (not identified on the map). Existing impermeable surfaces include paved runways, taxiways, and roads. The portions of the Project site that contain permeable surfaces are either used as unpaved roads or unused areas with ground cover species.

Table 4.5-4

Existing Permeability of Project Site

Project Site Area	Impermeable		Permeable		Total
	Acres	% of Total	Acres	% of Total	Acres
Western Area (RSA Improvements)	22	28%	55.5	72%	77.5
Eastern Area (Pavement Reconstruction of Eastern Portions of Taxiway B and Runway 7L/25R)	47.7	94%	3.1	6%	50.8
Construction Staging Area	0.5	2%	28.6	98%	29.1
Total	**70.2**	**45%**	**87.2**	**55%**	**157.4**

Source: URS Corporation, 2013.

4.5.3.3 Existing Water Quality Setting

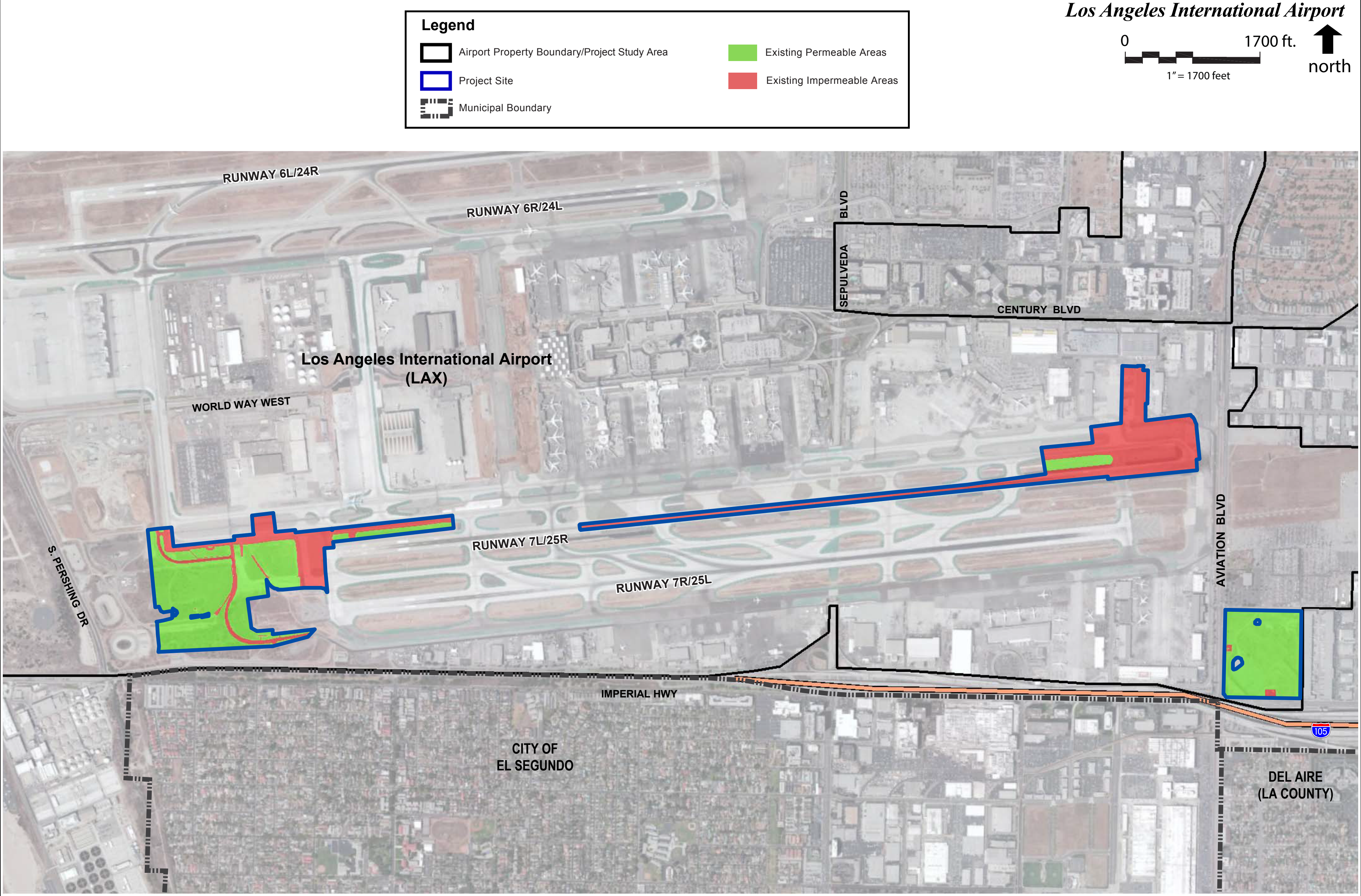
The 2010 Integrated Report prepared by the SWRCB assessed water quality in the Los Angeles Region, including LAX and the Santa Monica Bay and Dominguez Channel Watersheds. The LARWQCB added 57 water body pollutant combinations to the 2006 California 303(d) List. This list includes water bodies determined to contain pollutants at levels that exceed protective water quality criteria and standards. The Santa Monica Bay and the Dominguez Channel Watersheds are the primary receiving water body for runoff from LAX. At LAX the watershed boundary for these two receiving water bodies is located generally along Sepulveda Boulevard, with areas west of Sepulveda Boulevard draining to the Santa Monica Bay and areas east draining to Dominguez Channel.

The Santa Monica Bay includes 19 pollutants of concern. Ten of these pollutants were identified as potential stormwater runoff from LAX, and include total suspended solids, phosphorous, copper, lead, zinc, biochemical oxygen demand, chemical oxygen demand, oil and grease, Kjeldahl[8] nitrogen, and pathogenic bacteria (fecal coliform, fecal enterococcus, and coliform bacteria).[9]

8 The measure of both the ammonia and the organic forms of nitrogen.

9 City of Los Angeles, Los Angeles World Airports, *South Airfield Improvements Project EIR*, 2006.

Los Angeles International Airport



Sources: LAWA, 2013; URS, 2013; ESRI Maps & Data, May 2013; Prepared by: URS Corporation.

FIGURE 4.5-2	**Project Site Permeability (Existing Condition)**	**Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project**

The Dominguez Channel collects storm water from a 46,000-acre watershed before ultimately discharging into San Pedro Harbor. Regionally, urban and industrial land uses comprise most of the Dominguez Channel Watershed. The subarea of the watershed within which LAX is located has been designated as impaired due to point source discharges from industrial and municipal activities, spills, and urban runoff. Waters in this subarea have been characterized as having elevated metal and pesticide concentrations in sediments along with high coliform counts.[10]

The Los Angeles RWQCB Basin Plan identifies the following beneficial uses for Santa Monica Bay and Dominguez Channel (**Table 4.5-5)**. Note that these uses are not necessarily in the vicinity of the Project site or LAX.

Table 4.5-5

Beneficial Uses per the LARWQCB Basin Plan

Use Category	Definition	Santa Monica Bay	Dominguez Channel
MUN	Waters used for community, military, municipal, or individual water supply systems. Uses may also include drinking water supply.	Existing Beneficial Uses	Potential Beneficial Use
IND	Waters used for industrial activities that do not depend primarily on water quality, including, but not limited to, mining, cooling water supply, geothermal energy production, hydraulic conveyance, gravel washing, fire protection, and oil well re-pressurization.	Existing Beneficial Uses	N/A
PROC	Waters used for industrial activities that depend primarily on water quality.	Existing Beneficial Uses	N/A
AGR	Waters are used for farming, horticulture or ranching. Uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing.	Existing Beneficial Uses	N/A
NAV	Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.	Existing Beneficial Uses	N/A
COMM	Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.	Existing Beneficial Uses	N/A
REC-1	Water contact recreation waters, used for recreational activities involving body contact with water where ingestion of water is reasonably possible. Uses may include swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs.	Potential Beneficial Uses	Potential Beneficial Use

10 City of Los Angeles, Los Angeles World Airports, *South Airfield Improvements Project EIR*, 2006.

Table 4.5-5

Beneficial Uses per the LARWQCB Basin Plan

Use Category	Definition	Santa Monica Bay	Dominguez Channel
REC-2	Non-contact water recreation waters, used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include picnicking, sunbathing, hiking, beachcombing, camping, boating, sightseeing, and aesthetic enjoyment in conjunction of the above activities.	Intermittent Beneficial Uses	Existing Beneficial Use
MAR	Uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).	Existing Beneficial Uses	N/A
SPWN	Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.	Existing Beneficial Uses Most frequently used by grunion to spawn.	N/A
WARM	Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.	-	Potential Beneficial Use
WILD	Wildlife habitat waters support wildlife habitats that may include the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.	Existing Beneficial Uses	Potential Beneficial Use
SHELL	Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sports purposes.	Existing Beneficial Uses	N/A
MIGR	Uses of water that support habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms, such as anadromous fish.	Existing Beneficial Uses	N/A

Table 4.5-5

Beneficial Uses per the LARWQCB Basin Plan

Use Category	Definition	Santa Monica Bay	Dominguez Channel
WET	Uses of water that support wetland ecosystems, including, but not limited to, preservation or enhancement of wetland habitats, vegetation, fish, shellfish, or wildlife, and other unique wetland functions which enhance water quality, such as providing flood and erosion control, stream bank stabilization, and filtration and purification of naturally occurring contaminants.	Not Applicable	N/A
RARE	Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.	N/A	Existing Beneficial Use

Source: California Regional Water Quality Control Board, Chapter 2, *Water Quality Control Plan for the Los Angeles Region,* June 1994 (revised table November 2011).

Existing water quality pollutants from the Project Study Area include typical discharges from aircraft and related vehicle operations. The majority of the Project Study Area is currently used for Airport-related uses. Contaminants are industrial in nature, including fuel, oil, and other aircraft and machinery-related chemicals, as well as metals and debris associated with aircraft maintenance, deicing, and more.

4.5.4 CEQA Thresholds of Significance

As noted in the Initial Study, for the purposes of this EIR, and in accordance with Appendix G of the CEQA Guidelines, an impact to Hydrology and Water Quality is considered significant if the proposed Project would:

- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

Based on the *2006 City of Los Angeles CEQA Thresholds Guide*, the City of Los Angeles would normally find an impact to be significant if discharges associated with the proposed Project would:

- Create pollution, contamination, or nuisance as defined in Section 13050 of the Water Code; or
- Cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water body.

4.5.5 Project Design Features

The proposed Project contains various drainage design features, including:

- Relocation of existing drainage and pipeline infrastructure located within the Project site.
- Construction of new storm drain pipeline segments, inlets, and storm treatment filters.
- Remove and replace sections of the existing storm drain pipelines, inlets, and manholes to meet aircraft wheel loading requirements.
- Stormwater runoff conveyance structures that accommodate any increased runoff volume generated by the proposed Project.
- Installation of stormwater quality features and construction of erosion control pavement.
- Infrastructure to accommodate the LADBS recommended 50-year event.
- An orifice plate that would restrict the high flows from the Project site to the LADPW allowable flow of 128cfs for the Dominguez Channel Sub-Basin and 1,145 cfs for the Imperial Sub-Basin. This orifice plate limits the capacity of the system to that suggested by the County.
- As part of the proposed drainage improvements on the eastern portions of the proposed Project, runway and taxiway pavement grades are crowned to drain to infield areas between runways. Infield areas will be graded at approximately 1.5% - 3.0% percent slope from the edge of runway and taxiway shoulders.
- On eastern portions of Runway 25R and Taxiway B, the current undersized pipe is extremely shallow with respect to existing and finish grade. In order to upsize the pipe, an arched pipe has been proposed. This would allow the new pipe to handle a 25-year storm event while also maintaining appropriate ground cover over new pipes. The proposed storm drain system will use a new storm water filtration system. Where a single storm water filtration system is not feasible, individual filtration systems shall be installed in storm water catch basins.

In addition,

- The majority of the proposed Project will be developed on existing impermeable surfaces used for runways and taxiways.
- The proposed Project would include uses that already exist on the Airport property but would not increase operational capacity at the airport.

4.5.5.1 Treatment Best Management Practices

The choices in treatment BMPs in accordance with The City of Los Angeles' 2009 SUSMP Infiltration Requirements & Guidelines, and in order of priority are:

- Infiltration Systems (Design based on volume of storm water)
- Bio-Filtration/Retention Systems (Design based on flow of storm water)
- Stormwater Capture and Re-use (Optional. Subject to County Health Department approval)
- Mechanical/Hydrodynamic Units

- Combination of Any of the Above

The recommended treatment BMPs for the proposed Project include a combination of CDS units and an underground infiltration system. The recommended BMP of underground infiltration system can be installed southwest of the RSA to allow for inspection and maintenance without impacting runway operations. The existing grading is set such that there are several inlets already in place. Bioswales and bio-vegetation may not be practical as only some of the drainage areas will be treated but not all. In addition, due to the proximity of the runway and taxiways, the bioswales and bio-vegetation will be subjected to jet blasts.

A CDS unit will be placed upstream of the infiltration unit (**Figure 4.5-3**).The main purpose of the CDS units will be to contain any oil spills or large debris prior to discharging to existing outfall and prior to reaching the infiltration system and, therefore, decreasing frequency of maintenance of the infiltration system. Multiple infiltration system options are available. The proposed infiltration system options assume no percolation for maximum storage volume and conservative measures at this time until more geotechnical data is available. Final selection of a particular infiltration system requires further investigation of geotechnical conditions and stormwater quality.

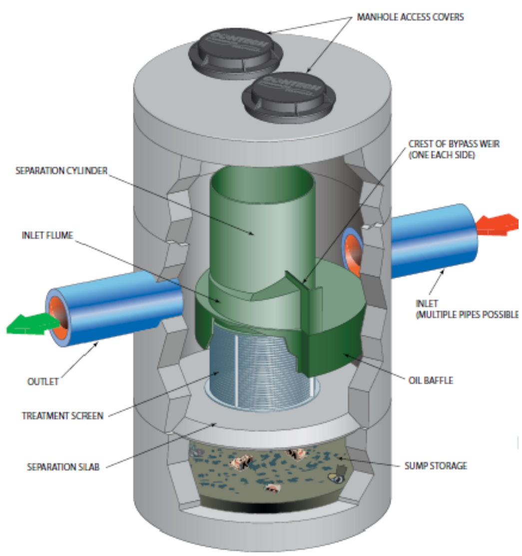


Figure 4.5-3. Illustrative Example of a CDS Unit
Source: Contech Engineered Solutions, 2013.

4.5.5.2 LAX Master Plan EIS/EIR Commitments

As part of the LAX Master Plan Environmental Impact Statement/Environmental Impact Report (EIS/EIR), LAWA committed to implementing the following commitment and mitigation measure pertaining to hydrology and water quality to avoid or reduce environmental impacts. Since the Project site is located within the LAX Master Plan boundaries, LAWA will also fulfill the commitments it has made in the LAX Master Plan for the proposed Project. The following commitments are applicable to the proposed Project and are considered in the Hydrology and Water Quality analysis herein.

- **HWQ-1. Develop Detailed Drainage Plan.** Once a Master Plan alternative is selected, and in conjunction with its preliminary design, LAWA will develop a detailed drainage plan of the area within the boundaries of the alternative. The purpose of the drainage plan will be to assess site-specific drainage flows at a design level of detail in order to select the most appropriate mitigation measures, from those identified in this EIS/EIR. LAWA will develop this drainage plan and evaluate drainage capacity using the Peak Rate Method specified in Part G - Storm Drain Design of the City of Los Angeles' *Bureau of Engineering Manual*. In areas within the boundary of the selected alternative where the surface water runoff rates are found to exceed the capacity of the stormwater conveyance infrastructure with the potential to cause flooding, LAWA will take measures to either reduce peak flow rates or increase the structure's capacity. These drainage facilities will be designed to ensure that they adequately convey stormwater runoff and prevent flooding by adhering to the procedures set forth by the Peak Rate Method. Methods to reduce the peak flow of surface water runoff could include:

    - Decreasing impervious area by removing unnecessary pavement or utilizing porous concrete or modular pavement
    - Building stormwater detention structures
    - Diverting runoff to pervious areas (reducing directly-connected pervious areas)
    - Diverting runoff to outfalls with additional capacity (reducing the total drainage area for an individual outfall)
    - Redirecting stormwater flows to increase the time of concentration

    Measures to increase drainage capacity could include:

    - Increasing the size and slope (capacity) of stormwater conveyance structures (pipes, culverts, channels, etc.)
    - Increasing the number of stormwater conveyance structures and or/outfalls

    LAWA will also evaluate the effect of the selected Master Plan alternative on surface water quality using the LARWQCB's SUSMP. The SUSMP addresses water quality and drainage issues by specifying source control, structural, and treatment control BMPs with the objective of reducing the discharge of pollutants from the stormwater conveyance system to the maximum extent practicable. LAWA will comply with these provisions by designing the stormwater system to meet the requirements of the SUSMP through incorporation of both structural and treatment control BMPs. These BMPs would be applied to both existing and future sources with the goal of achieving no net increase in loadings of pollutants of concern. The following list includes some of the BMPs that could be employed to infiltrate or treat stormwater runoff and control peak flow rates:

    - Vegetated swales and strips
    - Oil/Water Separators
    - Clarifiers
    - Media Filtration
    - Catch Basins Inserts and Screens
    - Continuous Flow Deflective Systems
    - Bioretention and Infiltration

  - o Detention Basins
  - o Manufactured treatment units

  The overall result of Master Plan Commitment HWQ-1 will be a drainage infrastructure that provides adequate drainage capacity to prevent flooding and control peak flow discharges and that incorporates BMPs to minimize the effect of airport operations on surface water quality and to prevent a net increase in pollutant loads in surface water resulting from the selected Master Plan alternative.

- **MM-HWQ-1: Update Regional Drainage Facilities.** Regional drainage facilities should be upgraded, as necessary, in order to accommodate current and projected future flows within the watershed of each storm water outfall resulting from cumulative development. This could include upgrading the existing outfalls, or building new ones. The responsibility for implementing this mitigation measure lies with the County of Los Angeles Department of Public Works and/or the City of Los Angeles Department of Public Works, Bureau of Engineering. A portion of the increased costs for the upgraded flood control and drainage facilities would be paid by LAX tenants and users in accordance with the possessory interest tax laws and other legal assessments, consistent with federal airport revenue diversion laws and regulations and in compliance with state, county, and city laws. The new or upgraded facilities should be designed in accordance with the drainage design standards of each agency.[11]

4.5.6 Impact Analysis

4.5.6.1 Construction

Hydrology

RSA Improvements

The proposed RSA improvements would increase the amount of impermeable surfaces located in the Project site (**Figure 4.5-4**). During construction, these areas would be, for the most part, permeable until asphalt or Portland Cement Concrete is laid down. Existing drainage patterns would remain although topography would be changing during grading and excavation activities. Approximately 11.8 acres of unpaved area would be graded, but not paved. The proposed Project includes the following Project Design Features that would ensure runoff do not substantially change:

- Construction of new storm drain pipeline segments, inlets, and storm treatment filters.
- Stormwater runoff conveyance structures that accommodate any increased runoff volume generated by the proposed Project.

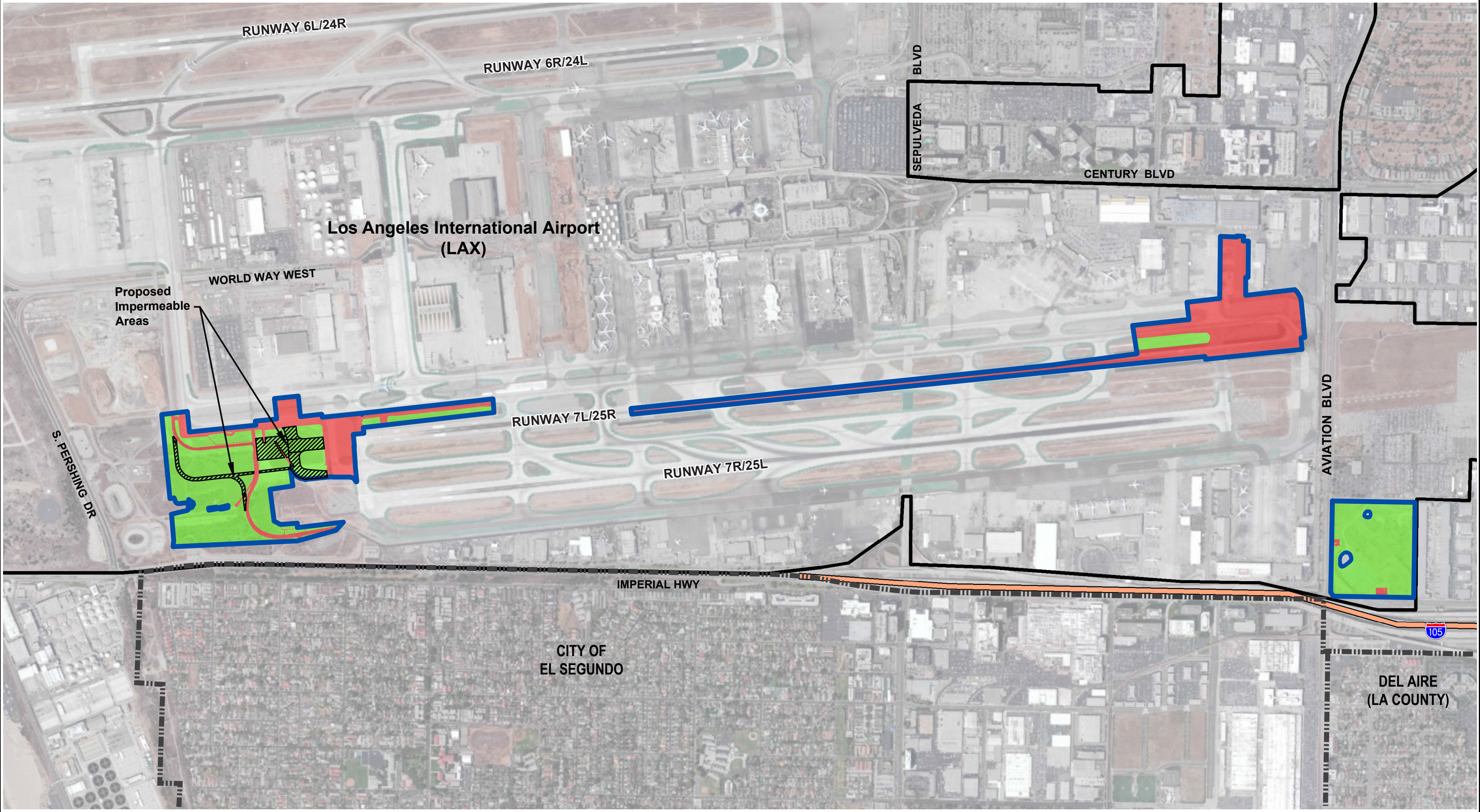
With implementation of these Project Design Features, construction impacts related to hydrology due to increased runoff would be less than significant.

[11] City of Los Angeles, Los Angeles World Airports, *LAX Master Plan Alternative D Mitigation Monitoring and Reporting Program*, 2004, p. 54, online at http://ourlax.org/docs/mmrp/mmrp_Sep04.pdf, accessed July 26, 2012.

Legend

- Airport Property Boundary/Project Study Area
- Project Site
- Municipal Boundary
- Existing Permeable Areas
- Existing Impermeable Areas
- Proposed Impermeable Areas

0 1700 ft.
1" = 1700 feet
north



Sources: LAWA, 2013; URS, 2013; ESRI Maps & Data, May 2013; Prepared by: URS Corporation.

FIGURE 4.5-4

Project Site Permeability (Proposed Condition)

Pavement Reconstruction

All areas that would involve pavement reconstruction on the eastern side of the Project site are already paved. During construction, some of these areas may be temporarily permeable due to excavation and grading activities. However, these activities would be short-term and would not substantially increase the amount of runoff during construction. In addition, during construction, BMPs would be implemented to reduce the amount of runoff, There are no permeable areas in this part of the Project site that would be made impermeable under the proposed Project. Therefore, construction impacts related to hydrology due to increased runoff would not occur.

Construction Staging

Usage of the construction staging area would not change the permeable surface area or the topography of this portion of the Project site and, thus would not increase the amount of runoff generated by this portion of the Project site. Storage of equipment, vehicles, and materials would not significantly affect the staging area's permeability. Therefore, construction impacts related to hydrology due to increased runoff would not occur.

Water Quality

RSA Improvements

Construction activities for the proposed RSA Improvements would include site preparation, demolition, excavation, grading, and paving. Construction activities may transport sediment, dust, and particles, and construction vehicles and equipment may leak fuels and oils. In addition, demolition of existing pavement (prior to reconstruction), excavation, grading, and paving would create debris on-site. Construction of the proposed Project would be required to conform to the SUSMP. The City of Los Angeles ordinance requires stormwater from initial storm flow or first flush to be treated by one or more of the approved BMPs. Construction BMPs would be implemented to minimize the effects of sediment transport and leakage of fluids from vehicles and equipment. BMPs to control sediment and debris transport include the use of gravel bag filters and filter basins. Pollution prevention and waste management plans will be prepared to address the storage, handling, and disposal of fuel, oils, and other wastes from construction. The implementation of BMPs and pollution prevention plans would reduce surface water quality impacts of waters receiving runoff from the Project site.

The construction areas adjacent to Runway 7L/25R would be subject to significant jet blast and aircraft exhaust due to aircraft operations during construction. Jet blast and aircraft exhaust could compromise the effectiveness of many temporary BMP measures, including a silt fence, fiber roll, mulching, temporary seeding, and gravel bags. All temporary construction BMPs would require approval from LAWA Operations to address the need for proper anchorage to prevent compromise, damage, and displacement of BMPs caused by jet blast and aircraft exhaust. Guidelines for the application of specific BMPs are referenced in the LSAG and the LAGBC.

Construction activities would require coverage under the General Construction Permit. To obtain coverage under the permit, LAWA would submit Permit Registration Documents that include a NOI to comply with the SWRCB NPDES General Permit; a risk assessment to address project sediment risk and receiving water risk; post-construction calculations; a site map; and a project-specific SWPPP for construction activities, submitted with the appropriate fees. The SWPPP would incorporate BMPs and ensure that stormwater runoff regulations are followed during construction of the proposed Project.

The proposed Project would create additional runoff water but would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff due to the compliance with the regulatory requirements and implementation of construction treatment BMPs and LAX Master Plan Commitments, as required. Therefore, construction impacts related to water quality would be less than significant.

Pavement Reconstruction

Construction activities would be similar to those discussed for the proposed RSA Improvements and would include demolition, grading, and paving. Construction activities may transport sediment, dust, and particles, and construction vehicles and equipment may leak fuels and oils, which would potentially impact water quality and resources. In addition, demolition of existing pavement (prior to reconstruction), excavation, and paving would create debris and wastes onsite. As such, there is potential for similar impacts to runoff during construction, including discharge of sediments, while paved earth is temporarily exposed, and debris from pavement demolition is generated. The General Construction Permit and SWPPP required by regulations, as well as the construction treatment BMPs and LAX Master Plan Commitments discussed in Sections 4.5.5.1 and 4.5.5.2, respectively, would apply to this portion of the proposed Project as well. Therefore, construction impacts related to water quality would be less than significant.

Construction Staging

Regarding increased pollutant discharge, storage of equipment, vehicles, and materials can result in discharge of pollutants to a construction staging area due to accidental leaks and spills, such as gasoline or motor oil. However, the proposed construction staging area is currently utilized as a construction staging area for other LAX projects and, as such, there are BMPs, SWPPPs, and other measures already in place. Therefore, construction impacts related water quality would be less than significant.

4.5.6.2 Operational

<u>Hydrology</u>

RSA Improvements

Upon completion of construction of the proposed Project, 8.3 acres of permeable area would become impermeable, which is approximately 15 percent of the entire permeable area in the western end of the Project site and 10 percent of the total permeable area in the Project site (**Figure 4.5-4**). In addition, approximately 11.8 acres of unpaved area would be graded, but not paved. Although the proposed Project would increase the amount of impervious surfaces at the western end of Runway 7L/25R, it would not substantially modify existing drainage patterns, and the Project site would continue to flow to the Imperial and Argo Sub-Basins, as under existing conditions. Known deficiencies in stormwater capacity were identified in the South Airfield Improvement Project (SAIP) EIR completed by LAWA in 2008. These deficiencies were corrected and addressed during construction of the SAIP and, thus, would no longer be deficiencies for the proposed Project. In addition, the proposed Project includes the following Project Design Features that would ensure drainage patterns do not substantially change:

- Construction of new storm drain pipeline segments, inlets, and storm treatment filters.
- Stormwater runoff conveyance structures that accommodate any increased runoff volume generated by the proposed Project.

Regarding estimated increase in runoff, the proposed Project will result in a net increase of 115.18 cfs of peak flow (25-year frequency) into the Imperial Sub-Basin. Overall, the proposed Project will result in a slight increase in peak runoff which is substantially lower than the threshold of 1,145 cfs. With implementation of the Project Design Features, and given that the estimated increase in flow is approximately 10 percent of the allowable flow, operational impacts related to hydrology due to increased runoff would be less than significant.

Pavement Reconstruction

All areas on the eastern portion of the Project site that would involve pavement reconstruction are already paved. No increase in impermeable surfaces would occur in these areas. Consequently, runoff under the proposed Project would be similar as under existing conditions. Therefore, impacts related to increased runoff would not occur.

Water Quality

RSA Improvements

The proposed Project would have the potential to increase pollutant loads in stormwater runoff due to the increased paved area discharging stormwater. Operations of the proposed Project would consist of continued operations on Runway 7L/25R, which generates unique pollutants, such as heavy metals, organic compounds, tire materials, and fuel exhaust. However, the amount of pollutants during operations would not be greater than current conditions since the proposed Project would not increase operational capacity. Furthermore, pollutant discharge into the stormwater drainage system is highly regulated at LAX, and all operations would be required to follow established measures to meet the requirements of the NPDES permit. Therefore, operational impacts related to hydrology would be less than significant.

Pavement Reconstruction

This component of the proposed Project would only replace existing features with new materials and the function of this portion of the Project site would remain the same. As the proposed Project would not alter the number of flights, no increased amount of pollutants would be generated compared to existing conditions. Furthermore, pollutant discharge into the stormwater drainage system is highly regulated at LAX, and all operations would be required to follow established measures to meet the requirements of the NPDES permit. Therefore, operational impacts related to hydrology would be less than significant.

4.5.7 Cumulative Impacts

Generally, hydrology and water quality impacts related to increased runoff tend to be site-specific. In other words, although under the proposed Project 8.3 acres of permeable area would become impermeable, this would not cause another project site to modify its permeability such that it would increase/decrease that project's runoff. Taken all together, if other projects also have increased runoffs, there is the potential to all contribute cumulatively to impacts related to runoff. However, as discussed above, all LAWA projects would be required to implement BMPs, follow regulations, and apply project design features and LAX Master Plan EIS/EIR Commitments. The proposed Project includes project design features and Treatment BMPs specifically designed to reduce hydrology and water quality impacts to less than significant. Therefore, impacts related to increased runoff under the proposed Project are not cumulatively considerable, and cumulative impacts would be less than significant.

4.5.8 Mitigation Measures

No significant impacts related to hydrology and water quality are anticipated due to Project Design Features, with compliance with regulations, and by implementing Treatment BMPs and LAX Master Plan Commitments. No project-specific mitigation measures are required.

4.5.9 Level of Significance After Mitigation

Impacts related to hydrology and water quality would not require any project-specific mitigation measures and would remain less than significant.

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4.6 Noise

4.6.1 Introduction

The analysis presented in this section addresses aircraft noise levels associated with aviation activity at LAX anticipated in 2015 with and without the proposed Project, as well as noise associated with construction of the proposed Project. The information presented below includes an overview of the analysis methodology, description of 2015 aircraft noise conditions, delineation of the thresholds of significance used in aircraft noise impacts, identification of the LAX Master Plan commitments, analysis of the impacts associated with the proposed Project, and conclusions regarding level of significance.

Throughout this section, all noise levels are provided for outdoor conditions, unless otherwise stated specifically to be interior noise levels. Detailed technical data utilized to develop the analysis presented below is contained in Appendix C. Appendix C also provides explanations of key technical concepts associated with evaluating aircraft noise, a description of the computer noise model - the FAA Integrated Noise Model (INM) - and descriptions of the technical assumptions used in the aircraft noise analysis.

4.6.2 Methodology

4.6.2.1 Construction

Potential construction noise impacts under the proposed Project were evaluated in three ways:

- Analysis of potential traffic noise increases due to increased truck traffic along designated haul routes.
- Evaluation of noise exposure due to construction activities and equipment utilized in constructing the various components of any action alternative.
- Analysis of the potential aircraft noise increases on neighboring communities due to operations shifted to other runways during a portion of the construction period.

Construction Traffic and Activities

Potential construction traffic noise impacts were evaluated by estimating potential changes in traffic noise exposure due to addition of construction trucks and employee traffic for each action alternative to existing traffic volumes on area roadways, for roadway segments in the vicinity of noise-sensitive areas adjoining the Airport. Potential traffic noise level changes during the construction phase were estimated by comparing the traffic noise exposure without the proposed Project to traffic noise levels after addition of construction trucks and employee traffic to existing traffic volumes. This analysis was performed for roadway segments in the vicinity of noise-sensitive areas adjoining the Airport. The traffic noise estimations were conducted using the FHWATNM version 2.5.

Since some of the construction activities would occur proximate to noise-sensitive areas, noise associated with construction activities and use of construction equipment during these activities was evaluated. Construction noise was evaluated using reference construction equipment noise level data and applying a "point" source distance attenuation of 6 dB per doubling of distance from the sources to noise-sensitive receivers. Construction noise levels are quantified at predetermined distances from the site using the maximum noise level (L_{max}) metric (Refer to Appendix C for a detailed explanation). Construction equipment noise levels under the proposed Project were estimated using the construction data, including number and type of equipment, to be utilized for each phase or component of construction and distances to the nearest noise-sensitive areas.

The majority of construction activities would occur during daytime hours; however, it is anticipated that there would be periods when construction activities would be scheduled to occur both during the daytime and nighttime hours, as second and third shifts would be used for work activities that cannot be accomplished during the daytime shift due to coordination or interference issues (i.e., airport operations, safety, delivery of materials and equipment).

Aircraft Operations during Construction

Runway 7L/25R would be closed for approximately 3.5 months during the runway pavement reconstruction period. Assumptions concerning the shift in runway use during the closure period were developed in coordination with Air Traffic Control (ATC) and are included in Appendix C. During runway closure, operations from this runway must be accommodated through the use of other runways at LAX. This EIR quantifies how the shift in aircraft operations would affect neighboring communities. The noise modeling inputs for the aircraft noise analysis during construction (year 2015) are based on the 2015 Without Project noise model. Difference contours were generated comparing 2015 Without Project conditions and anticipated noise from the shift in runway operations during the period that Runway 7L/25R would be closed. As the INM model produces noise contours representing average annual noise exposure, the 3.5 month construction period had to be annualized. By combining the Without Project operations for 8.5 months and the runway closure for 3.5 months, annual operations and noise exposure were established.

4.6.2.2 Operations

Aircraft noise was assessed using noise exposure contours, grid-point analysis, and difference contours for areas surrounding the airport. It is important to note that while the aircraft noise impacts analysis includes comparisons of the future (2015) noise levels compared to baseline (2011) conditions, the vast majority of the change in future (2015) conditions compared to baseline (2011) conditions is attributable to growth in activity anticipated to occur at LAX by 2015 with or without the proposed Project. Thus, the noise analysis presented in this section identifies impacts of future (2015) aircraft noise levels associated with the Without Project and With Project conditions compared to baseline (2011) conditions, and a comparison between the future (2015) Without Project and With Project conditions to identify any potential noise effects of the proposed Project.

The effects of aircraft noise on surrounding communities are presented primarily in terms of the total area population, residences, and other non-residential noise sensitive facilities such as schools and places of worship that would be located within various noise exposure contours, estimated for each scenario based on average annual day (AAD) aircraft operations at LAX in 2015.

The proposed Project would not enhance airport capacity nor alter existing or planned airport operations. It has been assumed for this analysis that the time of day of operations, fleet mix, aircraft operational weights and aircraft flight tracks at the Airport would not change under existing conditions or under the proposed Project. All assumptions used for the proposed Project are identical to the baseline conditions, except that the number of operations was increased proportionate to the baseline fleet mix to reflect future (2015) operational levels, and the departure and arrival points on Runway 7L/25R that would change due to the extension of Runway 7L and the implementation of declared distances.

In accordance with guidance contained in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures, Change 1*, detailed noise analyses were performed using the latest version of the FAA's Integrated Noise Model available at the time of the Draft EIR (INM, Version 7.0c, released on January 3, 2012). The INM is FAA's standard noise modeling tool for predicting noise levels in the vicinity of airports.

For determination of aircraft noise effects, CNEL contours of equal noise for the 65, 70, and 75 dBA levels were developed using the INM to reflect actual activity for the baseline conditions. CNEL contours of equal noise for the 65, 70, and 75 dBA levels for the future noise environment for LAX for the 2015 With and Without Project scenarios were analyzed also based on FAA TAF forecasted operational conditions for 2015. These forecasted operational conditions are detailed in Appendix C. Fleet mix, runway use, time of day, flight tracks and flight track use, and departure procedures remain the same as under existing (2011) conditions. The data and methodologies used to develop the noise contours for existing and future aircraft operational conditions are provided in Appendix C.

In 2015, total aircraft operations are expected to increase by approximately seven percent above existing (2011) levels. The aircraft noise analysis includes maps depicting generalized flight tracks and sensitive land uses within the noise impact areas. Land use and population noise exposure was evaluated within the noise contours to include the following:

- The number of people living or residences within each noise contour at or above 65, 70 and 75 dB CNEL, including the net increase or decrease in the number of people or residences exposed to that level of noise; and
- The locations and numbers of noise-sensitive land uses (e.g. schools, churches, hospitals, parks, recreation areas) within each contour at or above 65, 70 and 75 dB CNEL.

4.6.3 Existing Conditions

4.6.3.1 Regulatory Setting

Federal

The FAA has a long history of providing guidance regarding aviation noise and land-use criteria in the vicinity of airports. These laws and regulations provide a basis for local development of airport plans, analysis of potential impacts from airport development, and compatibility policies. In terms of land-use compatibility, the primary role of the FAA is regulation of noise at the source. This includes the development of noise standards for certificated aircraft and the approval of noise-abatement flight procedures. The FAA also plays a supporting role in the development of local airport noise abatement plans and policies to ensure that land uses in the immediate vicinity of airports are compatible with normal airport operations.

Federal Aviation Regulations (FAR), Part 150, Airport Noise Compatibility Planning, provides guidelines for land-use planning in the vicinity of airports. These guidelines are derived from case histories involving noise problems at civil and military airports. The FAA recommends a maximum level of cumulative noise exposure, in terms of DNL (Day Night Average Sound Level)[1], that are considered to be acceptable or compatible for various land uses. These guidelines indicate that residential land uses are compatible for noise exposure up to 65 dBA DNL or, more simply, 65 DNL.

State

The State of California mandates the use of CNEL (Community Noise Equivalent Level)[2] as the required noise metric, which is also accepted by the FAA for airport noise studies in California.[3] Accordingly, the Aeronautics Division of the California State Department of Transportation (Caltrans) establishes 65 dBA CNEL as a noise impact boundary within which no incompatible land uses should be implemented. Federal and state airport noise regulations, as well as local plans and ordinances, ensure that a buffer of compatible land uses is maintained in the vicinity of LAX.

Local

City of Los Angeles General Plan Noise Element

The City of Los Angeles has developed a Noise Element of the General Plan to guide in the development of noise regulations.[4] The Noise Element of the City of Los Angeles General Plan addresses noise mitigation regulations, strategies, and programs and delineates federal, state, and city jurisdiction relative to rail, automotive, aircraft, and nuisance noise.

The City of Los Angeles has adopted the community noise compatibility guidelines established by the California Department of Health Services (CDHS) for use in assessing the compatibility of various land use types with a range of noise levels. **Figure 4.6-1** presents the general guidelines for environmental noise levels and land use compatibility. The guidelines in the City General Plan Noise Element are expressed in terms of CNEL limits for specific land uses. Such limits are classified into four categories: (1) “normally acceptable,” (2) “conditionally acceptable,” (3) “normally unacceptable,” and (4) “clearly unacceptable.” A CNEL value of 70 dBA is considered the dividing line between a “conditionally acceptable” and “normally unacceptable” noise environment for noise-sensitive land uses, including single-family and multi-family residences and schools.

1 Day Night Average Sound Level (DNL) is a 24-hour, time-weighted energy average noise level based on dBA (a-weighted Decibel). The term “time-weighted” refers to the penalties attached to noise events occurring during the nighttime period (10:00 p.m. – 7:00 a.m.). DNL weights noise events occurring during this period by 10 dBA to account for increased human sensitivity during these hours. DNL is specified by the FAA for use in assessing cumulative noise exposure from aircraft operations.

2 Community Noise Equivalent Level (CNEL) is used by the State of California and is similar to DNL except that an additional penalty is associated with noise events occurring during evening hours (7:00 p.m. – 10:00 p.m.). Noise events occurring during this period are weighted by 4.77 dBA. FAA Order 5050.4B, accepts the use of CNEL for airport noise studies in California.

3 Federal Aviation Administration, Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*, Ch. 1(9)(n), June 8, 2004.

4 City of Los Angeles, *Noise Element of the Los Angeles City General Plan*, February 3, 1999.

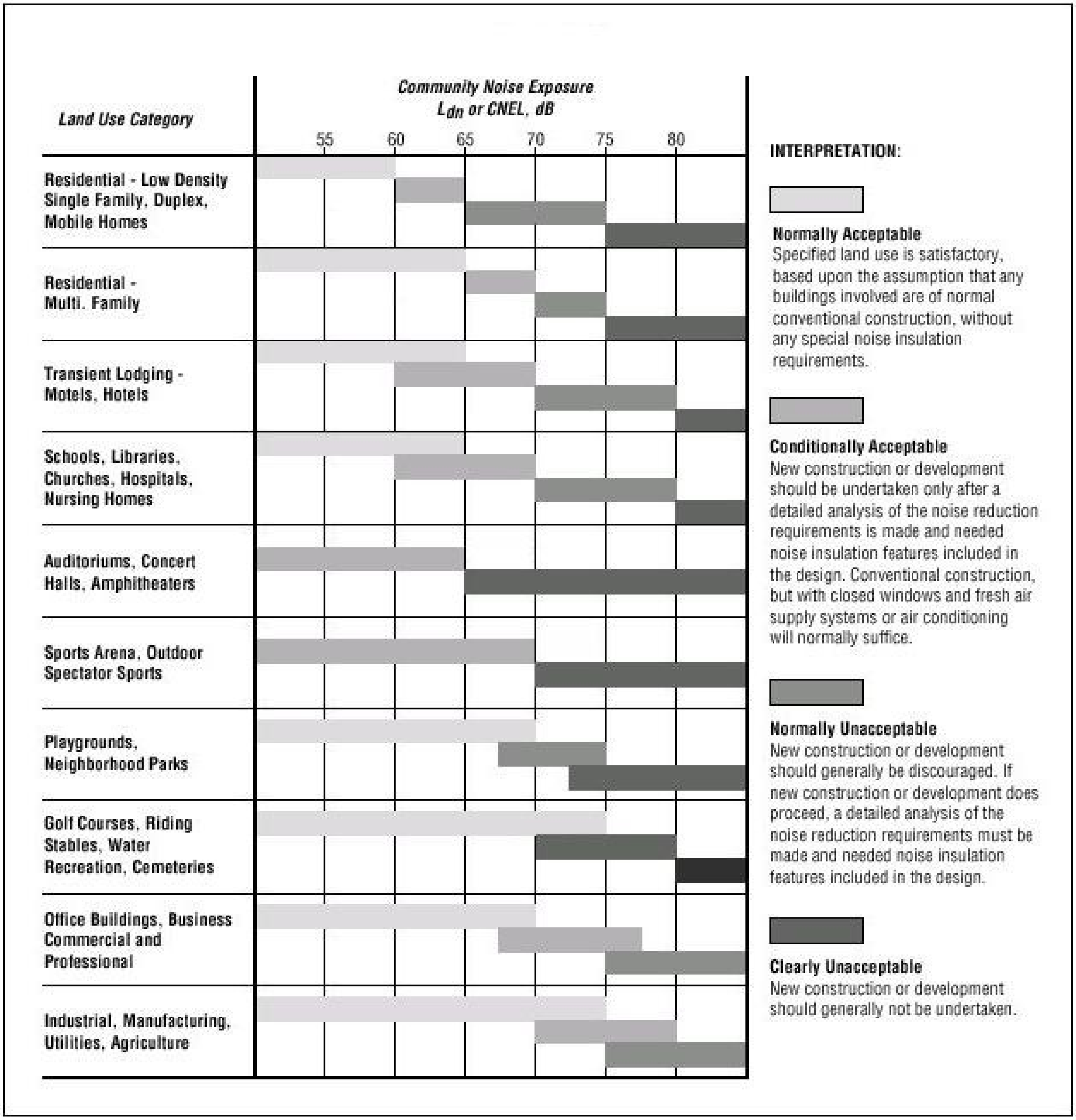


Figure 4.6-1
Noise Exposure Levels and Land Use Compatibilities
Source: California Department of Health Services,
"Guidelines for the Preparation and Content of the Noise Element of the General Plan"

City of Los Angeles Municipal Code

The City of Los Angeles Municipal Code (LAMC) has established policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise-sensitive land uses. The City of Los Angeles Noise Regulation is provided in Chapter 11 of the LAMC.

Section 41.40 (Noise Due to Construction, Excavation Work – When Prohibited) indicates that no construction or repair work shall be performed between the hours of 9:00 p.m. and 7:00 a.m., since such activities would generate loud noises and disturb persons occupying sleeping quarters in any adjacent dwelling, hotel, apartment or other place of residence. No person, other than an individual home owner engaged in the repair or construction of his/her single-family dwelling, shall perform any construction or repair work of any kind or perform such work within 500 feet of land so occupied before 8:00 a.m. or after 6:00 p.m. on any Saturday or on a federal holiday, nor at any time on any Sunday. Under certain conditions, the City may grant a waiver to allow limited construction activities to occur outside of the limits described above.

Section 111.02 provides procedures and criteria for the measurement of the sound level of “offending” noise sources. These procedures recognize and account for perceived differences in the nuisance level of different types of noise and/or noise sources. Specifically, the procedures provide for a penalty of 5 dBA for steady high-pitched noise or repeated impulsive noises to account for the nuisance nature of these types of noise. Conversely, the procedures provide a credit of 5 dBA for noise occurring less than 15 minutes in a period of 60 consecutive minutes during the day, as short-term noise events are typically less of a nuisance than sustained noise levels. The Municipal Code provides presumed ambient noise levels, where the actual measured ambient conditions are not known or are less than the presumed daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) minimum ambient noise levels defined in Municipal Code Section 111.02. These presumed ambient noise levels are provided in **Table 4.6-1**.

Table 4.6-1

City of Los Angeles Presumed Ambient Noise Levels

	Presumed Noise Levels (dBA, L_{eq})	
Land Use Zone	**Daytime (7:00 a.m. to 10:00 p.m.)**	**Nighttime (10:00 p.m. to 7:00 a.m.)**
Residential	50	40
Commercial	60	55
Light Industrial	65	65
Heavy Industrial	70	70

Source: Los Angeles Municipal Code, Chapter 11, Section 111.02

Section 111.03 states the following:

> *"Where the ambient noise level is less than the presumed ambient noise level designated in this section, the presumed ambient noise level in this section shall be deemed to be the minimum ambient noise level for purposes of this chapter."*

In accordance with the Municipal Code, a noise level increase of 5 dBA over the existing average ambient noise level at an adjacent property line is considered a noise violation. This standard applies to: (1) radios, televisions, and similar devices as defined in Municipal Code Section 112.01; (2) air conditioning, refrigeration, heating, pumping, filtering equipment as defined in Municipal Code Section 112.02; (3) powered equipment intended for repetitive use in residential areas and other machinery, equipment, and devices as defined in Municipal Code Section 112.04; and (4) motor vehicles driven on site as defined in Municipal Code Section 114.02.

Section 112.05 (Maximum Noise Level of Powered Equipment or Powered Hand Tools) specifies the maximum noise level of powered equipment or powered hand tools. Any powered equipment or hand tool that produces a maximum noise level exceeding 75 dBA at a distance of 50 feet is prohibited. However, this noise limitation does not apply where compliance is technically infeasible. Technically infeasible means the above noise limitation cannot be met despite the use of mufflers, shields, sound barriers and/or any other noise reduction device or techniques during the operation of equipment. Section 112.05 sets a maximum noise level for powered equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone. Compliance with this standard is only required where "technically feasible." Municipal Code Section 41.40 also prohibits construction between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, 6:00 p.m. and 8:00 a.m. on Saturday, and at any time on Sunday. In general, the City of Los Angeles Department of Building and Safety enforces noise ordinance provisions relative to equipment and the Los Angeles Police Department enforces provisions relative to noise generated by people.

No specific noise thresholds are provided for "general noise," except for Article 6 of the Noise Regulation, which makes it "unlawful for any person to willfully make or continue, or cause to be made or continued, any loud, unnecessary, and unusual noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area." The Noise Regulation does not provide any definition of "loud" noise.

Local Vibration Regulations

There are no adopted City standards for ground-borne vibration. The County of Los Angeles vibration standard is stated in Title 12 (Environmental Protection), Chapter 12.08 (Noise Control), Section 12.08.560 (Vibration) of the Los Angeles County Code. The County Code states that, "Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz."

4.6.3.2 Existing Baseline (2011) Conditions

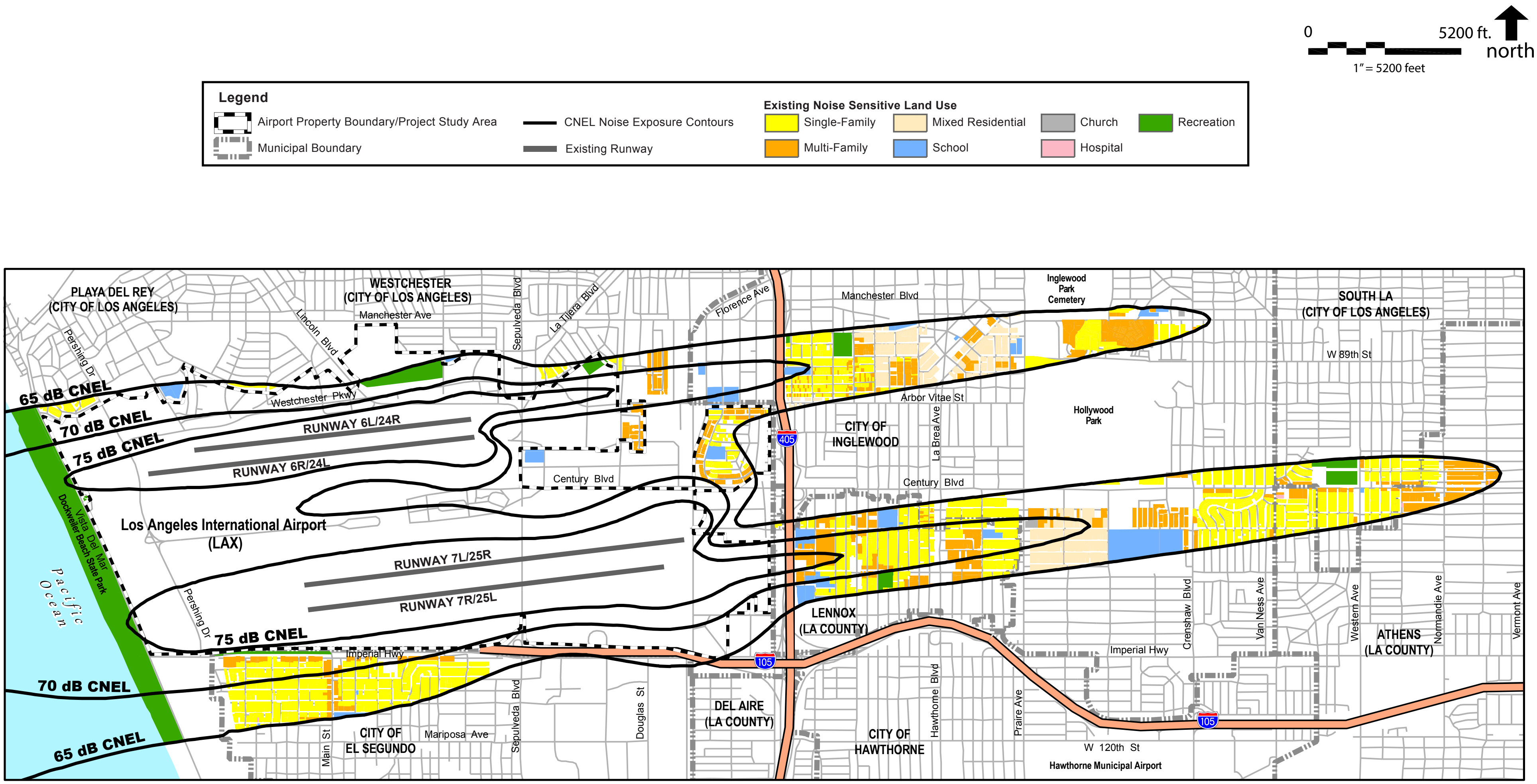
The existing noise environment at and around LAX is dominated by noise from aircraft-related uses and several major roadways. Specifically, airport-related noise is generated from aircraft departing, landing, and taxiing on the runways and connecting taxiways. Noise levels from aircraft departure operations commonly exceed 110 dBA at locations near the runway.[5] Additionally, the Airport is bordered by several major roadways, including Interstates (I-) 405 and 105, and major arterials including Imperial Highway, Sepulveda Boulevard, Century Boulevard, and Lincoln Boulevard.

LAX maintains state-of-the-art noise monitoring systems to manage existing noise in the surrounding communities. One system includes developing existing CNEL contours resulting from aircraft operations at LAX. LAWA develops these contours using the INM for noise levels in the vicinity of LAX that include 65, 70, and 75 dBA CNEL contours, superimposed over a land use map (**Figure 4.6-2**). The contours developed from the INM are adjusted at 39 monitoring locations based on their annual noise levels to create LAWA's quarterly noise contour maps, which are prepared by LAWA pursuant to California Airport Noise Standards (California Code of Regulations [CCR], Title 21, §5000 *et seq*.).[6] Noise data from noise monitors combined with the most recent LAX CNEL contours indicate that the existing cumulative noise exposure at the nearest noise-sensitive areas in the City of El Segundo south of Imperial Highway approaches 75 dBA CNEL. The closest noise-sensitive land uses to the proposed Project, include multi-family homes along Century Boulevard just east of Aviation Boulevard and pockets of single- and multi-family residences west of I-405. The homes along Century Boulevard are currently exposed to aircraft noise levels of approximately 65 to 72 dB CNEL. Airport noise exposure at residences west of I-405 is in the range of 65 to 68 dBA CNEL.

The FAA defines 65 dB CNEL as the threshold of noise compatibility for residential land uses. Land use noise exposure is quantified as numbers of noise sensitive sites, and numbers of people and housing units exposed to various levels of aircraft noise. The number of noise-sensitive uses, housing units, and population around LAX exposed to 65 dBA CNEL or above for existing conditions, are presented in **Table 4.6-2**. Under existing conditions, approximately 13,341 single- and multi-family housing units, representing 44,286 people, are located within the 65 dBA CNEL or higher contours, and approximately 3,479 housing units, representing 13,753 people, are located within the 70 dBA CNEL or higher contours.

[5] City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004.

[6] California Department of Transportation, Division of Aeronautics website, http://www.dot.ca.gov/hq/planning/aeronaut/avnoise.html, Accessed June 2012.



Sources: LAWA, 2012; ESRI Maps & Data May 2012 ; Prepared by: URS Corporation.

FIGURE 4.6-2	Existing (2011) Aircraft Noise Exposure CNEL Contours	Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project

Table 4.6-2

Existing Conditions Aircraft Noise Exposure (2011) - All Jurisdictions

Land Use	Group 1 65 dB CNEL and Above[a]		Group 2 70 dB CNEL and Above[b]		Group 3 75 dB CNEL and Above[c]	
	Dwelling Units[d]	Population[d]	Dwelling Units[d]	Population[d]	Dwelling Units[d]	Population[d]
Single- Family	2,788	9,222	487	2,154	14	70
Multi- Family	9,305	29,292	1,870	7,193	55	275
Mobile Homes	0	0	0	0	0	0
Schools	0	0	0	0	0	0
Churches	0	0	0	0	0	0
Hospitals	0	0	0	0	0	0
Total	**12,093**	**38,514**	**2,357**	**9,347**	**69**	**345**

Notes: This table is not intended to be viewed as cumulative. Each group with a higher starting dB CNEL is a subset of the group with the lower starting dB CNEL. For example the 2,788 single-family units exposed to 65 dB CNEL and above include the 487 exposed to 70 dB CNEL and above and the 14 exposed to 75 dB CNEL and above.

[a] The numbers presented in this group include sensitive uses that are exposed to 65 dB CNEL and above including the numbers on the two other groups in this table.

[b] These numbers are subsets of the 65 dB CNEL and Above group.

[c] These numbers are subsets of the 65 dB CNEL group and of the 70 dB CNEL and Above group.

[d] Population contains 2010 census data. Dwelling unit and population numbers were updated based on an updated parcel-level database developed and maintained by LAWA.

Source: Ricondo & Associates, 2013; PCR Services Corporation, 2013.

4.6.3.3 Compatible Land Use

The existing and planned land use in areas surrounding the Project Study Area is presented in Chapter 3, Overview of Project Setting. Land use compatibility with airport noise levels is defined in 14 CFR Part 150 and is presented in **Table 4.6-3**. The area surrounding the Project Study Area contains several noise-sensitive resources, including 8 parks/areas of open space, 27 schools, 4 fire stations, 1 health care facility, and 10 religious facilities.

Table 4.6-3

Land Use Compatibility* With Yearly Day-Night Average Sound Levels

	Yearly Day-Night Average Sound Level (L_{dn}) in Decibels					
Land Use	**Below 65**	**65–70**	**70–75**	**75–80**	**80–85**	**Over 85**
RESIDENTIAL						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
PUBLIC USE						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
COMMERCIAL USE						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
MANUFACTURING AND PRODUCTION						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y

Table 4.6-3

Land Use Compatibility* With Yearly Day-Night Average Sound Levels

Land Use	Yearly Day-Night Average Sound Level (L_{dn}) in Decibels					
	Below 65	**65–70**	**70–75**	**75–80**	**80–85**	**Over 85**
RECREATIONAL						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

Notes:
Numbers in parentheses refer to notes.
*The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.
Key to Table
Y (Yes) = Land Use and related structures compatible without restrictions.
N (No) = Land Use and related structures are not compatible and should be prohibited.
NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35 = Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.
(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, or noise-sensitive areas or where the normal noise level is low.
(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, or noise-sensitive areas or where the normal noise level is low.
(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, or noise-sensitive areas or where the normal noise level is low.
(5) Land use is compatible, provided special sound reinforcement systems are installed.
(6) Residential buildings require an NLR of 25.
(7) Residential buildings require an NLR of 30.
(8) Residential buildings not permitted.
Source: 14 CFR Part 150 § A150.101.

4.6.4 CEQA Thresholds of Significance

The following CEQA thresholds of significance are included in the City of Los Angeles CEQA Thresholds Guide[7] for the assessment of community noise exposure and are applicable to the proposed project construction noise impacts analysis.

A significant noise impact from construction would occur if the direct and indirect changes in the environment that may be caused by the project would potentially result in one or more of the following future conditions:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise-sensitive use;
- Construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise-sensitive use; or,
- Construction activities would exceed the ambient exterior noise level by 5 dBA at a noise-sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at any time on Sunday.

A significant noise impact from airport operations would occur if:

- Noise levels at a noise sensitive use attributable to airport operations exceed 65 dB CNEL and the project increases ambient noise levels by 1.5 dB CNEL or greater.

4.6.5 Project Design Features

4.6.5.1 LAX Master Plan EIS/EIR Commitments

As part of the LAX Master Plan EIS/EIR, LAWA adopted several mitigation measures and commitments pertaining to noise to avoid or reduce environmental impacts, as described in the LAX Master Plan MMRP. Although the proposed Project is not part of the LAX Master Plan, LAWA is committed to implementing the applicable LAX Master Plan commitments to all LAWA projects, including the proposed Project. The following commitments are applicable to the proposed Project with respect to noise.

- **Noise Mitigation Measure (MM-N)-7: Construction Noise Control Plan.** A Construction Noise Control Plan will be prepared to provide feasible measures to reduce significant noise impacts throughout the construction period for all projects near noise sensitive uses. For example, noise control devices shall be used and maintained, such as equipment mufflers, enclosures, and barriers. Natural and artificial barriers such as ground elevation changes and existing buildings may be used to shield construction noise.
- **MM-N-8: Construction Staging.** Construction operations shall be staged as far from noise-sensitive uses as feasible.
- **MM-N-9: Equipment Replacement.** Noisy equipment shall be replaced with quieter equipment (for example, rubber tired equipment rather than track equipment) when technically and economically feasible.

[7] City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006.

- **MM-N-10: Construction Scheduling**. The timing and/or sequence of the nosiest on-site construction activities shall avoid sensitive times of the day, as feasible (9 p.m. to 7a.m. Monday-Friday; 8:00 p.m. to 6:00 a.m. Saturday; anytime on Sunday or Holidays).
- **Surface Transportation (ST)-16: Designated Haul Routes**. Every effort will be made to ensure that haul routes are located away from sensitive noise receptors.
- **Surface Transportation (ST)-22. Designated Truck Routes.** For dirt and aggregate and all other materials and equipment, truck deliveries will be on designated routes only (freeways and non-residential streets). Every effort will be made for routes to avoid residential frontages. The designated routes on City of Los Angeles streets are subject to approval by LADOT's Bureau of Traffic Management and may include, but will not necessarily be limited to: Pershing Drive (Westchester Parkway to Imperial Highway); Florence Avenue (Aviation Boulevard to I-405); Manchester Boulevard (Aviation Boulevard to I-405); Aviation Boulevard (Manchester Avenue to Imperial Highway); Westchester Parkway/Arbor Vitae Street (Pershing Drive to I-405); Century Boulevard (Sepulveda Boulevard to I-405); Imperial Highway (Pershing Drive to I-405); La Cienega Boulevard (north of Imperial Highway); Airport Boulevard (Arbor Vitae Street to Century Boulevard); Sepulveda Boulevard (Westchester Parkway to Imperial Highway); I-405; and I-105.

4.6.6 Impact Analysis

4.6.6.1 Construction

Construction Traffic

Construction activities would temporarily increase ambient noise levels in the immediate vicinity of the construction and land clearing activities as well as potentially along the haul routes where construction trucks and employee vehicles would travel. The following LAX Master Plan EIS/EIR Commitments are included as part of the Project Design Features.

- **Haul Routes**. The proposed Project would utilize haul routes along Imperial Highway, Aviation Boulevard, and Century Boulevard that do not contain residences or other noise-sensitive uses. These haul routes provide direct access to two regional highways, I-405 and I-105. These haul routes were selected to 1) ensure that trucks use the area freeway systems (I-405 and I-105) as much as possible, and 2) use only major arterial routes to travel as short a distance as possible from the freeways to the airport construction sites. All of the designated haul routes accommodate relatively high traffic volumes today. Hauling would be limited to specified, non-peak hour times per the LAX Master Plan EIS/EIR Commitments.
- **Internal Circulation.** The proposed Project would utilize existing service roads within the Airport property for accessing locations on the west and east sides of the Project site. For the west side of the Project site where the RSA improvements would occur, employees and deliveries would utilize the service road that is located south of and parallels Taxiway A, which is accessed via a controlled gate at 111th Street and Aviation Boulevard. For the east side of the Project site, employees and deliveries would utilize the service road that parallels Aviation Boulevard and then turns north of and parallels Taxiway B and C, which is also accessed via the controlled gate at Aviation Boulevard and 111th Street. There is an additional gate at Aviation Boulevard and 104th Street that provides controlled access to this

service road as well. This internal circulation would keep vehicles off Imperial Highway (headed to S. Pershing Drive) and away from residences in the City of El Segundo.

Table 4.6-4 is a summary of traffic noise level estimations and anticipated changes at the locations of nearest noise-sensitive uses along each roadway segment. Comparing the traffic noise levels during construction of the proposed Project to estimated existing condition noise levels, the maximum increase in roadway noise during peak construction traffic hours would be 0.9 dBA Leq or less. Therefore, the traffic noise increase due to construction would not be perceptible and fall far below the 5 dBA Leq significance threshold. Therefore, impacts related to construction traffic would be less than significant.

Construction Activities

Grading and scraping construction activities are typically the sources of most noise, with associated equipment generating noise levels as high as 70 dBA to 95 dBA within 50 feet of their operation. While existing noise levels from aircraft operations exceed construction equipment and traffic noise levels, aircraft noise events occur intermittently, and as such, allow for construction noise to potentially be audible to or impact the neighboring communities.

The nearest noise-sensitive areas to the RSA improvements portion of the Project site are residences located south of Imperial Highway, at a distance of approximately 1,350 feet. Noise exposure at these locations due to construction of the RSA and extension of associated taxiways near Runway 7L would be approximately 63 dBA L_{max} during the noisiest construction times. The anticipated noise level, while expected to be audible at times, would be below noise exposure from aircraft and traffic noise sources in the area. Therefore, at residences located in El Segundo, impacts related to noise from construction activities would not exceed existing ambient exterior noise levels by 5 dBA or more and impacts would be less than significant.

Construction noise exposure at homes northeast of the intersection of Century Boulevard and Aviation Boulevard during the pavement reconstruction of the eastern portions of Taxiway B and Runway 25R would be approximately 46 dBA Lmax at its loudest. The anticipated noise level is well below the ambient noise exposure from aircraft and roadway traffic in these areas.

Therefore, at residences located northeast of the Century Boulevard/Aviation Boulevard intersection, impacts related to noise from construction activities would not exceed existing ambient exterior noise levels by 5 dBA or more and impacts would be less than significant.

Table 4.6-5 summarizes the estimated construction noise exposure levels at the nearest locations potentially affected by such noise.

Table 4.6-4

Estimated Traffic Noise Level Changes During Construction

Roadway Segment	Direction	2010 PM Peak Hour Traffic Volumes				Proposed Project PCE	Estimated Hourly Leq (dBA)	
		PCE	Autos	MT	HT		2010	Proposed Project
Imperial Hwy, East of Pershing Dr.	WB	850	759	16	10	1	65.5	66.4
	EB	728	650	14	9	31		
Imperial Hwy, West of Main St.	WB	874	780	16	10	1	66.6	67.4
	EB	1,055	942	20	13	31		
Imperial Hwy, East of Main St.	WB	1,056	943	20	13	1	66.9	67.6
	EB	1,070	955	20	13	31		
Century Blvd., east of Aviation Blvd.	WB	1,395	1,245	26	17	0	67.4	67.6
	EB	1,885	1,682	35	23	19		

Source: URS and Ricondo and Associates, 2012.
Notes: PCE – Passenger Car Equivalent; Autos – Automobiles; MT – Medium trucks; HT – Heavy trucks
2010 peak hour traffic volumes were utilized because they were higher than 2011 peak hour traffic volumes for the Study intersections (see Section 4.6 for additional discussion on construction traffic volumes).
Assumptions:
Total truck percentage is assumed to be 3.44% of total traffic on area roadways, composed of 2.09% medium trucks and 1.35% heavy trucks.
Each medium or heavy truck is assumed to be equivalent to 3.5 PCEs.

Table 4.6-5

Estimated Construction Equipment Noise Levels

Construction Phase	Equipment Type	Number of Units	Max. Noise Level @ 50 feet (dBA)	Total Noise Level @ 50 feet (dBA)	Nearest Homes in El Segundo Nearest Distance: 1,350 feet	Homes NE of Century & Aviation Intersection Nearest Distance: 1,750 feet
RSA and Associated Taxiways Construction						
Aggregate Base	Grader	1	85	90	63	N/A
	Dozer	1	82			
	Compactor	1	83			
	Truck Tractor	1	84			
	Pick-up Truck	1	75			
Taxiway B and Runway 25R Rehabilitation						
Grading of Service Rd. or Taxiway	Dozer	1	82	86	N/A	46
	Scraper	1	84			
	Pick-up Truck	1	75			

Source: MARRS, URS, and Ricondo and Associates, 2012.

Aircraft Operations During Construction

Construction of the proposed Project would require closure of Runway 7L/25R for approximately 3.5 months. An analysis of the changes to the annual noise contours that would result from closure of the runway for this period was undertaken in response to comments received on the Initial Study and Notice of Preparation. Assumptions concerning runway use were developed and are included in Appendix C. **Table 4.6-6** summarizes the dwelling units and population contained within the 65, 70, and 75 dB CNEL contours developed to represent conditions during construction.

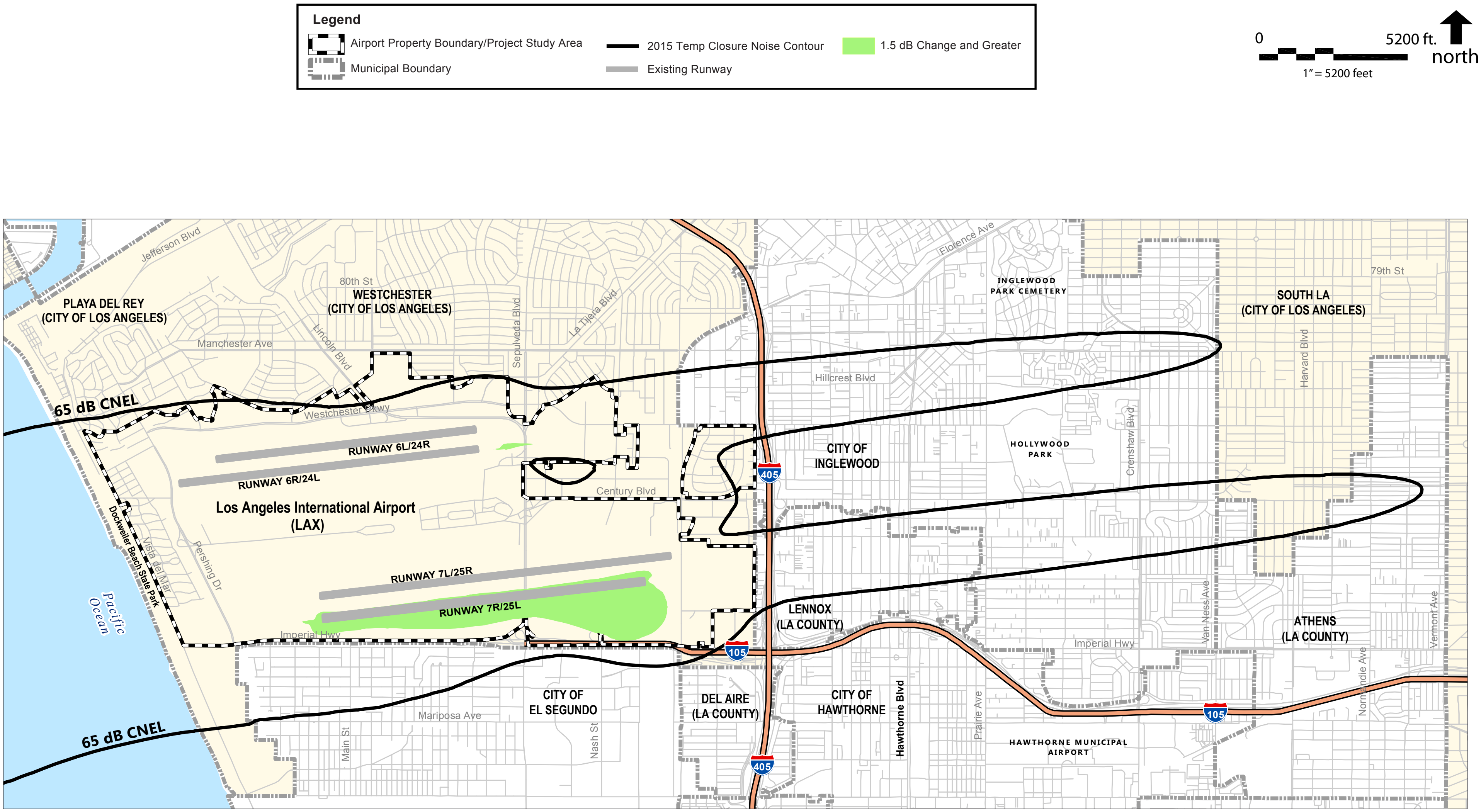
Table 4.6-6

Land Use Noise Exposure by Sensitive Land Use (2015 Construction)

Unit	65-70 dB CNEL	70-75 dB CNEL	75 dB CNEL and Above	Totals (65+ dB CNEL and Above)
Dwelling Units	10,009	2,406	202	12,617
Population	30,522	9,343	634	40,499

Note: Population contains 2010 census data.
Source: Ricondo and Associates, 2013; PCR Services Corporation, 2013.

Due to the redistribution of aircraft during the construction period and temporary closure of Runway 7L/25R, a 1.5 dB CNEL and higher increase is observable when compared to (2015) Without Project conditions, as shown in **Figure 4.6-3**. The primary areas that would experience an increase of 1.5 dB CNEL or higher are located directly south of Runway 7R/25L on existing Airport property. This increase would not impact any noise sensitive facilities or residential dwellings since all areas anticipated to experience a 1.5 dB CNEL increase are located within the Airport's property boundary (**Figure 4.6-3**). Because no noise-sensitive uses would experience an increase in ambient noise by 1.5 dB CNEL or greater, noise associated with aircraft operations during construction would be less than significant.



Source: LAWA, 2013; LAX 2015 CNEL Contours - Ricondo & Associates, Inc., 2013

FIGURE 4.6-3

Future (2015) Aircraft Noise Exposure CNEL Contours - Temporary Closure of Runway 7L/25R (1.5 dB Change and Greater)

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4.6.6.2 Operations

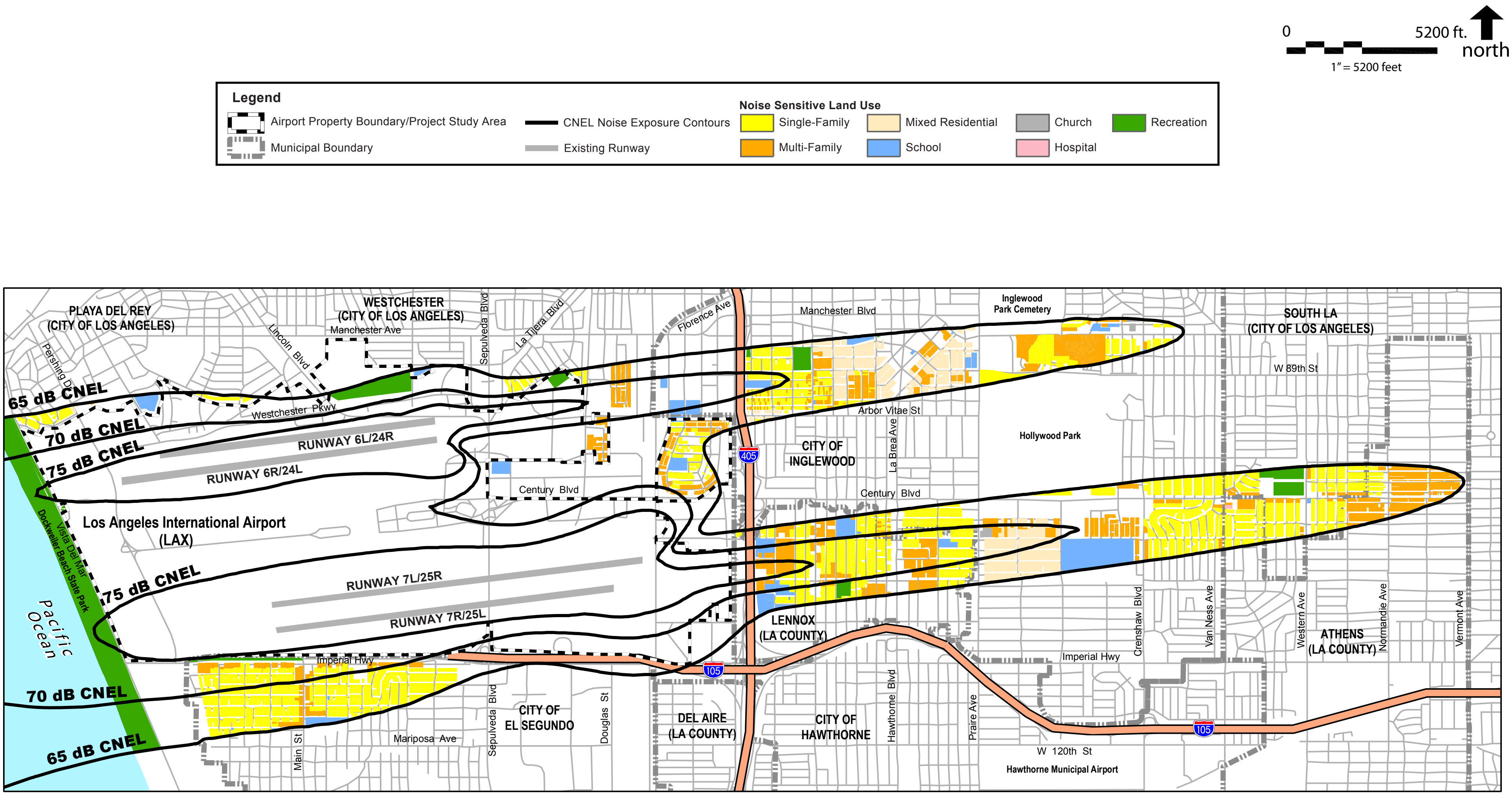
2015 Without Project Conditions

The detailed data and methodologies used to develop the noise contours for the 2015 Without Project scenario are provided in Appendix C. 2015 Without Project CNEL contours and land uses within the 65 dB CNEL are presented in **Figure 4.6-4** and estimated noise exposure area, by noise sensitive land use category within the 65, 70, and 75 dB CNEL, is presented in **Table 4.6-7**.

2015 With Proposed Project

The detailed data and methodologies used to develop the aircraft noise contours for the 2015 With Project scenario are provided in Appendix C. Future (2015) CNEL contours for the proposed Project are presented in **Figure 4.6-5** and the associated estimated noise exposure levels over noise sensitive land uses are presented in **Table 4.6-7.**

Table 4.6-7 compares baseline (2011) conditions with the future (2015) Without Project and With Project conditions. As seen in Table 4.6-7, the number of dwelling units and population exposed to noise in the future (2015) conditions is greater than the baseline (2011) conditions. However, there is little difference between the number of dwelling units and population exposed to noise under the future (2015) Without Project and With Project conditions.



Sources: LAWA, 2012; ESRI Maps & Data May 2012 ; Prepared by: URS Corporation.

FIGURE 4.6-4

**Future (2015)
Aircraft Noise Exposure CNEL Contours -
Without Project**

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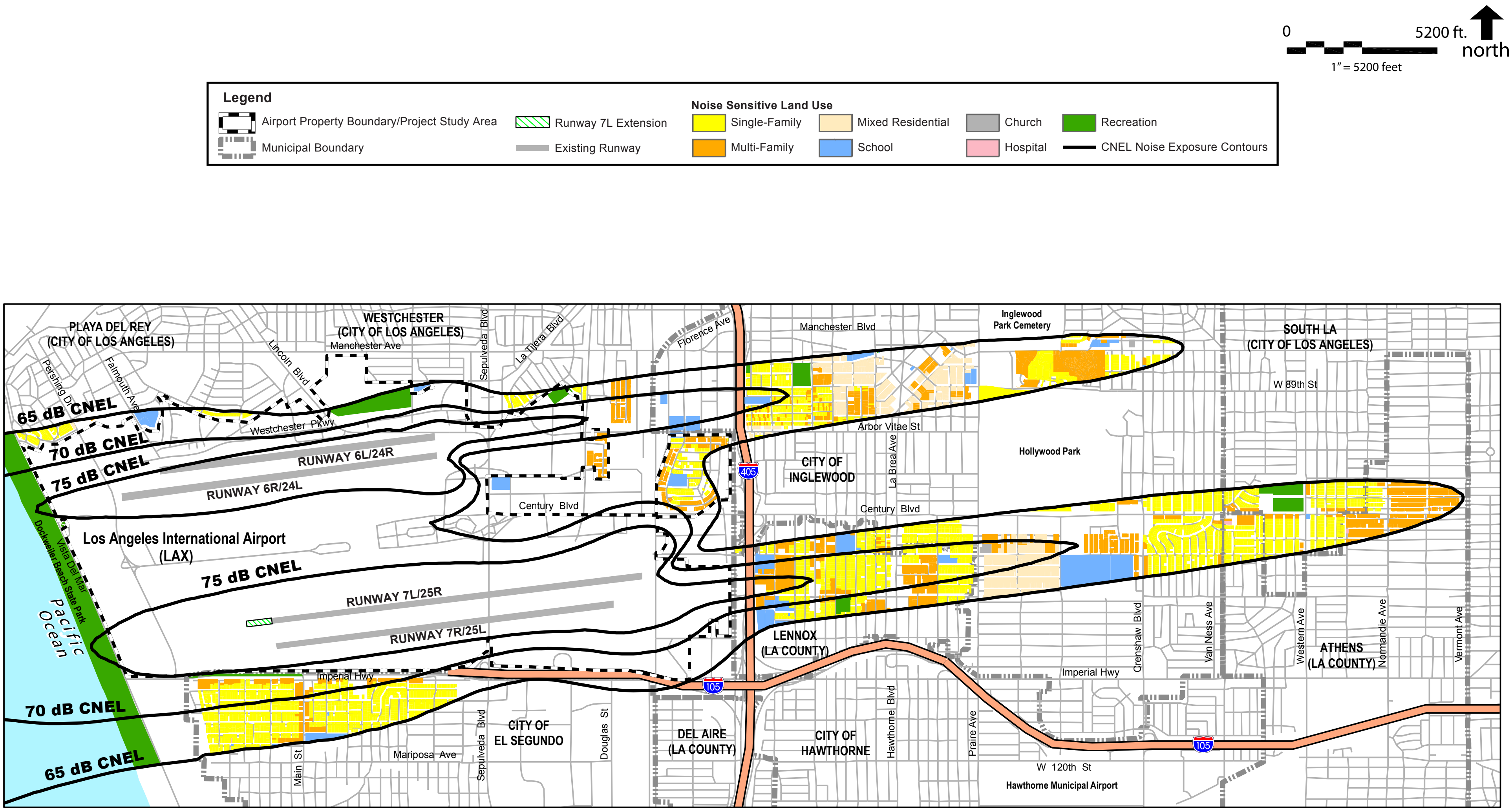
Table 4.6-7

Estimated Noise Exposure Levels over Noise Sensitive Land Uses

Land Use/Units		65-70 dB CNEL Baseline (2011)	65-70 dB CNEL Without Project (2015)	65-70 dB CNEL Proposed Project (2015)	70-75 dB CNEL Baseline (2011)	70-75 dB CNEL Without Project (2015)	70-75 dB CNEL Proposed Project (2015)	75 dB CNEL and Above Baseline (2011)	75 dB CNEL and Above Without Project (2015)	75 dB CNEL and Above Proposed Project (2015)
Single-Family Residential										
Dwelling Units		2,301	2,479	2,478	473	542	540	14	21	21
Population [a]		7,068	7,560	7,557	2,084	2,330	2,321	70	105	105
Multi-Family Residential										
Dwelling Units		7,435	7,241	7,233	1,815	2,175	2,173	55	74	74
Population [a]		22,099	21,907	21,879	6,918	8,508	8,498	275	369	369
School	Parcels	57	60	60	15	17	17	--	--	--
Church	Parcels	2	3	3	3	3	3	--	--	--
Hospital	Parcels	4	5	5	--	--	--	--	--	--
Recreation	Parcels	13	14	14	8	9	9	3	3	3
Total										
Dwelling Units		**9,736**	**9,720**	**9,711**	**2,288**	**2,717**	**2,713**	**69**	**95**	**95**
Population [a]		**29,167**	**29,467**	**29,436**	**9,002**	**10,838**	**10,819**	**345**	**474**	**474**
Non-Residential Parcels		**76**	**82**	**82**	**26**	**29**	**29**	**3**	**3**	**3**

Note:
[a] Population contains 2010 census data.
Sources: URS Corporation, LAX Runway 7L/25R Safety Area (RSA) Project, Aircraft Noise Analysis, March 2012; Ricondo and Associates, 2013; PCR Services Corporation, 2013.



Sources: LAWA, 2012; ESRI Maps & Data May 2012 ; Prepared by: URS Corporation.

FIGURE
4.6-5

Future (2015)
Aircraft Noise Exposure CNEL Contours -
With Proposed Project

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A small increase in noise exposure is anticipated to the west of the Airport near the tip of the 75 dB CNEL contour, over Dockweiler Beach State Park. The proposed Project aircraft noise exposure at all areas, including areas in El Segundo and beneath the arrival paths east of LAX would be similar to or, in a few areas, slightly less than those under the baseline conditions. A noise grid analysis of select locations adjoining the Airport indicates that noise level changes would be less than 0.5 dB CNEL. Therefore, the proposed Project would not result in any significant noise impact relative to the baseline conditions for the same timeframe.

In 2015, compared to the Without Project scenario, the proposed Project would reduce the number of persons living in single-and multi-family dwelling units in the 65 dBA CNEL area by 50, and the number of single- and multi-family dwelling units by 13 (**Table 4.6-8**). This reduction is due to the shift in runway departures by 832 feet west for aircraft departing Runway 7L.

Table 4.6-8

Land Use Noise Exposure Comparison by Noise Sensitive Land Use (Year 2015)

		65 dB CNEL and Above	
Land Use	**Unit**	**Without Project**	**Proposed Project Increase/Decrease Relative to Without Project Condition**
Single-Family Residential			
	Dwelling Units	3,042	-3
	Population	9,995	-12
Multi-Family Residential			
	Dwelling Units	9,490	-10
	Population	30,784	-38
School	Parcels	77	--
Church	Parcels	6	--
Hospital	Parcels	5	--
Recreation	Parcels	26	--
Total			
	Dwelling Units	12,532	-13
	Population	40,779	-50
	Non-Residential Parcels	114	0

Note: (--) Indicates No Change
Sources: URS Corporation, LAX Runway 7L/25R Safety Area (RSA) Project, Aircraft Noise Analysis, March 2012.; Ricondo and Associates, 2013; PCR Services Corporation, 2013.

In comparison to the existing 2011 baseline, both the 2015 Without Project and With Project scenarios would increase the number of persons living in single- and multi-family dwelling units in the 65 dBA CNEL and above, as shown in **Table 4.6-9**. The increase from 2011 to 2015 can be attributed to the increased aircraft operations as a result of projected natural growth; this increase in passenger activity is expected with or without the proposed Project.

A noise grid analysis of select locations adjoining the Airport indicates that noise level changes would be less than the 1.5 dB CNEL threshold. The 2015 Without Project scenario compared to the 2011 baseline conditions is shown in **Figure 4.6-6**. The 2015 With Project scenario compared to the 2011 baseline conditions is shown in **Figure 4.6-7**. In comparison to the 2011 baseline conditions, neither the 2015 Without Project scenario, nor the 2015 With Project scenario, would result in any areas that would experience a 1.5 dB CNEL or higher increase. Therefore there would be no significant impact to any noise sensitive facilities or residential dwellings under either the With or Without Project conditions.

Table 4.6-9

Land Use Noise Exposure Comparison by Noise Sensitive Land Use
(Year 2015 difference against the 2011 baseline)

Land Use	Unit	65 dB CNEL and Above: 2011 Baseline Condition	65 dB CNEL and Above: Without Project Increase/Decrease Relative to Baseline (2011) Condition	65 dB CNEL and Above: Proposed Project Increase/Decrease Relative to Baseline (2011) Condition
Single-Family Residential				
	Dwelling Units	2,788	254	251
	Population	9,222	773	761
Multi-Family Residential				
	Dwelling Units	9,305	185	175
	Population	29,292	1,492	1,454
School	Parcels	72	5	5
Church	Parcels	5	1	1
Hospital	Parcels	4	1	1
Recreation	Parcels	24	2	2
Total				
	Dwelling Units	12,093	439	426
	Population	38,514	2,265	2,215
	Non-Residential Parcels	105	9	9

Note: (--) Indicates No Change
Sources: URS Corporation, LAX Runway 7L/25R Safety Area (RSA) Project, Aircraft Noise Analysis, March 2012; Ricondo and Associates, 2013; PCR Services Corporation, 2013.

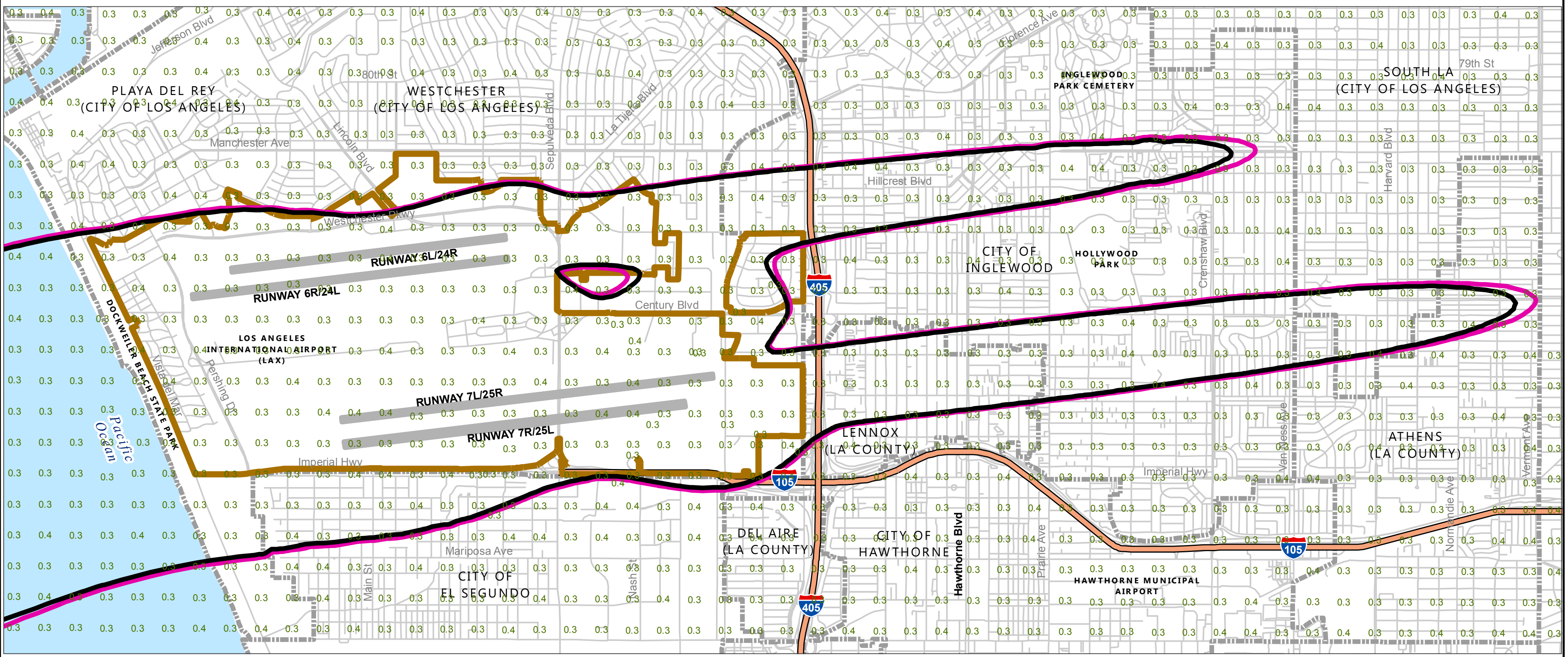
LEGEND

- Airport Property Boundary
- Municipal Boundary
- 2011 Baseline 65 dB CNEL Noise Contour
- 2015 Without Project 65 dB CNEL Noise Contour
- Existing Runway

Change from 2011 Baseline Conditions

- (0.1) Less than 0 dB CNEL
- 0.1 0 or Greater dB CNEL

0 4400 ft. north
1" = 4400 feet

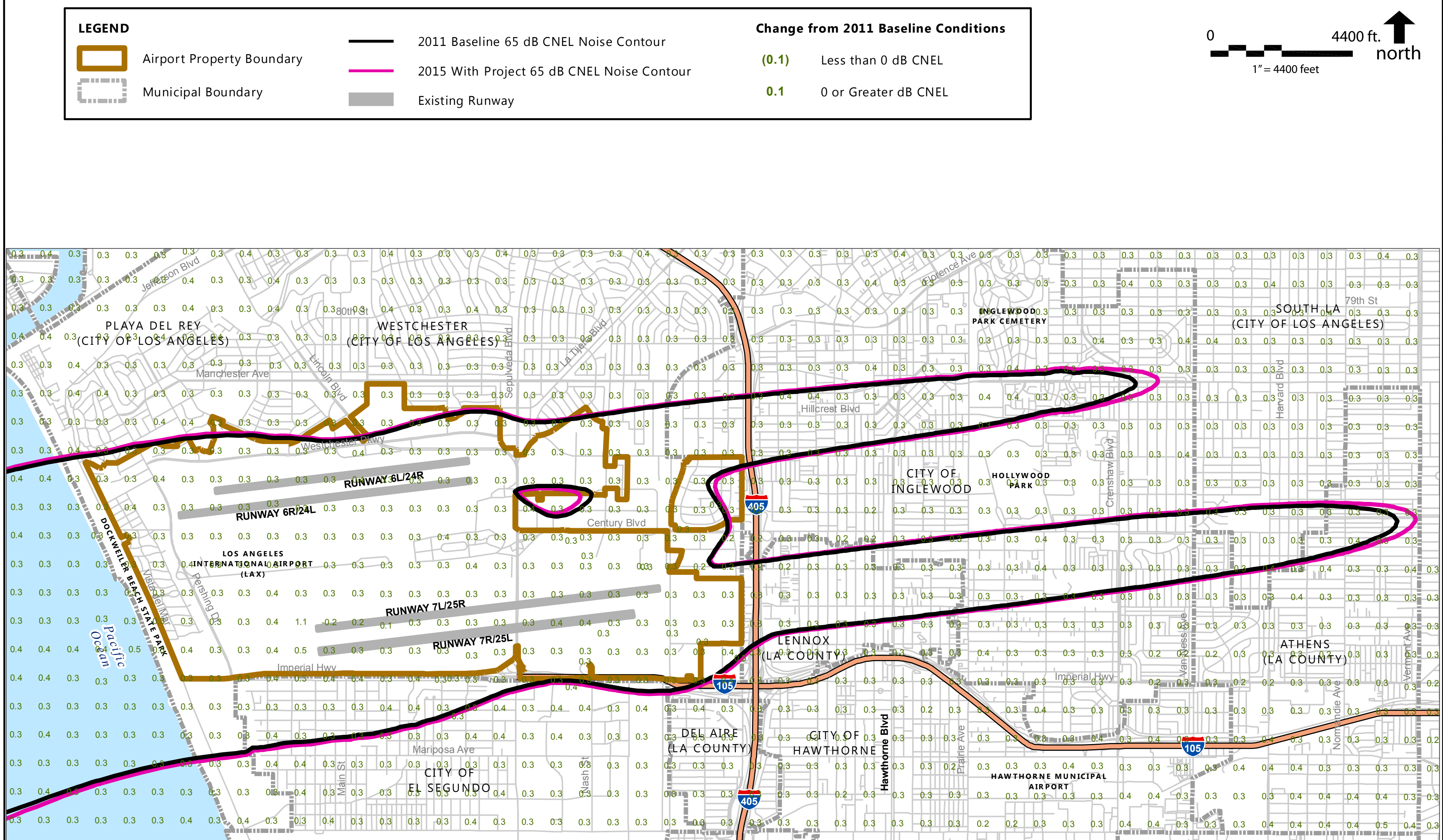


Sources: Los Angeles County, 2010, 2011 (Municipal Boundaries, Streets); Southern California Association of Governments, 2008 (Land Use); URS Corporation, 2013 (Noise Contours, Gridpoint data);
Prepared by: Ricondo & Associates, Inc., August 2013.

FIGURE 4.6-6

Aircraft Noise Exposure CNEL Contours Quantitative Comparison 2015 Without Project vs. 2011 Baseline Conditions

Los Angeles International Airport



Sources: Los Angeles County, 2010, 2011 (Municipal Boundaries, Streets); Southern California Association of Governments, 2008 (Land Use); URS Corporation, 2013 (Noise Contours, Gridpoint data); Prepared by: Ricondo & Associates, Inc., August 2013.

FIGURE 4.6-7

Aircraft Noise Exposure CNEL Contours Quantitative Comparison 2015 With Project vs. 2011 Baseline Conditions

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4.6.7 Cumulative Impacts

The construction of various on-going and anticipated future projects at LAX would potentially occur simultaneously with construction of the proposed Project. Projects to be considered in the cumulative noise analysis of the EIR include on-airport and significant off-airport construction projects, and are shown in **Table 4.6-10**.

Table 4.6-10

On-Airport Related Projects

Project Name	Estimated Year: Start of Construction	Estimated Year: Completion/ Implementation
LAX Northside Plan	2015	2022
Runway 6L-24R RSA Improvements	2015	2015
Runway 6R-24L RSA Improvements	2016	2019
North Terminals Improvements	2013	2017
Midfield Satellite Concourse: Phase 1 - North Concourse	2014	2019
LAX Bradley West Project (Remaining Work)	2013	2017
Central Utility Plant Replacement Project (CUP - RP) (Remaining Work)	2013	2014
West Aircraft Maintenance Area Project	2014	2018
South Terminals Improvements	2011	2018
LAX Master Plan Alt. D/SPAS Development [a]	2015	2025
Miscellaneous Improvements and Projects	2014	2020

Notes:
[a] LAWA evaluated nine development alternatives for the LAX Specific Plan Amendment Study and in February 2013 the Board of Airport Commissioners (BOAC) selected one alternative; however, all the approvals necessary to implement that alternative have not yet occurred. For the purposes of the WAMA cumulative construction impacts analysis, an assumption is made that the LAX Master Plan improvements, as previously approved, are implemented, which provides a more conservative analysis that if one were to assume the BOAC-selected alternative (i.e., more development would occur under the LAX Master Plan scenario than under the BOAC-selected alternative.
Source: LAWA and Ricondo and Associates, Inc., 2013.

4.6.7.1 Construction

Construction activities would temporarily increase ambient noise levels in the immediate vicinity of the construction and land clearing activities within the Project site, as well as potentially along the haul routes where construction trucks and employee vehicles would travel. When combined with noise impacts from the cumulative projects listed in **Table 4.6-10**, there would be a perceptible temporary noise effect on the surrounding community. However, as impacts from construction would be limited to airport areas and not noise-sensitive areas, no increase of CNEL 1.5 dB or higher would occur off Airport property or on noise-sensitive land uses; thus, no significant impacts would occur.

4.6.7.2 Operations

Operations of the proposed Project would contribute no new noise sources or long-term impacts as compared with the existing baseline conditions, or the Without Project scenario, as described in Section 4.6.6.2. Therefore, the proposed Project would not contribute cumulatively to operational impacts related to noise.

4.6.8 Mitigation Measures

Construction, operational, and cumulative impacts related to noise would be less than significant due to a combination of being below significance thresholds, noise abatement policies already in place at LAX, and the implementation of LAX Master Plan commitments as listed in Section 4.6.5.2. Therefore, no project-specific mitigation measures are required.

4.6.9 Level Of Significance After Mitigation

Construction, operational, and cumulative impacts related to noise would be less than significant due to a combination of being below significance thresholds, noise abatement policies already in place at LAX, and the implementation of LAX Master Plan commitments as listed in Section 4.6.5.2. Impacts would remain less than significant.

4.7 SURFACE TRANSPORTATION

4.7.1 Introduction

The traffic analysis presented in this section addresses the construction traffic impacts specific to the proposed Project. The construction traffic impacts were determined for both the peak construction period for the proposed Project (August 2014) and the peak cumulative condition (December 2014). The peak construction month for the proposed Project does not correspond to the peak cumulative condition, which includes traffic from the construction of other known projects anticipated to be under construction during the approximately 13 month construction schedule.

This proposed Project construction traffic analysis incorporates relevant analysis and assumptions from the Los Angeles International Airport (LAX or the Airport) Master Plan EIR,[1] the South Airfield Improvement Project (SAIP) EIR,[2] the Crossfield Taxiway Project (CFTP) EIR,[3] Bradley West Project EIR,[4] and the Central Utility Plant Replacement Project (CUP-RP) EIR.[5] The traffic conditions resulting from the construction of the CFTP, Bradley West Project, CUP-RP and the proposed Project are similar in terms of regional approach/departure patterns and construction peaking characteristics. Therefore, the analysis procedures and data already known from these other projects were applied and updated as appropriate for the proposed Project.

Construction employee parking associated with the construction of the proposed Project would be located on the east side of the Airport in the construction employee parking lot located on the west side of La Cienega Boulevard and north of the intersection with Lennox Boulevard. Material staging for deliveries associated with the construction of the proposed Project would also be located on the east side of the Airport in the Continental City site bounded by Imperial Highway on the south, Aviation Boulevard on the west, and 111th Street on the north. This analysis assesses anticipated construction-related traffic impacts at off-airport intersections associated with the construction of the proposed Project, including the traffic impacts of construction employee vehicles, construction equipment, material delivery trucks, employee shuttles, and truck trips associated with the Project.

This analysis addresses, in particular, the impacts from construction-related traffic that would occur during the peak construction period for the proposed Project. The construction traffic analysis combines peak Project-related traffic volumes (which do not correspond with commuter peak hours), with roadway traffic volumes occurring adjacent to the AM and PM commuter peak hours. The analysis provides an estimate of the construction-related traffic impacts within the off-airport public roadway system serving construction-related vehicles generated by the proposed Project.

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1 City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004

2 City of Los Angeles, Los Angeles World Airports, *South Airfield Improvements Project EIR*, 2006.

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

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

5 City of Los Angeles, Los Angeles World Airports, *Final Environmental Impact Report for Central Utility Plant Project, Los Angeles International Airport (LAX)*, October 2009.

4.7.2 Methodology

4.7.2.1 Overview

As noted above, this analysis focuses on construction impacts of the proposed Project. The analysis methodology for this EIR is based largely on the approach and data used for the Bradley West Project EIR and CUP-RP EIR. The analyses procedures and data from these previous projects are applicable to the proposed Project because the construction of the projects overlap and share many of the same characteristics related to vehicle peaking patterns and travel paths.

The traffic study area includes intersections and roadways anticipated to be directly or indirectly affected by the construction of the proposed Project. Construction employee parking and material staging for the Project are proposed to be located at the surface lot near the work area, as further described below. The traffic study area for this analysis includes those roads and intersections that would most likely be used by employee and truck traffic associated with construction of the proposed Project. During the scoping of the SAIP traffic study, LADOT indicated that no traffic study was required because there was "no requirement to assess the temporary impacts of a project resulting from construction activities. Thus, the proposal to prepare a traffic study is voluntary."[6] However, LAWA determined at that time and continues to believe that the preparation of a traffic study is useful in order to provide a full assessment and documentation of the potential impacts that may be generated by the construction of the Project. The procedures are also consistent with the information and requirements defined in City of Los Angeles Department of Transportation (LADOT) *Traffic Study Policies and Procedures*, revised by the LADOT in December 2010, notwithstanding that a construction traffic analysis is not typically required by LADOT.

The following steps and assumptions were used to develop the analysis methodology:

- The traffic study area was defined according to the travel paths that would be used by construction traffic to access the Project site, equipment, materials staging, and parking areas. Construction delivery vehicle travel paths would be regulated according to the construction traffic management plan required through the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP).[7] The construction of the proposed Project would include construction at the western end of Runway 7L/25R on the South Airfield at LAX and rehabilitation of the eastern portions of Taxiway B and Runway 7L-25R pavement. Construction employee parking would be accommodated at the construction employee parking lot on La Cienega Boulevard. The primary material staging location would be provided at the Continental City site south of 111th Street; however, construction staging and deliveries would be limited to the project construction areas at certain periods during the construction project.
- Intersection turning movement traffic volume data were collected at the key traffic study area intersections on Tuesday, April 30, 2013, and on Wednesday, May 15, 2013, from 6:00 AM to 10:00 AM and from 3:00 PM to 6:00 PM. These extended traffic count periods were established to obtain traffic count data during the (a) AM peak inbound hour for construction employees and deliveries and (b) the PM peak outbound hour for construction employees and deliveries. Pursuant to the mitigation requirements set forth in the LAX Master Plan EIR, construction truck delivery and construction employee traffic activity would not be

[6] Email from LADOT (Tom Carranza) to LAWA (Patrick Tomcheck) on July 29, 2004.

[7] LAX Master Plan commitments that are applicable to construction traffic are applied to this project to mitigate potential construction-related impacts.

scheduled during the morning or afternoon commute peak periods which were also counted during the data collection survey. The estimated peak hours for construction-related traffic were determined by reviewing the estimated hourly construction-related trip activity for the proposed Project developed for this study. The AM peak construction hour was determined to be 6:00 AM to 7:00 AM and the PM peak construction hour was determined to be 3:30 PM to 4:30 PM, both of which occur outside of the normal peak commuter periods.

- Key off-airport intersections, including intersections with freeway ramps in the proposed traffic study area, were analyzed. Impacts to roadway segments and freeway links were not analyzed because construction-related traffic activity is anticipated to occur outside of peak commute periods.

The following describes the methodology and assumptions underlying the various traffic conditions considered in this traffic analysis, and how the proposed Project's direct and indirect (cumulative) impacts were identified relative to those conditions.

4.7.2.2 Traffic Study Area

The construction traffic study area is depicted in **Figure 4.7-1**. The scope of the traffic study area was determined by identifying the intersections most likely to be used by construction-related vehicles accessing (1) the proposed Project construction site, construction employees parking area, and delivery staging areas and (2) the construction employee parking and staging areas for other concurrent construction projects in the vicinity of LAX. The traffic study area is generally bounded by I-405 to the east, I-105 and Imperial Highway to the south, Pershing Drive to the west, and Westchester Parkway, Sepulveda Boulevard, and Howard Hughes Parkway to the north. **Figure 4.7-1** depicts the proposed Project construction site, which is located immediately west of Taxiway AA and south of World Way West and along the eastern portion of Runway 7L/25R. The construction employee parking area is accessed via a driveway off of La Cienega Boulevard. The materials staging area is accessed via a driveway off of 111th Street.

Sources: Los Angeles World Airports, HNTB Corporation, Ricondo & Associates, Inc., July 2013.
Prepared by: Ricondo & Associates, Inc., August 2013.

FIGURE 4.7-1	**Construction Traffic Analysis Study Area**	Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project

Traffic Study Area Intersection Locations

The anticipated routes utilized by construction-related vehicles were reviewed to identify the intersections likely to be used by vehicles accessing the construction employee parking/staging site associated with the proposed Project or the other concurrent construction project sites in the vicinity of LAX. Based on this review, the key intersections to be analyzed are listed below in **Table 4.7-1** and depicted in **Figure 4.7-2**.

Table 4.7-1

Study Area Intersections

Intersection Number[a]	Intersection Location
14.	Aviation Boulevard and Century Boulevard
16.	Imperial Highway and Aviation Boulevard
19.	Aviation Boulevard and 111th Street
36.	La Cienega Boulevard and Century Boulevard
38.	Sepulveda Boulevard and Century Boulevard
39.	Century Boulevard and I-405 Northbound Ramps East of La Cienega Boulevard
47.	Imperial Highway and Douglas Street
65.	Sepulveda Boulevard and Howard Hughes Parkway
67.	Imperial Highway and La Cienega Boulevard
68.	Imperial Highway and Main Street
69.	Imperial Highway and Pershing Drive
71.	Imperial Highway and Sepulveda Boulevard
73.	Imperial Highway and Nash Street
74.	Imperial Highway and I-105 Ramp
75.	Imperial Highway and I-405 Northbound Ramp
89.	La Cienega Boulevard and Lennox Boulevard
94.	La Cienega Boulevard and 111th Street
96.	La Cienega Boulevard and I-405 Southbound Ramps North of Century Boulevard
97.	La Cienega Boulevard and I-405 Southbound Ramps South of Century Boulevard
98.	La Cienega Boulevard and I-405 Southbound Ramps North of Imperial Highway
101.	Sepulveda Boulevard and La Tijera Boulevard
108.	Sepulveda Boulevard and Lincoln Boulevard
114.	Sepulveda Boulevard and Manchester Avenue
123.	Westchester Parkway and Pershing Drive
135.	Sepulveda Boulevard and Westchester Parkway
136.	Sepulveda Boulevard and 76th/77th Street
137.	Sepulveda Boulevard and 79th/80th Street
138.	Sepulveda Boulevard and 83rd Street
1000.[b]	La Cienega Boulevard and 104th Street

Notes:
[a] The intersection numbers correspond with the designations used for the LAX Specific Plan Amendment Study
[b] This intersection was not included in the LAX Specific Plan Amendment Study.
Source: Los Angeles World Airports and Ricondo & Associates, Inc., August 2013.

Sources: Los Angeles World Airports, HNTB Corporation, Ricondo & Associates, Inc., July 2013.
Prepared by: Ricondo & Associates, Inc., August 2013.

FIGURE 4.7-2

Construction Traffic Study Area Intersections

Traffic Study Area Intersection Control and Geometry

All of the traffic study area intersections listed above and depicted in **Figure 4.7-2** are signalized. In addition, all of the intersections are included in LADOT's Automated Traffic Surveillance and Control (ATSAC) system, except Imperial Highway and the I-405 northbound ramps east of La Cienega Boulevard (Intersection #75) and Century Boulevard and the I-405 northbound ramps east of La Cienega Boulevard (Intersection #39). The ATSAC system provides for monitoring of intersection traffic conditions and the flexibility to adjust traffic signal timing in response to current conditions. The geometry for the intersections listed above is provided in Appendix C-1.

4.7.2.3 Project-Related Peak Hours

Certain project commitments identified in the LAX Master Plan EIR are required to be implemented in conjunction with LAX Master Plan development projects and are also being required for LAX projects independent of the LAX Master Plan. Many of these commitments would have a direct effect on the traffic generated by the construction associated with the proposed Project. Specifically, LAX Master Plan Commitments ST-12 (Designated Truck Delivery Hours) and ST-14 (Construction Employee Shift Hours) are designed to control truck deliveries and construction employee trip activity to avoid the AM (7:00 AM to 9:00 AM) and PM (4:30 PM to 6:30 PM) peak commute periods, and would apply to the proposed Project. These commitments, along with other transportation-related commitments relevant to the proposed Project, are listed in Section 4.7.6.1 below.

The anticipated Project-related traffic peak hours were identified by reviewing estimates of the construction-related traffic associated with the proposed Project. Using these data, the peak hours analyzed for the proposed Project were determined to be the following:

- **Project Construction AM Peak Hour (6:00 AM to 7:00 AM)** - The proposed Project construction AM peak hour represents the peak period for construction employees arriving at the construction employee parking lot during the morning. Based on review of the draft construction resource schedule of hourly construction trips, employees are anticipated to arrive between 5:00 AM and 6:00 AM.[8] Although this construction-related traffic activity is estimated to end an hour prior to the start of the AM peak commute period, it was determined that combining these entering construction volumes with the background traffic volume anticipated to occur between 6:00 AM and 7:00 PM would produce a more conservative estimate of activity in the event that the future construction employees need to arrive at 7:00 AM, just prior to the start of the morning peak commute period. Employee shuttle trips were also assumed to occur during the same hour.
- **Project Construction PM Peak Hour (3:30 PM to 4:30 PM)** - The proposed Project construction PM peak hour represents the peak period for construction employees leaving the construction employee parking lot during the evening. Based on review of the draft construction resource schedule of hourly construction trips, employees are anticipated to depart between 3:00 PM and 4:00 PM.[9] Although this construction-related traffic activity is estimated to end 30 minutes before the start of the PM peak commute period (4:30 PM to 6:30 PM), it was determined that combining these exiting construction volumes with the background traffic volume anticipated to occur between 3:30 PM and 4:30 PM, the period directly adjacent to the PM commuter peak hour, would produce a more conservative estimate of activity in the event that the future construction employees need to exit prior to

8 Ricondo & Associates, Inc., July 2013 (vehicle schedule times)
9 *Ibid*.

the desired "cut-off" time of 4:30 PM, just prior to the start of the evening peak commute period. Employee shuttle trips were also assumed to occur during the same hour.

4.7.2.4 Determination of Baseline Traffic Conditions

Baseline conditions used in the analysis of Project-related construction traffic impacts are defined as the existing conditions within the traffic study area at the time the NOP was published (October 5, 2012). Intersection turning movement volumes were collected in April and May 2013, representing the most current comprehensive traffic counts completed by LAWA. These volumes were used as a basis for preparing the traffic analysis and assessing potential Project-related traffic impacts. The following steps were taken to develop baseline traffic conditions information.

Prepare Model of Study Area Roadways and Intersections--A model of traffic study area roadways and intersections was developed to assist with intersection capacity analysis (i.e., geometric configuration, quantitative delineation of capacity, and operational characteristics of intersections likely to be affected by the proposed Project's traffic). The model was developed using TRAFFIX,[10] a commercially available traffic analysis software program designed for developing traffic forecasts and analyzing intersection and roadway capacities. The model uses widely accepted traffic engineering methodologies and procedures, including the Transportation Research Board Critical Movement Analysis (CMA) Circular 212 Planning Method,[11] which is the required intersection analysis methodology for traffic impact studies conducted within the City of Los Angeles.

Calculate Baseline Levels of Service--Intersection levels of service were calculated using the 2013 intersection traffic volumes coinciding with the AM construction peak hour (6:00 AM to 7:00 AM) and the PM construction peak hour (3:30 PM to 4:30 PM). These levels of service defined existing baseline conditions which served as a basis of comparison for assessing potential impacts generated by construction of the proposed Project.

4.7.2.5 Determination of Baseline Plus Peak Proposed Project Traffic Conditions

This traffic analysis was designed to assess the direct impacts associated with the construction of the proposed Project, as well as the effects of future cumulative conditions. For purposes of determining direct Project-related impacts, a traffic scenario was developed consisting of baseline traffic described above plus the additional traffic that would be generated by the proposed Project construction activity during the peak construction period. The following steps were conducted to determine the Baseline Plus Peak proposed Project traffic volumes.

Analyze Peak Proposed Project Construction Activity--Vehicle trips associated with construction of the proposed Project during the peak month of construction activity were estimated and distributed throughout the traffic study area network. The trips were estimated based on a review of the proposed Project construction schedules and associated workforce levels and equipment, including trucks and other construction vehicles. Project-related construction trips were summarized to delineate peak month inbound and outbound construction employee trips and truck trips by hour of the day. The estimate of proposed Project construction trips was based on construction employee workload schedules prepared for this proposed Project. The construction employee trip distribution patterns were based on

[10] Dowling Associates, TRAFFIX Version 7.7.

[11] Transportation Research Board, Transportation Research Circular No. 212, *Interim Materials on Highway Capacity*, January 1980.

regional patterns developed for the proposed Project and previous LAWA construction traffic studies using the modeling results prepared for the LAX Master Plan EIR, specific haul route information, airline passenger survey information, and regional population distributions.

Estimated Baseline Plus Peak Proposed Project Traffic Volumes--The estimated Baseline Plus Peak proposed Project (referred to hereinafter as Baseline Plus) traffic volumes were estimated by adding the Project volumes during the peak proposed Project activity period anticipated to occur in August 2014 to the baseline volumes.

4.7.2.6 Delineation of Future Cumulative Traffic Conditions

In addition to the Baseline Plus Project condition described above, future cumulative traffic conditions were analyzed. In accordance with Section 15355 of the *CEQA Guidelines*, cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." For this traffic analysis, cumulative traffic conditions were assessed for the period during the overall proposed Project construction program when the cumulative traffic associated with other LAX development programs would be greatest. This peak cumulative period was estimated to occur during December 2014.

In accordance with *CEQA Guidelines* Section 15130(b), there are essentially two options for delineating cumulative development for evaluating potential impacts:

a. List past, present, and reasonably foreseeable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or

b. Summarize projections contained in an adopted general plan or related planning document, or in a prior adopted or certified environmental document, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

For purposes of the proposed Project, the first of the two options, commonly referred to as "the list approach," was used to delineate cumulative projects - see Section 4.7.4.7 below for a description of cumulative projects and specific project listings and descriptions regarding how and when the traffic generation related to those projects would overlap with that of the proposed Project. Background traffic was increased to reflect additional growth from non-specific projects, which adds an element of the second option to result in a cumulative impacts analysis that is more conservative.

Cumulative impacts were determined using a process that requires the development of the two sets of future cumulative traffic volume conditions, as described below.

<u>Cumulative Traffic (December 2014) Without Project</u>

This scenario combines baseline traffic volumes with growth from all sources other than the project to determine the overall peak cumulative traffic conditions during the construction period for the proposed Project. The following steps were taken to develop the traffic volumes for this scenario.

Develop December 2014 Focused Traffic Study Area Roadway Network--The TRAFFIX model was updated, as necessary, to reflect any committed and funded traffic study area transportation improvements that would be in place by December 2014.

Estimate December 2014 Cumulative Traffic Volumes--Cumulative (December 2014) traffic volumes were estimated using the following process:

- Baseline 2013 traffic volumes were multiplied by a growth factor of two percent per year to account for local background traffic growth through 2014. This annual growth rate assumption is consistent with previous direction first provided by LADOT for use in the SAIP[12] and subsequently used for construction traffic studies prepare for the CFTP EIR, Bradley West Project Draft EIR, and the CUP-RP EIR.
- Construction trips for committed development projects on airport property that are expected to commence during the period of proposed Project construction were directly estimated and included in the analysis. Construction trips associated with the peak period of cumulative construction (December 2014) were estimated based on the estimated labor component of total construction cost and the timeline for each concurrent project. The projects that were considered as part of this analysis and the estimated trips associated with these projects are described in more detail below.
- The location and trip generation characteristics of the development identified on the list of related projects in Section 3, Overview of Project Setting were reviewed and incorporated. Given that these other "non-airport" projects are not in the immediate vicinity of the traffic study area, it was determined that the effects of associated traffic activity would be indirectly included as part of the background traffic and assumed two percent annual growth rate.

Cumulative Traffic (December 2014) With Project

The Project-related construction traffic volumes occurring during the peak cumulative period were added to the Cumulative Traffic (December 2014) "Without Project" traffic volumes described in the previous section. This is a realistic traffic scenario that is intended to represent the estimated total peak hour traffic volumes (consisting of background traffic, traffic related to ambient growth, traffic related to other projects, and proposed Project construction traffic) that would use the traffic study area intersections during the overall cumulative peak in December 2014.

4.7.2.7 Delineation of Impacts and Mitigation Measures

The following steps were conducted to calculate intersection levels of service, identify impacts, and identify potential mitigation measures, if necessary.

Analyze Intersection and Roadway Levels of Service--The levels of service on the traffic study area intersections and roadways were analyzed using TRAFFIX. Intersection LOS was estimated using the CMA planning level methodology, as defined in Transportation Research Board Circular 212,[13] in accordance with LADOT *Traffic Studies Policies and Procedures* guidelines,[14] and the *L.A. CEQA Thresholds Guide*.[15] Intersection LOS was analyzed for the following conditions:

- Baseline;
- Baseline Plus Peak Project Traffic;
- Future Cumulative Traffic (December 2014) Without Project;
- Future Cumulative Traffic (December 2014) With Project.

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[12] City of Los Angeles, Los Angeles World Airports, *South Airfield Improvements Project EIR*, 2006.

[13] Transportation Research Board, Transportation Research Circular No. 212, *Interim Materials on Highway Capacity*, January 1980.

[14] City of Los Angeles, Department of Transportation, *Traffic Study Policies and Procedures*, December 2010.

[15] City of Los Angeles, Department of City Planning, *L.A. CEQA Thresholds Guide, Your Resource for Preparing CEQA Analysis in Los Angeles*, 2006.

Identify Project Impacts--Project-related impacts associated with construction of the proposed Project were identified. Intersections that were anticipated to be significantly affected by Project-related construction were identified according to the criteria established in the LADOT Traffic Studies Policies and Procedures guidelines. Impacts were determined by comparing the LOS results for the following:

- **Baseline Plus Peak Proposed Project Compared with Baseline:** This comparison is utilized to isolate the potential impacts of the proposed Project.
- **Cumulative Impacts:** Cumulative impacts were determined using a two-step process. Initially, the "Cumulative Traffic (December 2014) With Project" condition was compared to the baseline condition to determine if a cumulative impact would occur relative to baseline. An impact was deemed significant if it would exceed the allowable threshold of significance defined in the LADOT Guidelines. If a cumulative impact were determined, then a second comparison of the "With Project" vs. the "Without Project" LOS conditions was made to determine if the project's contribution of the cumulative impact is determined to be "cumulatively considerable" in accordance with the impact thresholds defined in Section 4.7.4.7 below.
- **Identify Potential Mitigation Measures:** The traffic analysis methodology included provisions to identify mitigation measures, as necessary, for intersections determined to be significantly affected by construction-related traffic. The identification of appropriate mitigation measures includes integration of the applicable LAX Master Plan commitments intended to address construction-related impacts.

4.7.2.8 Project-Generated Traffic

Traffic that would be generated by the proposed Project is defined below for the anticipated peak period of traffic generation.

Project Construction Traffic During Project Peak (August 2014)

The peak construction period for the proposed Project is anticipated to occur during August 2014. Construction employee, truck trips, and employee shuttles were estimated on an hourly basis over the typical busy day (with the exception of the peak AM and PM commute periods) during the peak construction period. Based on the resource loaded schedule developed for the proposed Project, it is estimated that 215 construction employees would access the construction site on a daily basis during the peak period of construction.[16] The construction schedule is based on a single-shift work schedule with construction employees entering the site between 5:00 AM to 6:00 AM and exiting the site between 3:00 PM to 4:00 PM. Vehicle occupancy was assumed to be 1.15 employees per vehicle. According to a study published by the Southern California Association of Governments (SCAG), the average vehicle occupancy on several regional roadways in the Los Angeles region ranged from approximately 1.15 to 1.30.[17] Provided the temporary nature of construction employment and the lower likelihood of rideshare opportunities, a conservative estimate of vehicle occupancy of 1.15 employees per vehicle was assumed. By applying the assumed vehicle occupancy factor, it was projected that 187 construction employee vehicles per day during the proposed Project construction peak period would access and egress the traffic study area in support of proposed Project construction.

[16] Ricondo & Associates, Inc., July 2013.
[17] Southern California Association of Governments, *Regional High-Occupancy Vehicle Lane System Performance Study*, November 4, 2004.

For purposes of the intersection analyses, all vehicle trips were converted to "passenger car equivalents" (PCEs) to account for the additional impact that large vehicles, such as trucks and employee shuttle buses, would have on roadway traffic operations. As such, the number of construction-related vehicle trips was multiplied by the following PCE factors, consistent with the assumptions in the LAX Master Plan EIR:

Vehicle Type	PCE Factor
Construction employees[18]	1.0
Construction delivery trucks	2.5
Employee shuttle buses	2.0

The employees working on the proposed Project are assumed to park in the construction employee lot adjacent to La Cienega Boulevard on the east side of the Airport. It is assumed that employee parking shuttles are required to transport construction employees (215 employees) who park in this lot to the job work site. The number of shuttle buses required to transport the construction employees was estimated based on an assumed ratio of 40 passengers per bus. Using an assumed PCE factor of 2.0 per vehicle and distributing these volumes in accordance with the anticipated employee arrival and departure schedule, it was estimated that shuttle buses would equate to 12 PCEs both entering and exiting the traffic study area during the a.m. and p.m. peak hours of construction.

According to the construction schedule developed for the project, construction activity expected to occur during the peak day of August 2014 consists of pavement demolition and excavation material removal from the east construction site. Based on the contractor's staging and laydown area assumptions, excess excavation and demolition materials shall not be placed in the contractor's staging or laydown areas, and shall be disposed of off airport property and be delivered to a suitable recycling center.[19] Therefore, it was assumed that delivery trucks carrying construction equipment and material would enter and exit the east project site rather than use the materials staging area at Continental City. Assuming truck trips are evenly distributed over a ten hour shift (excluding the hours that coincide with the peak commuter periods), approximately 64 construction-related truck delivery round trips would enter and exit the site during the peak construction hour for the proposed Project. Using an assumed PCE factor of 2.5 per vehicle delivery trucks would comprise a total of approximately 160 PCE's entering and exiting the site during the peak construction hour.

The estimated Project-related construction trips (in PCEs) during the proposed Project construction peak in August 2014 are summarized by hour in **Table 4.7-1**. The table includes construction employee vehicle trips, construction delivery truck trips, and construction employee shuttles. As shown, during the morning, construction employees were assumed to enter the site between 5:00 AM and 6:00 AM. As described above, it was assumed these trips would occur during the AM period 6:00 AM to 7:00 AM, directly adjacent to the start of the AM peak commuter period. During the afternoon, the employees were assumed to exit between 3:00 PM and 4:00 PM. Using a similar conservative approach, it was assumed these trips would occur during the PM period 3:30 PM to 4:30 PM directly adjacent to the start of the PM peak

[18] It should be noted that a different conversion factor was applied to determine the number of construction employee vehicles that would access the project area. A vehicle occupancy factor of 1.15 employees per vehicle was used to convert from employees to vehicles. This conversion factor is different than the PCE factor discussed here, which is used to adjust for the additional impact that large vehicles have on roadway traffic operations.

[19] HNTB, *Contractor's Staging and Laydown Area, Note 6, Plan Set Number 13 of 444, Sheet G012, Drawing Number 20110035*, July 2013.

commuter period. The proposed Project construction volumes used for the AM and PM construction peak hour analysis are summarized at the bottom of **Table 4.7-2**.

Table 4.7-2

Project Peak (August 2014) – Proposed Project-Related Construction Traffic PCEs

Hour		Employee [a]		Truck [b]		Shuttle [c]		
		Trips In	Trips Out	Trips In	Trips Out	Trips In	Trips Out	Total Construction PCEs
0:00	1:00							
1:00	2:00							
2:00	3:00							
3:00	4:00							
4:00	5:00							
5:00	6:00	187		160	160	12	12	519
6:00	**7:00**			**160**	**160**			**320**
7:00	8:00							
8:00	9:00							
9:00	10:00			160	160			320
10:00	11:00			160	160			320
11:00	12:00			160	160			320
12:00	13:00			160	160			320
13:00	14:00			160	160			320
14:00	15:00			160	160			320
15:00	**16:00**		**187**	**160**	**160**	**12**	**12**	**519**
16:00	17:00							
17:00	18:00							
18:00	19:00							
19:00	20:00			160	160			320
20:00	21:00							
21:00	22:00							
22:00	23:00							
23:00	0:00							
Total		**187**	**187**	**1,600**	**1,600**	**24**	**24**	**3,598**
Summary of Modeled Traffic PCEs								
Construction AM (6:00 AM– 7:00 AM)		**187**		**160**	**160**	**12**	**12**	**519**
Construction PM (3:30 PM – 4:30 PM)			**187**	**160**	**160**	**12**	**12**	**519**

Notes:
[a] Estimate is based on 185 peak day construction employees. An occupancy factor of 1.15 employees per vehicle is included in the employee trip calculations.
[b] Truck trips (i.e., delivery and transfer) were converted at a rate of 2.5 PCEs per vehicle.
[c] Shuttle trips were converted at a rate of 2.0 PCEs per vehicle.

Source: Ricondo & Associates, Inc. (employee trip volumes, truck trips, shuttle trips, schedule times) July 2013.

Proposed Project Construction Trip Distribution

The locations of the proposed Project construction site(s), construction employee parking area, delivery staging area, and other relevant features are depicted in **Figure 4.7-3**. As shown in **Figure 4.7-3**, trucks are anticipated to use the regional freeway system (I-405 and I-105), Imperial Highway, and Pershing Drive to access the materials and equipment staging area, and the construction site(s). Also shown is the employee shuttle route from the construction employee parking area to the construction site. The regional and local traffic flow distributions are also provided in **Figure 4.7-3**.

For purposes of distributing traffic on the traffic study area roadway network, it was assumed that construction employee and delivery vehicle trips would originate from geographic locations in proportion to the distribution of regional population and specific street routing assumptions obtained from the LAX Master Plan EIR and the LAX Air Passenger Survey. As shown in **Table 4.7-3** and in **Figure 4.7-3**, it was estimated that approximately 21 percent of the construction-related traffic would access the Airport from I-405 north, 23 percent from I-405 south, 32 percent from I-105 east, and 24 percent from local roadways. These route characteristics represent the roadways that a construction-related vehicle would use to access the traffic study area.

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Sources: Los Angeles World Airports, HNTB Corporation, Ricondo & Associates, Inc., July 2013.
Prepared by: Ricondo & Associates, Inc., August 2013.

FIGURE 4.7-3

Proposed Project Construction Vehicle Routes & Trip Distribution

Table 4.7-3

Regional Population Distribution

			Route Percentage to Airport				
Area	**Population (2002)**	**Percent of Population**	**I-405 North**	**I-405 South**	**I-105 East**	**Local Roads**	**Total [a]**
Traffic Study Area	423,185	3%	0%	0%	0%	3%	3%
South LA County	9,052,477	54%	15%	5%	18%	16%	54%
North LA County	706,077	4%	2%	0%	2%	0%	4%
Orange County	2,772,302	17%	0%	14%	0%	2%	17%
Riverside/ San Bernardino Counties	2,961,693	18%	0%	4%	12%	2%	18%
Ventura County	771,734	5%	4%	0%	0%	0%	5%
Total [a]	**16,687,468**	**100%**	**21%**	**23%**	**32%**	**24%**	**100%**

Notes:
[a] Totals may not add due to rounding.

Sources: LAX Master Plan Supplement to the Draft EIR, Figure 4.3.2-3 (Existing 1996 Airport Traffic versus Non-Airport Traffic Comparison); *2001 LAX Passenger Survey Report* (Table 39), Los Angeles International Airport, April 2004, Applied Management & Planning Group; *Los Angeles International Airport 2011 Passenger Survey* (Table III-13), Los Angeles International Airport, April 2011, Unison Consulting, Inc.

In assigning traffic to the traffic study area roadways, it was assumed that construction vehicles, consisting of trucks and construction employee automobiles, would approach the traffic study area in proportion to the regional population distributions described above. Truck traffic, in accordance with LAX Master Plan Commitment ST-22 (Designated Truck Routes), stipulates that deliveries for dirt, aggregate, and other materials will use designated freeways and non-residential streets. The freeway ramps, roadways, and intersections representing the travel paths for construction-related vehicles within the traffic study area were determined by reviewing the potential paths that would be used by vehicles traveling to the employee parking lots and to the construction staging areas, and assigning those trips to the most logical routes. The analysis is not particularly sensitive to the regional approach assumptions, given that a large proportion of the construction-related trips would access the traffic study area via a limited number of freeway access points that may accommodate traffic originating from several regional directions. The assumed traffic study area circulation routes for construction employees and trucks are described in Appendix C-4.

4.7.2.9 Future Cumulative Traffic

The components of traffic for the future cumulative traffic condition are described in this section. The future cumulative traffic condition takes into consideration past, present, and reasonably foreseeable projects and includes growth in ambient background traffic and both airport and non-airport developments in the vicinity of the Airport. Known development projects in the Airport vicinity that may contribute traffic to the proposed Project traffic study area roadway system during the peak construction period for the proposed Project were also considered. These trips would result from either the construction or the operation of those development projects. The list of related projects is constantly changing as projects rotate off the list and new projects are approved and added to the list. Given that approval, construction, and operation of local area development projects is a continuous process, the traffic associated with the construction and operation of many past and current local area developments are represented in the traffic volume data used as a basis for the traffic study. The development schedule and traffic characteristics of larger projects in close proximity to the traffic study area were reviewed and their effects were incorporated into the cumulative analysis. Other future "non-airport" projects that are not in the immediate vicinity of the traffic study area were accounted for indirectly as part of the assumed two percent growth rate.

Cumulative Projects

Development projects considered in the cumulative impacts analysis include LAX Master Plan projects as well as other capital improvement projects undertaken by LAWA and other local agencies. Based on information available at the time the construction traffic analysis for the proposed Project was prepared, the development projects anticipated to be under construction concurrent with the proposed Project construction and of a nature that would contribute to cumulative traffic impacts were identified.

Table 4.7-4 summarizes the estimated construction costs, and the assumed start and end dates of construction for the proposed Project and each of the cumulative projects that are anticipated to be under construction concurrent with the proposed Project. The estimated labor component of the total construction cost is a key element associated with estimating construction employee hours and resulting employee vehicle trips.

The activity characteristics of the resource loaded schedule and associated construction-related vehicle trip activity developed for the Bradley West Project was used to estimate the construction activity associated with the other concurrent projects for which detailed construction-related trip data were not available. Specifically, the ratio of total construction employee hours to total labor cost was calculated for the Bradley West Project. This ratio was applied to the estimated labor costs associated with the other cumulative projects to provide an estimate of total employee hours required over the course of each of these other projects. In addition, the general distribution of employee hours over the course of the Bradley West Project construction program was used to allocate total employee hours over the course of the individual projects on a monthly basis. This methodology was considered appropriate for this analysis as the Bradley West Project provided detailed information related to construction activity, costs and associated vehicle trip activity and provided detailed information related to the primary variables involved with determining labor schedules (i.e. project costs and timeline). Although it is likely that the other cumulative projects may experience different peaking patterns, the profile of the monthly distribution of employee hours over the course of the Bradley West Project provides a model profile calculated based on a comprehensive resource loaded schedule which is anticipated to provide a realistic surrogate for use in estimating activity from other cumulative projects for which detailed construction data are not available.

This approach was used to estimate construction employee hours and vehicle trips associated with all concurrent projects with the exception of the LAX Northside Area Development project for which construction trip information and monthly construction employee hour data were obtained from the consultants involved in preparation of the LAX Northside Area Development EIR.

Table 4.7-4

Construction Projects Concurrent with the Proposed Project Construction Period

Project No.	Concurrent Construction Project	Estimated Total Construction Cost (millions)	Start Date	End Date	Estimated Employee Hours During Projects (Total)
N/A[1]	RSA Improvements – South Airfield	$106.3	Feb-14	Feb-15	253,000
1	West Aircraft Maintenance Area Project	$175	Jan-14	Dec-18	425,000
2	RSA Improvements – North Airfield	$139.1	Jun-14	Jun-19	312,000
3	Bradley West Project	$603.7	Nov-13	Dec-17	1,353,000
4	North Terminals Improvements	$380	Aug-13	Aug-17	852,000
5	South Terminals Improvements	$665	Nov-11	Feb-18	1,491,000
6	Midfield Satellite Concourse: Phase 1	$666.5	Oct-16	Jul-20	1,494,000
7	Central Utility Plant Replacement Project (CUP – RP) – Remaining Work	$120.6	Sep-13	Dec-14	216,000
8	Miscellaneous Projects/Improvements	$945.5	Jan-14	Jul-20	605,000
9	LAX Northside Development [2]	N/A[1]	N/A[1]	N/A[1]	N/A[1]
10	LAX SPAS Development[3]	$16,391	Jun-15	Jun-25	15,907,000
11	Metro Crenshaw / LAX Transit Corridor and Station[4]	$404	Dec-15	Dec-17	453,000

Notes:

1 N/A = Not Applicable

2 Construction traffic estimates provided by Gibson Transportation Consulting, Inc.

3 LAWA evaluated nine development alternatives for the LAX Specific Plan Amendment Study and in February 2013 the Board of Airport Commissioners (BOAC) selected one alternative; however, all the approvals necessary to implement that alternative have not yet occurred. For the purposes of the WAMA cumulative construction impacts analysis, an assumption is made that the LAX Master Plan improvements, as previously approved, and as reflected in the LAX Specific Plan Amendment Study's Alternative 3, are implemented, which provides a more conservative analysis that if one were to assume the BOAC-selected alternative (i.e., more development would occur under the LAX Master Plan scenario than under the BOAC-selected alternative.

4 Estimated budget and schedule based on information obtained from Crenshaw/LAX Transit Corridor Project FEIR and project website.

Sources: CDM Smith (list and characteristics of proposed Project and concurrent projects); Email from CDM Smith (Anthony Skidmore) on August 19, 2013 (project schedules and cost for projects 1 - 8, & 10); Crenshaw/LAX Transit Corridor Project FEIR (Metro Crenshaw/LAX Transit Corridor cost), August 2011; www.metro.net/projects/crenshaw_corridor.com (Metro Crenshaw/LAX Transit Corridor schedule), accessed November 12, 2012; Ricondo & Associates, Inc. (estimated employee hours for all other projects), August 2013.

Figure 4.7-4 provides estimated employee hours by month for the proposed Project and the cumulative construction projects that are anticipated to be under construction concurrent with the proposed Project construction period. The figure includes all anticipated construction projects that are expected to occur over the course of the construction period for the proposed Project. As shown in the figure, the peak period for proposed Project construction is estimated to occur in August 2014, while the overall cumulative peak during construction of the proposed Project is estimated to occur in December 2014.

The assumed conservative two percent annual growth in background traffic is anticipated to produce a conservative traffic volume scenario that would account for additional construction-related traffic in the event that additional construction projects are initiated during the timeframe evaluated for this study.

Estimated AM and PM construction peak hour vehicle trips associated with proposed Project and the six concurrent construction projects during December 2014 (cumulative peak period) are provided in **Table 4.7-5**. Traffic volumes associated with the proposed Project during the peak period for cumulative traffic were calculated to be proportional to the change in monthly employee hours as compared with the overall proposed Project peak month from August 2014 as depicted on the chart. As shown on the table, it is anticipated that a total of 131 employee vehicles would access the construction employee parking lot during the peak period for cumulative traffic.[20] Traffic volumes associated with each concurrent construction project were estimated by calculating the ratio of vehicle trips to employee hours for the Bradley West Project and multiplying this ratio by the estimated total number of employee hours for each project during the cumulative peak month in December 2014, except for those projects where vehicle trips were estimated specifically for those projects (i.e., the LAX Northside Area Development which was provided by the consultants preparing the traffic study for that EIR and trips from previous LAWA traffic studies related to the West Aircraft Maintenance Area and Bradley West Project, which were calculated based on their respective project information). The percentage of vehicle trips arriving at and departing the traffic study area by hour of the day, for each of the cumulative projects, were assumed to coincide with the peak construction periods for the proposed Project. Furthermore, as a conservative assumption, it is assumed that all construction projects would use a single work shift such that all construction employees arrive at the site in the morning and depart the site in the afternoon.

For purposes of distributing traffic within the traffic study area, it was necessary to identify the employee parking and staging locations for the concurrent projects. The location of the construction employee parking and material staging area as well as general access and circulation patterns of construction-related vehicle activity for the proposed Project are depicted in **Figure 4.7-5**. The anticipated contractor employee parking and staging areas for the six concurrent construction projects are also depicted in **Figure 4.7-5**, as well as other available staging locations in the area. The exhibit depicts parking and staging areas associated with the projects that were anticipated to be under construction concurrent with the peak cumulative period analyzed for this study. The regional and local area distribution patterns are anticipated to be generally the same as for the proposed Project, with adjustments as necessary for access to the individual sites.

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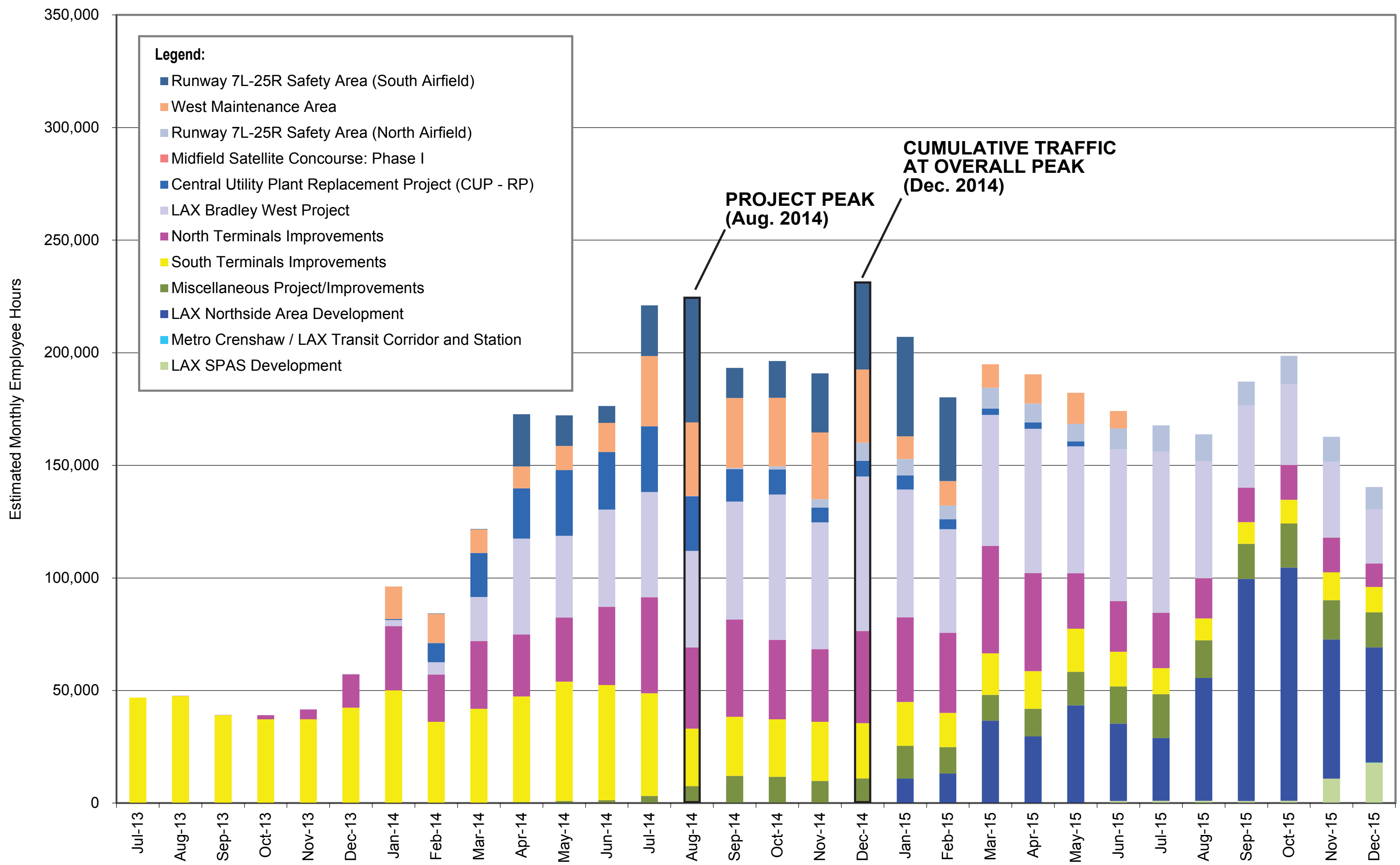
[20] The 131 vehicles is determined by multiplying the peak period traffic (187 vehicles) by the ratio of proposed Project employee hours at the overall cumulative peak month in December 2014 (39,095 employee hours) to proposed Project employee hours at the proposed Project peak month (55,852 employee hours in August 2014).



Sources: CDM Smith (construction cost and schedule), LAWA Capital Programming & Planning Group (construction cost and schedule), Gibson Transportation Consulting, Inc. (LAX Northside Area Development), Ricondo & Associates, Inc., (estimated employee hours) July 2013. Prepared by: Ricondo & Associates, Inc., August 2013.

FIGURE 4.7-4

Estimated Employee Hours for RSA and Other Concurrent Construction Projects - Preferred Project

Table 4.7-5

AM and PM Construction Peak Hour Traffic PCEs at Overall Cumulative Peak by Project

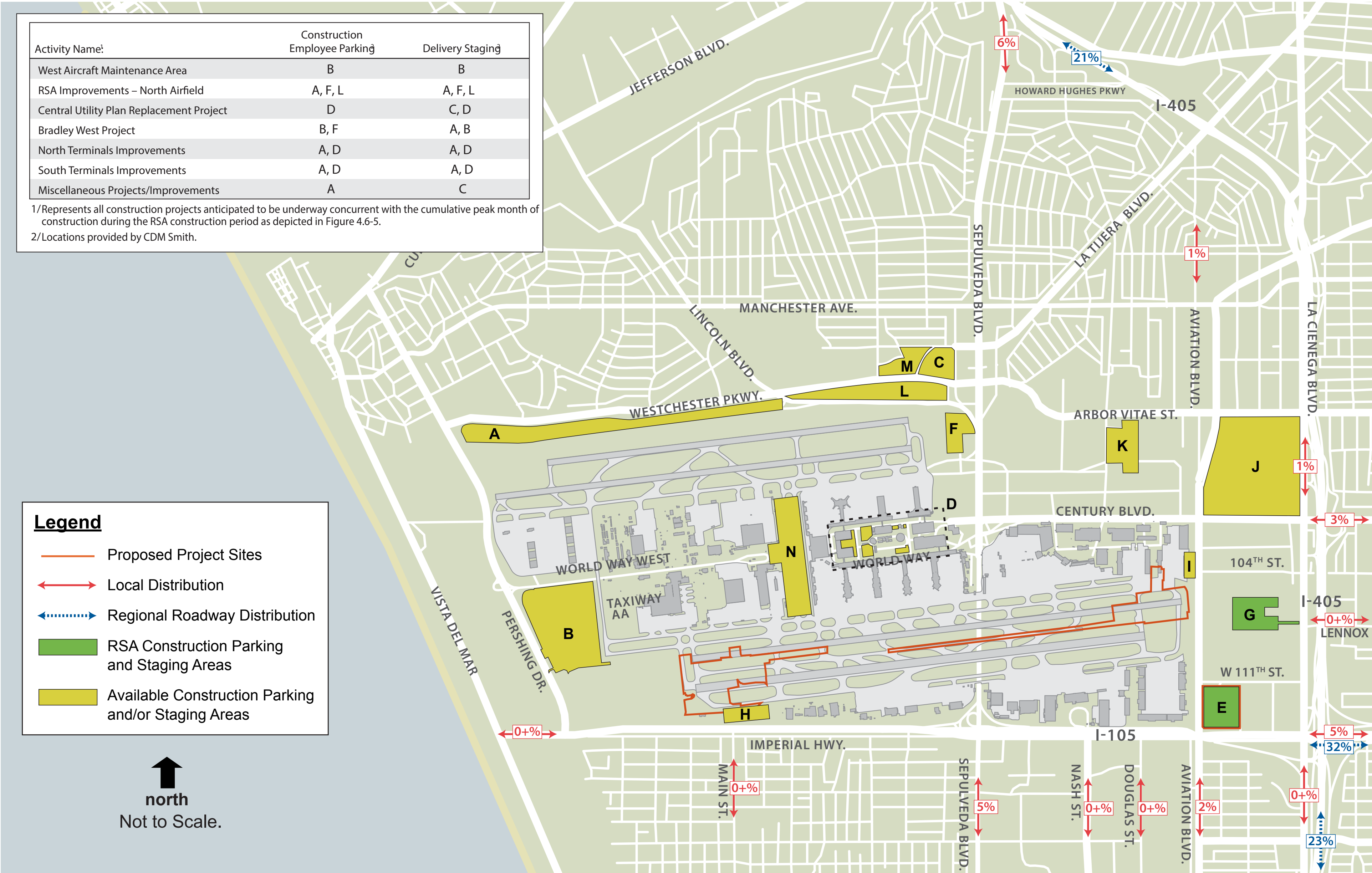
	Construction Trips in Passenger Car Equivalents (PCEs)											
	Construction AM Peak Hour (6:00 AM - 7:00 AM)						Construction PM Peak Hour (3:30 PM - 4:30 PM)					
	Employees[a]		Trucks		Employee Shuttles		Employees[a]		Trucks		Employee Shuttles	
Project	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
Proposed Project (December 2014)[a]	131	0	70	70	12	12	0	131	70	70	12	12
Other Concurrent Projects in December 2014 [b]												
1. West Aircraft Maintenance Area	161	0	72	72	0	0	0	161	72	72	0	0
2. RSA Improvements – North Airfield	27	0	1	1	0	0	0	27	1	1	0	0
4. Bradley West Project	275	0	30	30	0	0	0	275	30	30	0	0
5. North Terminals Improvements	138	0	24	24	0	0	0	138	24	24	0	0
6. South Terminals Improvements	83	0	14	14	0	0	0	83	14	14	0	0
8. Miscellaneous Projects/Improvements	32	0	6	6	0	0	0	32	6	6	0	0
Total for Other Concurrent Projects in December 2014	716	0	147	147	12	12	0	716	147	147	12	12

Notes:
[a] The proposed Project trips shown here are based on 151 peak day construction employees generating 131 daily employee vehicles.
[b] The ratio of peak hour trips over total monthly employee construction hours for other concurrent projects was assumed to be equal to that calculated for the proposed Project, unless other project-specific data were available.
Source: Ricondo & Associates, Inc., August 2013.

Activity Name[1]	Construction Employee Parking[2]	Delivery Staging[2]
West Aircraft Maintenance Area	B	B
RSA Improvements – North Airfield	A, F, L	A, F, L
Central Utility Plan Replacement Project	D	C, D
Bradley West Project	B, F	A, B
North Terminals Improvements	A, D	A, D
South Terminals Improvements	A, D	A, D
Miscellaneous Projects/Improvements	A	C

1/ Represents all construction projects anticipated to be underway concurrent with the cumulative peak month of construction during the RSA construction period as depicted in Figure 4.6-5.

2/ Locations provided by CDM Smith.



Sources: Los Angeles World Airports, CDM Smith, Ricondo & Associates, Inc., July 2013.
Prepared by: Ricondo & Associates, Inc., August 2013.

FIGURE 4.7-5

Employee Parking and Staging Locations for Proposed Project and Other Projects at Construction Peak

Environmental Impact Report
Runway 7L/25R RSA and Associated Improvements Project

Planned Transportation Network Improvements

The Bradley West Project EIR identifies several intersection improvements throughout the study area to mitigate potential future impacts[21]. The following study area intersections that were anticipated to be significantly impacted by the Bradley West Project would be improved when traffic activity levels reach certain activity thresholds at which an impact would be triggered.

- Imperial Highway and Sepulveda Boulevard (Intersection #71)
- La Cienega Boulevard and I-405 Ramps N/O Century Boulevard (Intersection #96)
- La Tijera Boulevard and Sepulveda Boulevard (Intersection #101)
- Sepulveda Boulevard and 76th/77th Street (Intersection #136)

Though it is possible improvements would be in place prior to the peak cumulative traffic period (March 2018), for purposes of this study it has been conservatively assumed that these improvements would not be in place. Therefore, it is not anticipated that any transportation improvements would be implemented during the timeframe analyzed for this study that would alter traffic patterns or modify the intersection capacity assumptions in such a way that would affect the assessment of potential traffic impacts associated with the proposed Project.

Local Area Construction and Development Projects

Planned development projects within the vicinity of the traffic study area are noted in Section 3, *Overview of Project Setting.* The list is based on information gathered from agency representatives or websites including the LADOT, City of Culver City, City of El Segundo, City of Inglewood and Los Angeles County. Field visits of development projects nearer to LAX were also conducted.

The construction schedules and specific dates of occupancy for most of the developments in the vicinity of the traffic study area were not available. However, given the locations of these projects, it is reasonable to assume that construction-related traffic would access the project areas via freeway ramps and roadways that are generally outside the traffic study area. As such, construction vehicle trips generated by those developments would be represented within the two percent growth rate assumed for background traffic and would have negligible impact on the traffic study area intersections.

In summary, the local development projects anticipated to be under construction or operational during the construction period for the proposed Project are anticipated to generate relatively few commute peak hour trips within the traffic study area. Given these characteristics, it is anticipated that traffic volumes generated by these projects would be included within the assumed two percent growth factor for background traffic. The potential effect of trips on the traffic study area intersections generated by local developments would be further reduced given that the peak hours evaluated for this study do not coincide with the AM and PM commute peak periods that generally correspond with the peak traffic generation periods for most of these developments.

21 City of Los Angeles, Los Angeles World Airports, *Final Environmental Impact Report for Bradley West Project, Los Angeles International Airport (LAX)*, September 2009, Section 4.2.9

4.7.3 Existing Conditions

4.7.3.1 Regulatory Setting

City of El Segundo Municipal Code

The City of Los El Segundo Municipal Code (ESMC) implements the City of El Segundo General Plan's land use policy by establishing zones and specifying uses permitted by right or with permits, development standards, and procedures. The ESMC also contains regulations regarding level of service (LOS) and other issues related to traffic associated from construction activities (such as noise and work hours). These regulations are utilized as the thresholds of significance for the City of El Segundo in Section 4.7.4.1.

City of Inglewood Municipal Code

The City of Inglewood Municipal Code (IMC) implements the City of Inglewood General Plan's land use policy by establishing zones and specifying uses permitted by right or with permits, development standards, and procedures. The IMC also contains regulations regarding LOS and other issues related to traffic associated from construction activities (such as noise and work hours). These regulations are utilized as the thresholds of significance for the City of Inglewood in Section 4.7.4.2.

City of Los Angeles Municipal Code

The City of Los Angeles Municipal Code (LAMC) implements the City of Los Angeles General Plan's land use policy by establishing zones and specifying uses permitted by right or with permits, development standards, and procedures. The LAMC also contains regulations regarding LOS and other issues related to traffic associated from construction activities (such as noise and work hours). These regulations are utilized as the thresholds of significance for the City of Los Angeles in Section 4.7.4.3.

4.7.3.2 Existing Traffic Conditions

As indicated above, baseline conditions relate to the facilities and general conditions that existed during a typical busy weekday in 2013 for the hours that would coincide with peak construction-related traffic activity, i.e., 6:00 AM to 7:00 AM and 3:30 PM to 4:30 PM.

Traffic Study Area Roadways

The principal freeways and roadways serving as access routes within the construction traffic study area include the following:

- **I-405 (San Diego Freeway)** - This north-south freeway generally forms the eastern boundary of the construction traffic analysis traffic study area and provides regional access to the Airport and the surrounding area. Access to the traffic study area is provided via ramps at Howard Hughes Parkway, Century Boulevard, I-105, Imperial Highway, and three locations along La Cienega Boulevard.
- **I-105 (Glenn M. Anderson or Century Freeway)** - Along with Imperial Highway (described below), this east-west freeway forms the southern boundary of the construction traffic study area, and extends from the San Gabriel Freeway (I-605) on the east to Sepulveda Boulevard on the west. Access to the traffic study area is provided via ramps at Sepulveda Boulevard and along Imperial Highway. The westbound off-ramp from the I-105 Freeway to northbound Sepulveda Boulevard was widened to three lanes in March 2010.

- **Aviation Boulevard** - This north-south four-lane roadway bisects the traffic study area.
- **Century Boulevard** - This eight-lane divided roadway serves as the primary entry to the LAX CTA. This roadway also provides access to off-airport businesses and hotels and on-airport aviation-related facilities (e.g., air cargo facilities) located between the CTA and I-405.
- **Imperial Highway -** This east-west roadway is located at-grade and beneath much of the elevated I-105 freeway. The number of lanes on this roadway varies from six-lanes east of the merge with I-105 to four-lanes west of the merge with I-105.
- **La Cienega Boulevard** - This north-south roadway parallels I-405 at the east boundary of the traffic study area. The roadway varies from four to six lanes.
- **Pershing Drive** - This north-south four-lane divided roadway forms the western boundary of the construction traffic study area.
- **Westchester Parkway** - This east-west four-lane divided arterial roadway forms a portion of the northern boundary of the traffic study area.
- **Sepulveda Boulevard (State Route 1 south of Lincoln Boulevard)** - This major north-south six-lane arterial roadway provides direct access to the Airport via I-405 and Westchester Parkway on the north and via I-105 on the south. Sepulveda Boulevard between I-105 and Century Boulevard is located in a tunnel section beneath the south airfield runways.
- **111th Street -** This east-west roadway has one lane in each direction separated by a continuous two-way left turn lane.

Baseline Intersection Volumes

Baseline traffic volumes consist of the traffic volumes that represent traffic activity at the time the NOP for the proposed Project Draft EIR was published (October 2012). Baseline volumes were estimated based on actual 2013 data collected during the AM and PM construction-related peak hours. Baseline intersection traffic volumes are provided in Appendix C-2.

Baseline Intersection Analyses

Intersection LOS was analyzed using the CMA methodology to assess the estimated operating conditions during baseline conditions for the AM and PM construction peak hours. LOS is a qualitative measure that describes traffic operating conditions (e.g., delay, queue lengths, congestion). Intersection level of service ranges from A (i.e., excellent conditions with little or no vehicle delay) to F (i.e., excessive vehicle delays and queue lengths). LOS definitions for the CMA methodology are presented in **Table 4.7-6**.

In accordance with LADOT analysis procedures, the volume/capacity (v/c) ratio calculated using the CMA methodology is further reduced by 0.07 for those intersections included within the ATSAC system to account for the improved operation and increased efficiency from the ATSAC system that is not captured as part of the CMA methodology. Application of the ATSAC reduction is described in Attachment D of the LADOT *Traffic Study Policies and Procedures*.[22]

[22] City of Los Angeles, Department of Transportation, *Traffic Study Policies and Procedures*, December 2010.

Table 4.7-6

Level of Service Thresholds and Definitions for Signalized Intersections

Level of Service (LOS)	Volume/Capacity Ratio Threshold	Definition
A	0 - 0.6	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	0.601 - 0.7	VERY GOOD. An occasional approach phase is fully used; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 - 0.8	GOOD. Occasionally, drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 - 0.9	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 - 1.0	POOR. Represents the most vehicles that intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	Greater than - 1.0	FAILURE. Backups from nearby intersections or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, Transportation Research Circular No. 212, *Interim Materials on Highway Capacity*, January 1980.

The estimated intersection LOS for baseline conditions is provided in **Table 4.7-7**. As shown in **Table 4.7-7**, it was estimated that most of the intersections operated at LOS C or better during the baseline AM and PM peak periods analyzed for the proposed Project. The one exception occurred at the intersection of Imperial Highway and Sepulveda Boulevard (Intersection #71), which was estimated to operate at LOS F during the PM peak hour.

The level of service results from the TRAFFIX program, including the volume, geometry and other inputs used to produce these results are provided in Appendix C-3.

Table 4.7-7

Baseline Intersection Analysis Results

Intersection	Peak Hour[a]	V/C[b]	LOS[c]
14. Aviation Blvd. & Century Blvd.	Construction AM	0.467	A
	Construction PM	0.594	A
16. Imperial Hwy. & Aviation Blvd.	Construction AM	0.500	A
	Construction PM	0.512	A
19. Aviation Blvd. & 111th St.	Construction AM	0.295	A
	Construction PM	0.404	A
36. La Cienega Blvd. & Century Blvd.	Construction AM	0.626	B
	Construction PM	0.762	C
38. Sepulveda Blvd. and Century Blvd.	Construction AM	0.424	A
	Construction PM	0.590	A

Table 4.7-7

Baseline Intersection Analysis Results

Intersection	Peak Hour[a]	V/C[b]	LOS[c]
39. Century Blvd. & I-405 N/B Ramp	Construction AM	0.634	B
	Construction PM	0.459	A
47. Imperial Hwy. & Douglas St.	Construction AM	0.199	A
	Construction PM	0.375	A
65. Sepulveda Blvd. & H. Hughes Pkwy.	Construction AM	0.219	A
	Construction PM	0.419	A
67. Imperial Hwy. & La Cienega Blvd.	Construction AM	0.191	A
	Construction PM	0.453	A
68. Imperial Hwy. & Main St.	Construction AM	0.499	A
	Construction PM	0.439	A
69. Imperial Hwy. & Pershing Dr.	Construction AM	0.184	A
	Construction PM	0.316	A
71. Imperial Hwy. & Sepulveda Blvd.	Construction AM	0.496	A
	Construction PM	1.004	F
73. Imperial Hwy. & Nash St.	Construction AM	0.362	A
	Construction PM	0.239	A
74. Imperial Hwy. & I-105 Ramp	Construction AM	0.513	A
	Construction PM	0.471	A
75. Imperial Hwy. & I-405 NB Ramp	Construction AM	0.211	A
	Construction PM	0.480	A
89. La Cienega Blvd. & Lennox Blvd.	Construction AM	0.164	A
	Construction PM	0.306	A
94. La Cienega Blvd. & 111th St.	Construction AM	0.128	A
	Construction PM	0.311	A
96. La Cienega Blvd. & I-405 Southbound Ramps North of Century	Construction AM	0.387	A
	Construction PM	0.410	A
97. La Cienega Blvd. & I-405 Southbound Ramps South of Century	Construction AM	0.135	A
	Construction PM	0.284	A
98. La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	Construction AM	0.136	A
	Construction PM	0.218	A
101. Sepulveda Blvd. & La Tijera Blvd.	Construction AM	0.337	A
	Construction PM	0.613	B
108. Sepulveda Blvd. & Lincoln Blvd.	Construction AM	0.457	A
	Construction PM	0.750	C
114. Sepulveda Blvd. & Manchester Ave.	Construction AM	0.395	A
	Construction PM	0.711	C
123. Westchester Pkwy. & Pershing Dr.	Construction AM	0.151	A
	Construction PM	0.213	A
135. Sepulveda Blvd. & Westchester Pkwy.	Construction AM	0.309	A
	Construction PM	0.649	B
136. Sepulveda Blvd. & 76th/77th St.	Construction AM	0.337	A
	Construction PM	0.440	A
137. Sepulveda Blvd. & 79th/80th St.	Construction AM	0.253	A
	Construction PM	0.513	A

Table 4.7-7

Baseline Intersection Analysis Results

Intersection	Peak Hour[a]	V/C[b]	LOS[c]
138. Sepulveda Blvd. & 83rd St.	Construction AM	0.211	A
	Construction PM	0.458	A
1000. La Cienega Blvd. & 104th St.	Construction AM	0.111	A
	Construction PM	0.276	A

Notes:
[a] The hours of analysis include the construction AM peak (6:00 AM - 7:00 AM) and the construction PM peak (3:30 PM - 4:30 PM).
[b] Volume to capacity ratio.
[c] LOS range: A (excellent) to F (failure).

Source: Ricondo & Associates, Inc., using TRAFFIX, August 2013.

4.7.3.3 LAWA's Coordination and Logistic Management Team

Subsequent to the approval of the LAX Master Plan, LAWA established the Coordination and Logistic Management (CALM) team. Working in cooperation with LAWA staff including Terminal Operations, Airport Police, Project Programming & Planning Group and Commercial Development Group, the CALM team monitors construction traffic, coordinates lane and roadway closures and analyzes traffic conditions to determine the need for additional traffic controls, lane restriping and traffic signal modifications. An approval process for proposed construction work has been established in which contractors submit request forms describing the work, when the work is proposed to take place, duration, coordination efforts with other projects, etc. If pedestrian or vehicular traffic will be impacted, the submittal form will include proposed traffic control plans. These requests are reviewed by staff from the CALM team and various LAWA divisions, and any concerns are addressed prior to approval. The CALM team also develops an informational campaign for construction activities, including wayfinding signage for pedestrians to locate ground transportation facilities and parking during construction, information for commercial shuttle drivers regarding lane closures and detours, and traffic alerts on LAWA's website for the public and airport employees. A real-time traffic conditions map for the LAX CTA was recently added to the LAWA website. Regular meetings occur to discuss minimizing the construction impacts of current and future projects. Coordination with outside agencies is conducted as the individual projects necessitate.

4.7.4 CEQA Thresholds of Significance

The traffic study area intersections either fall entirely within the City of Los Angeles or share a boundary with the City of El Segundo and the City of Inglewood. The intersections which fall entirely within the City of Los Angeles were evaluated for potential traffic impacts using the LADOT significant traffic impact criteria. Intersections lying on the boundary of multiple jurisdictions were evaluated using the more conservative threshold of significance criteria; in all of these cases the LADOT criteria was shown to have the most conservative thresholds.

4.7.4.1 City of El Segundo Impact Criteria

In the City of El Segundo, an impact is considered significant if one of the following thresholds is exceeded:[23]

- The LOS is E or F, its final v/c ratio is 0.901 or greater, and the project-related increase in v/c is 0.020 or greater.

4.7.4.2 City of Inglewood Impact Criteria

In the City of Inglewood, an impact is considered significant if one of the following thresholds is exceeded:[24]

- The LOS is F, its final v/c ratio is 1.001 or greater, and the project-related increase in v/c is 0.020 or greater.

4.7.4.3 City of Los Angeles Impact Criteria

In accordance with LADOT criteria defined in its *Traffic Study Policy and Procedures*,[25] an impact is considered to be significant if one of the following thresholds is exceeded:

- The LOS is C, its final v/c ratio is 0.701 to 0.80, and the project-related increase in v/c is 0.040 or greater, or
- The LOS is D, its final v/c ratio is 0.801 to 0.90, and the project-related increase in v/c is 0.020 or greater, or
- The LOS is E or F, its final v/c ratio is 0.901 or greater, and the project-related increase in v/c is 0.010 or greater.

The "final v/c ratio" as defined by LADOT consists of the future v/c ratio at an intersection that includes volume from the project, baseline, ambient background growth,[26] and other related projects, but without proposed intersection traffic mitigation as potentially required by the project.

The "project-related increase" is defined as the change in the unmitigated LOS condition between the (a) future v/c "with" the project, baseline, ambient background growth (for the cumulative analysis), and other related project growth, and (b) the future v/c "without" the project, but with baseline, ambient background growth, and other related project growth.

For purposes of this analysis and in accordance with CEQA, proposed Project impacts were determined by comparing the level of service results for the following conditions:

- **Project Impacts--**The direct impacts of the proposed Project were determined by calculating the difference in LOS for the Baseline Plus Peak Project LOS and the Baseline LOS. This comparison is required to isolate the direct impacts of the proposed Project. The difference in LOS is compared to the thresholds identified earlier in this section to determine if the proposed Project would result in a significant impact.

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23 Paul, Principal Planner, City of El Segundo, Personal Communication, April 21, 2009.

24 Mai, Alan, Associate Traffic Engineer, City of Inglewood, Personal Communication, January 6, 2009.

25 City of Los Angeles, Department of Transportation, *Traffic Study Policies and Procedures*, Revised December 2010.

26 This definition applies to the cumulative analysis and not the project-specific analysis where ambient background growth and trips from other concurrent construction projects are not included in the calculation of the "final v/c ratio." The "final v/c ratio" for the project-specific analysis is calculated using future project volumes associated with construction of the project added directly to the Baseline volumes.

- **Cumulative Impacts--**The cumulative impacts analysis is intended to provide a comparison of future traffic conditions, consisting of traffic generated by all anticipated sources described previously in this document. Cumulative impacts were analyzed using a two-step process. Initially, the cumulative "With Project" LOS condition was compared with the baseline condition to determine if a cumulative impact would occur relative to the baseline. A cumulative impact was deemed significant if it exceeded the allowable threshold of significance defined earlier in this section. If a cumulative impact was determined, then a second comparison was conducted by calculating the difference in LOS for the "With Project" and "Without Project" levels of service to determine the proposed Project's contribution. If the calculated differences in LOS exceed the threshold guidelines defined in this section, then it was determined that the proposed Project component would represent a cumulatively considerable contribution (significant impact).

4.7.5 Project Design Features

4.7.5.1 Applicable LAX Master Plan Commitments

LAWA is requiring that applicable commitments identified in the LAX Master Plan MMRP be implemented as part of the proposed Project. The following transportation-related commitments identified in the LAX Master Plan MMRP would be applied to the proposed Project and thus are included as part of the proposed Project for purposes of environmental review:

- **Construction (C)-1. Establishment of a Ground Transportation/Construction Coordination Office**. Establish this office for the life of the construction projects to coordinate deliveries, monitor traffic conditions, advise motorists and those making deliveries about detours and congested areas, and monitor and enforce delivery times and routes. LAWA would periodically analyze traffic conditions on designated routes during construction to see whether there is a need to improve conditions through signage and other means. This office may undertake a variety of duties, including but not limited to:
    - Inform motorists about detours and congestion by use of static signs, changeable message signs, media announcements, airport website, etc.;
    - Work with airport police and the Los Angeles Police Department to enforce delivery times and routes;
    - Establish staging areas;
    - Coordinate with police and fire personnel regarding maintenance of emergency access and response times;
    - Coordinate roadway projects of Caltrans, City of Los Angeles, and other jurisdictions with those of the Airport construction projects;
    - Monitor and coordinate deliveries;
    - Establish detour routes;
    - Work with residential and commercial neighbors to address their concerns regarding construction activity; and
    - Analyze traffic conditions to determine the need for additional traffic controls, lane restriping, signal modifications, etc.

Note: Subsequent to the approval of the LAX Master Plan, LAWA established a "Ground Transportation/Construction Coordination Office" in the form of the CALM team. The CALM team coordinates and monitors construction traffic, coordinates with agencies as necessary, and reviews traffic control plans to address any concerns prior to approval. The CALM team, discussed in detail in Subsection 4.7.3.7, (under Regulatory Context), above, provides implementation of the LAX Master Plan Commitment C-1.

- **C-2. Construction Personnel Airport Orientation**. All construction personnel will be required to attend an airport project-specific orientation (pre-construction meeting) that includes where to park, where staging areas are located, construction policies, etc.
- **Surface Transportation (ST)-9. Construction Deliveries**. Construction deliveries requiring lane closures shall receive prior approval from the Construction Coordination Office. Notification of deliveries shall be made with sufficient time to allow for any modifications to approved traffic detour plans.
- **ST-12. Designated Truck Delivery Hours**. Truck deliveries shall be encouraged to use night-time hours and shall avoid the peak periods of 7:00 AM to 9:00 AM and 4:30 PM to 6:30 PM.

  [Note: This measure provides guidelines for controlling the arrival and departure times of construction related traffic during peak commute periods, and served as input for developing an estimated schedule of the proposed Project construction delivery activity.]
- **ST-14. Construction Employee Shift Hours**. Shift hours that do not coincide with the heaviest commuter traffic periods (7:00 AM to 9:00 AM, 4:30 PM to 6:30 PM) would be established. Work periods will be extended to include weekends and multiple work shifts, to the extent possible and necessary.

  [Note: This measure provides guidelines for controlling the arrival and departure times of construction employees, and served as direct input for determining the employee traffic activity associated with the proposed Project. Traffic analysis was limited to weekday traffic conditions to provide a conservative estimate of potential impacts given that weekday traffic activity is typically significantly higher than weekend traffic.]
- **ST-16. Designated Haul Routes**. Every effort will be made to ensure that haul routes are located away from sensitive noise receptors.
- **ST-17. Maintenance of Haul Routes**. Haul routes on off-airport roadways will be maintained periodically and will comply with City of Los Angeles or other appropriate jurisdictional requirements for maintenance. Minor striping, lane configurations, and signal phasing modifications would be provided as needed.
- **ST-18. Construction Traffic Management Plan**. A complete construction traffic plan will be developed to designate detour and/or haul routes, variable message and other sign locations, communication methods with airport passengers, construction deliveries, construction employee shift hours, construction employee parking locations and other relevant factors.
- **ST-22. Designated Truck Routes**. For dirt and aggregate and all other materials and equipment, truck deliveries will be on designated routes only (freeways and non-residential streets). Every effort will be made for routes to avoid residential frontages. The designated routes on City of Los Angeles streets are subject to approval by LADOT's Bureau of Traffic Management and may include, but will not necessarily be limited to: Pershing Drive (Westchester Parkway to Imperial Highway); Florence Avenue (Aviation Boulevard to I-405);

Manchester Boulevard (Aviation Boulevard to I-405); Aviation Boulevard (Manchester Avenue to Imperial Highway); Westchester Parkway/Arbor Vitae Street (Pershing Drive to I-405); Century Boulevard (Sepulveda Boulevard to I-405); Imperial Highway (Pershing Drive to I-405); La Cienega Boulevard (north of Imperial Highway); Airport Boulevard (Arbor Vitae Street to Century Boulevard); Sepulveda Boulevard (Westchester Parkway to Imperial Highway); I-405; and I-105.

4.7.6 Impact Analysis

4.7.6.1 Impact Comparison 1: Peak Project Traffic Plus Baseline Traffic Measured Against Baseline

This comparison provides the basis for determining Project-related impacts. The comparison is based on Project-specific traffic generation during the peak construction period (August 2014) added to baseline traffic volumes (during peak times adjusted to overlap with commuter hours for a conservative analysis). The resulting levels of service were compared to the levels of service associated with the baseline condition. A significant impact would be realized if/when the thresholds of significance are met or exceeded. Impact comparisons between the proposed Project's peak traffic added to the baseline compared to the baseline is depicted in **Table 4.7-8**. As shown in **Table 4.7-8**, it is anticipated that no significant impacts would occur during August 2014 under the proposed Project.

Table 4.7-8

Proposed Project - Level of Service Analysis Results - Impact Comparison 1 Baseline Compared to Project Plus Baseline

			Baseline		Project Plus Baseline			
	Intersection	**Peak Hour[a]**	**V/C[b]**	**LOS[c]**	**V/C[b]**	**LOS[c]**	**Change in V/C**	**Significant Impact**
14.	Aviation Boulevard and Century Boulevard	Construction AM	0.467	A	0.467	A	0.000	--[d]
		Construction PM	0.594	A	0.599	A	0.005	--
16.	Imperial Highway and Aviation Boulevard	Construction AM	0.500	A	0.640	B	0.140	--
		Construction PM	0.512	A	0.560	A	0.048	--
19.	Aviation Boulevard and 111th Street	Construction AM	0.295	A	0.486	A	0.191	--
		Construction PM	0.404	A	0.541	A	0.137	--
36.	La Cienega Boulevard and Century Boulevard	Construction AM	0.626	B	0.626	B	0.000	--
		Construction PM	0.762	C	0.762	C	0.000	--
38.	Sepulveda Blvd. and Century Blvd.	Construction AM	0.424	A	0.424	A	0.000	--
		Construction PM	0.590	A	0.590	A	0.000	--
39.	Century Boulevard and I-405 Northbound Ramp	Construction AM	0.634	B	0.651	B	0.017	--
		Construction PM	0.459	A	0.460	A	0.001	--
47.	Imperial Highway and Douglas Street	Construction AM	0.199	A	0.199	A	0.000	--
		Construction PM	0.375	A	0.375	A	0.000	--
65.	Sepulveda Boulevard and Howard Hughes Pkwy.	Construction AM	0.219	A	0.219	A	0.000	--
		Construction PM	0.419	A	0.421	A	0.002	--
67.	Imperial Highway and La Cienega Boulevard [e]	Construction AM	0.191	A	0.191	A	0.000	--
		Construction PM	0.453	A	0.484	A	0.031	--
68.	Imperial Highway and Main Street	Construction AM	0.499	A	0.499	A	0.000	--
		Construction PM	0.439	A	0.439	A	0.000	--

Table 4.7-8

Proposed Project - Level of Service Analysis Results - Impact Comparison 1 Baseline Compared to Project Plus Baseline

			Baseline		Project Plus Baseline			
	Intersection	**Peak Hour[a]**	**V/C[b]**	**LOS[c]**	**V/C[b]**	**LOS[c]**	**Change in V/C**	**Significant Impact**
69.	Imperial Highway and Pershing Drive	Construction AM	0.184	A	0.184	A	0.000	--
		Construction PM	0.316	A	0.316	A	0.000	--
71.	Imperial Highway and Sepulveda Boulevard	Construction AM	0.496	A	0.503	A	0.007	--
		Construction PM	1.004	F	1.004	F	0.000	--
73.	Imperial Highway and Nash Street	Construction AM	0.362	A	0.364	A	0.002	--
		Construction PM	0.239	A	0.240	A	0.001	--
74.	Imperial Highway and I-105 Ramp	Construction AM	0.513	A	0.599	A	0.086	--
		Construction PM	0.471	A	0.541	A	0.070	--
75.	Imperial Highway and I-405 Northbound Ramp	Construction AM	0.211	A	0.232	A	0.021	--
		Construction PM	0.480	A	0.500	A	0.020	--
89.	La Cienega Boulevard and Lennox Boulevard	Construction AM	0.164	A	0.164	A	0.000	--
		Construction PM	0.306	A	0.306	A	0.000	--
94.	La Cienega Boulevard and 111th Street	Construction AM	0.128	A	0.227	A	0.099	--
		Construction PM	0.311	A	0.420	A	0.109	--
96.	La Cienega Blvd. & I-405 Southbound Ramps North of Century	Construction AM	0.387	A	0.387	A	0.000	--
		Construction PM	0.410	A	0.410	A	0.000	--
97.	La Cienega Blvd. & I-405 Southbound Ramps South of Century	Construction AM	0.135	A	0.135	A	0.000	--
		Construction PM	0.284	A	0.284	A	0.000	--
98.	La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	Construction AM	0.136	A	0.236	A	0.100	--
		Construction PM	0.218	A	0.308	A	0.090	--
101.	Sepulveda Boulevard and La Tijera Boulevard	Construction AM	0.337	A	0.337	A	0.000	--
		Construction PM	0.613	B	0.613	B	0.000	--

Table 4.7-8

Proposed Project - Level of Service Analysis Results - Impact Comparison 1 Baseline Compared to Project Plus Baseline

	Intersection	Peak Hour[a]	Baseline V/C[b]	Baseline LOS[c]	Project Plus Baseline V/C[b]	Project Plus Baseline LOS[c]	Change in V/C	Significant Impact
108.	Sepulveda Boulevard and Lincoln Boulevard	Construction AM	0.457	A	0.459	A	0.002	--
		Construction PM	0.750	C	0.750	C	0.000	--
114.	Sepulveda Boulevard and Manchester Avenue	Construction AM	0.395	A	0.395	A	0.000	--
		Construction PM	0.711	C	0.714	C	0.003	--
123.	Westchester Parkway and Pershing Drive	Construction AM	0.151	A	0.151	A	0.000	--
		Construction PM	0.213	A	0.213	A	0.000	--
135.	Sepulveda Boulevard and Westchester Parkway	Construction AM	0.309	A	0.309	A	0.000	--
		Construction PM	0.649	B	0.649	B	0.000	--
136.	Sepulveda Boulevard and 76th/77th Street	Construction AM	0.337	A	0.337	A	0.000	--
		Construction PM	0.440	A	0.440	A	0.000	--
137.	Sepulveda Boulevard and 79th/80th Street	Construction AM	0.253	A	0.253	A	0.000	--
		Construction PM	0.513	A	0.513	A	0.000	--
138.	Sepulveda Boulevard and 83rd Street	Construction AM	0.211	A	0.211	A	0.000	--
		Construction PM	0.458	A	0.458	A	0.000	--
1000.	La Cienega Boulevard and 104th Street	Construction AM	0.111	A	0.221	A	0.110	--
		Construction PM	0.276	A	0.285	A	0.009	--

Notes:

[a] The hours of analysis include the construction AM peak (6:00 AM - 7:00 AM), and the construction PM peak (3:30 PM - 4:30 PM.).

[b] Volume to capacity ratio. Includes an LADOT ATSAC benefit applied at each intersection with the exception of intersections #39 and #75, which are not a part of the LADOT system.

[c] Level of Service range: A (excellent) to F (failure).

[d] -- Indicates "No Impact"

[e] Reduction in V/C due to change in critical movement.

Source: Ricondo & Associates, Inc., using TRAFFIX, August 2013.

4.7.6.2 Impact Comparison 2: Cumulative Traffic (December 2014) Measured against Baseline

This comparison was conducted in two steps, which is consistent with CEQA Guidelines Section 15130. An initial comparison was conducted by comparing the level of service associated with peak cumulative traffic volumes with the baseline levels of service. This initial comparison was conducted to determine if there would be a significant cumulative impact. If a significant cumulative impact was determined, then an additional comparison was conducted to determine if the proposed Project would produce a cumulatively considerable contribution to the significant cumulative impact. This second comparison was conducted by comparing cumulative conditions both with and without the proposed Project. Cumulatively considerable contributions are realized when the thresholds of significance defined above are met or exceeded.

The impact comparison for this condition is depicted in **Table 4.7-9**. As shown in the table, there would be several cumulative impacts; however, the proposed Project would not result in a cumulatively considerable contribution of the impact that would be considered a significant impact under the LADOT thresholds detailed previously.

4.7.7 Mitigation Measures

As described above in the impact discussions in **Section 4.7.8**, no significant construction-related traffic impacts would occur under the Baseline plus Project condition, or Cumulative plus Project condition for the proposed Project. Therefore, no additional mitigation measures specific to the proposed Project are required.

4.7.8 Level of Significance After Mitigation

As described above in the impact discussions in Section 4.7.8, no significant construction-related traffic impacts would occur under the Baseline plus Project condition, or Cumulative plus Project condition for the proposed Project. Therefore, no additional mitigation measures specific to the proposed Project are required.

Table 4.7-9

Proposed Project - Level of Service Analysis Results - Impact Comparison 2 Cumulative Traffic (December 2014)

		Baseline [A]		Cumulative Peak (December 2014) Without Project [B]		Cumulative Peak (December 2014) With Project[a] [C]		Cumulative Impact Determination [C]-[A]		Cumulative Considerable Determination/Significant Impact [C]-[B]	
Intersection	**Peak Hour[a]**	**V/C[b]**	**LOS[c]**	**V/C[b]**	**LOS[c]**	**V/C[b]**	**LOS[c]**	**Change in V/C**	**Cumulative Impact?**	**Change in V/C**	**Cumulatively Considerable Contribution?**
14. Aviation Boulevard and Century Boulevard	Construction AM	0.467	A	0.505	A	0.505	A	0.038	--	0.000	--
	Construction PM	0.594	A	0.632	B	0.635	B	0.041	--	0.003	--
16. Imperial Highway and Aviation Boulevard	Construction AM	0.500	A	0.539	A	0.615	B	0.115	--	0.076	--
	Construction PM	0.512	A	0.552	A	0.573	A	0.061	--	0.021	--
19. Aviation Boulevard and 111th Street	Construction AM	0.295	A	0.321	A	0.413	A	0.118	--	0.092	--
	Construction PM	0.404	A	0.430	A	0.481	A	0.077	--	0.051	--
36. La Cienega Boulevard and Century Boulevard	Construction AM	0.626	B	0.654	B	0.654	B	0.028	--	0.000	--
	Construction PM	0.762	C	0.827	D	0.827	D	0.065	Yes	0.000	--
38. Sepulveda Blvd. and Century Blvd.	Construction AM	0.424	A	0.482	A	0.482	A	0.058	--	0.000	--
	Construction PM	0.590	A	0.610	B	0.610	B	0.020	--	0.000	--
39. Century Boulevard and I-405 Northbound Ramp	Construction AM	0.634	B	0.662	B	0.674	B	0.040	--	0.012	--
	Construction PM	0.459	A	0.472	A	0.473	A	0.014	--	0.001	--
47. Imperial Highway and Douglas Street	Construction AM	0.199	A	0.205	A	0.205	A	0.006	--	0.000	--
	Construction PM	0.375	A	0.395	A	0.396	A	0.021	--	0.001	--
65. Sepulveda Boulevard and Howard Hughes Parkway	Construction AM	0.219	A	0.262	A	0.262	A	0.043	--	0.000	--
	Construction PM	0.419	A	0.436	A	0.437	A	0.018	--	0.001	--
67. Imperial Highway and La Cienega Boulevard	Construction AM	0.191	A	0.200	A	0.191	A	0.000	--	-0.009	--
	Construction PM	0.453	A	0.472	A	0.491	A	0.038	--	0.019	--

Table 4.7-9

Proposed Project - Level of Service Analysis Results - Impact Comparison 2 Cumulative Traffic (December 2014)

		Baseline [A]		Cumulative Peak (December 2014) Without Project [B]		Cumulative Peak (December 2014) With Project[a] [C]		Cumulative Impact Determination [C]-[A]		Cumulative Considerable Determination/Significant Impact [C]-[B]	
Intersection	Peak Hour[a]	V/C[b]	LOS[c]	V/C[b]	LOS[c]	V/C[b]	LOS[c]	Change in V/C	Cumulative Impact?	Change in V/C	Cumulatively Considerable Contribution?
68. Imperial Highway and Main Street	Construction AM	0.499	A	0.707	C	0.707	C	0.208	Yes	0.000	--
	Construction PM	0.439	A	0.597	A	0.597	A	0.158	--	0.000	--
69. Imperial Highway and Pershing Drive	Construction AM	0.184	A	0.439	A	0.439	A	0.255	--	0.000	--
	Construction PM	0.316	A	0.571	A	0.571	A	0.255	--	0.000	--
71. Imperial Highway and Sepulveda Boulevard	Construction AM	0.496	A	0.519	A	0.524	A	0.028	--	0.005	--
	Construction PM	1.004	F	1.035	F	1.035	F	0.031	Yes	0.000	--
73. Imperial Highway and Nash Street	Construction AM	0.362	A	0.372	A	0.373	A	0.011	--	0.001	--
	Construction PM	0.239	A	0.259	A	0.259	A	0.020	--	0.000	--
74. Imperial Highway and I-105 Ramp	Construction AM	0.513	A	0.552	A	0.596	A	0.083	--	0.044	--
	Construction PM	0.471	A	0.495	A	0.532	A	0.061	--	0.037	--
75. Imperial Highway and I-405 Northbound Ramp	Construction AM	0.211	A	0.224	A	0.234	A	0.023	--	0.010	--
	Construction PM	0.480	A	0.498	A	0.507	A	0.027	--	0.009	--
89. La Cienega Boulevard and Lennox Boulevard	Construction AM	0.164	A	0.171	A	0.171	A	0.007	--	0.000	--
	Construction PM	0.306	A	0.314	A	0.314	A	0.008	--	0.000	--
94. La Cienega Boulevard and 111th Street	Construction AM	0.128	A	0.131	A	0.188	A	0.060	--	0.057	--
	Construction PM	0.311	A	0.319	A	0.380	A	0.069	--	0.061	--
96. La Cienega Blvd. & I-405 Southbound Ramps North of Century	Construction AM	0.387	A	0.396	A	0.396	A	0.009	--	0.000	--
	Construction PM	0.410	A	0.420	A	0.420	A	0.010	--	0.000	--

Table 4.7-9

Proposed Project - Level of Service Analysis Results - Impact Comparison 2 Cumulative Traffic (December 2014)

		Baseline [A]		Cumulative Peak (December 2014) Without Project [B]		Cumulative Peak (December 2014) With Project[a] [C]		Cumulative Impact Determination [C]-[A]		Cumulative Considerable Determination/Significant Impact [C]-[B]	
Intersection	**Peak Hour[a]**	**V/C[b]**	**LOS[c]**	**V/C[b]**	**LOS[c]**	**V/C[b]**	**LOS[c]**	**Change in V/C**	**Cumulative Impact?**	**Change in V/C**	**Cumulatively Considerable Contribution?**
97. La Cienega Blvd. & I-405 Southbound Ramps South of Century	Construction AM	0.135	A	0.144	A	0.144	A	0.009	--	0.000	--
	Construction PM	0.284	A	0.317	A	0.317	A	0.033	--	0.000	--
98. La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	Construction AM	0.136	A	0.142	A	0.199	A	0.063	--	0.057	--
	Construction PM	0.218	A	0.223	A	0.270	A	0.052	--	0.047	--
101. Sepulveda Boulevard and La Tijera Boulevard	Construction AM	0.337	A	0.351	A	0.351	A	0.014	--	0.000	--
	Construction PM	0.613	B	0.629	B	0.629	B	0.016	--	0.000	--
108. Sepulveda Boulevard and Lincoln Boulevard	Construction AM	0.457	A	0.483	A	0.485	A	0.028	--	0.002	--
	Construction PM	0.750	C	0.775	C	0.775	C	0.025	--	0.000	--
114. Sepulveda Boulevard and Manchester Avenue	Construction AM	0.395	A	0.408	A	0.410	A	0.015	--	0.002	--
	Construction PM	0.711	C	0.776	C	0.778	C	0.067	Yes	0.002	--
123. Westchester Parkway and Pershing Dr.	Construction AM	0.151	A	0.295	A	0.295	A	0.144	--	0.000	--
	Construction PM	0.213	A	0.365	A	0.365	A	0.152	--	0.000	--
135. Sepulveda Blvd. and Westchester Parkway	Construction AM	0.309	A	0.347	A	0.349	A	0.040	--	0.002	--
	Construction PM	0.649	B	0.696	B	0.696	B	0.047	--	0.000	--
136. Sepulveda Blvd. and 76th/77th St.	Construction AM	0.337	A	0.347	A	0.347	A	0.010	--	0.000	--
	Construction PM	0.440	A	0.477	A	0.479	A	0.039	--	0.002	--
137. Sepulveda Blvd and 79th/80th St.	Construction AM	0.253	A	0.261	A	0.261	A	0.008	--	0.000	--
	Construction PM	0.513	A	0.524	A	0.524	A	0.011	--	0.000	--

Table 4.7-9

Proposed Project - Level of Service Analysis Results - Impact Comparison 2 Cumulative Traffic (December 2014)

		Baseline [A]		Cumulative Peak (December 2014) Without Project [B]		With Project[a] [C]		Cumulative Impact Determination [C]-[A]		Cumulative Considerable Determination/Significant Impact [C]-[B]	
Intersection	**Peak Hour[a]**	**V/C[b]**	**LOS[c]**	**V/C[b]**	**LOS[c]**	**V/C[b]**	**LOS[c]**	**Change in V/C**	**Cumulative Impact?**	**Change in V/C**	**Cumulatively Considerable Contribution?**
138.Sepulveda Blvd and 83rd St.	Construction AM	0.211	A	0.218	A	0.218	A	0.007	--	0.000	--
	Construction PM	0.458	A	0.468	A	0.468	A	0.010	--	0.000	--
1000.La Cienega Blvd. and 104th St.	Construction AM	0.111	A	0.115	A	0.195	A	0.084	--	0.080	--
	Construction PM	0.276	A	0.283	A	0.291	A	0.015	--	0.008	--

Notes:
[a] The hours of analysis include the construction AM peak (6:00 AM - 7:00 AM) and the construction PM peak (3:30 PM - 4:30 PM).
[b] Volume to capacity ratio. Includes an LADOT ATSAC benefit applied at each intersection with the exception of intersections #39 and #75, which are not a part of the LADOT system
[c] Level of Service range: A (excellent) to F (failure).
[d] -- Indicates "No Impact"
Source: Ricondo & Associates, Inc., using TRAFFIX, August 2013.

5.0 OTHER CEQA CONSIDERATIONS

5.1 Growth-Inducing Impacts

Section 15126.2(d) of the CEQA Guidelines states that the assessment of growth-inducing impacts in the EIR must describe the "ways in which the proposed Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

The primary purpose of the proposed Project is to improve passenger and aircraft safety at LAX by implementing infrastructure improvements to the primary departure runway in the South Airfield, Runway 7L/25R. LAX is required by the FAA to bring the RSAs for Runway 7L/25R into conformance with current FAA design standards. The proposed Project is an airfield project that does not include any residential development, nor are residential uses allowed at airports. Consequently, the proposed Project would not directly induce residential population growth in the areas surrounding LAX.

In addition, the proposed Project is not a capacity-increasing project and is not anticipated to generate new permanent employment at LAX, which would potentially indirectly induce population growth in the areas surrounding LAX. During construction, temporary employment would increase, but no permanent jobs would be created such that it would indirectly induce growth. Temporary employees are unlikely to move into the Project site vicinity and result in direct population growth.

Finally, as the proposed Project is an airfield project, it would not create or support, directly or indirectly, any new jobs or businesses in the area that could indirectly induce growth. Therefore, potential direct or indirect population, housing, or employment growth would not occur.

5.2 Irreversible Environmental Changes

According to CEQA Guidelines Section 15126.2(c), an EIR is required to evaluate significant irreversible environmental changes that would be caused by implementation of the proposed Project. As stated in CEQA Guidelines Section 15126.2(c):

> "[u]ses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified."

Irreversible adverse environmental changes would occur upon implementation of the proposed Project. Construction of the proposed Project would utilize nonrenewable resources, including fossil fuel-derived energy sources such as gasoline, diesel fuel, and electricity (necessary for transport of workers and materials during construction and provision of electricity during construction and for the new airfield lighting during the life of the proposed Project).

Several elements of the proposed Project would require the use of construction equipment, powered by gasoline, diesel, and electricity, including:

- Excavation;
- Paving;
- Grading;
- Decommissioning;
- Relocating, modification, and new installation of equipment; and
- Fencing.

A variety of standard construction equipment would be required for these proposed Project elements. This equipment would be powered by nonrenewable resources, similar to standard construction practices.

In addition, the proposed Project would require temporary construction workers that are anticipated to commute to the designated construction employee parking area on Aviation Boulevard and 111th Street by private vehicles, consuming gasoline. However, this vehicle and related fuel usage would be typical for construction work. Transport of materials to the Project site and transport of waste and debris would also require vehicle trips, using additional fossil fuel.

Although fossil fuel consumption associated with the proposed Project would constitute a depletion of a resource that is irretrievable and irreversible, the amount of resources consumed would not be of a substantial nature in the context of regional consumption. These activities would be typical of standard construction sites and practices, and would not cause substantial depletion of resources in the region.

Operations of the proposed Project would cause few irreversible environmental changes. As discussed in Section 5.2 above, the existing and planned capacity at LAX under the proposed Project would remain the same as under existing and planned conditions. Therefore, aircraft would not require the use of any additional nonrenewable resources, including aircraft fuel. New airfield lighting created by the proposed Project would require electrical power during operations of the proposed Project. The City of Los Angeles Department of Water and Power (LADWP), provides power to the Project site. Twenty percent of the power provided by LADWP comes from renewable energy sources, and LADWP intends to provide thirty-five percent of its energy from renewable sources by 2020.[1] Although the proposed Project would require electrical power during its operations, this power would become increasingly dependent on renewable energy resources and less dependent on nonrenewable energy sources, such as coal and natural gas, which can cause irreversible environmental changes. Furthermore, the proposed Project would not increase the number of lights; just modify them from in-tower lights to in-pavement lights. Therefore, operations of the proposed Project would not require irreplaceable resources that would be of a substantial nature in the context of regional consumption.

[1] City of Los Angeles, Department of Water and Power, *Renewable Energy Policy*, online at https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-renewableenergy/a-p-re-renewableenergypolicy?_adf.ctrl-state=emeedq704_4&_afrLoop=536605396375000, accessed June 2013.

5.3 Unavoidable Significant Impacts

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe significant environmental impacts that cannot be avoided, including those effects that can be mitigated but not reduced to a less-than-significant level. The following is a summary of the impacts associated with the proposed Project that were concluded to be significant and unavoidable. These impacts are also described in detail in Chapter 4 Environmental Impact Analysis of this Draft EIR.

The proposed Project is anticipated to have unavoidable significant impacts related to construction air quality. Specifically, construction activities associated with the proposed Project would result in exceedance of the CAAQS threshold for NO_x (regional emissions). Also, the temporary closure of Runway 7L/25R would result in an exceedance of NO_2 CAAQS thresholds (localized concentrations) due to the diversion of aircraft to other runways. Chapter 4.1 describes these significant and unavoidable impacts in detail. These significant and unavoidable impacts are short-term and temporary, and would not exist during the operational phase of the proposed Project.

5.4 Reasons Why Project Is Being Proposed, Notwithstanding Unavoidable Significant Impacts

In addition to identification of the proposed Project's unavoidable significant impacts, Section 15126.2(b) of the CEQA Guidelines requires that the reasons why the Project is being proposed, notwithstanding these impacts, be described.

The proposed Project is anticipated to have unavoidable significant impacts related to construction air quality. Specifically, construction activities associated with the proposed Project would result in exceedance of the CAAQS threshold for NO_x (regional emissions). Also, the temporary closure of Runway 7L/25R would result in an exceedance of NO_2 CAAQS thresholds (localized concentrations) due to the diversion of aircraft to other runways. Chapter 4.1 describes these significant and unavoidable impacts in detail.

The primary reason why the Project is being proposed, notwithstanding these unavoidable significant impacts is that the RSA improvements are federally mandated. As explained in Chapter 1 Introduction, The RSA improvements are being undertaken by LAWA in response to 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. This Act requires completion of RSA improvements by airport sponsors that hold a certificate under Title 14, Code of Federal Regulations (CFR), Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*, to meet Federal Aviation Administration (FAA) design standards by December 31, 2015. Non-compliance with this law could potentially result in penalties. The RSA improvements require the closure of the runway for 3.5 months which will lead to the aforementioned unavoidable significant impacts.

Secondarily, these unavoidable significant impacts are short-term and temporary, lasting for approximately 3.5 months, and would not exist during the operational phase of the proposed Project.

5.5 Potential Secondary Effects

Section 15126.4(a)(1)(D) of the CEQA Guidelines requires that "if a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed."

The following is a discussion of the potential secondary impacts that could occur as a result of implementation of the proposed mitigation measures, listed by environmental topic.

The proposed Project does not include any project-specific mitigation measures that would require an analysis of potential secondary effects.

5.6 Impacts Found Not To Be Significant

Section 15128 of the CEQA Guidelines states that an EIR shall contain a brief statement indicating reasons that various possible significant effects of a project were determined not to be significant and not discussed in detail in the EIR. The following is a discussion of impacts found not to be significant, listed by environmental topic. This analysis was included in the Initial Study (IS) prepared for the proposed Project which is included as Appendix A in this Draft EIR.

The sections below provide a summary of the Environmental Setting of each resource, the proposed Project impacts which were found not to be significant based on CEQA thresholds, and the Initial Study Conclusions describing the analysis of these thresholds. References are given to additional information in the EIR and its Appendix A.

5.6.1 Aesthetics

In the IS published in October 2012, the Aesthetics evaluation concluded that of all of the Aesthetics subtopics evaluated, only lighting would be evaluated further in the CEQA document, the Draft Environmental Impact Report (EIR), primarily due to potential impacts related to operations of the proposed new Ground Service Equipment (GSE) Maintenance Facility. During comments received during the review period of the IS and the concurrent Draft EA, the proposed Project as described in the October 2012 IS was refined and the proposed new GSE Maintenance Facility was removed from the Project Description. The remaining Project Description components were evaluated in the IS and found to be less than significant with no further evaluation required in this Draft EIR. Therefore, potential lighting impacts associated with the proposed new GSE Maintenance Facility would no longer occur. As such, the analysis from the IS is presented but without references to the GSE facility.

5.6.1.1 Environmental Setting

Scenic Vistas

The Pacific Ocean is the primary scenic vista in the vicinity of the Project site.

Scenic Resources

The Project site does not contain scenic resources, such as trees, rock outcroppings, historic buildings, or other locally recognized desirable aesthetic features.

Visual Character

The Project site is located directly south of the LAX Central Terminal Area (CTA). The majority of the Project site is characterized by Airport development and its visual character is dominated by Airport facilities, graded surfaces, and paved runways. The visual character in the vicinity of the Airport is highly urbanized and primarily characterized by residential and commercial development on the north; hotel, Airport support, and commercial development on the east; residential, commercial, and industrial development on the south; and open space on the west.

Lighting and Glare

Lighting is used throughout the Project study area and on the Airport to support existing operations during nighttime and during periods of low visibility. Glare is caused by metallic surfaces reflecting sunlight. Most of the surfaces at the Project site are not metallic and are not considered a significant source of glare.

5.6.1.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Aesthetics is considered significant if the proposed Project would:

- Have a substantial adverse effect on a scenic vista;
- Damage scenic resources including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings;
- Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

5.6.1.3 Initial Study Conclusions

Scenic Vistas

As the runway and taxiway improvements associated with the proposed Project are on the ground and those elements already exist on the Project site, there will be no impacts to viewsheds. No impacts to scenic vistas would occur.

Scenic Resources

The Project site is not located within a state scenic corridor and would not damage any scenic resources. No impacts related to scenic resources would occur.

Visual Character

The runway and taxiway improvements associated with the proposed Project will not change the visual character of the Project site and are consistent with the existing industrial character of LAX. Impacts related to visual character would be less than significant.

Lighting and Glare

The proposed Project would include replacement of in-tower approach lights to in-pavement approach lights. The lighting associated with the runway would be set low to the ground. The operational lighting would be similar to existing lighting conditions. The surfaces under the proposed Project would have similar texture to existing conditions and would not be considered a significant source of glare. Impacts related to lighting and glare would be less than significant.

5.6.2 Agricultural and Forestry Resources

5.6.2.1 Environmental Setting

The Project site is located within a fully developed Airport, is surrounded by Airport-related uses, and has been extensively disturbed and paved. There are no agricultural resources or operations within the vicinity of LAX, including prime or unique farmlands or farmlands of statewide or local importance. Further, there are no Williamson Act contracts in effect within the LAX vicinity. In addition, no forest or timberland resources exist at the Project site or in the vicinity of the Project site. The current zoning of the Project (LAX-Airside Zone) site does not allow agricultural uses.

5.6.2.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Agriculture and Forestry Resources is considered significant if the proposed Project would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program in the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined in Public Resource Code section 4526), or timberland-zoned Timberland Production (as defined by Government Code section 51104[g]);
- Result in the loss of forest land or conversion of forest land to non-forest use;
- Involve other changes in the existing environment which, due to their location or nature, could individually or cumulatively result in loss of Farmland to non-agricultural use or conversion of forest land to non-forest use.

5.6.2.3 Initial Study Conclusions

As there are no agricultural resources or operations or Williamson Act contracts within the vicinity of LAX, there would be no impacts to agricultural resources. The proposed Project would not conflict with existing zoning for, or cause rezoning of, forest land or timberland (including timberland zoned as Timberland Production) or result in the loss or conversion of forest land to non-forest use. Therefore, impacts related to the thresholds listed in Section 5.6.2.2 would be less than significant.

5.6.3 Biological Resources

5.6.3.1 Environmental Setting

LAX is predominantly a developed, paved Airport surrounded by urbanized areas to the north, south, and east and by the Los Angeles/El Segundo Dunes to the west. According to previous studies and field research, no species or habitats of special concern have been found or observed in the Project site (Refer to Appendix F for more details). The El Segundo Blue Butterfly, a federally-listed endangered wildlife species, is not present within the footprint of the proposed Project.[2] On April 12, 2005, the U.S. Fish and Wildlife Service (USFWS) excluded LAX from critical habitat for Riverside fairy shrimp because the primary constituent elements required for the Riverside fairy shrimp to complete its life cycle are not met at LAX.[3]

There are no federally protected wetlands in the Project site. According to the LAX Master Plan Final EIS/EIR, non-federally protected wetlands near the Project site include areas EW 15 and EW 16, which are located approximately 650 feet to the southwest of the Project site. LAX does not contain any areas designated under a Habitat Conservation Plan, Natural Communities Conservation Plan, or any other approved local, regional, or state habitat conservation plan. The Biological Environmental Setting is discussed in further detail in Appendix F, Biological Resources Technical Report.

5.6.3.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Biological Resources is considered significant if the proposed Project would:

- Adversely impact, either directly or through habitat modifications, any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS);
- Adversely impact any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS;
- Adversely impact federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan.

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2 City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements, SCH#1997061047*, April 2004.

3 *Ibid*.

5.6.3.3 Initial Study Conclusions

Construction and operation of the proposed Project would not impact the El Segundo Blue Butterfly due to the distance between the Project site and the Habitat Restoration Area. Construction and operation of the proposed Project would not impact Riverside Fairy Shrimp as the primary constituent elements required for its complete life cycle are not met at LAX. Furthermore, LAX Master Plan Commitments and Mitigation Measures applicable to the proposed Project would be implemented to minimize dust, light/glare and noise effects including effects in the Habitat Restoration Area.

Maintenance activities and a bird hazard reduction program are implemented at LAX because LAX is in the migratory pathway of the Pacific Flyway. The proposed Project would not conflict with any local policies or ordinances protecting biological resources as no suitable habitat to support special-status plant or wildlife species or sensitive vegetation communities exist within the Project site. Additional detail is presented in Appendix F, Biological Resources Technical Report. Therefore, impacts related to the thresholds listed in Section 5.6.3.2 would be less than significant

5.6.4 Cultural Resources

5.6.4.1 Environmental Setting

Historic Resources

The nearest known historic resources to the proposed Project are: 1) the Theme Building north of Runway 7L-25R, which is eligible for placement on the National Register, and 2) Hangar One south of Runway 7L-25R, which is on the National Register of Historic Places. Both these properties are located approximately 0.30 miles from the closest points of the Project site.

Archaeological Resources

The LAX Master Plan Final EIS/EIR reports six archaeological sites (four of which were also reported by the South Central Coastal Information Center [SCCIC]) and two isolates (also reported by the SCCIC) within the vicinity of the Area of Potential Effect (APE), of which one is within the APE: 19-000691. Additional details are provided in the Cultural Resources Technical Report included as Appendix E of this Draft EIR.

Paleontological Resources

A record search by the Natural History Museum of Los Angeles County revealed that no fossils have been previously collected from within the Project site. However, there are vertebrate fossils recorded from the same type of sediments within a one-mile distance of the Project site, at depths ranging from 13 feet to 70 feet. Additional details are provided in the Cultural Resources Technical Report included as Appendix E of this Draft EIR.

Human Remains

The Project site is not located within any known formal cemeteries.

5.6.4.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Cultural Resources is considered significant if the proposed Project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- Disturb any human remains, including those interred outside of formal cemeteries.

5.6.4.3 Initial Study Conclusions

Historic Resources

There were three cultural resources evaluated for the proposed Project: the Runway 7L/25R complex, Air Freight Building No. 8, and a portion of Coast Boulevard located within the airfield. None of these resources were found to be eligible for listing in the National Register of Historic Places or the California Register of Historic Resources. Therefore, no impacts related to historic resources would occur.

Archaeological Resources

There are documented archaeological sites in the vicinity of the Project site but a low potential for disturbance of unknown archaeological resources within the Project site. The proposed Project would not require excavation deeper than three feet. In the event, however, that unanticipated archaeological resources are encountered, LAWA shall implement LAX Master Plan EIS/EIR Commitments, which would reduce potential impacts related to archaeological resources a less than significant level.

Paleontological Resources

The LAX Master Plan identified the presence of vertebrate fossil occurrences within the vicinity of the Project site. The proposed Project would not require excavation deeper than three feet. In the event, however, that unanticipated paleontological resources are encountered, LAWA shall implement LAX Master Plan EIS/EIR Commitments, which would reduce potential impacts related to paleontological resources a less than significant level.

Human Remains

The Project site is not located within any known formal cemeteries and the proposed Project would not require excavation deeper than three feet. In the event, however, that unanticipated human remains are encountered, LAWA will comply with Health and Safety Code § 7050.5 and Public Resources Code § 5097.98. Upon discovery of human remains, these statutes require LAWA to cease all excavation and disturbance of the site, to contact the coroner, to contact the Native American Heritage Commission if necessary, and to provide for appropriate treatment of the remains. Upon complying with the above mentioned codes, impacts related to human remains would be less than significant.

5.6.5 Geology and Soils

5.6.5.1 Environmental Setting

The Project site is located in the seismically active Southern California region; however, there is no evidence of faulting at the Project site, and the Project site is not located within an Alquist-Priolo Special Study Zone. Regionally, the Project site is located in the Los Angeles Coastal Plain. Locally, the Project site lies entirely on the physiographic area known as the El Segundo Sand Hills, an ancient floodplain.

5.6.5.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Geology and Soils is considered significant if the proposed Project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.
    ii. Strong seismic ground shaking,
    iii. Seismic-related ground failure, including liquefaction,
    iv. Landslides;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994) creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

5.6.5.3 Initial Study Conclusions

While the Project site is located within the seismically active Southern California region, it is not located within an Alquist-Priolo Special Study Zone.[4] All proposed Project components would be designed in accordance with the provisions of FAA Advisory Circulars 150/5300-13, 5320-6E,

[4] City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements, SCH#1997061047*, April 2004.

and 5370-10E, regarding seismic construction materials and methods. Therefore, impacts related to rupture of a known earthquake fault or strong seismic ground shaking would be less than significant. The Project site has generally level topography; therefore it would not be subject to slope instability. Also, the proposed Project would comply with FAA Advisory Circulars 150/5300-13, 5320-6E, and 5370-10E, regarding seismic construction materials and methods, so that no impacts related to liquefaction would occur.

LAWA would prepare an erosion control plan requiring erosion and sediment control facilities be provided throughout the duration of construction, existing inlets be protected with filter fabric inserts, and disturbed areas will be seeded. Therefore, impacts related to soil erosion would be less than significant. As the proposed Project would be utilized by heavy aircraft, the FAA has specific requirements to ensure that the pavement supports the anticipated weights during operations which would be incorporated into the design of the proposed Project to reduce the impacts related to soil settlement to less than significant. Also, because construction of the proposed Project would occur in accordance with FAA Advisory Circulars, which include construction requirements for grading, excavation, and foundation work, the potential for hazards to occur as a result of expansive soils would be minimized. Therefore, impacts related to the thresholds listed in Section 5.6.5.2 would be less than significant

5.6.6 Hazards and Hazardous Materials

5.6.6.1 Environmental Setting

The types, characteristics, and occurrences of hazardous materials and other regulated substances at LAX are typical of large metropolitan airports that offer commercial and cargo services. Off-Airport activities within the Project study area include a mixture of industrial, commercial, and warehousing activities.

5.6.6.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact related to Hazards and Hazardous Materials is considered significant if the proposed Project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through the reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public-use airport, result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;

- Expose people or structures to the risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

5.6.6.3 Initial Study Conclusions

The proposed Project would not require changes in any routine transport, use, or disposal of hazardous materials associated with operations at the Airport. Construction of the proposed Project may involve the use of potentially hazardous materials, the quantities of which would not be significantly different than another construction project of similar size. Compliance with the existing federal, state, and local regulations would reduce the potential for accidental release of hazardous materials. There are no wildlands located within the Project site. In addition, the Project site is not within the City of Los Angeles Wildfire Hazard Area.[5] Consequently, the proposed Project would not expose people or structures to significant loss, injury, or death due to wildland fires. Therefore, impacts related to the thresholds listed in Section 5.6.6.2 would be less than significant.

5.6.7 Hydrology and Water Quality

5.6.7.1 Environmental Setting

The Project site contains primarily impermeable surfaces related to existing developments such as runways, taxiways, aprons, and service roads. Surface water discharge from the Project site goes to both City of Los Angeles and County of Los Angeles flood control and drainage structures that empty into Santa Monica Bay and San Pedro Harbor. The Project site uses the Imperial, Argo, and Dominguez Channel Sub-Basins. Existing water quality pollutants from the Project study area includes typical discharges from aircraft and related vehicle operations. The Project site is not located in a 100-year floodplain area.

5.6.7.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Hydrology and Water Quality is considered significant if the proposed Project would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;

[5] City of Los Angeles, *Safety Element of the City of Los Angeles General Plan*, 1996.

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year floodplain structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam;
- Inundation by seiche, tsunami, or mudflow.

5.6.7.3 Initial Study Conclusions

The paving, grading, and other construction phases of the proposed Project would require temporary disturbance of surface soils and removal of asphalt and ornamental vegetative cover which could potentially result in on-site erosion and sedimentation. Erosion and sedimentation attributable to construction activities could potentially impact water quality. The proposed Project would not substantially change the drainage pattern of the Project site and would include drainage elements to maintain current flows. The proposed Project would not place structures in a 100-year plain, and it will not affect groundwater, as the excavation is substantially shallower (3 to 6 feet) than known depths (20 to 50 feet) of groundwater. The Project site is not in a tsunami hazard area and is not located downstream of a lake or dam which may generate seiches. The Project site is not located next to a mountainous area that would be susceptible to mudflows. Therefore, impacts related to the thresholds listed in Section 5.6.7.2 would be less than significant.

5.6.8 Land Use and Planning

5.6.8.1 Environmental Setting

The LAX property consists of Airport-related uses. Land uses surrounding the Project site are Airport-related uses to the north, south and east. Open space uses are located west of the South Airfield Complex. The El Segundo Dunes, managed by LAWA, supports the largest of the four remaining occupied habitats for the El Segundo Blue Butterfly, which the City of Los Angeles has designated as a Habitat Restoration Area pursuant to City Ordinance 167940 for the long-term conservation of the El Segundo Blue Butterfly. The LAX Plan designates the Project site as Airport Airside. This area includes those aspects of passenger and cargo movement that are associated with aircraft operating under power and related airfield support services. The LAX Specific Plan designates the Project site as Airport Airside (LAX-A Zone). the purpose of this zone is to allow for the safe and efficient operation of airport airfield activities.

5.6.8.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Land Use Planning is considered significant if the proposed Project would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited, to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with any applicable habitat conservation plan or natural community's conservation plan.

5.6.8.3 Initial Study Conclusions

The proposed Project would occur entirely within LAX and would not divide an established community. Runway 7L/25R is located in the south airfield complex and is surrounded by Airport-related and open space land uses. The proposed Project uses are consistent with the existing LAX zoning in the City of Los Angeles LAX Plan. Therefore, impacts related to consistency with applicable land use plans would not occur. Due to the proximity of the proposed Project to the Los Angeles/El Segundo Dunes, with the implementation of construction related LAX Master Plan Commitments, impacts related to habitat conservation plans would be less than significant. Therefore, impacts related to the thresholds listed in Section 5.6.8.2 would be less than significant

5.6.9 <u>Mineral Resources</u>

5.6.9.1 Environmental Setting

LAX is located within the MRZ-3 zone, which represents areas with mineral deposits whose significance cannot be evaluated from available data. The Project site is developed with airport-related uses that are mostly paved with some disturbed open space and limited landscaping. There are no actively mined mineral resources on the LAX property. The property is not in an area delineated on the City of Los Angeles Oil Field and Oil Drilling Areas map in the City of Los Angeles General Plan Safety Element.

5.6.9.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Mineral Resources is considered significant if the proposed Project would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

5.6.9.3 Initial Study Conclusions

There are no actively mined resources on the LAX property. In addition, the proposed Project is not located in an area delineated on the City of Los Angeles Oil Field and Oil Drilling Areas map in the City of Los Angeles General Plan Safety Element. Therefore, no impacts related to mineral resources would occur.

5.6.10 Noise

5.6.10.1 Environmental Setting

The existing noise environment at and around the 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.

The nearest noise-sensitive area to the Project site consists of residential uses in El Segundo south of the Airport, multi-family homes along Century Boulevard just east of Aviation Boulevard and a small area east of the Airport containing hotels and single-family homes at the northeast corner of South La Cienega Boulevard, and West 104th Street. A more detailed environmental setting for Noise is presented in Chapter 4.5 and in Appendix D Noise Technical Report.

5.6.10.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Noise is considered significant if the proposed Project would lead to:

- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels;
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

5.6.10.3 Initial Study Conclusions

Construction activities associated with the proposed Project primarily include site clearing, excavation, grading, paving, and site finishing. At the closest distance to existing homes in the City of El Segundo (i.e., 800 feet), it is not likely that the proposed Project construction would result in exposure to excessive ground-borne vibration. LAX is not a private airstrip and there are no private airstrip in the vicinity of LAX. Therefore, impacts related to the threshold listed in Section 5.6.10.2 would be less than significant.

5.6.11 Population and Housing

5.6.11.1 Environmental Setting

The LAX property consists of Airport-related uses and employment. Residential communities nearby the LAX property are the Westchester Community to the north, Playa Del Rey to the northwest, City of Inglewood to the east, and City of El Segundo to the south. No residential uses exist within LAX.

5.6.11.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Population and Housing is considered significant if the proposed Project would:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere;
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

5.6.11.3 Initial Study Conclusions

The proposed Project's infrastructure improvements would not be utilized by the general public and would not generate permanent employment. LAX consists of Airport-related uses and no residential uses. The proposed Project does not include residential or business development and would not induce population growth that would require additional housing. Therefore, no impacts related to population or housing growth and displacement would occur.

5.6.12 Public Services

5.6.12.1 Environmental Setting

Fire protection for LAX is provided by the City of Los Angeles Fire Department (LAFD). Law enforcement services are provided by the LAWA Police Division (LAWAPD), Los Angeles Police Department (LAPD) and the City of Los Angeles Police Department LAX Detail (LAPD LAX Detail). Within a quarter mile of the project study area, there are eight parks and areas of open space and 27 schools.

5.6.12.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Public Services is considered significant if the proposed Project would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following Public Services:
    - Fire protection;
    - Police protection;
    - Schools;
    - Parks; and/or
    - Other public facilities.

5.6.12.3 Initial Study Conclusions

The implementation of the proposed Project would not increase the capacity of Airport operations, traffic congestion (except temporarily during construction), or the number of passengers. As a result, the proposed Project would not require additional support from local fire and police departments or require new or expanded fire or police facilities. Therefore, no impacts to fire and police protection services would occur.

The proposed Project does not include a residential component nor would it increase employment at the Airport during operations. As a result, there is no population growth that would increase the demands for schools, parks, or other public facilities, such as libraries. Therefore, no impacts to schools, parks, or other public facilities, such as libraries, would occur.

5.6.13 Recreation

5.6.13.1 Environmental Setting

The LAX property consists of Airport-related uses. Land uses surrounding the Project site to the north, south, and east are Airport-related uses. Open space uses are located west of the Project site. Within a quarter mile of the Project study area, there are 8 parks and areas of open space.

5.6.13.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Recreation is considered significant if the proposed Project would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

5.6.13.3 Initial Study Conclusions

The proposed Project does not include a housing component that would increase the population around the LAX area nor would it increase the number of permanent employees or include recreational facilities. As a result, no increased demand for recreational facilities beyond the existing demand and no physical deterioration of recreational areas would occur. Therefore, no impacts related to recreation would occur.

5.6.14 Transportation and Traffic

5.6.14.1 Environmental Setting

The principal freeways and roadways serving as access routes within the Project study area are I-405 (San Diego Freeway), I-105 (Glenn M. Anderson/Century Freeway), Aviation Boulevard, Century Boulevard, Imperial Highway, La Cienega Boulevard, Pershing Drive, Westchester Parkway, Sepulveda Boulevard, and 111th Street.

Public transit service to the LAX area is provided by several municipalities, including the Los Angeles County Metropolitan Transportation Authority (Metro), Beach Cities Transit, City of Los Angeles Department of Transportation (LADOT), Torrance Transit, Culver City Transit, and the Santa Monica Big Blue Bus. There is no public transit service to most of the Project site, as it has restricted access.

5.6.14.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Transportation and Traffic is considered significant if the proposed Project would:

- Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access;
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

5.6.14.3 Initial Study Conclusions

No impacts related to increasing hazards to a design feature or inadequate emergency access would occur. Additionally, the proposed Project would not conflict with adopted plans as it would not require operational modifications to the existing on-Airport circulation system, the existing transportation adjacent to LAX, or the regional access system. Therefore, impacts related to the thresholds listed in Section 5.6.14.2 would be less than significant.

5.6.15 Utility and Service Systems

5.6.15.1 Environmental Setting

The LADWP provides electrical power and water to most areas in the City of Los Angeles, including the Project site. Wastewater generated by activities at LAX is treated at the Hyperion Treatment Plan (HTP). Solid waste in LAX as well as the City of Los Angeles is collected by municipal agencies and private refuse haulers. Waste collected by these entities is disposed at eight major landfills and several smaller landfills within the County of Los Angeles.

5.6.15.2 CEQA Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, an impact to Utilities and Service Systems is considered significant if the proposed Project would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require new or expanded entitlements and/or resources for water supplies to serve the project;
- Result in a determination by the wastewater treatment provider, which serves or could serve the project, that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs;
- Not comply with federal, state, and local statues and regulations related to solid waste.

5.6.15.3 Initial Study Conclusions

The proposed Project does not include the addition of new uses or components that would result in an increase in population or employment that would generate wastewater or increase demand for water. During construction, the increase in wastewater generation would be minimal, as would be the demand for water. Consequently, the proposed Project would not result in the need for a new water supply or wastewater treatment facilities and impacts would be less than significant.

The proposed Project would include construction of new drainage associated with the areas where pavement would be reconstructed or grading would occur. Construction of drainage infrastructure is not anticipated to have significant impacts, as they would follow the building requirements of LAX and the City of Los Angeles and would occur entirely on Airport property. Therefore, impacts related to construction of new storm water drainage infrastructure or expansion of existing infrastructure would be less than significant.

The construction and demolition activities for the RSA and pavement reconstruction would generate solid waste. However, with adherence to LAWA's recycle program which is intended to comply with Assembly Bill 939, and LAX Master Plan commitments, impacts related to solid waste would be less than significant.

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6.0 ALTERNATIVES

6.1 Introduction

CEQA requires that an EIR describe a range of reasonable alternatives to the project or to the location of the project that could feasibly avoid or lessen significant environmental impacts while substantially attaining the basic objectives of the project.[1] An EIR should also evaluate the comparative merits of the alternatives. This chapter sets forth potential alternatives to the proposed project and provides a qualitative analysis of each alternative and a comparison of each alternative to the proposed project. Key provisions of the CEQA Guidelines pertaining to the alternatives analysis are summarized below.[2]

- The discussion of alternatives shall focus on alternatives to the project including alternative locations that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.
- The No Project Alternative shall be evaluated along with its potential impacts. The No Project Alternative analysis shall discuss the existing conditions at the time the notice of preparation is published, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a "rule of reason." Therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the proposed project.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The range of feasible alternatives is selected and discussed in a manner intended to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives (as described in CEQA Guidelines Section 15126.6[f][1]) are environmental impacts, site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the proponent could reasonably acquire, control, or otherwise have access to the alternative site.

An EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agency may make an initial determination as to which alternatives are feasible, and, therefore, merit in-depth consideration.[3] Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet project objectives, are infeasible, or do not avoid any significant environmental effects.[4]

1 CEQA Guidelines, § 15126.6.
2 *Ibid*.
3 CEQA Guidelines, §15126.6(f)(3).
4 CEQA Guidelines, §15126.6(c).

6.2 Project-Level Impacts

As addressed in this Draft EIR, the proposed Project would create unavoidable significant impacts related to the following environmental topics:

- Air Quality – Construction

Other potentially significant impacts have been identified; however, all of these impacts would be reduced to less-than-significant levels with implementation of project design features, BMPs, and applicable LAX Master Plan EIS/EIR Commitments identified in their respective environmental topic chapters of this EIR.

As called for by the CEQA Guidelines, the achievement of project objectives must be balanced by the ability of an alternative to reduce the significant impacts of the proposed Project. The proposed Project's objectives include:

RSA Improvements Objectives

- Satisfy P.L. 109-115, which requires all 14 CFR Part 139 certificated airports to bring their RSAs into compliance with FAA airport design standards no later than December 31, 2015;
- Satisfy 14 CFR Part 139 certification requirements;
- Bring the RSA for Runway 7L/25R into compliance with FAA airport design standards by extending Runway 7L to the west, grading additional area to RSA standards west of the Runway 7L RSA, and the use of declared distances; and
- Based on public input, to maintain the option to physically shift operations of Runway 7L/25R to the west at a future date without negatively affecting aircraft operations at LAX, while still providing RSAs compliant with federal requirements.

Pavement Reconstruction Objectives

- Reconstruct deteriorating pavement at the eastern ends of Runway 7L/25R and Taxiway B, and in the aircraft apron located west of Air Freight Building No.8.

Any evaluated alternative should meet as many of these proposed Project objectives as possible. In addition, while not specifically required under CEQA, other parameters may be used to further establish criteria for selecting alternatives such as adjustments to project phasing, conformance to all existing zoning requirements, and other "fine-tuning" that could shape feasible alternatives in a manner that may result in reducing identified environmental impacts. In some instances, when the proposed Project results in environmental impacts that are reduced to less-than-significant levels with mitigation, an alternative may reduce these less-than-significant impacts even further.

6.3 Alternatives to the Proposed Project

The CEQA statute, the CEQA Guidelines, and related recent court cases do not specify a precise number of alternatives to be evaluated in an EIR. Rather, "the range of alternatives required in an EIR is governed by the rule of reason that sets forth only those alternatives necessary to permit a reasoned choice."[5] At the same time, Section 15126.6(b) of the CEQA Guidelines requires that "...the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project" and Section 15126.6(f) requires, "The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project."

Accordingly, alternatives that would not address potentially significant effects are not considered herein. However, the CEQA Guidelines require that a "No Project" alternative must be included and, if appropriate, an alternative site location should be analyzed.[6] Other project alternatives may involve a modification of the proposed land uses, density, or other project elements at the same project location.

Alternatives should be selected on the basis of their ability to attain all or most of the basic objectives of the project while reducing the project's significant environmental effects. The CEQA Guidelines state that "...[t]he EIR should briefly describe the rationale for selecting alternatives to be discussed [and]...shall include sufficient information to allow meaningful evaluation, analysis and comparison with the proposed project."[7]

The feasibility of the alternatives is another consideration in the selection of alternatives. The CEQA Guidelines state that "[a]mong the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations [and] jurisdictional boundaries..."[8] and also that "The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making."[9] Alternatives that are considered remote or speculative, or whose effects cannot be reasonably predicted do not require consideration. Therefore, feasibility, the potential to mitigate significant project-related impacts, and reasonably informing the decision-maker are the primary considerations in the selection and evaluation of alternatives.

6.3.1 Alternatives Rejected as Infeasible

State CEQA Guidelines Section 15126.6(c) requires EIRs to identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process, and briefly explain the reasons underlying the lead agency's determination. In addition to the alternatives evaluated later in this chapter, other alternatives, summarized below, were considered and rejected by the Lead Agency.

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5 CEQA Guidelines, § 15126.6(f).
6 CEQA Guidelines, §§ 15126.6(e),15126(f)(2)
7 CEQA Guidelines, §§ 15126.6(e),15126(f).
8 CEQA Guidelines, §15126.6(f)(1)
9 CEQA Guidelines, §15126.6(f).

6.3.1.1 Alternative Sites

Alternative sites were not analyzed because the proposed Project is designed specifically to bring the Runway 7L/25R RSA in compliance with FAA RSA design standards and to replace the pavement at the specified locations. Pavement reconstruction at alternative sites would not fix the deteriorating Runway 7L/25R pavement. For this reason, alternative sites for the proposed Project were not considered as feasible alternatives.

6.3.1.2 Standard RSAs Alternative

The Standard RSAs Alternative would develop a traditional, graded RSA that meets FAA airport design standards. This alternative would remove and/or relocate all objects within the standard RSA footprint (500-feet wide and 1,000 feet beyond each runway end), including existing navigational aids and sections of a road and railroad. The development of a standard RSA would maintain the existing landing and take-off distances available to arriving and departing aircraft.

The Standard RSAs Alternative would require a portion of an existing airfield service road to have controlled access at the east end of the runway, as it would cross the extended Runway 25R. Aviation Boulevard and the Burlington Northern Santa Fe (BNSF) Harbor Subdivision railroad right-of-way (ROW), located to the east of Runway 25R ,would need to be grade-separated due to the extension of Runway 25R.[10] Because of the complexities of grade-separating Aviation Boulevard and the BNSF Harbor Subdivision ROW (both requiring off-airport right-of-way acquisition and construction), and the time and excessive costs associated with displacement, relocation, and construction, it is highly unlikely that this alternative could be constructed by the required completion date of December 31, 2015. For these reasons, the Standard RSAs Alternative is not considered a feasible alternative.

6.3.1.3 Reduced Runway Alternative

The Reduced Runway Alternative would physically reduce Runway 7L/25R from its present length of 12,091 feet to 10,970 feet. Under this alternative, the Runway 7L threshold would be relocated east approximately 289 feet and the 25R threshold would be relocated westward approximately 832 feet.

The Reduced Runway Alternative would have a substantial impact on usable runway length. Because the existing runway pavement beyond the relocated thresholds would not be available for any aircraft operations, this alternative would impose operational restrictions on certain large aircraft in order for them to operate on reduced runway. The available takeoff length of Runway 7L/25R under the Reduced Runway Alternative, for both 7L and 25R departures, would be reduced by 1,121 feet. The amount of Runway 7L/25R available for landing under the Reduced Runway Alternative would be reduced by approximately 1,121 feet on the Runway 7L end (east flow) and 289 feet on the Runway 25R end (west flow).

According to the LAX Master Plan, the most demanding runway length requirements at LAX are generated by the Boeing 747-200/300 and the 747-400, which require 11,500 and 11,100 feet of runway for departures, respectively, at 100 percent of maximum takeoff weight. Other aircraft, such as the MD-11, Boeing 737-300, and Boeing 737-400 require runway lengths between

[10] The Harbor Subdivision railroad ROW is a freight corridor owned and operated by the Burlington North-Santa Fe Company. The ROW is located adjacent to the Airport property line along Aviation Boulevard from Imperial Highway to Century Boulevard, which it crosses on a bridge.

10,000 feet and 11,000 feet for departures when at maximum takeoff weight. LAX generates a substantial amount of long-haul and international air carrier departures, including passenger and all-cargo flights. A reduction in runway length would impose operational restrictions on these aircraft, which would include, but not be limited to, reduced fuel loads, reduced number of passengers, and/or reduced cargo to meet weight restrictions and performance requirements of a reduced runway. For these reasons, the Reduced Runway Alternative is not considered a feasible alternative.

6.3.1.4 Declared Distances Alternative

The Declared Distances Alternative would implement declared distances on Runway 7L/25R to obtain the FAA RSA dimensions. However, because there are physical limitations in implementing the full 1,000 feet of RSA length on the east end of Runway 7L/25R (Aviation Boulevard and the BNSF Harbor Subdivision railroad ROW), what would result is a shortening of the useable runway on which operations could occur. Specifically, the ASDA and LDA would be reduced by 832 feet for aircraft departing from Runway 25R end. A reduction in useable runway length would impose operational restrictions on aircraft operating at LAX, which would include, but not be limited to, reduced fuel loads, reduced number of passengers, and/or reduced cargo to meet weight restrictions and performance requirements of a reduced runway. For these reasons, the Declared Distances Alternative is not considered a feasible alternative.

6.3.2 Alternatives Carried Forward

6.3.2.1 No Project Alternative

The No Project Alternative is required by Section 15126.6 (e)(2) of the CEQA Guidelines and assumes that the proposed Project would not be implemented. The No Project Alternative allows decision-makers to compare the impacts of approving the proposed Project with the impacts of not approving the proposed Project. However, "no project" does not mean that development on the Project site would be prohibited. Instead, the No Project Alternative includes "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services."[11]

Under the No Project Alternative, the RSA improvements as described in Section 2.4.1.1, would not occur and LAWA would be in non-compliance with Public Law 109-115, which requires all 14 CFR Part 139 certificated airports to comply with FAA RSA design guidelines by December 31, 2015. Regarding pavement reconstruction, it is reasonably foreseeable that under the No Project Alternative, typical, as-needed maintenance repair of poor quality pavement would still be required on Runway 7L/25R, Taxiway B, and the apron west of Air Freight Building No.8 to maintain safe airport operations.

6.3.2.2 Reduced Grading Alternative (RSA Alternative Refinement #2)

Under a Reduced Grading Alternative (RSA Alternative Refinement #2), the area that would be graded to the west of the Runway 7L extension would be limited to 168 feet. The Reduced RSA Grading Alternative is the proposed Project presented and evaluated in the Initial Study without

[11] CEQA Guidelines, §15126.6 [e][2]

the Taxiway C extension, demolition of Air Freight Building No. 8, or the new GSE Maintenance Facility, which is also referred to as RSA Alternative Refinement #2 in published reports for the proposed Project (**Figure 6-1**). For consistency with previously published environmental documents, this alternative will be referred to as “Reduced Grading Alternative (RSA Alternative Refinement #2). The rationale for proposing this alternative is that the amount of construction activity on the west end of Runway 7L/25R would be of reduced intensity due to the reduced amount of grading that would be required as 1.92 acres of grading would be required under the Reduced Grading Alternative (RSA Alternative Refinement #2) versus 12.91 acres under the proposed Project.

Under the Reduced Grading Alternative (RSA Alternative Refinement #2), the following proposed Project RSA improvements **would** be implemented:

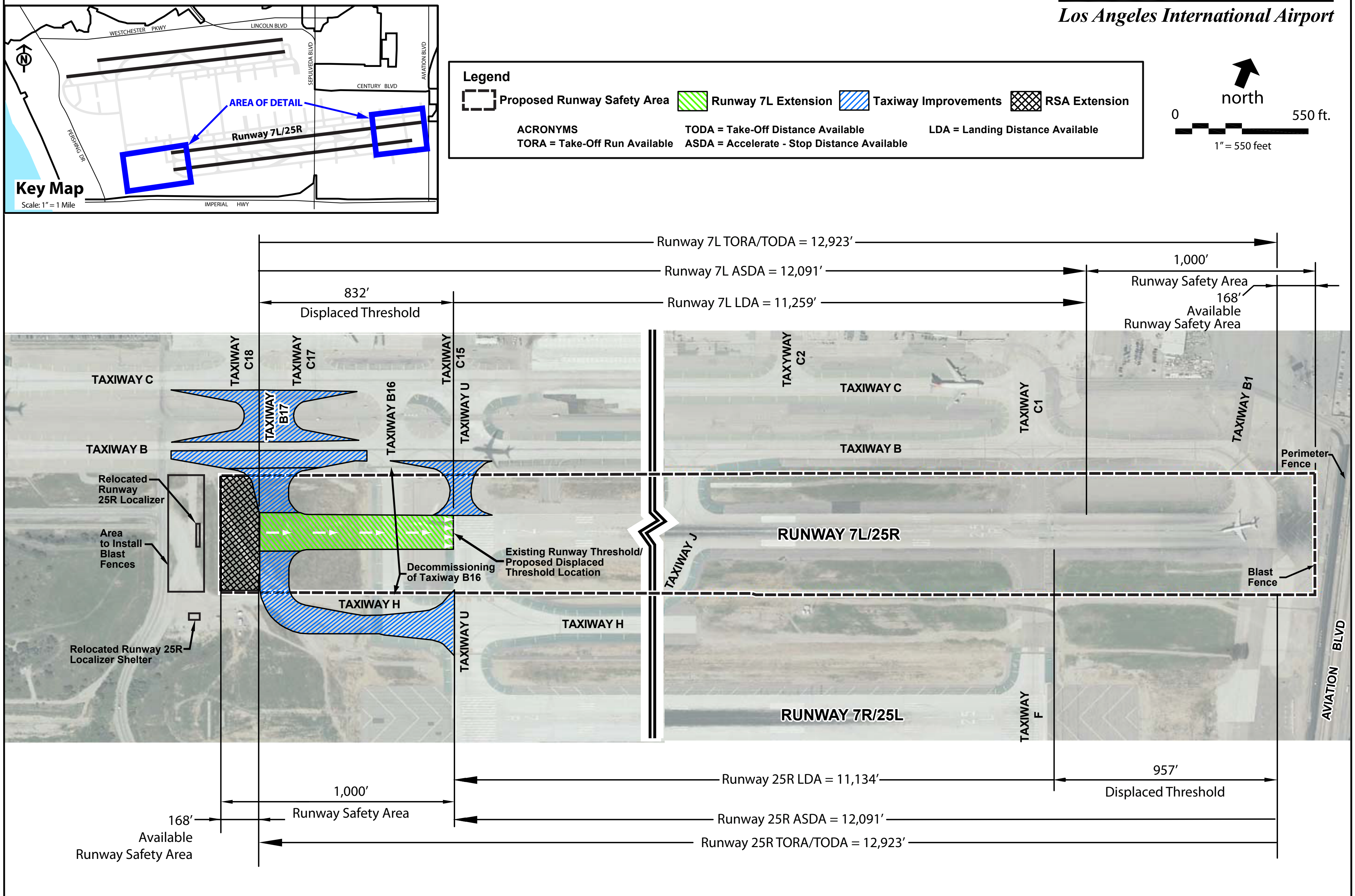
- Extend the Runway 7L/25R pavement, 832 feet to the west. The Runway 7L threshold would remain at its current location for landings, resulting in an 832-foot displaced threshold;
- Implement declared distances to maintain existing take-off run available and take-off distance available;
- Grade and compact the RSA, approximately 500 feet wide by 168 feet long, beyond the new Runway 7L runway end;
- Construct a blast pad west of the Runway 7L extension;
- Extend parallel Taxiway H 832 feet to the west;
- Construct a new taxiway connector (B17) from Taxiway H to Taxiway C;
- Decommission Taxiway B16 from Taxiway H to Taxiway B;
- Reconstruct a portion of Taxiway B at the intersection with new Taxiway B17;
- Reconstruct a portion of Taxiway U from Taxiway B to Runway 7L/25R;
- Relocate the existing Runway 25R Localizer Antenna and shelter to the west of the graded, unpaved area;
- Replace existing Approach Lighting System (ALS) towers where the new runway pavement will be constructed with in-pavement lights; and
- Modify the existing Runway and Taxiway lighting and markings in the newly constructed pavements.

Under the Reduced Grading Alternative (RSA Alternative Refinement #2), the following proposed Project RSA improvements **would not** be implemented:

- Grade but not pave an additional area approximately 500 feet wide by 957 feet long to RSA standards beyond the Runway 7L safety area to maintain the option of shifting operations to the west on the runway at a future date;
- Relocate other FAA equipment shelters west of Taxiway B17; and
- Relocate existing service road west, beyond the proposed 957- foot grading extension and provide access roads to NAVAIDS and equipment shelters.

All of the pavement reconstruction elements under the proposed Project would also occur under the Reduced Grading Alternative (RSA Alternative Refinement #2).

Los Angeles International Airport



Sources: *Runway 7L-25R Safety Area (RSA) Practicability Study for Los Angeles International Airport* (Ricondo & Associates, December 2009); ESRI Maps & Data May 2013 ; Prepared by: URS Corporation.

FIGURE 6-1

Reduced Grading Alternative (RSA Alternative Refinement #2)

Environmental Impact Report Runway 7L/25R RSA and Associated Improvements Project

6.3.2.3 Shift Runway Alternative

The Shift Runway Alternative would physically shift Runway 7L/25R to the west to provide a standard RSA on the east end of the runway. This includes an area of 1,000 feet in length beyond the new 7L threshold that would be graded, and all existing objects in the new RSA footprint would be relocated to provide a standard RSA on the west end of the runway. Approach Lighting Systems (ALS) in towers would be removed and replaced with in-pavement lighting, new connector taxiways would be constructed to provide access to the new thresholds, and the runway length would be maintained (12,091 feet).

The proposed Project includes all of the elements of the Shift Runway Alternative as one of its objectives is to retain the option to shift Runway 7L/25R to the west without affecting airport operations. As the Shift Runway Alternative is already contained within the proposed Project, it is not evaluated as a separate alternative in this Draft EIR.

6.3.2.4 Summary of Alternatives Carried Forward

Table 6-1 presents a summary of the improvements of the proposed Project that would be implemented in its entirety or in part under the proposed alternatives.

Table 6-1

Summary of Improvements by Alternative

Improvement	Proposed Project	No Project Alternative	Reduced Grading Alternative (RSA Alternative Refinement #2)
RSA Improvements			
Extend the Runway 7L/25R pavement, 832 feet to the west. The Runway 7L threshold will remain at its current location for landings, resulting in an 832-foot displaced threshold	✓	☒	✓
Implement declared distances to maintain existing take-off run available and take-off distance available	✓	☒	✓
Grade and compact the RSA, approximately 500 feet wide by 168 feet long, beyond the new Runway 7L runway end	✓	☒	✓
Grade but not pave an additional area approximately 500 feet wide by 957 feet long to RSA standards beyond the Runway 7L safety area to maintain the option of shifting operations to the west on the runway at a future date	✓	☒	☒
Construct a blast pad west of the Runway 7L extension	✓	☒	✓
Extend parallel Taxiway H 832 feet to the west	✓	☒	✓

Table 6-1

Summary of Improvements by Alternative

Improvement	Proposed Project	No Project Alternative	Reduced Grading Alternative (RSA Alternative Refinement #2)
Construct a new taxiway connector (B17) from Taxiway H to Taxiway C	✓	☒	✓
Decommission Taxiway B16 from Taxiway H to Taxiway B	✓	☒	✓
Reconstruct a portion of Taxiway B at the intersection with new Taxiway B17	✓	☒	✓
Reconstruct a portion of Taxiway U from Taxiway B to Runway 7L/25R	✓	☒	✓
Relocate the existing Runway 25R Localizer Antenna and shelter to the west of the graded, unpaved area	✓	☒	✓
Relocate other FAA equipment shelters west of Taxiway B17	✓	☒	☒
Relocate existing service road west, beyond the proposed 957- foot grading extension and provide access roads to NAVAIDS and equipment shelters	✓	☒	☒
Replace existing Approach Lighting System (ALS) towers where the new runway pavement will be constructed with in-pavement lights	✓	☒	✓
Modify the existing Runway and Taxiway lighting and markings in the newly constructed pavements	✓	☒	✓
Pavement Reconstruction			
Full-depth reconstruction of existing pavement from the Runway 25R threshold to Taxiway F (1,225 feet long by 150 feet wide by approximately 3 feet deep)	✓	As-Needed Maintenance Repairs Only	✓
Full-depth reconstruction of the keel portion of Runway 7L/25R from Taxiway F westward to Taxiway J (600 feet long by 50 feet wide by approximately 3 feet deep)	✓	As-Needed Maintenance Repairs Only	✓
Replace existing pavement surface of the keel portion of Runway 7L/25R keel from Taxiway J west to the Taxiway N (6,447 feet long by 50 feet wide)	✓	As-Needed Maintenance Repairs Only	✓
Full-depth reconstruction of Taxiway B, from its terminus near the Runway 25R threshold approximately 2,128 feet west to a point between Taxiway F and Taxiway C3, including connecting Taxiway C1 (2,128 feet long by 176 feet wide by approximately 3 feet deep)	✓	As-Needed Maintenance Repairs Only	✓

Table 6-1

Summary of Improvements by Alternative

Improvement	Proposed Project	No Project Alternative	Reduced Grading Alternative (RSA Alternative Refinement #2)
Replace existing apron pavement west of Air Freight Building No. 8	✓	As-Needed Maintenance Repairs Only	✓
Replace the existing jet blast fence east of Runway 25R	✓	☒	✓
Installation of in-pavement approach lights	✓	☒	✓

Source: URS Corporation, 2013.

6.4 Alternatives Analysis

6.4.1 Draft EIR Environmental Topics

6.4.1.1 No Project Alternative

Table 6-2 presents the comparison of the impacts associated with the No Project Alternative compared to the proposed Project for the environmental topics evaluated in this Draft EIR. Following **Table 6-2**, only the environmental topics that would have different conclusions under the No Project Alternative compared to the proposed Project are discussed.

Table 6-2

Summary of Analysis of Draft EIR Environmental Topics, No Project Alternative and Proposed Project

Environmental Topic	Chapter/ Section	Level of Significance	
		Proposed Project	No Project Alternative
Air Quality	4.1		
Construction Impacts	4.1.7.1	Significant and Unavoidable	***Less Than Significant*** for As-needed maintenance repairs. However, if Runway repairs are needed, potential **significant and unavoidable** impacts would occur if operations are shifted to other runways during construction
Operational Impacts	4.1.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.1.7.3	Significant and Unavoidable	Significant and Unavoidable

Table 6-2

Summary of Analysis of Draft EIR Environmental Topics, No Project Alternative and Proposed Project

Environmental Topic	Chapter/ Section	Level of Significance	
		Proposed Project	No Project Alternative
Greenhouse Gas Emissions	4.2		
Construction Impacts	4.2.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.2.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.2.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Hazards and Hazardous Materials	4.3		
Construction Impacts	4.3.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.3.7.2	No Impact	No Impact
Cumulative Impacts	4.3.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Human Health Risk Assessment	4.4		
Construction Impacts	4.4.7.1	Less Than Significant	Less Than Significant
Cumulative Impacts	4.4.7.2	Not Cumulatively Considerable	Not Cumulatively Considerable
Hydrology and Water Quality	4.5		
Construction Impacts	4.5.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.5.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.5.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Noise	4.6		
Construction Impacts	4.6.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.6.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.6.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Surface Traffic	4.7		
Construction Impacts	4.7.7.1	Less Than Significant	Less Than Significant
Cumulative Impacts	4.7.7.2	Not Cumulatively Considerable	Not Cumulatively Considerable

Source: URS Corporation, 2013.

As shown in **Table 6-2**, most impacts related to the environmental topics evaluated in this Draft EIR under the No Project Alternative would be similar to the impacts under the proposed Project. However, construction and cumulative air quality impacts would be different under the No Project Alternative compared to the proposed Project, as discussed below,

Air Quality

Construction

For the proposed Project, the significant and unavoidable impact related to air quality is associated with the closure of the runway and the shift in operations to other runways. Improvements associated with bringing the Runway 7L/25R RSA in compliance with FAA airport design standards under the No Project Alternative would not require closure of the runway for 3.5 months. As stated in Section 6.3.2.1, under the No Project Alternative, pavement reconstruction on Taxiway B, Runway 7L/25R, and the apron west of Air Freight Building No.8 would occur as needed and be part of typical maintenance at LAX to keep aircraft operations safe. Therefore, impacts related to air quality during construction would be less than significant under the No Project Alternative. However, if pavement repairs of Runway 7L/25R under the No Project Alternative require closure of the runway and the shifting of operations to other runways during construction, impacts would be similar to the proposed Project, and they would be significant and unavoidable.

Cumulative

Similar to the proposed Project, the No Project Alternative would not contribute cumulatively to air quality impacts if as-needed maintenance pavement repairs do not require a shift in operations to other runways during construction. In this case, cumulative impacts would be less than significant. However, if pavement repairs of Runway 7L/25R under the No Project Alternative require closure of the runway and the shifting of operations to other runways during construction, cumulative impacts would be significant and unavoidable.

6.4.1.2 Reduced Grading Alternative (RSA Alternative Refinement #2)

Table 6-3 presents the comparison of the impacts associated with the Reduced Grading Alternative (RSA Alternative Refinement #2) compared to the proposed Project for the 3environmental topics evaluated in this Draft EIR. Following **Table 6-2**, only the environmental topics that would have different conclusions under the Reduced Grading Alternative (RSA Alternative Refinement #2) compared to the proposed Project are discussed.

Table 6-3

Summary of Analysis of Draft EIR Environmental Topics,
Reduced Grading Alternative (RSA Alternative Refinement #2) and Proposed Project

		Level of Significance	
Environmental Topic	**Chapter/ Section**	**Proposed Project**	**Reduced Grading Alternative (RSA Alternative Refinement #2)**
Air Quality	4.1		
Construction Impacts	4.1.7.1	Significant and Unavoidable	Significant and Unavoidable
Operational Impacts	4.1.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.1.7.3	Significant and Unavoidable	Significant and Unavoidable
Greenhouse Gas Emissions	4.2		
Construction Impacts	4.2.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.2.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.2.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Hazards and Hazardous Materials	4.3		
Construction Impacts	4.3.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.3.7.2	No Impact	No Impact
Cumulative Impacts	4.3.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Human Health Risk Assessment	4.4		
Construction Impacts	4.4.7.1	Less Than Significant	Less Than Significant
Cumulative Impacts	4.4.7.2	Not Cumulatively Considerable	Not Cumulatively Considerable
Hydrology and Water Quality	4.5		
Construction Impacts	4.5.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.5.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.5.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable

Table 6-3

Summary of Analysis of Draft EIR Environmental Topics,
Reduced Grading Alternative (RSA Alternative Refinement #2) and Proposed Project

Environmental Topic	Chapter/ Section	Level of Significance: Proposed Project	Level of Significance: Reduced Grading Alternative (RSA Alternative Refinement #2)
Noise	4.6		
Construction Impacts	4.5.7.1	Less Than Significant	Less Than Significant
Operational Impacts	4.5.7.2	Less Than Significant	Less Than Significant
Cumulative Impacts	4.5.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable
Surface Traffic	4.7		
Construction Impacts	4.7.7.1	Less Than Significant	Less Than Significant
Cumulative Impacts	4.7.7.3	Not Cumulatively Considerable	Not Cumulatively Considerable

Source: URS Corporation, 2013.

As shown in **Table 6-3**, most impacts related to the environmental topics evaluated in this Draft EIR under the Reduced Grading Alternative (RSA Alternative Refinement #2) would be similar to the impacts under the proposed Project. However, construction and cumulative air quality impacts would be different under the Reduced Grading Alternative (RSA Alternative Refinement #2) compared to the proposed Project, as discussed below.

Air Quality

Construction

For the proposed Project, the significant and unavoidable impact related to air quality is associated with the closure of the runway and the shift in operations to other runways. Improvements associated with bringing the Runway 7L/25R RSA in compliance with FAA airport design standards under the Reduced Grading Alternative (RSA Alternative Refinement #2) and reconstruction of the Runway 7L/25R pavement would require closure of the runway for 3.5 months, similar to the proposed Project. Under the Reduced Grading Alternative (RSA Alternative Refinement #2), construction equipment under the No Project Alternative would be utilized at a lower intensity compared to the proposed Project. However, as the primary contributor to the significant unavoidable air quality impacts during construction is the runway closure, any emissions credit that would result from lesser construction equipment usage under the Reduced Grading Alternative (RSA Alternative Refinement #2) would not be enough to reduce impacts to a less than significant level. Therefore, impacts related to air quality during construction would still be significant and unavoidable under the Reduced Grading Alternative (RSA Alternative Refinement #2).

Cumulative

Per SCAQMD guidance, because impacts to air quality during construction under the Reduced Grading Alternative (RSA Alternative Refinement #2) would still be significant and unavoidable, the Reduced Grading Alternative (RSA Alternative Refinement #2) would contribute cumulatively to air quality impacts during construction. Therefore, cumulative impacts related to air quality during construction would be significant and unavoidable under the Reduced Grading Alternative (RSA Alternative Refinement #2).

6.4.2 Evaluation of Other Environmental Topics

Table 6-4 presents the comparison of the impacts associated with the No Project Alternative and the Reduced Grading Alternative (RSA Alternative Refinement #2) compared to the proposed Project for the environmental topics required to be analyzed under CEQA, but not evaluated in this Draft EIR as a result of being screened out in the Initial Study.

Table 6-4

Summary of Alternatives Analysis for Other CEQA Environmental Topics

		Level of Significance under Alternative Would Be:(Greater, Similar, or Less)	
Environmental Topic	**Level of Significance Under Proposed Project**	**No Project Alternative**	**Reduced Grading Alternative (RSA Alternative Refinement #2)**
Aesthetics	Less Than Significant	Similar	Similar
Agricultural & Forestry Resources	No Impact	Similar	Similar
Biological Resources	Less Than Significant	Similar	Similar
Cultural Resources	Less Than Significant	Similar for Historic Resources **Less** for Archaeological and Paleontological Resources due to less excavation	Similar for Historic Resources **Less** for Archaeological and Paleontological Resources due to less excavation
Geology and Soils	Less Than Significant	Similar	Similar
Hazards and Hazardous Materials (Other than Hazardous Sites)	Less Than Significant	Similar	Similar
Hydrology and Water Quality (Other than Increased Runoff)	Less Than Significant	Mostly Similar **Less** for Altered Drainage Pattern due to minimal grading footprint	Mostly Similar **Less** for Altered Drainage Pattern due to reduced grading footprint
Land Use and Planning	No Impact	Similar	Similar
Mineral Resources	No Impact	Similar	Similar

Table 6-4

Summary of Alternatives Analysis for Other CEQA Environmental Topics

Environmental Topic	Level of Significance Under Proposed Project	Level of Significance under Alternative Would Be:(Greater, Similar, or Less)	
		No Project Alternative	Reduced Grading Alternative (RSA Alternative Refinement #2)
Population and Housing	No Impact	Similar	Similar
Public Services	Less Than Significant	Similar	Similar
Recreation	No Impact	Similar	Similar
Utilities and Service Systems	Less Than Significant	Similar	Similar

Source: URS Corporation, 2013.

6.5 Environmentally Superior Alternative

Section 15126.6 of the State CEQA Guidelines requires that an "environmentally superior" alternative be selected among the alternatives that are evaluated in the EIR. In general, the environmentally superior alternative is the alternative that would be expected to generate the fewest adverse impacts. If the No Project Alternative is identified as environmentally superior, then another environmentally superior alternative shall be identified among the other alternatives.

6.5.1 Comparison of Environmental Impacts

Table 6-5 summarizes the impacts of the alternatives relative to the proposed Project by category of greater, similar, or less.

Table 6-5

Summary of Lesser/Greater Alternative Impacts Relative to Proposed Project Impacts

Level of Significance Relative to Proposed Project Impacts	Alternative	
	No Project Alternative	Reduced Grading Alternative (RSA Alternative Refinement #2)
Less	Construction Related for All topics (for Air Quality only if as-needed pavement repairs do not require closure of runway)	Cultural Resources
	Hydrology-Altered Drainage Pattern	Hydrology-Altered Drainage Pattern
Greater	None	None

Source: URS Corporation, 2013.

As shown in **Table 6-5**, the No Project Alternative would result in lesser impacts compared to the proposed Project in all topics during construction due to the reduced intensity of the type of construction that would occur under the No Project Alternative. However, if pavement repairs of Runway 7L/25R under the No Project Alternative require closure of the runway and the shifting of operations to other runways during construction, impacts related to air quality construction would similar to those under the proposed Project (significant and unavoidable). The No Project Alternative would not result in greater impacts compared to the proposed Project.

The Reduced Grading Alternative (RSA Alternative Refinement #2) would result in lesser impacts in two environmental topics compared to the proposed Project due to the reduced intensity of construction of the type of construction that would occur under the Reduced Grading Alternative (RSA Alternative Refinement #2). The Reduced Grading Alternative (RSA Alternative Refinement #2) would not result in greater impacts compared to the proposed Project.

6.5.2 Project Objectives Evaluation

Table 6-6 presents how the two proposed Project alternatives meet the objectives of the proposed Project.

Table 6-6

Comparison of Project Objectives Met By the Proposed Project Alternatives

	Does Alternative Meet Objective?	
Proposed Project Objective	**No Project Alternative**	**Reduced Grading Alternative (RSA Alternative Refinement #2)**
RSA Improvements		
Satisfy 14 CFR Part 139 certification requirements	**NO**	YES
Bring the RSA for Runway 7L/25R into compliance with FAA airport design standards by extending Runway 7L to the west, grading additional area to RSA standards west of the Runway 7L RSA, and the use of declared distances	**NO**	YES
Satisfy P.L. 109-115, which requires all 14 CFR Part 139 certificated airports to bring their RSAs into compliance with FAA airport design standards no later than December 31, 2015	**NO**	YES
Based on public input, to maintain the option to physically shift operations of Runway 7L/25R to the west at a future date without negatively affecting aircraft operations at LAX, while still providing RSAs compliant with federal requirements	**NO**	**NO**
Pavement Reconstruction Objectives		
Reconstruct deteriorating pavement at the eastern ends of Runway 7L/25R and Taxiway B, and in the aircraft apron located west of Air Freight Building No.8	YES	YES

Source: URS Corporation, 2013.

As shown in **Table 6-6**, the No Project Alternative would meet only one of the five objectives of the proposed Project. The No Project Alternative would not bring the Runway 7L/25R RSA into compliance with airport design standards, nor the requirements of Public Law 109-115.

The Reduced Grading Alternative (RSA Alternative Refinement #2) would meet all but one of the proposed Project objectives. The Reduced Grading Alternative (RSA Alternative Refinement #2) would not allow for the shifting of the runway at a later time, which was requested by the public during the scoping period.

6.5.3 Conclusion

The No Project Alternative would have, in general, less environmental impacts compared to both the proposed Project and the Reduced Grading Alternative (RSA Alternative Refinement #2). However, as shown in **Table 6-6**, the No Project Alternative would not meet the proposed Project objectives, nor would it meet the requirements of Public Law 109-115.

The Reduced Grading Alternative (RSA Alternative Refinement #2) would have similar environmental impacts compared to the proposed Project, but would result in less impacts to cultural resources and hydrology. While the grading activities associated with this alternative would be less, these reduced impacts would not be sufficient to reduce air quality impacts to less than significant because the closure of the Runway and the associated operational activities during closure are the primary contributors to the significant air quality impacts. Under both the proposed Project and the Reduced Grading Alternative (RSA Alternative Refinement #2), these significant and unavoidable air quality impacts would be short-term and temporary. Finally, the Reduced Grading Alternative (RSA Alternative Refinement #2) would not meet a significant objective of the proposed Project, which is to respond to public input by maintaining the option to physically shift operations of Runway 7L/25R to the west at a future date without negatively affecting aircraft operations at LAX and maintaining FAA-required RSA design.

Based on the evaluation of environmental impacts and on the objectives, the environmentally superior alternative proposed in this Draft EIR is the proposed Project.

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8.0 REFERENCES

17 California Code of Regulations, Section 95480 et seq., "Low Carbon Fuel Standard."

Antonio R. Villaraigosa, *Executive Directive No. 10, Sustainable Practices in the City of Los Angeles,* July 2007.

California Air Resources Board, "Emissions and Health Benefits of Regulation for In-Use Off-Road Diesel Vehicles," http://www.arb.ca.gov/msprog/ ordiesel/documents/OFRDDIESELhealthFS.pdf, Accessed March 2013.

California Air Resources Board, *ARB Health Risk Assessment Guidance for Rail Yards and Intermodal Facilities*, 2006.

__________, Cancer Inhalation Risk: Local Trend Maps website available at http://www.arb.ca.gov/ch/communities/hlthrisk/ cncrinhl/ rskmapvwtrend.htm.400, Accessed September 2013.

__________, *Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act (CEQA)*, October 24, 2008.

__________, In-Use Off-Road Diesel Vehicle Regulation, Overview, Revised May 2012, http://www.arb.ca.gov/msprog/ordiesel/ faq/overview_fact_sheet_dec_2010-final.pdf, Accessed June 2013.

__________, "Area Designations Maps/State and National," Available at www.arb.ca.gov/desig/adm/adm.htm, Effective 04/01/1013.

California Climate Change Center, *Our Changing Climate: Assessing the Risks to California*, 2006.

California Department of Transportation, Division of Aeronautics website, http://www.dot.ca.gov/hq/planning/aeronaut/avnoise.html, Accessed June 2012.

California Environmental Protection Agency (CalEPA), *Air Toxic Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

__________, *Unified Program,* online at http://www.calepa.ca.gov/cupa/, Accessed March 2013.

California Environmental Protection Agency, Climate Action Team, *Report to Governor Schwarzenegger and the California Legislature,* March 2006.

California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I: Technical Support Document for the Determination of Acute Reference Exposure Levels for Airborne Toxicants*, March 1999.

__________, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II: Technical Support Document for Describing Available Cancer Potency Factors*, updated August 2003.

__________, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part III: The Determination of Chronic Reference Exposure Levels for Airborne Toxicants*, February 23, 2000.

__________, Office of Environmental Health Hazard Assessment, *Air Toxic Hot Spots Program Risk Assessment Guidelines, Part IV: Technical Support Document for Exposure Assessment and Stochastic Analysis*, September 2000.

__________, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August 2003.

California Occupational Safety and Health Administration (CalOSHA), Permissible Exposure Limits for Chemical Contaminants, Table AC-1, Available: http://www.dir.ca.gov/Title8/5155table_ac1.html, Accessed August 2013.

California State Water Resources Control Board (SWRCB), *2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report) Statewide, 2010 California 303(d) List of Water Quality Limited Segments*, 2010, available at http://www.waterboards.ca.gov/ water_issues/programs/tmdl/ integrated2010.shtml, Accessed February 5, 2012.

City of Los Angeles, *Climate LA - Municipal Program Implementing the Green LA Climate Action Plan*, 2008.

__________, *Green LA - An Action Plan to Lead the Nation in Fighting Global Warming*, 2007.

__________, *L.A. CEQA Thresholds Guide*, 2006.

__________, *LAX Plan*, September 2004.

__________, *LAX Specific Plan*, September 2004.

__________, *Noise Element of the Los Angeles City General Plan*, February 3, 1999.

__________, *Safety Element of the City of Los Angeles General Plan*, 1996.

City of Los Angeles, Department of Building and Safety Codes website, online at http://ladbs.org/LADBSWeb/codes.jsf, accessed March 2012.

City of Los Angeles, Department of City Planning, *L.A. CEQA Thresholds Guide, Your Resource for Preparing CEQA Analysis in Los Angeles*, 2006.

City of Los Angeles, Department of Transportation, *Traffic Study Policies and Procedures*, December 2010.

City of Los Angeles, Department of Water and Power, *Renewable Energy Policy*, online at https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-renewableenergy/a-p-re-renewableenergypolicy?_adf.ctrl-state=emeedq704_4&_afrLoop=536605396375000, accessed June 2013.

City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004.

City of Los Angeles, Los Angeles World Airports, *Community Benefits Agreement*, 2006.

__________, *Draft Environmental Impact Report, LAX Bradley West Project, SCH#2008121080*, May 2009.

__________, *Final Environmental Impact Report for Crossfield Taxiway Project, Los Angeles International Airport (LAX),* January 2009.

__________*, Final Environmental Impact Report for Bradley West Project, Los Angeles International Airport (LAX)*, September 2009.

__________, *Final Environmental Impact Report for Central Utility Plant Project, Los Angeles International Airport (LAX)*, October 2009.

__________, *LAX Master Plan Alternative D Mitigation Monitoring and Reporting Program*, 2004, p. 54, online at http://ourlax.org/docs/mmrp/mmrp_Sep04.pdf, accessed July 26, 2012.

__________, *Preliminary LAX Specific Plan Amendment Study Report for Los Angeles International Airport (LAX) Specific Plan Amendment Study*, June 2012.

__________, *Runway 7L/25R Safety Area (RSA) Practicability Study*, prepared by Ricondo and Associates, Inc., December 2009.

__________, *South Airfield Improvements Project EIR*, 2006.

__________, Statistics website, http://www.lawa.org/welcome_LAX.aspx?id=800, Accessed July 2013.

__________, *Sustainability Plan*, April 2008.

__________, *Sustainability Vision and Principles*, 2007.

__________, *Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects,* February 2010.

Email from LADOT (Tom Carranza) to LAWA (Patrick Tomcheck) on July 29, 2004.

ENVIRON International Corporation, *CalEEMod Appendix A - Calculation Details*, February 2011, Section 4.5, pages 13-15. Available: http://caleemod.com/, Accessed May 2013.

EnviroStor website, http://www.envirostor.dtsc.ca.gov/public/, Accessed June 2013.

Federal Aviation Administration, Advisory Circular 150/5070-6B, *Airport Master Plans,* May 2007.

__________, Advisory Circular 150/5300-13A, *Airport Design*, September 28, 2012.

__________, *Aeronautical Information Manual*, Change 2, March 7, 2013.

__________, Air Traffic Activity Data System (ATADS) website, http://aspm.faa.gov/opsnet/sys/Airport.asp, Los Angeles International Airport Report for 2012, Ran July 2013.

__________, *Emissions and Dispersion Modeling System User's Manual with Supplements, EDMS Version 5.1.4*, June 2013.

__________, in cooperation with the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services, *Wildlife Hazard Management at Airports, Second edition*, July 2005.

__________, *LAX Airport Diagram, SW-3*, Effective from 15 December 2011 to 12 January 2012, available at *www.faa.gov*.

__________, Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*, Ch. 1(9)(n), June 8, 2004.

GeoTracker website, http://geotracker.waterboards.ca.gov/default.asp, Accessed June 2013.

HNTB, *Contractor's Staging and Laydown Area, Note 6, Plan Set Number 13 of 444, Sheet G012, Drawing Number 20110035*, July 2013.

__________, *Runway 25R & Taxiway B East End Rehabilitation and Taxiway C Extension Preliminary Engineer's Report*, 2011.

Intergovernmental Panel on Climate Change (IPCC), *Climate Change 1995: The Science of Climate Change. Contribution of Working Group I to the Second Assessment Report (SAR) of the Intergovernmental Panel on Climate Change*, 1996.

__________, *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, 2007.

Los Angeles Regional Water Quality Control Board, *Water Quality Control Plan for the Los Angeles Region*, June 1994.

Mai, Alan, Associate Traffic Engineer, City of Inglewood, Personal Communication, January 6, 2009.

National Research Council of the National Academies, *Radiative Forcing of Climate Change: Expanding the Concept and Addressing Uncertainties*, 2005.

Natural Resources Agency, *Guidelines for Implementation of the California Environmental Quality Act* website, http://ceres.ca.gov/ceqa/docs/FINAL_Text_of_Proposed_ Amendemts.pdf, Accessed March, 2013.

Office of Administrative Law, "California Regulatory Notice Register, February 26, 2010," http://www.oal.ca.gov/res/docs/pdf/notice/9z-2010.pdf, Accessed March 2013.

Parsons Brinkerhoff, *Final On-Site Hydrology Report for LAX*, October 2002.

Paul, Principal Planner, City of El Segundo, Personal Communication, April 21, 2009.

PSOMAS, *South Airfield Improvement Project Draft EIR, Appendix A – Conceptual Drainage Plan, Los Angeles International Airport,* June 2005.

Ruffner, J.A., *Climates of the States: National Oceanic and Atmospheric Administration Narrative Summaries, Table, and Maps for Each State with Overview of State Climatologist Programs*, Third Edition, Volume 1: Alabama-New Mexico, Gale Research Company, 1985.

South Coast Air Quality Management District, 2012 Air Quality Management Plan (AQMP) website, http://www.aqmd.gov/aqmp/2012aqmp/index.htm, Accessed May 2013.

__________, *AQMD Meteorological Data for AERMOD* website http://www.aqmd.gov/smog/metdata/AERMOD.html. 2010, Accessed May 2013.

__________, *CEQA Air Quality Handbook*, 1993, as updated by "SCAQMD Air Quality Significance Thresholds," March 2011, Available: http://www.aqmd.gov/ceqa/ handbook/signthres.pdf, Accessed August 2013.

__________, Cumulative Working Group White Paper website, http://www.aqmd.gov/rules/CIWG/index.html, Accessed March 2013.

__________, *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, 2008.

__________, *Final Localized Significance Threshold Methodology*, 2008. Available at http://www.aqmd.gov/ceqa/handbook/LST/ Method_final.pdf, Accessed May 2013.

__________, *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds*, 2006.

__________, *Fugitive Dust, Table XI-A: Construction & Demolition*, Available: http://www.aqmd.gov/ceqa/handbook/mitigation/ fugitive/MM_fugitive.html, Accessed May 2013.

__________, Multiple Air Toxics Exposure Study III Model Estimated Carcinogenic Risk website available at http://www3.aqmd.gov/webappl/matesiii/, Accessed September 2013.

__________, *Supplemental Guidelines for preparing Risk Assessment for the Air Toxics Hot Spots Information and Assessment Act (AB2588)*, July 2005.

Southern California Association of Governments, *Regional High-Occupancy Vehicle Lane System Performance Study*, November 4, 2004.

Transportation Research Board, Transportation Research Circular No. 212, *Interim Materials on Highway Capacity*, January 1980.

U.S. Environmental Protection Agency, "Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; California; South Coast Air Basin; Approval of PM_{10} Maintenance Plan and Redesignation to Attainment for the PM_{10} Standard," *Federal Register,* Vol. 78, No. 123, June 26, 2013, pp. 38223-38226.

__________, "NO_2/NO_X In-Stack Ratio (ISR) Database," http://www.epa.gov/ttn/scram/no2_isr_database.htm. Accessed April 2013.

__________*, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the CAA*, Federal Register 74 (15 December 2009): 66496-66546.

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

__________, Glossary of Climate Terms, Online at http://www.epa.gov/climatechange/glossary.html, accessed February 14, 2012.

__________, *Green Book*, Available at http://www.epa.gov/air/oaqps/greenbook/index.html. As of July 31, 2013.

__________, Office of Emergency and Remedial Response, *Risk Assessment Guidance for Superfund, Vol I, Human Health Evaluation Manual (Part A), Interim Final, EPA/540/1-89/002*, December, 1989.

__________, Office of Solid Waste and Emergency Response, *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors*, August, 1991.

United Airlines, *Human Health Risk Assessment United Airlines Maintenance Operations Center Prepared for Los Angeles International Airport*, prepared by Environmental Resources Management, January 2011.

URS Corporation, *Runway 7L-25R Safety Area (RSA) Project Los Angeles International Airport Engineer's Design Report-Appendix 3 Drainage Report*, April 2011.

9.0 ACRONYMS AND DEFINITIONS

The following is a list of abbreviations, definitions, and acronyms that are used in this Draft EIR.

Numbers and Symbols

μ/m^3	Micrograms per cubic meter
§	Section/Paragraph
°F	Degrees Fahrenheit

A

AAD	Average Annual Day
AAM	Annual Arithmetic Mean
AB	Assembly Bill
A/C	Advisory Circular
AAC	Aircraft Approach Category
ACCRI	Aviation Climate Change Research Initiative
ACHP	Advisory Council on Historic Preservation
ADD	average daily dose
ADG	Airplane Design Group
AHPA	Archaeological and Historic Preservation Act
Airport	Los Angeles International Airport
AIP	Airport Improvement Program
ALP	Airport Layout Plan
ALS	Approach Lighting System
ALSF-2	Approach Light System with Sequenced Flashing Lights
AMS	American Meteorological Society
ANOMS	Aircraft Noise and Operations Monitoring System

ANSI	American National Standards Institute
AOA	Airport Operations Area
APE	Area of Potential Effect
APM	Automated People Mover
APU	Auxiliary Power Units
AQMPs	Air Quality Management Plans
ARC	Airport Reference Code
ARFF	Aircraft Rescue and Fire Fighting
ARPA	Archaeological Resources Protection Act
ASDA	Accelerate-Stop Distance Available
ATADS	Air Traffic Activity Data System
ATCM	Air Toxics Control Measure

B

Basin	South Coast Air Basin
Basin Plan	Basin Plan for the California Regional Water Quality Control Board, Los Angeles Region
BAT	Best Available Technology
BCT	Best Practicable Control Technology
BFSF	Bulk Fuel Storage Facility
BMP	Best Management Practice
BNSF	Burlington North Santa Fe Railroad
BOAC	Board of Airport Commissioners
BOD	Biochemical Oxygen Demand
BOE	Department of Public Works, Bureau of Engineering
BPA	Business Plan Act

BRSA	Biological Resources Study Area

C

CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	State of California Environmental Protection Agency
CalOSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCA	California Coastal Act
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDHS	California Department of Health Services
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act
CFCs	Chlorofluorocarbons
cfs	cubic feet per second
CFR	Code of Federal Regulations
CFTP	Crossfield Taxiway Project
CH_4	Methane
CF_4	Perfluromethane
C_2F_6	Perfluoroethane

CHL	California Historical Landmarks
CHRI	California Historical Resources Inventory
CHRIS	California Historic Resource Information System
CMA	Critical Movement Analysis
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
Cortese List	Hazardous Waste and Substances Sites List, California Government Code Section 65962.5
CPHI	California Points of Historical Interest
CRHR	California Register of Historical Resources
CTA	Central Terminal Area
CWA	Clean Water Act
CUP	Central Utility Plant
CUPA	Certified Unified Program Agency
CUP-RP	Central Utility Plant – Replacement Project

D

dB	Decibels
dBA	A-weighted decibel
DE	Diesel Exhaust
DNL	Day Night Average Sound Level)
DPM	Diesel Particulate Matter

DPR	California Department of Parks and Recreation
DTSC	Department of Toxic Substances Control

E

EA	Environmental Assessment
EDMS	Emissions and Dispersion Modeling System
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMAS	Engineered Materials Arresting System
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EW	Ephemeral Wetland

F

FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FEIR	Final Environmental Impact Report
FHWA	Federal Highway Administration
FSC	Federal Species of Concern
FT	Federal Threatened

G

GAO	General Accounting Office
GCASP	General Construction Activity Stormwater Permit
GCC	Global Climate Change
GHG	Greenhouse Gas

GIS	Geographic Information Systems
g/mi	Grams per Mile
gpd	Gallons per day
GRI	Global Reporting Initiative
GSE	Ground Support Equipment
GTC	Ground Transportation Center
GWP	Global Warming Potential

H

Handbook	SCAQMD Air Quality Analysis Guidance Handbook
HARP	CARB Hotspots Analysis Reporting Program
HFCs	Hydrofluorocarbons
HHRA	Human Health Risk Assessment
HIRL	High Intensity Runway Edge Lights
HRI	Historic Resources Inventory
HWCL	Hazardous Waste Control Law

I

ID	Identification
ILS	Instrument Landing System
INM	Integrated Noise Model
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study

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L

LACDWP	Los Angeles County Department of Public Works
LADBS	Los Angeles Department of Building and Safety
LADCP	Los Angeles Department of City Planning
LADD	Lifetime Average Daily Dose
LADOT	City of Los Angeles Department of Transportation
LADWP	Los Angeles Department of Water and Power
LAFD	Los Angeles Fire Department
LAGBC	Los Angeles Green Building Code
LAHCM	City of Los Angeles Historic Cultural Monument
LAMC	Los Angeles Municipal Code
LAPD	Los Angeles Police Department
LARWGCB	Los Angeles Regional Water Quality Control Board
LAX	Los Angeles International Airport
LAX-A Zone	Airport Airside Sub-Area
LAWA	Los Angeles World Airports
LAWAPD	LAWA Police Department
LCFS	Low Carbon Fuel Standard
LDA	Landing Distance Available
LEED	Leadership in Energy and Environmental Design
Leq(h)	Equivalent Sound Level (hourly)
L_{max}	Maximum Noise Level
LID	Low Impact Development
LOS	Level of Service
LRT	Light Rail Transit

LUST	Leaking Underground Storage Tank
M	
MALSR	Medium Intensity Approach Light Systems With Runway Alignment Indicator Lights
MATES	Multiple Air Toxics Exposure Study
MBAS	Methylene Blue Activated Substances
MBTA	Migratory Bird Treaty Act
MEI	maximally exposed individual
MEP	Maximum Extent Practicable
Metro	Los Angeles County Metropolitan Transportation Authority
mg/L	milligram per liter
MGTOW	Maximum gross takeoff weight
MM	Mitigation Measure
MMRP	Mitigation Monitoring Reporting Program
Mpg	Miles Per Gallon
Mph	Miles Per Hour
MPO	Metropolitan Planning Organization
M/S	Meters per Second
MS4	Municipal Separate Storm Sewer Systems
MSC	Midfield Satellite Concourse
MT	Metric Tons
MUN	Municipal Water Use
N	
N/A	Not Applicable/No Designation
NAAQS	National Ambient Air Quality Standards

NADB	National Archaeological Database
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NALs	Numeric Action Levels
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NLR	Noise Level Reduction
NMOC	Non-Methane Organic Compounds
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
N_2O	Nitrous Oxide
NOP	Notice of Preparation
NORS	North Outfall Relief Sewer
NOx	Oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places

O

O_3	ozone
OEHHA	California Office of Environmental Health Hazard Assessment
OFA	Object Free Area
OLM	Ozone Limiting Method
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Act

P

PAHs	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PCBs	Polychlorinated Biphenyls
PCC	Portland Cement Concrete
PCE	Passenger Car Equivalents
PCI	Pavement Condition Index
PEL-TWAs	Time-Weighted Average Permissible Exposure Levels
PFCs	Perfluorocarbons
PL	Public Law
PM	Particulate Matter
PM_{10}	particulate matter equal to less than 10 microns in diameter
$PM_{2.5}$	particulate matter equal to less than 2.5 microns in diameter
ppb	Parts per Billion
ppm	parts per million
PRC	Public Resource Code
Proposition 65	Safe Drinking Water and Toxic Enforcement Act

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R

RCRA	Resource Conservation and Recovery Act
REAP	Rain Event Action Plan
RELs	Reference Exposure Levels

ROG	Reactive Organic Gas
ROW	Right-of-Way
RPS	Renewables Portfolio Standard
RSA	Runway Safety Area
RS-N	Receiving Station N
RSP	Residential Soundproofing Program
RTAC	Regional Targets Advisory Committee
RVR	Runway Visual Range
RWQCB	Regional Water Quality Control Board
RWSL	Runway Status Light System
RWY	Runway

S

SAIP	South Airfield Improvement Project
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SF_6	Sulfur Hexafluoride
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SMARTS	Stormwater Multi-Application, Reporting, and Tracking System
SO_2	Sulfur Dioxide
SO_X	Oxides of Sulfur
SPAS	Specific Plan Amendment Study

SSC	State Species of Concern
ST	Surface Transportation
Superfund	Comprehensive Environmental Response, Compensation, and Liability Act
SUSMP	Standard Urban Stormwater Mitigation Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T

TAC	Toxic Air Contaminant
TAF	Terminal Area Forecast
TBIT	Tom Bradley International Airport
TDZ	Touchdown Zone
TMDL	Total Maximum Daily Loads
TNM	Traffic Noise Model
TODA	Take Off Distance Available
TORA	Take Off Run Available
Tpd	tons per day
TSA	Taxiway Safety Area
TSCA	Toxic Substances Control Act
TWY	Taxiway

U

UNFCC	United Nations Framework Convention on Climate Change
UP	Unified Program
URBEMIS	Urban Emissions Model
USACE	United States Army Corps of Engineers

USC	United States Code
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UTM	Universal Transverse Mercator

V

v/c	volume/capacity
VASI	Visual Approach Slope Indicator
VOC	Volatile Organic Compound

W

WQBELs	Water Quality- Based Effluent Limitations
WQOs	Water Quality Objectives

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