Los Angeles World Airports (LAWA) has prepared this project-level draft environmental impact report (Draft EIR) for the South Airfield Improvement Project (SAIP), pursuant to the California Environmental Quality Act (CEQA). The SAIP is a project component of the LAX Master Plan Program approved by the Los Angeles City Council in December of 2004. The LAX Master Plan was the subject of a certified, program-level environmental impact report (LAX Master Plan Final EIR) and an approved environmental impact statement (LAX Master Plan Final EIS), which were prepared by LAWA and the Federal Aviation Administration, respectively.

The SAIP Draft EIR is “tiered” from the LAX Master Plan Final EIR. This means that this Draft EIR builds on the work contained in the LAX Master Plan Final EIR, and provides additional project-level information and analysis as necessary for the public and decision makers to evaluate the SAIP under CEQA. CEQA encourages public agencies to tier environmental analyses for individual projects from program-level environmental impact reports to eliminate repetitive discussions and to focus the later EIR (such as this Draft EIR) on issues that may not have been fully addressed at a project-level of detail.

The LAX Master Plan Final EIR dealt with many of the specific issues associated with the SAIP. Accordingly, as contemplated by CEQA, this “tiered” Draft EIR supplements the information and analysis provided in the LAX Master Plan EIR with further detailed information and analysis at the project level. For this reason, the considerable information about the SAIP that is contained in the LAX Master Plan EIR is not repeated in this Draft EIR. To aid the reader, however, an effort has been made to provide a brief summary for each of the areas covered in the LAX Master Plan Final EIR, and the location where the reader can locate the prior treatment of those areas.

This Draft EIR is prepared in accordance with all requirements of CEQA. This Draft EIR incorporates and responds to comments received on the Notice of Preparation for the EIR. LAWA will accept comments on this Draft EIR during the 45-day public comment period, which expires on September 15, 2005. LAWA will then prepare responses to all comments received on issues pertinent to the Draft EIR during the comment period and will publish a Final EIR containing those responses plus any necessary modifications to the Draft EIR. LAWA, the Los Angeles Board of Airport Commissioners and the Los Angeles City Council will use the Final EIR to inform their decisions on the SAIP, as CEQA requires.

Volume I: Table of Contents

List of Exhibits

List of Tables

I. Introduction

This document is a project-level tiered Draft Environmental Impact Report (Draft EIR) for the proposed South Airfield Improvement Project (SAIP) at Los Angeles International Airport (LAX). LAX is owned and operated by the City of Los Angeles, whose Board of Airport Commissioners oversees the policy, management, operation, and regulation of LAX. Los Angeles World Airports (LAWA) is a self-supporting administrative department of the City of Los Angeles charged with administering the day-to-day operations of LAX. This Draft EIR has been prepared by LAWA as the lead agency in conformance with the California Environmental Quality Act (CEQA)[1]. The SAIP is first of a number of projects included in the approved LAX Master Plan to be implemented.

A programmatic level EIR, the LAX Master Plan Final EIR, was prepared and certified by LAWA for the entire LAX Master Plan. However, CEQA requires the preparation of additional project-specific environmental analysis if it is determined that the individual project may have potentially significant impacts on the environment that were not fully addressed in the programmatic EIR. This Draft EIR provides additional project-specific information on the construction and operation of the SAIP, focusing on potentially significant environmental effects of the SAIP that may not have been fully addressed in the LAX Master Plan Final EIR. This Draft EIR also identifies the LAX Master Plan commitments and mitigation measures included in the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP), as well as the LAX Master Plan Final EIR, that would be applicable to, and would therefore be undertaken as part of, the SAIP. Pursuant to the CEQA Guidelines,[2] the information presented in this EIR is "tiered" off of the information presented in the LAX Master Plan Final EIR. New or revised information is provided as needed to disclose and describe the specific environmental effects associated with the SAIP that were not fully addressed in the LAX Master Plan Final EIR. As explained further in Section 2.5, the SAIP itself would not increase the airport's ability to accommodate passengers, cargo or aircraft operations, nor would it affect the demand for the use of the airport.

1.1 Background and Project History

1.1.1 LAX Master Plan

In December 2004, the Los Angeles City Council approved the LAX Master Plan and related entitlements for the future development of LAX. The LAX Master Plan provides the first major new facilities for, and improvements to, the airport since 1984, and plans 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. The LAX Master Plan serves as a broad policy statement regarding the conceptual strategic planning framework for future improvements at LAX and working guidelines to be consulted by LAWA as it formulates and processes site-specific projects under the LAX Master Plan program.

The development of the LAX Master Plan was completed in three phases and included an exhaustive iterative process during which LAWA reviewed a wide range of alternatives before selecting a

[1] The California Environmental Quality Act (CEQA), Pub. Resources Code §21000 et seq.
[2] CEQA Guidelines, Cal Code Regs. Tit. 14, §15000, et seq.

preferred development program known as Alternative D. The first two phases of the LAX Master Plan included:

- Research (Phase I): During this phase of the study, completed in December 1995, existing airport conditions at that time were defined, future demand was estimated, and the public consultation process was initiated. It was estimated that the unconstrained demand for air service at LAX by 2015 will be 98 million annual passengers and 4.2 million annual tons of cargo. During this phase, the Master Plan extensively analyzed existing and projected future activity levels at the airport. (Please also see Chapter 2 of the LAX Master Plan Final EIR and Chapter 3 of the Draft LAX Master Plan.)
- Concept Development (Phase II): This study phase was initiated in the fall of 1995 to evaluate facility requirements and to develop an airport layout for LAX to serve, in whole or in part, the forecast passenger and cargo demand. The concept development process involved policy decisions and design tradeoffs that spanned over five years and included dozens of options in order to achieve the best balance possible to serve the airport needs of the region and those of the differing stakeholders. As the process progressed, agency and public meetings and workshops were held to inform concerned parties of the progress and findings of the study and encourage participation in the process. As a result of public input, two of the initial four concepts were eliminated, and others were put forward. Three build alternatives and the No Action/No Project Alternative were moved forward to the third and final phase of the LAX Master Plan process.

1.1.2 Environmental Review for the LAX Master Plan

Phase III of the LAX Master Plan Study consisted of a thorough evaluation of the potential environmental effects associated with the remaining modernization alternatives, following both federal and State of California environmental review procedures. The environmental review process was conducted as a joint Environmental Impact Statement (EIS) under federal environmental law and Environmental Impact Report (EIR) under California law. The EIS/EIR provided descriptions of the environmental conditions in and around LAX, analyzed the potential impacts of the improvements associated with each alternative on the physical environment, and recommended mitigation measures to address potential impacts. The Draft EIS/EIR was released for public and agency review in January 2001.

Following publication of the Draft LAX Master Plan and Draft EIS/EIR in January 2001, public comment received during the review period called for a regional approach alternative, whereby growth at LAX would be planned so as to encourage other airports in the Los Angeles region to accommodate a greater share of future air travel demand. In addition, the terrorist attacks that occurred on September 11, 2001, greatly elevated the issue of airport security. In response to these events, the newly elected Mayor of Los Angeles directed the Los Angeles Board of Airport Commissioners to develop a new LAX Master Plan alternative that, consistent with public comment calling for a regional approach alternative, would be designed to accommodate passenger and cargo activity levels at LAX that would approximate those of the No Action/No Project Alternative, have fewer environmental impacts than the No Action/No Project Alternative and, in light of the events of September 11, 2001, would be designed to enhance airport safety and security.

Alternative D, the Enhanced Safety and Security Plan, was developed in consultation with LAWA staff and the FAA as a fifth alternative within the existing Master Plan process. A Supplement to the

Draft EIS/EIR for the LAX Master Plan, which included an analysis of the LAWA staff-preferred Alternative D, was published for public and agency review in July 2003.

The LAX Master Plan Final EIR, which addressed four build alternatives and the No Action/No Project Alternative, was then developed on the basis of the Draft EIS/EIR, the Supplement to the Draft EIS/EIR, public and agency comments received on both documents, and written responses to those comments. The LAX Master Plan Final EIR, as well as the LAX Master Plan MMRP identifying LAX Master Plan mitigation measures and commitments, were published in April 2004. A revised MMRP and an Addendum to the LAX Master Plan Final EIR were published in September 2004. Three additional LAX Master Plan addenda were published in early December 2004, prior to certification of the LAX Master Plan Final EIR by the Los Angeles City Council on December 7, 2004.

Although the LAX Master Plan Final EIR addresses the more general level of detail appropriate for program level entitlements, it also contains extensive project-level analysis that can be used as the basis for developing the project-level tiered documents such as this Draft EIR.

1.1.3 Environmental Review for the South Airfield Improvement Project

Where a program-level environmental document has been prepared, CEQA encourages the public agency to "tier" subsequent project-level environmental analyses from that document. Pub. Res. Code § 21093. Section 15152(a) of the CEQA Guidelines describes the tiering approach as follows:

> "Tiering" refers to using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project.

This Draft EIR is "tiered" from, and incorporates by reference, the LAX Master Plan Final EIR. Given this structure, it is not necessary to evaluate potential impacts in this Draft EIR that have already been fully evaluated in the LAX Master Plan Final EIR, nor provide a new evaluation of alternatives. To avoid a repetitive discussion of issues, this Draft EIR provides project-specific information on the construction of the SAIP, focusing on potentially significant environmental effects at the project level of detail that may not have been specifically addressed in the prior EIR.

Consistent with Public Resources Code section 21094(b), prior to preparing this tiered EIR, LAWA determined that the SAIP: (1) is consistent with the LAX Master Plan, (2) is consistent with applicable local land use plans and zoning, and (3) does not require a subsequent or supplemental EIR pursuant to Public Resources Code section 21166.

As identified in the August 5, 2004, Notice of Preparation (NOP) for this project-level EIR, LAWA determined based on an initial review of the SAIP that four categories of environmental resources could potentially be affected by construction of the project and require additional review. These four categories of environmental resources included hydrology/water quality, ground transportation, air quality, and noise. Additional analysis completed since the NOP was published has identified biotic communities and human health risks as additional environmental resources requiring additional review. Each of these six categories of environmental resources is potentially subject to impacts due to construction-related activities as well as operations-related activities. For most of these resources, operations-related impacts are fully addressed in the LAX Master Plan EIR. Accordingly, based on new project-specific construction information, this EIR addresses the construction-related impacts[3] related to hydrology/water quality, ground transportation, air quality, human health risks, noise, and biotic communities. Operations-related[4] impacts are also analyzed for hydrology/water quality based on project specific information relating to post-construction drainage conditions. The potential operations-related effects on other environmental resources were adequately addressed in the LAX Master Plan and no further analysis is required regarding those resources in this document.

A wide range of alternatives to the SAIP were evaluated and rejected in the development of the LAX Master Plan. During the concept development phase for the LAX Master Plan, numerous airfield configurations and locations were evaluated. Based on several factors, including safety, cost, operational efficiency, and environmental concerns, it was determined that the LAX Master Plan (Alternative D) best met the project objectives. Unlike certain conceptual plans for airport facilities, airfield configurations were developed and designed at a precise level of detail to satisfy FAA requirements related to airport layout plans. Accordingly, this document does not reevaluate project alternatives.

In this Draft EIR, the elements of the LAX Master Plan MMRP applicable to the construction of the SAIP have been identified and included as part of the project-specific impact analyses.

1.2 Summary of Proposed Project

This chapter provides a summary of the SAIP. The project construction and scheduling are described in greater detail in Chapter II of this EIR.

Unlike other recommended projects included as part of Alternative D, which are described and analyzed in the LAX Master Plan Final EIR at a conceptual level, specific design details for the south airfield were developed following extensive consultation with the FAA and its regulatory guidance regarding safe, efficient airport layout plans.[5] The SAIP plan was incorporated into the LAX Master Plan Final EIR after considering a number of runway alternatives that would both enhance the safety and efficiency of the south airfield and provide the ability to accommodate New Large Aircraft[6] (NLA). Consequently, the LAX Master Plan Final EIR describes, at a project-specific level of detail, the environmental impacts associated with the SAIP, as well as operations on the improved airfield.

Consistent with the LAX Master Plan Final EIR, LAWA proposes to construct a new 75-foot wide parallel taxiway between the two south airfield runways to meet the LAX Master Plan objectives as specified in Chapter 2 of the LAX Master Plan Final EIR. To meet the FAA required runway-to-taxiway centerline spacing, the addition of the parallel taxiway would require that the southern-most

[3] The term ‘construction-related’ impacts refers to the direct impacts from construction of the SAIP as well as indirect impacts from airport operations that occur during and as a result of construction (for example, the potential impact on pollutant emissions due to increased aircraft taxi and queue times during construction; and temporary noise impacts from different runway use patterns during construction).

[4] The term “operations-related” impacts refers to the direct effects of changes in operations that occur after construction of the SAIP (for example, changes in runoff patterns as a result of changes in paved areas.)

[5] The Los Angeles City Council approved the submittal of the LAX Master Plan Airport Layout Plan (ALP) to the FAA on December 7, 2004. The ALP was subsequently approved by the FAA on July 1, 2005. The FAA approved ALP includes all SAIP components as depicted in the LAX Master Plan Final EIR.

[6] New Large Aircraft or NLA is a generic term that has been adopted by the aviation industry to identify the new commercial passenger aircraft that are being considered or designed to carry more passengers than the current largest aircraft, the Boeing 747. The first of these NLAs to be put into service is the Airbus A380.

runway, Runway 7R-25L, be relocated in its entirety 55.42 feet to the south of its current location. The relocation of Runway 7R-25L would include the relocation and replacement of all navigational and visual aids and other associated site work such as utilities, lighting, signage, grading, and drainage. Stormwater drainage work associated with the SAIP would be consistent with Best Management Practices as outlined in the Standard Urban Storm Water Mitigation Plan (SUSMP) required by the City of Los Angeles Department of Public Works, Bureau of Sanitation, Watershed Protection Division (WPD). The drainage work included with the SAIP is consistent with the Conceptual Drainage Plan (CDP) that was developed pursuant to the LAX Master Plan Commitment HWQ-1.[7]

Certain other Master Plan commitments and mitigation measures apply to the SAIP. Because these are required components of the SAIP pursuant to the LAX Master Plan, they are generally considered to be included in the project for the purposes of environmental review, rather than as mitigation for potentially significant impacts "after the fact." Where additional mitigation is required to address impacts specific to the SAIP, new mitigation measures are evaluated and proposed for adoption, as appropriate.

Additional information on project description, construction, and phasing, along with exhibits depicting the project, is provided in Chapter II of this Draft EIR.

1.3 Summary of Project-Specific Environmental Analysis

This chapter provides a summary of the potential project-specific environmental impacts, LAX Master Plan commitments, and mitigation measures related to hydrology/water quality, ground transportation, air quality, noise, and biotic resources. Detailed discussions of the potentially significant impacts and mitigation measures associated with the project are provided in Chapter IV of this Draft EIR. A summary of the information regarding the remaining impact categories and resources relevant to the SAIP is provided in Chapter V.

1.3.1 Hydrology/Water Quality

1.3.1.1 Impacts

Through implementation of the CDP, the SAIP has been designed to ensure that no significant drainage impacts would occur. Moreover, with the incorporation of Best Management Practices (BMPs) into the project design, the proposed project would not result in any adverse water quality impacts. Potentially significant construction-related impacts on drainage and water quality would be avoided through compliance with regulatory requirements (e.g., implementation of a project-specific Storm Water Pollution Prevention Program for construction activities) as well as implementation of the CDP. The SAIP, however, has the potential contribute to in cumulative impacts when considered in connection with past, present, and probable future projects within the Santa Monica Bay and Dominguez Channel watersheds.

[7] Pursuant to LAX Master Plan Commitment HWQ-1, LAWA is required to prepare a CDP to address potential hydrology and water quality issues associated with the implementation of the LAX Master Plan. The CDP has been prepared and is included as Appendix A to this Draft EIR. The provisions of the CDP applicable to the SAIP will be implemented as part of the project and are thus incorporated into the project description for the purposes of environmental review.

Due to the distance of cumulative projects from the SAIP site, and the lack of capacity limitations within the Santa Monica Bay drainage system, no significant cumulative impacts to drainage infrastructure would occur within the Santa Monica Bay watershed. However, there are currently capacity constraints within the Dominguez Channel Watershed, especially at the point where the Dominguez sub-basin drains into a Los Angeles County conveyance facility that was designed for a 10-year storm event. Although the SAIP would be designed to address flooding within the boundaries of the project study area, increased surface water runoff and peak flows resulting from the project, in conjunction with runoff and peak flows associated with other projects, may exceed the capacity of the regional drainage infrastructure serving the Dominguez Channel watershed. This would be a potentially significant cumulative impact.

With regard to water quality, as noted in Section 4.1.3, sizable development projects in the Los Angeles area are subject to the Standard Urban Storm Water Mitigation Plan (SUSMP) provisions adopted by the Los Angeles Regional Water Quality Control Board (LARWQCB) under the Municipal Stormwater NPDES Permit, to which the City of Los Angeles is a Permittee. In accordance with the SUSMP provisions, a plan to prevent, control, remove, or reduce pollution resulting from increased impervious surfaces and resulting pollutant loads would be required for each of the projects that could result in cumulative impact. With implementation of these provisions, cumulative water quality impacts would be less than significant.

1.3.1.2 LAX Master Plan Commitments and Mitigation Measures

The following LAX Master Plan commitments and mitigation measures related to hydrology/water quality apply to the SAIP:

- **HWQ-1. Conceptual Drainage Plan.** In accordance with this Master Plan commitment, LAWA has prepared a Conceptual Drainage Plan (CDP) that provides the basis by which project-specific drainage improvements for the SAIP were developed and water quality BMPs were selected.
- **MM-HWQ-1. Upgrade Regional Drainage Facilities.** The SAIP would contribute to a significant cumulative impact to drainage facilities within the Dominguez Channel Watershed. Master Plan Mitigation Measure MM-HWQ-1 requires the Los Angeles County Department of Public Works and/or the City of Los Angeles Department of Public Works to upgrade regional drainage facilities in order to accommodate future peak flows resulting from cumulative development. With implementation of this measure, cumulative drainage impacts resulting from the proposed project, in conjunction with past, present, and probable future projects, could be mitigated to a level of insignificance.

Consistent with the findings in the LAX Master Plan Final EIR, cumulative drainage impacts resulting from development of the SAIP, in conjunction with past, present, and probable future projects, could be mitigated through implementation of Mitigation Measure MM-HWQ-1 Because this mitigation measure is not fully within the jurisdiction of the lead agency to implement, the implementation of the mitigation cannot be guaranteed and, therefore, the cumulative impact is considered to be potentially significant and unavoidable.

1.3.2 Ground Transportation

The construction-related impacts of the SAIP on ground transportation are summarized in this section. There would be no additional operations-related impacts on ground transportation associated with the SAIP beyond those analyzed in the LAX Master Plan Final EIR.

1.3.2.1 Impacts

The LAX Master Plan Final EIR concluded that construction-related traffic for the LAX Master Plan would, at times, result in significant and unavoidable impacts. The analysis in this EIR provides project-level information regarding the nature, timing, and location of construction-related traffic impacts related to the SAIP. Study area intersections were analyzed for the hours that would correspond with peak construction-related activity. Specifically, three hours were analyzed corresponding with the peak hour for construction employees arriving at the employee parking areas (employee a.m. peak hour from 6:00 a.m. to 7:00 a.m.), the peak hour for construction deliveries (delivery peak hour from 3:00 p.m. to 4:00 p.m.), and the peak hour corresponding with construction employees departing the employee parking areas (Employee P.M. Peak Hour from 3:30 p.m. to 4:30 p.m.). The scheduling of construction employee traffic and construction deliveries for the SAIP is planned to avoid the peak commuter hours in accordance with LAX Master Plan commitments and mitigation measures. The regional peak morning commuter period occurs from 7:00 a.m. to 9:00 a.m. and the regional peak evening commuter period occurs from 4:30 p.m. to 6:30 p.m.

It has been determined that the intersection of Imperial Highway and the I-105 Ramps east of Aviation Boulevard would potentially be significantly impacted by traffic generated during construction of the SAIP, specifically during the employee p.m. peak hour. The impact would be primarily the result of construction employee traffic departing the study area using the westbound left-turn movement along with additional construction-related vehicles traveling westbound through the intersection on Imperial Highway.

1.3.2.2 LAX Master Plan Commitments and Mitigation Measures

The following LAX Master Plan commitments and mitigation measures related to construction traffic apply to the SAIP:

- **C-1. Establishment of a Ground Transportation/Construction Coordination Office.** This office will coordinate deliveries, monitor traffic conditions, advise motorists and those making deliveries about detours and congested areas, and monitor and enforce delivery times and routes. The Ground Transpiration/Construction Coordination Office for the SAIP is planned to be located on airport property on World Way West near the construction staging area.
- **C-2. Construction Personnel Airport Orientation.** All SAIP construction personnel will be required to attend an airport project-specific orientation (pre-construction meeting) that includes information regarding where to park, where the staging area is located, construction policies, etc.
- **ST-9. Construction Deliveries.** Construction deliveries requiring lane closures shall receive prior approval from the Ground Transpiration/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 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.
- **ST-14. Construction Employee Shift Hours.** Shift hours that do not coincide with the heaviest commuter traffic periods (7:00 a.m. to 9:00 a.m. and 4:30 p.m. to 6:30 p.m.) will be

established. Work periods will be extended to include weekends and multiple work shifts, to the extent possible and necessary.

- **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 will 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).

In addition to the measures listed above, the Final EIR identified improvements to the intersection of Imperial Highway and the I-105 Ramps east of Aviation Boulevard to accommodate the implementation of the Intermodal Transportation Center and other Master Plan projects. It was determined that implementation of these or other physical improvements to offset the construction impact of the SAIP project is not feasible or justified as part of this project. The project-related impacts associated with the SAIP would be short term, on the order of one month in duration. In addition, the overall project-related conditions during the project peak hours are anticipated to be similar to or better than the conditions that would be experienced during the adjacent commuter peak periods. Widening the roadway in order to install additional traffic lanes at this intersection would create a greater disruption to the flow of traffic and for a longer period of time than the impact caused by the SAIP project-related construction traffic. In addition, existing street widths do not permit the restriping of the intersection to provide additional lane capacity without widening of the roadway. Therefore, intersection capacity enhancements (e.g., additional roadway lanes, restriping) would not provide feasible mitigation at this intersection as a result of the SAIP.

For purposes of the SAIP traffic analysis, it was assumed that the LAX Master Plan commitments and mitigation measures listed above would be implemented. In addition, it is anticipated that the activities of the Ground Transportation/Construction Coordination Office would be refined as necessary to respond to the specific traffic generation characteristics of the SAIP. Although the measures could feasibly improve traffic operations and reduce the anticipated construction-related traffic impact, it is not anticipated that the measures would reduce the impact at the intersection of Imperial Highway and the I-105 Ramps east of Aviation Boulevard to a less than significant level. The temporary impact at this intersection would remain potentially significant and unavoidable.

1.3.3 Air Quality

1.3.3.1 Impacts

1.3.3.1.1 Construction Activity Emissions

Peak daily and quarterly emissions of SO_2 generated by construction activities would not exceed the SCAQMD construction emission thresholds. Peak daily and quarterly emissions of CO, VOC, NO_x and PM_{10} associated with the SAIP would exceed the SCAQMD construction emissions thresholds.

1.3.3.1.2 Airport Emissions During Construction

Six criteria pollutants were evaluated for the SAIP, including sulfur dioxide (SO_2), carbon monoxide (CO), 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 micrometers ($PM_{2.5}$), nitrogen dioxide (NO_2), and ozone (O_3). Although lead (Pb) is a criteria pollutant, it was not evaluated in this EIR, because the construction of the SAIP and ongoing airport operations are expected to have a negligible impact on lead emissions in the South Coast Air Basin.

Following standard industry practice, the evaluation of ozone was conducted by evaluating emissions of volatile organic compounds (VOC) and nitrogen oxides (NO_x), which are precursors in the formation of ozone. Consistent with the approach described in Section 4.6.2 of the LAX Master Plan Final EIR[8], emissions of NO_x were used to determine emissions of NO_2 and the emissions of NO_x and NO_2 were considered to be equivalent.

The estimated airport emissions for the project construction period reflect the temporary shift in aircraft operations from Runway 7R-25L to other runways. Emissions of CO, VOC, NO_x, SO_2, and PM_{10} are estimated to be greater during the construction period than those under the 2003 Baseline conditions. The incremental increase in airport-related CO, VOC, NO_x, SO_2, and PM_{10} emissions (difference between the construction period and baseline 2003 emissions) would exceed the SCAQMD daily emissions significance thresholds during the construction period. This assessment is conservative because the increase in aviation activity between 2003 and 2005 is accounted for in the emission estimates. The SCAQMD has not established a threshold of significance for $PM_{2.5}$ emissions. Accordingly, $PM_{2.5}$ emissions were evaluated by comparing $PM_{2.5}$ air pollutant concentrations that would result from both construction and operation sources combined with background $PM_{2.5}$ concentrations to federal and state ambient air quality standards.

1.3.3.1.3 Pollutant Concentrations During Construction

The maximum predicted concentrations during the peak construction period including background concentrations were compared with the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). Pollutant concentrations under Project (2005) conditions are predicted to meet the applicable NAAQS and CAAQS for all pollutants except PM_{10} and $PM_{2.5}$. PM_{10} concentrations are predicted to exceed CAAQS under Project (2005) conditions, consistent with the findings in the LAX Master Plan Final EIR. $PM_{2.5}$ concentrations are predicted to exceed NAAQS and CAAQS under Project (2005) conditions. The highest NO_2 (annual) and SO_2 concentrations under Project (2005) conditions would be at the edge of the airport boundary near the intersection of Century Boulevard and Aviation Boulevard. However, the highest 1-hour NO_2

[8] Los Angeles World Airports. *Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*, April 2004, Section 4.6.2.

concentration under Project (2005) conditions would be farther to the east near I-405. Similar to the 2003 Baseline condition, maximum PM_{10}, $PM_{2.5}$, and CO concentrations would be located near the intersection of Sepulveda Boulevard and Century Boulevard.

1.3.3.2 LAX Master Plan Commitments and Mitigation Measures

The following LAX Master Plan commitments and mitigation measures related to air quality apply to the SAIP:

- **MM-AQ-1. LAX Master Plan – Mitigation Plan for Air Quality**. LAWA is in the process of expanding and revising existing air quality mitigation programs at the airport through the development of an LAX Master Plan-Mitigation Plan for Air Quality (LAX MP-MPAQ). MPAQ measures would apply to and partially mitigate air quality associated with the construction of the SAIP.
- **MM-AQ-2. Construction-Related Measure**. Master Plan Mitigation Measure MM-AQ-2 defines numerous specific actions to reduce emissions associated with construction activities at LAX. Fugitive dust emissions and exhaust emissions from on-road and off-road mobile and stationary sources associated with the construction of the SAIP would be partially mitigated.
- **MM-AQ-3. Transportation-Related Measure.** Master Plan Mitigation Measure MM-AQ-3 covers development and construction of at least eight (8) additional sites with FlyAway service similar to the service provided by the Van Nuys FlyAway operated by LAWA. The intent of the FlyAway sites is to reduce the quantity of traffic going to and from LAX by providing regional locations where LAX employees and passengers can access clean-fueled buses bound to and from the airport. Emissions reductions resulting from new FlyAway service were not factored into the air quality analysis as construction is assumed to commence after 2005.
- **MM-AQ-4. Operations-Related Measure.** Conversion of the ground support equipment (GSE) fleet at the airport over time to extremely low emission technology will reduce on-airport vehicle emissions. Total pollutant emissions generated at the airport during the construction of the SAIP and associated pollutant concentrations on and off the airport would be partially mitigated as a result of reductions in GSE emissions.

Because the MMRP mitigation measures establish a commitment and process for incorporating all feasible air quality mitigation measures into each component of the LAX Master Plan, no additional project specific mitigation measures are recommended in connection with the SAIP. Although the measures listed above would help to reduce air pollution during the construction period, construction emissions, airport-related emissions, and pollutant concentrations associated with the construction of the SAIP would be potentially significant and unavoidable.

1.3.4 Health Risk Assessment

1.3.4.1 Impacts

This Human Health Risk Assessment (HHRA) addresses potential impacts to human health associated with releases of toxic air contaminants (TACs) that are anticipated to occur during the construction period for the SAIP. TACs may come from aircraft, ground service equipment, construction activities, and other sources. 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 airport.

Consistent with the results of the LAX Master Plan Final EIR, risks to human health from the SAIP are attributable to emissions of 1,3-butadiene, acrolein, benzene, and formaldehyde from aircraft as well as diesel particulates from trucks and construction equipment. With implementation of the SAIP, in 2005, the airport would result in significant incremental cancer risks to adults and resident children through adulthood, and significant incremental non-cancer chronic and acute health hazards to all receptor types compared to 2003 Baseline conditions. Project-related impacts to on-site workers would be less than significant.

There are several factors that contribute to the incremental cancer risks and non-cancer health hazards associated with the SAIP. The closure of Runway 7R-25L during the SAIP construction period would cause taxi/idle times to increase compared to conditions if the SAIP were not implemented, thereby increasing emissions associated with this aircraft operating mode. However, with the runway closure, the total number of aircraft operations would be lower than what would otherwise be expected to occur, thereby decreasing emissions associated with total daily takeoffs and landings. It is not known to what extent these two conditions would offset one another.

Notwithstanding this uncertainty, the single greatest factor contributing to the incremental human health impacts associated with the SAIP is the differential in the number of aircraft operations between the SAIP and the 2003 Baseline conditions. Total aircraft operations at the airport in 2003 were substantially lower than those in 1996, the baseline year used in the LAX Master Plan Final EIR due to the impact of the events of September 11, 2001 and the subsequent economic slowdown. The number of operations in 2003 was 622,378. In contrast, in 1996, the number of operations was 763,866. The projected number of operations in 2005 with implementation of the SAIP is nearly 20 percent higher than the 2003 Baseline. In contrast, at the time the LAX Master Plan Final EIR was prepared, the projected number of operations at LAX in 2005 due to natural growth was anticipated to be 779,352, an increase of only 2 percent compared to the 1996 Baseline. Therefore, even though the SAIP would result in a reduced number of operations in 2005 due to the closure of Runway 7R-25L (745,112 versus 779,352 originally projected in the LAX Master Plan Final EIR), the incremental change over the baseline condition used for the SAIP analysis is much greater than the change analyzed in the LAX Master Plan Final EIR. For this reason, SAIP human health impacts are greater than previously reported for the LAX Master Plan.

1.3.4.2 LAX Master Plan Commitments and Mitigation Measures

The LAX Master Plan commitments listed below related to health risk would apply to the SAIP:

- **AQ-1. Air Quality Source Apportionment Study.** Under this commitment, LAWA will conduct an air quality source apportionment study to evaluate the contribution of on-airport aircraft emissions to off-airport air pollutant concentrations. This study will address several criteria and toxic air pollutants.
- **AQ-2. School Air Filters.** LAWA will provide funding for air filtration at qualifying public schools with air conditioning systems in place.
- **AQ-3. Mobile Health Research Lab.** LAWA will explore the ability to fund/co-fund, to the extent feasible and permissible by federal and local regulations, or seek funding sources to support the goal of a Mobile Health Research Lab. A goal of the Mobile Health Research

Lab will be to research and study, not diagnose or treat, upper respiratory impacts that may be directly related to the operation of LAX.

The following LAX Master Plan mitigation measures related to air quality, summarized in Subsection 1.3.3.2 above, also address human health risks associated with the SAIP:

- **MM-AQ-1. LAX Master Plan – Mitigation Plan for Air Quality.**
- **MM-AQ-2. Construction-Related Measure.**
- **MM-AQ-3. Transportation-Related Measure.**
- **MM-AQ-4. Operations-Related Measure.**

Because the MMRP mitigation measures establish a commitment and process for incorporating all feasible mitigation measures into each component of the LAX Master Plan, no additional project specific mitigation measures are recommended in connection with the SAIP. Although the measures listed above would help to reduce emissions of TACs during construction and operation of the LAX Master Plan, human health risks associated with construction of the SAIP would nevertheless be significant and unavoidable.

1.3.5 Noise

The construction-related noise impacts of the SAIP are summarized in this section. Operations-related noise impacts were adequately addressed in the LAX Master Plan EIR. Sources of construction-related noise impacts addressed in this Draft EIR include construction equipment operating at the construction site, construction traffic on planned haul routes, and changes in aircraft overflights associated with changes in runway use at the airports during the construction period.

1.3.5.1 Impacts

1.3.5.1.1 Construction Equipment Noise

Construction equipment noise was evaluated by determining the noise levels generated by typical outdoor construction activity and calculating the potential for exposure to noise-sensitive uses. Heavy equipment operations and other activities associated with SAIP construction would not increase existing ambient exterior noise levels by 5 dBA or more at noise-sensitive uses and thus, SAIP construction would not have significant noise impacts and no additional mitigation is required.

1.3.5.1.2 Construction Traffic Noise

Construction traffic noise was evaluated by comparing the number of construction vehicles expected to use the various SAIP haul routes with the amount of noise energy that would be required to reach the applicable threshold of significance (i.e., an increase in the peak hour of noise of 5 dBA $L_{eq(h)}$[9] compared with baseline conditions). SAIP construction traffic would not cause noise levels to increase by 5 dBA $L_{eq(h)}$ or more and thus, construction traffic would not have a significant noise impact and additional mitigation is not required.

1.3.5.1.3 Aircraft Noise

The primary metric used for evaluating aircraft noise exposure on the surrounding community is the Community Noise Exposure Level (CNEL). CNEL is a cumulative noise metric, which characterizes

[9] $L_{eq(h)}$: hourly average sound level.

the total, collective noise exposure from multiple aircraft noise events for an average day. A noise level of 65 CNEL is the accepted standard in California for determining land use compatibility from aircraft noise. Changes in aircraft noise impacts are also measured in terms of the amount of noise-sensitive areas already exposed to 65 CNEL that would experience a 1.5 dBA or greater change. In addition to CNEL, single-event levels are evaluated to assess potentially significant impacts to nighttime sleep and classroom instruction.

The primary cause for potential aircraft noise impacts associated with SAIP construction is the short-term (approximately eight months) closure of Runway 7R-25L, which would result in increased use of the three remaining runways during the construction period. The changes in aircraft noise exposure associated with different runway use patterns during the construction of the SAIP would result in potentially significant impacts in terms of the areas exposed to 65 CNEL and higher noise levels, sleep disruption, and classroom disturbance. Due to the temporary nature of the runway closure and associated changes in runway use, various means to mitigate the construction-related impact (i.e., sound insulation.) are not feasible. Implementation of several measures identified in the LAX Master Plan MMRP may begin prior to or during construction, but could not be completed prior to or during the construction period. Because runway use patterns would revert back to pre-SAIP-construction conditions following the relocation of Runway 7R-25L, the potentially significant aircraft noise impacts caused by construction of the SAIP would be temporary. Potentially significant impacts associated with post-construction conditions are adequately addressed in the LAX Master Plan Final EIR. Several measures identified in the LAX Master Plan MMRP are designed to reduce post-construction operational impacts.

1.3.5.2 LAX Master Plan Commitments and Mitigation Measures

The following LAX Master Plan Commitments and Mitigation Measures related to noise apply to the SAIP:

- **N-1. Maintenance of Applicable Elements of Existing Aircraft Noise Abatement Program.** Identified as LAX Master Plan Commitment N-1 in the MMRP, all components of the current airport noise abatement program that pertain to aircraft noise will be maintained.
- **MM-N-7. Construction Noise Control Plan.** A Construction Noise Control Plan will be prepared by the construction contractor to provide feasible measures to ensure that calculated on-airport construction noise exposure levels in this EIR are maintained throughout the construction period for the SAIP. The Construction Noise Control Plan will be based on general construction noise guidelines provided by LAWA. The Construction Noise Control Plan will include specifics regarding techniques spelled out in Master Plan Mitigation Measures MM-N-8, MM-N-9, MM-N-10, and ST-16.
- **MM-N-8. Construction Staging.** As a method of path control, staging area activities and construction operations will be located as far as possible from noise-sensitive land uses. For the SAIP, the designated contractor staging area is to be located on airport property west of Taxiway AA and just south of World Way West.
- **MM-N-9. Equipment Replacement.** Source control is considered to be the an effective means of mitigating potential noise impacts. Source control limits noise emissions by use of equipment that emits the least noise possible. Noisy equipment shall be replaced with quieter equipment when technically and economically feasible. Quieter equipment includes heavy diesel-powered machinery with mufflers installed. In addition to specific equipment

requirements, activity taking place on the site would not exceed appropriate thresholds established by a construction noise control policy and plan.

- **MM-N-10. Construction Scheduling.** Noise emissions from heavy construction equipment would be limited during noise-sensitive hours as a method of source control. The timing and/or sequencing of the noisiest on-site construction activities shall avoid sensitive times of the day, as much as feasible (9:00 p.m. to 7:00 a.m. Monday – Friday; 8:00 p.m. to 6:00 a.m. Saturday; anytime on Sunday or holidays). The SAIP construction phasing minimizes activities during these sensitive times except when necessary for airfield operational safety. Activity is assumed to occur during noise-sensitive hours (except Sunday), but at lower levels compared to daytime noise levels.
- **ST-16. Designated Haul Routes.** Every effort will be made to ensure that haul routes are located away from sensitive noise receptors. Construction-related trucks hauling raw materials in and out of the south airfield construction site will be instructed to use freeways (I-405 and I-105) and major arterials that are close to the freeway and offer quick access to the construction site. The use of local roadways is to be minimized so as to diminish potential noise impacts within residential communities. The Construction Noise Control Plan may include a public outreach plan that provides haul-route information to residents and provides a form of contact with the LAWA Construction Coordination Office (Commitment C-1) to report haul route deviations and concerns.
- **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).

MMRP measures listed above associated with construction equipment and traffic routes are part of the SAIP project definition. Due primarily to these measures (MM-N-8, MM-N-9, MM-N-10, ST-16 and ST-22), no potentially significant impacts associated with construction equipment noise or traffic noise have been identified. Even with the continued implementation of available components of LAX Master Plan Commitment N-1, potentially significant aircraft noise impacts would remain. No other feasible measures are available to either eliminate or diminish the significant, but temporary aircraft noise impacts.

Other noise-related MMRP measures were not considered feasible to mitigate construction-related impacts for reasons described in Section 4.5.5 but would be applicable for post-project conditions. The noise-related MMRP measures that would be applicable to post-project conditions are as follows:

- **MM-N-4. Update the Aircraft Noise Abatement Program Elements as Applicable to Adapt to the Future Airfield Configuration.** When existing runways are relocated or reconstructed as part of the Master Plan, the aircraft noise abatement actions associated with those runways shall be modified and re-established as appropriate to assure continuation of the intent of the existing program. The implementation phase of this project would include updated procedures for the relocated Runway 7R-25L that maintain current elements of the aircraft noise abatement program as evaluated in the LAX Master Plan Final EIR, Appendix S-C1, Section 3.1.6 for 2005 and 2015.
- **MM-N-5. Conduct Part 161 Study to Make Over-Ocean Procedures Mandatory.** A 14 CFR Part 161 Study shall be initiated to seek federal approval of a locally-imposed Noise and Access Restriction on departures to the east during Over-Ocean Operations, or when

Westerly Operations remain in effect during the Over-Ocean Operations time period. This study has been initiated and is ongoing.

- **MM-LU-1. Implement Revised Aircraft Noise Mitigation Program.** LAWA shall expand and revise the existing ANMP in coordination with affected neighboring jurisdictions, the State and the FAA. The expanded Program shall mitigate land uses that would be rendered incompatible by noise impacts associated with implementation of the LAX Master Plan, unless such uses are subject to an existing avigation easement and have been provided with noise mitigation funds.
- **MM-LU-2. Incorporate Residential Dwelling Units Exposed to Single Event Awakenings Threshold into the Aircraft Noise Mitigation Program.** In addition to any restrictive measures that may be implemented resulting from completion of Master Plan Mitigation Measure MM-N-5, the ANMP boundaries will be expanded to include residential uses newly exposed to single event exterior nighttime noise levels of 94 dBA SEL. Uses that are newly exposed would be identified based on average annual conditions as derived from the most current monitor data.
- **MM-LU-3. Conduct Study of the Relationship Between Aircraft Noise Levels and the Ability of Children to Learn.** A comprehensive study shall be initiated by LAWA to determine what, if any, measurable relationship may be present between learning and the disruptions caused by aircraft noise at various levels. Included in this study shall be an acceptable replacement threshold of significance for classroom disruption by both specific and sustained aircraft noise events.
- **MM-LU-4. Provide Additional Sound Insulation for Schools Shown by MM-LU-3 to be Significantly Impacted by Aircraft Noise.** Prior to completion of the study required by Master Plan Mitigation Measure MM-LU-3 and within six months of the commissioning of any relocated runways associated with the implementation of the LAX Master Plan, LAWA shall conduct interior noise measurements at schools that could be newly exposed to noise levels that exceed the interim LAX interior noise thresholds for classroom disruption, as presented in Section 4.1 of the LAX Master Plan Final EIR. All school classroom buildings (except those within schools subject to an aviation easement) that are found through the noise measurements to exceed the interim interior noise thresholds, compared with the 1996 baseline conditions presented in the LAX Master Plan Final EIR, would become eligible for soundproofing under the ANMP.
- **MM-LU-5. Upgrade and Expand Airport Noise Monitoring Program.** LAWA shall upgrade and expand its existing noise monitoring program in surrounding communities through new system procurement, noise monitor siting and equipment installation. LAWA has selected a system vendor and is currently in the contract negotiation stage.

As stated, the temporary impacts would be potentially significant and no additional project-level mitigation measures to reduce the impact to a less-than-significant level are feasible. Therefore, potentially significant and unavoidable impacts in terms of aircraft noise exposure during the SAIP construction period would remain.

1.3.6 Biotic Communities

1.3.6.1 Impacts

The SAIP would result in the loss of 92 acres of Non-Native Grassland/Ruderal and 34 acres of Disturbed-Bare Ground, which equates to a net reduction of approximately 17.2 habitat units.[10] The SAIP would also result in the loss of 36.34 acres (3.76 habitat units) of potentially suitable habitat for the San Diego black-tailed jackrabbit and loggerhead shrike. These would be significant impacts without mitigation. Fugitive dust generated by the SAIP that could be deposited within the Los Angeles/El Segundo Dunes and the Habitat Restoration Area would also be a significant impact without mitigation.

The loss of habitat and the generation of fugitive dust would be the only potentially significant impacts on biotic communities associated with the SAIP. Both of these are construction-related impacts. There would be no potentially significant operations-related impacts to biotic communities associated with the SAIP.

1.3.6.2 LAX Master Plan Commitments and Mitigation Measures

The following summarizes the LAX Master Plan commitments and mitigation measures related to biotic communities and identifies how they apply to the SAIP:

- **MM-BC-1. Conservation of State-Designated Sensitive Habitat Within and Adjacent to the El Segundo Blue Butterfly Habitat Restoration Area.** Because fugitive dust from SAIP construction activities has the potential to impact the El Segundo Blue Butterfly Habitat Restoration Area (HRA), Master Plan Mitigation Measure MM-BC-1 requires contractors to implement as feasible and appropriate, construction avoidance measures when conducting work within 2,000 feet of the HRA. Measures include erection of tarped fencing, soil stabilization, watering or other dust control measures, as well as the avoidance of grading or stockpiling for construction activities within 100 feet of a state-designated sensitive habitat. This mitigation measure also requires the presence of a qualified environmental monitor.
- **MM-BC-8. Replacement of Habitat Units.** This mitigation measure requires the preparation and implementation of a habitat restoration plan as mitigation for the loss of habitat units that would occur from implementation of Alternative D. Master Plan Mitigation Measure MM-BC-8 will be implemented for the SAIP through a new mitigation measure, Mitigation Measure MM-BC(SA)-1, presented in Section 1.3.5.3, that more specifically addresses the loss of habitat units that would occur due to SAIP construction activities.
- **MM-BC-9. Conservation of Faunal Resources.** This mitigation measure requires the development and implementation of a habitat restoration plan to compensate for the loss of habitat units that support the western spadefoot toad, San Diego black-tailed jackrabbit, and loggerhead shrike, that would result from implementation of Alternative D. Master Plan Mitigation Measure MM-BC-9 will be implemented through a new mitigation measure for the SAIP, Mitigation Measure MM-BC(SA)-2, presented in Section 1.3.5.3, that more

[10] A habitat unit is a quantitative expression of habitat quality for a given biotic community when compared to a reference site. Estimates are based on a habitat value of 0.15 per acre for Non-Native Grassland/Ruderal and 0.10 per acre for Disturbed/Bare Ground.

specifically addresses the loss of habitat units that support sensitive species due to SAIP construction activities.

- **MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control.** Fugitive dust from SAIP construction activities has the potential to impact the El Segundo Blue Butterfly HRA. Implementation of this mitigation measure would reduce potential fugitive dust impacts to a less than significant level by requiring soil stabilization, watering or other dust control measures during construction activities within 2,000 feet of the HRA.

1.3.6.3 South Airfield Improvement Project Mitigation Measures

The following new mitigation measure, Mitigation Measure MM-BC(SA)-1, which is derived from and achieves the same basic performance standards as Master Plan Mitigation Measure MM-BC-8, is proposed to address the project-level impacts on Disturbed/Bare Ground and Non-Native Grassland/Ruderal areas associated with the SAIP:

- **MM-BC(SA)-1. Replacement of Habitat Units Associated with the South Airfield Improvement Project.** LAWA or its designee shall undertake mitigation for the loss of 17.2 habitat units resulting from implementation of the SAIP. These habitat units shall be replaced at a 1:1 ratio within the FAA-owned habitat preserve at the El Toro site, or other appropriate site. Habitat restoration efforts shall be initiated and completed prior to or concurrent with commissioning of relocated Runway 7R-25L. Additional information on this mitigation measure is found in Section 4.6.

The following new mitigation measure, Mitigation Measure MM-BC(SA)-2, which is derived from and achieves the same basic performance standards as Master Plan Mitigation Measure MM-BC-9, is proposed to address the project-level impacts on San Diego blacktailed jackrabbit habitat and loggerhead shrike habitat associated with the SAIP:

- **MM-BC(SA)-2. Conservation of Faunal Resources Associated with the South Airfield Improvement Project.** Directed surveys for the San Diego black-tailed jackrabbit and the loggerhead shrike will be undertaken by a qualified biologist at least 14 days before construction activities begin. Should these species be encountered in the SAIP project area as a result of directed surveys, individuals should be captured and relocated to El Toro or a comparable location. Compensation for the loss of 3.8 habitat units associated with the San Diego black-tailed jackrabbit and loggerhead shrike shall be the utilization of at least 3.8 habitat units at the El Toro site, or a comparable location. Additional information on this mitigation measure is found in Section 4.6.

Implementation of Mitigation Measures MM-BC(SA)-1 and MM-BC(SA)-2, in combination with implementation of Master Plan Mitigation Measures MM-BC-1 and MM-ET-3 would reduce SAIP construction impacts on biotic communities to a less than significant level. Accordingly, no additional project-level mitigation is required.

1.4 Areas of Known Controversy

The areas of known controversy are related primarily to potential aircraft noise exposure in the City of El Segundo related to the approximately 55-foot relocation of Runway 7R-25L to the south. The areas of concern relate to both the location of the runway and concern that runway use patterns would change after the construction of the SAIP. These concerns are addressed in this Draft EIR.

1.5 Summary of Potential Environmental Impacts Related to the South Airfield Improvement Project

Table 1-1 summarizes the potential environmental impacts of the SAIP in terms of hydrology/water quality, off-airport surface transportation, air quality, human health risks, noise, and biotic communities related to the SAIP as identified in Chapter IV of this EIR. **Table 1-2** summarizes the potential environmental impacts of the SAIP for all other environmental categories for which no additional analysis was required beyond that provided in the LAX Master Plan Final EIR. **Tables 1-1 and 1-2** include specific references to the applicable LAX Master Plan commitments and mitigation measures, as well as new mitigation measures that are proposed to reduce or avoid potential environmental impacts associated with the SAIP. The level of significance following mitigation is also listed.

Table 1-1 (1 of 4)

Summary of Potential Environmental Impacts - Related to the South Airfield Improvement Project

Impact by Discipline	Master Plan Commitments and Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Hydrology/Water Quality			
An increase in SAIP runoff that would cause or exacerbate flooding with the potential to harm people or damage property.	See Section 4.1.5.	See Section 4.1.8.	Less than significant.
Substantial alteration of an existing drainage pattern in a manner that would result in substantial erosion or situation on- or off-site.	See Section 4.1.5.	See Section 4.1.8.	Less than significant.
An increase in SAIP discharges of pollutants of concern to receiving water bodies.	See Section 4.1.5.	See Section 4.1.8.	Less than significant.
The combined impacts of the SAIP, in conjunction with other past, present, and probable future projects, could result in cumulative drainage impacts.	See Section 4.1.5.	See Section 4.1.8.	Significant and unavoidable.[11]
Off-Airport Surface Transportation			
Construction traffic would disrupt normal roadway operations.	See Section 4.2.5.	See Section 4.2.8.	Significant and unavoidable.[12]
Air Quality			
An increase in nonconstruction-related emissions attributable to the project that are greater than operational emission thresholds.	See Section 4.3.5	See Section 4.3.8.	Significant and unavoidable (excluding $PM_{2.5}$)[13].
An increase in construction-related emissions attributable to the project that would be greater than the daily or quarterly construction emission thresholds.	See Section 4.3.5	See Section 4.3.8.	Significant and unavoidable (excluding $PM_{2.5}$ and SO_2).
Project-related pollutant concentrations from stationary sources that would be greater than thresholds of significance for air pollutants in the South Coast Air Basin.	See Section 4.3.5	See Section 4.3.8.	Less than significant.
Maximum predicted combined operational and construction-related concentrations attributable to the project combined with calculated future background concentrations that would exceed ambient air quality standards).	See Section 4.3.5	See Section 4.3.8.	Significant and unavoidable (for PM_{10} and $PM_{2.5}$ only).

[11] Responsibility for implementation of the mitigation measure proposed to address this impact is not fully within the jurisdiction of the lead agency. If the mitigation measure is not fully implemented, cumulative impacts could remain significant.

[12] This impact will affect one intersection and will be short term, on the order of one month in duration.

[13] The SCAQMD has not established daily or quarterly emissions thresholds for $PM_{2.5.}$

Table 1-1 (2 of 4)

Summary of Potential Environmental Impacts - Related to the South Airfield Improvement Project

Impact by Discipline	Master Plan Commitments and Mitigations Measure	New Mitigation Measures	Level of Significance After Mitigation
Air Quality (continued)			
Maximum estimated concentrations from the project, considered together with the maximum concentrations from past, present, and probable future projects, would exceed ambient air quality standards.	See Section 4.3.5	See Section 4.3.8.	Significant and unavoidable (for PM_{10}, and $PM_{2.5}$ only).
Human Health Risks			
An increased incremental cancer risk greater than, or equal to, 10 in one million (10×10^{-6}) for potentially exposed residents or school children.	See Section 4.4.5	See Section 4.4.8	Significant and unavoidable.
A total incremental chronic hazard index greater than, or equal to, 1 for any target organ system at any receptor location.	See Section 4.4.5	See Section 4.4.8	Significant and unavoidable.
A total incremental acute hazard index greater than, or equal to, 1 for any target organ system at any receptor location.	See Section 4.4.5	See Section 4.4.8	Significant and unavoidable.
Exceedance of, Permissible Exposure Limits - Time Weighted Average or Threshold Limit Values for workers.	See Section 4.4.5	See Section 4.4.8	Less than significant.
Noise			
Some noise-sensitive areas would be newly exposed to 65 CNEL and higher.	See Section 4.5.5	See Section 4.5.8	Significant and unavoidable.
Some residential areas having habitable exterior areas including balconies, patios and yards would be newly exposed to 75 CNEL and higher.	See Section 4.5.5	See Section 4.5.8	Significant and unavoidable.
Some noise-sensitive areas within the area exposed to aircraft noise 65 CNEL and higher would experience an increase of 1.5 CNEL or greater.	See Section 4.5.5	See Section 4.5.8	Significant and unavoidable.
Some dwellings would be newly exposed to exterior nighttime SEL levels sufficient to awaken at least 10 percent of the area population being awakened at least once in 10 days, assuming windows remain open.	See Section 4.5.5	See Section 4.5.8	Significant and unavoidable.

Table 1-1 (3 of 4)

Summary of Potential Environmental Impacts - Related to the South Airfield Improvement Project

Impact by Discipline	Master Plan Commitments and Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Noise (continued)			
Some schools would be newly exposed to interior noise levels of 55 dBA L_{max} or higher for at least a three second duration during school hours.[14]	See Section 4.5.5	See Section 4.5.8	Less than significant.
Some schools would be newly exposed to interior noise levels of 65 dBA L_{max} or higher for at least a three second duration during school hours.[15]	See Section 4.5.5	See Section 4.5.8	Significant and unavoidable.
Some schools would be newly exposed to interior average hourly noise levels in excess of 35 $L_{eq(h)}$.	See Section 4.5.5	See Section 4.5.8	Significant and unavoidable.
Project construction traffic noise would result in a noise sensitive receptor newly experiencing an increase of 5 dBA $Leq_{(h)}$.	See Section 4.5.5	See Section 4.5.8	Less than significant.
Construction activities would exceed existing ambient exterior noise levels by 5 dBA or more at a noise-sensitive use.	See Section 4.5.5	See Section 4.5.8	Less than significant

[14] 55dBA was determined as an indicator for potential momentary disruption of speech intelligibility in large group teaching situations (assumed to be at 20 feet).

[15] 65dBA is applicable to momentary disruption of speech intelligibility in small group and one-on-one teaching situations (assumed to be at 6 feet).

Table 1-1 (4 of 4)

Summary of Potential Environmental Impacts - Related to the South Airfield Improvement Project

Impact by Discipline	Master Plan Commitments and Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Biotic Resources			
A substantial reduction (greater than 10 percent) in locally designated natural communities including state-designated sensitive habitats, Ecologically Sensitive Habitat Areas (ESHAs), and habitat preservation areas designated pursuant to local ordinances. Specifically, a substantial reduction (greater than 10 percent) in the Habitat Restoration Area (designated as such by City of Los Angeles Ordinance 167940).	See Section 4.6.5	See Section 4.6.8	Less than significant.
A substantial adverse effect, either directly or through habitat modifications, on any candidate, sensitive, or special status species.	See Section 4.6.5	See Section 4.6.8	Less than significant.
A significant reduction (greater than 10 percent) of a biotic community designated as sensitive by the Coastal Zone Management Act. Specifically, a reduction in size of the Habitat Restoration Area or the encompassing Los Angeles/El Segundo Dunes, including adjacent open areas.	See Section 4.6.5	See Section 4.6.8	Less than significant.

Source: Ricondo & Associates, Inc. based on analyses provided throughout Chapter IV.
Prepared by: Ricondo & Associates, Inc.

Table 1-2 (1 of 3)

Summary of Other Potential Environmental Impacts - Related to the South Airfield Improvement Project

Impact by Discipline	Master Plan Commitments and Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Land Use			
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.	See Section 5.1.3.2	See Section 5.1.4.2	Significant and unavoidable.
Create physical or functional incompatibility with existing land uses through increased safety hazards, noise exposure, or other environmental effects.	See Section 5.1.3.2	See Section 5.1.4.2	Significant and unavoidable.
Cultural Resources			
Physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired. The significance of a historic resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of a historic resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the National register, California Register, and/or local register.	See Section 5.3.3.2	See Section 5.3.4	Less than significant.
Any action, such as clearing, scraping, soil removal, mechanical excavation, or digging that would disturb, damage, or degrade a unique archaeological resource.	See Section 5.3.3.2	See Section 5.3.4	Less than significant.
Endangered and Threatened Species of Flora and Fauna			
Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedance with the use of native wildlife nursery sites.	See Section 5.4.3.2	See Section 5.4.4.2	Less than significant.
A conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plans.	See Section 5.4.3.2	See Section 5.4.4.2	Less than significant.
A substantial adverse effect, either directly or through habitat modifications of an existing habitat of a federally-or state-listed endangered, threatened, or candidate species of flora and fauna that would result in a net reduction in occupied habitat.	See Section 5.4.3.2	See Section 5.4.4.2	Less than significant.

Table 1-2 (2 of 3)

Summary of Other Potential Environmental Impacts - Related to the South Airfield Improvement Project

Impact by Discipline	Master Plan Commitments and Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Energy Supply and Natural Resources			
An exceedance in regional electricity or natural gas supplies or generation or distribution facilities due to project-related electricity and natural gas demand.	See Section 5.6.3.2	See Section 5.6.4	Less than significant.
A substantial increase in project-related fuel consumption relative to available supply.	See Section 5.6.3.2	See Section 5.6.4	Less than significant.
Interference with existing major electrical or natural gas infrastructure due to construction of project features	See Section 5.6.3.2	See Section 5.6.4	Less than significant.
Solid Waste			
A net increase in project-related solid waste generation that could not be accommodated by existing or permitted regional landfills or other disposal facilities.	See Section 5.7.3.2	See Section 5.7.4.2	Less than significant
Aesthetics			
Obstruction, interruption, or diminishment of a valued focal or panoramic view or views from any designated scenic highway, corridor or parkway.	See Section 5.8.3.2	See Section 5.8.4.2	Less than significant.
Earth and Geology			
Substantial damage to structures or infrastructure, or exposure of people to substantial risk of injury, as a result of the creation or acceleration of a geologic hazard.	See Section 5.9.3.1	See Section 5.9.4.2	Less than significant.
Hazards and Hazardous Materials			
Exposure of workers to hazardous materials in excess of Occupational Safety and Health Administration (OSHA) permissible exposure limits.	See Section 5.10.3.2	See Section 5.10.4.2	Less than significant.
Contamination of soil or groundwater or prevention of clean up of sites that are currently undergoing soil or groundwater remediation.	See Section 5.10.3.2	See Section 5.10.4.2	Less than significant.

Table 1-2 (3 of 3)

Summary of Other Potential Environmental Impacts - Related to the South Airfield Improvement Project

Impact by Discipline	Master Plan Commitments and Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Public Utilities			
An exceedance of regional water supply and distribution capabilities due to project-related water demand.	See Section 5.11.3.2	See Section 5.11.3.4	Less than significant.
Interference with major water distribution facilities die to construction of project features.	See Section 5.11.3.2	See Section 5.11.3.4	Less than significant.
An exceedance in the capabilities of regional wastewater collection and treatment facilities due to project-related wastewater generation.	See Section 5.11.3.3.2	See Section 5.11.3.4	Less than significant.
Interference with major wastewater collection facilities due to construction of project features.	See Section 5.11.3.1.2	See Section 5.11.3.4	Less than significant.
Public Services			
Restricted emergency access, increased response times, extended station response distances, or decreased fire flow beyond the standards maintained by the agencies serving LAX and the surrounding communities.	See Section 5.12.3.1.1	See Section 5.12.4.2	Less than significant.
Project-related effects cause the closure of a library or substantially inhibit use of a facility.	See Section 5.12.4.1.3	See Section 5.12.4.2	Less than significant.

Source: Ricondo & Associates, Inc. based on analyses provided throughout Chapter V.
Prepared by: Ricondo & Associates, Inc.

1.6 Summary of Potentially Significant and Unavoidable Impacts

Table 1-3 summarizes those impacts listed in Tables 1-1 and 1-2 that would remain significant and unavoidable after the implementation of proposed mitigation measures.

Table 1-3

Summary of Potentially Significant and Unavoidable Impacts

Impact by Discipline
Hydrology/Water Quality
Project-related runoff would contribute to cumulative impacts to regional drainage facilities. Responsibility for implementation of the mitigation measure proposed to address this impact is not fully within the jurisdiction of the lead agency. If the mitigation measure is not fully implemented, cumulative impacts could remain significant.
Off-Airport Surface Transportation
Construction-related traffic would result in a significant, unavoidable impact at the intersection of Imperial Highway and the I-105 Ramps east of Aviation Boulevard during the construction employee p.m. peak hour (3:30 p.m. to 4:30 p.m.). This significant, unavoidable impact would last for approximately one month.
Air Quality
Construction emissions would exceed the significance thresholds for CO, VOC, NO_x, and PM_{10}.
Airport-related emissions during the peak construction period would exceed the significance thresholds for CO, VOC, NO_x, SO_2, and PM_{10}.
Air pollutant concentrations from on-airport and construction-related sources during the peak construction period would exceed the CAAQS for PM_{10} and the NAAQS and CAAQS for $PM_{2.5}$.
Human Health Risks
Project-related incremental cancer risks, compared to 2003 Baseline conditions, would exceed the significance thresholds for adult residents and for a young child through adulthood (adult + child).
Project-related incremental non-cancer chronic health hazards, compared to 2003 Baseline conditions, would exceed the significance thresholds for all receptor types (i.e., child resident, school child, and adult resident).
Project-related incremental acute health hazards would exceed the significance thresholds for off-site residents and workers.
Noise
During the closure of Runway 7R-25L (approximately 8 months), aircraft operations would be distributed among the remaining three runways, resulting in temporary shifts in aircraft noise exposure over noise-sensitive parcels. The temporary closure of Runway 7R-25L would result in the following significant, unavoidable noise impacts:
Noise-sensitive areas within the Project (2005) 65 CNEL contour would experience a temporary increase of 1.5 CNEL or greater compared with the 2003 baseline conditions.
Noise-sensitive areas outside the 2003 65 CNEL contour would be newly exposed to 65 CNEL or greater.
Additional residential properties with exterior cognizable private habitable areas such as backyards, patios or balconies would be temporarily exposed to 75 CNEL or greater.
Residential areas would be newly exposed to outdoor aircraft single event noise levels exceeding 94 dBA SEL at least once every 10 nights, increasing the potential for nighttime awakenings.
Schools may potentially be newly impacted by temporary overflight noise changes resulting in classroom disruption.
Land Use
Noise-sensitive uses in the County of Los Angeles, City of Los Angeles, City of Inglewood, and City of El Segundo would be newly exposed to high noise levels during the closure of Runway 7R-25L. This construction-related noise impact would conflict with the respective general plan noise element policies and would be significant and unavoidable.
Schools
Temporary aircraft noise impacts on schools that are not subject to an avigation easement would be significant and unavoidable during the 8-month closure of Runway 7R-25L.

Source: Ricondo & Associates, Inc. based on analyses provided throughout Chapter IV.
Prepared by: Ricondo & Associates, Inc.

II. Project Description

The South Airfield Improvement Project (SAIP) is the first LAX Master Plan project proposed for implementation. As described and analyzed in the LAX Master Plan Final EIR, the SAIP would provide a new parallel taxiway between the two south airfield runways. To accommodate the new center taxiway, the southern-most runway, Runway 7R-25L, would be relocated approximately 55 feet south of its current centerline location. The relocation of Runway 7R-25L would include the relocation and replacement of all navigational and visual aids and other associated site work such as utilities, lighting, signage, grading, and drainage.

Unlike certain components of the LAX Master Plan that were developed and evaluated at a conceptual-level of detail, the LAX Master Plan included precise design details for the south airfield improvements. These project-level design details were developed based on extensive consultation with the FAA in order to comply with regulatory guidance regarding safe, efficient airport layout plans. The LAX Master Plan EIR, therefore, analyzed the potential environmental impacts of the SAIP in full detail in most respects. This project-level tiered EIR provides additional information, such as construction scheduling and hydrology/water quality design features, that were not fully addressed in the LAX Master Plan Final EIR.

2.1 LAX Master Plan's South Airfield Improvement Project

As described in Chapter I, the LAX Master Plan provides the first major new facilities for, and improvements to, the airport since 1984. The process of formulating the LAX Master Plan began in 1995 with the development, screening, and evaluation of several concepts to accommodate, in whole or in part, the projected increases in passenger and cargo demand through the year 2015. Several objectives guided the planning process including the following:[1]

- Continue to satisfy regional demands for global air transport of passengers and cargo by adding new and optimizing existing facilities at LAX, along with distributing commercial service not essential to the LAX international gateway role to other airports in the region.
- Ensure the safety of all airport users.
- Continue to operate efficiently and continue to provide major direct and indirect benefits to local, regional and state environments.
- Operate LAX in an environmentally sensitive and responsible manner.
- Through enhanced urban design, maximize compatibility between LAX and the demand for housing, employment, service, and protect surrounding neighborhoods.
- Improve ground access to and around LAX by maximizing the use of regional highway and transit networks and mitigate neighborhood traffic impacts.
- Achieve a balance between increased LAX operations and environmental, social, land use, ground access, economic and air commerce impacts.

As part of the Master Plan process, LAWA explored and objectively evaluated a number of alternatives that could potentially satisfy the project objectives. Early in the concept development process, LAWA considered a variety of airfield configurations, including designs concepts that

[1] *See* Final LAX Master Plan, Section 1.1.

would have required substantial land acquisition and even development into Santa Monica Bay. Based on community and environmental concerns, LAWA abandoned the large-scale design concepts in favor of "scaled-down" airfield configurations that could achieve most of the basic project objectives with less severe environmental impacts. Although the weight and emphasis given to LAX Master Plan project objectives varied over time, airfield safety, operational efficiency, and environmental concerns were important factors in the selection of potential airfield designs throughout the planning process. The extensive iterative process resulted in the selection of four Master Plan "build" alternatives and a No Action/No Project Alternative that were evaluated in the LAX Master Plan Final EIR.

In terms of safety, a primary consideration in the selection of an airfield design was the elimination or reduction of runway incursions.[2] The existing airfield layout requires landing aircraft to exit the outboard runways onto high-speed taxiways that provide an unimpeded route to neighboring parallel runways on which simultaneous aircraft departures are occurring. For the four-year period from 2000 through 2003, LAX experienced the highest number of runway incursions of any U.S. commercial airport.[3] The vast majority of these incidents occurred in the south airfield, particularly along connecting taxiways between Runways 7R-25L and 7L-25R. In connection with the FAA's Runway Safety Program, LAWA reviewed and evaluated several options to minimize runway incursions as part of the LAX Master Plan.

LAWA determined that new parallel center taxiways offered the best physical solution to reduce the risk of runway incursions. The LAX Master Plan (Alternative D) reconfigures all of the existing high-speed exit taxiways that directly cross the departure runways. Arriving aircraft will taxi onto the new center taxiways (one in the south airfield and one in the north airfield). The elimination of unimpeded high-speed access for arriving aircraft to the closely spaced parallel departure runway would reduce the likelihood of a pilot inadvertently taxiing beyond a runway hold bar and into the path of a departing aircraft. In a joint study with the FAA and NASA Ames Research Center, air traffic controllers found that the center parallel taxiway offered an effective solution to the primary cause of the most severe types of runway incursions experienced at LAX.[4]

In terms of operational efficiency, LAWA determined that a center parallel taxiway would have the least average annual taxi time and taxi delay compared to other taxiway configurations.[5] The airfield modifications would also improve the ability of LAX to efficiently handle new large aircraft (NLA), thereby helping the airport sustain and advance its role as the region's international gateway. As of July 2003, seven of the international air carriers operating at LAX using the B747 placed firm orders for the Airbus A380. It is projected that some of these carriers will initiate A380 service at LAX in the 2006 time frame.[6] As the region's primary international airport, it is crucial that LAX is capable of accommodating these aircraft when they become operational.

---

[2] A runway incursion is any occurrence in the airport runway environment involving an aircraft, vehicle, person, or object on the ground that creates a collision hazard or results in a loss of required separation with an aircraft taking off, intending to take off, landing, or intending to land.
[3] FAA, *Runway Safety Report,* August 2004.
[4] NASA Future Flight Central, Ames Research Center, *Los Angeles International Airport Runway Incursion Studies, Phase III Center Taxiway Simulation*, July 31, 2003. The study also concluded that an end-around taxiway concept greatly increased taxi time and delays for arriving aircraft and thereby increased the operational costs of this option and did not give any increased safety margin.
[5] HNTB, *Southside Airfield and New Large Aircraft (NLA) Studies, Final Report*, April 2004.
[6] This would occur regardless of the SAIP.

Lastly, LAWA determined that the center parallel taxiway concept fully addressed community and environmental concerns by improving the airfield within its existing boundaries. Compared to other alternatives evaluated in the LAX Master Plan, center parallel taxiway concept would have the least environmental impacts on the surrounding community[7]. The center taxiway design would have the least noise impacts on the surrounding community, in particular the City of El Segundo, because the center taxiway would route taxiing aircraft away from noise sensitive areas. In contrast, one of the other design options studied by LAWA, the end-around taxiway concept, would introduce additional taxi noise closer to El Segundo as more aircraft would be directed to the proposed taxiways located closer to noise sensitive areas than any existing portion of the airfield. In fact, all of the proposed end-around taxiway designs studied for the south airfield would result in the construction of new taxiways closer to residential areas in El Segundo than any existing portion of the LAX airfield. Consequently, LAWA concluded that the center taxiway concept best met the project objectives.

After reviewing and evaluating several design alternatives, on December 7, 2004, the Los Angeles City Council approved the Final LAX Master Plan, including LAWA's staff-preferred improvements to the south airfield. The LAX Master Plan provides a conceptual strategic planning framework for future improvements at LAX and working guidelines to be consulted by LAWA as it formulates and processes site-specific projects. Airfield improvements for the south airfield are described in Section 2.1 of the Final LAX Master Plan and are summarized in the following paragraph.

The airfield improvements associated with the south airfield are as follows:

- Runway 7R-25L would be moved approximately 55 feet south of the existing Runway 7R-25L centerline to allow for the construction of a new parallel taxiway between the south airfield runways. The runway would be reconstructed to match its current dimensions of 11,096 feet long and 200 feet wide.
- A new 11,906-foot long by 100-foot wide full-length Group V parallel taxiway would be constructed between Runways 7L-25R and 7R-25L.

These airfield modifications would improve the level of service, reduce delays, reduce the potential for runway incursions and consequently enhance the safety and security of passengers and aircraft at LAX. The airfield modifications are an integral component of the overall LAX Master Plan design, but would not themselves affect the total number of operations or demand at the airport. The physical characteristics of each component of the airport system, the airfield, terminal facilities, and the curb front play an important role in the overall operations of the airport. Together, these components determine how the airport functions as a whole.

The following section provides a more comprehensive discussion of the runway design alternatives that were reviewed and rejected during development of the LAX Master Plan.

2.2 Airfield Design Alternatives Evaluated in the LAX Master Plan

Concept development for the LAX Master Plan was a multi-phase iterative process in which concepts were repeatedly tested and then either rejected or refined. The process involved policy decisions and design tradeoffs that spanned five years and included dozens of options in order to

[7] Memorandum from Jon Woodward, Landrum & Brown, Inc., to Rick Wells, LAWA, "Quantitative Calculation of Noise Levels Associated with the Extension of Taxiways A and AA", December 10, 2001.

achieve the best balance possible to serve the airport needs of the region and those of the differing stakeholders. As the process progressed, agency and public meetings and workshops were held to inform all concerned and encourage participation in the process.

After considerable analysis and evaluation, LAWA arrived at four development alternatives that satisfied, in whole or in part, the goals and objectives for the airport. To arrive at these final alternatives, and to select from these a preferred alternative, the LAX Master Plan process included four separate rounds of analysis, or iterations. The first two iterations developed "unconstrained" concepts. "Unconstrained" in this context meant that the ability to accommodate demand was not limited by any capacity concerns and that no community, structural, or regulatory limitations were assumed. The final two iterations were "constrained," which meant that concept development was limited to reflect that priorities being placed on environmental and community concerns. All of the analyses and evaluations were reviewed by more than 70 agencies and in hundreds of public community meetings. Only after receiving public and agency input was the proposed LAX Master Plan reviewed and considered for approval by Los Angeles City officials and the FAA.

2.2.1 Unconstrained Concept Evaluation

As addressed in Chapter V, Concept Development of the Draft LAX Master Plan, the initial concept evaluation that makes up the first iteration of concept development investigated a complete range of basic runway configurations to serve the forecast demand for LAX. Ground access and terminal issues were considered for each airside option, with detailed layouts slated for development and evaluation in the second iteration. Using the airfield options carried forward from the first iteration, the second iteration included setting strategic goals, developing site-specific themes, identifying technical and political issues, technical analyses, and soliciting direction and feedback from community leaders. Terminal, cargo, ancillary, and ground transportation options were then evaluated. The final results of each discipline's analysis were combined for each airfield option to create four "integrated" concepts that were carried forward for additional analysis in the third iteration.

First Iteration Concept Development

A wide range of options were defined and evaluated for the LAX airside system, which consists of the runways, taxiways, aircraft aprons, and service roads. The goals and objectives established at the beginning of the LAX Master Plan guided the definition of airside options.

The first iteration evaluated eight airside options, some of which provided the opportunity to meet and possibly exceed the 2015 forecast. These eight options were divided into three themes – minimal changes, major expansion, and new airport. Each option was analyzed for its airfield performance, construction and implementation feasibility, cost, transportation and ground access, and major environmental and land use impacts.

The first iteration analysis showed that expansion outside the existing property boundary would be needed to accommodate forecast demand. LAWA determined, however, that a new airport theme that embraced high levels of development was not necessary to develop an "ideal" facility to meet the 2015 demand projections. At the end of the first iteration, several factors emerged to eliminate many concepts. Ocean development was deemed infeasible due to cost, construction difficulty, and environmental concerns. Expansion of runways to the west and ocean runways which would involve the use of the Los Angeles/EI Segundo Dunes were eliminated from further consideration due to potential impacts on this environmentally sensitive area. The concepts of expanding into

Westchester and the City of EI Segundo were given considerable attention, but the large scale acquisition of homes was extremely expensive and would result in community disruption inconsistent with the Board of Airport Commissioners' goal of protecting surrounding neighborhoods.

In August of 1996, simulation modeling (SIMMOD) of airside performance eliminated other options and led to other refinements, so that four airfield alternatives remained:

- Alternative 1 – Build a fifth runway in the north airfield and relocate the existing north airfield runways southward to increase separation, and relocate the south airfield runways for increased separation.
- Alternative 2 – Build two new 6,000-foot runways, one in the north airfield and one in the south airfield. Shift and extend other runways to the east.
- Alternative 3 – Build two new 6,000-foot runways as in Alternative 2, but shift the north airfield runways westward.
- Alternative 4 – Develop a 6,000-foot runway at the existing Hawthorne Airport and connect the airport to LAX via transit.

Second Iteration Concept Development

Based on the second iteration analysis, a series of integrated concepts were formulated. These concepts combine the four shortlisted airfield alternatives with the best options available from each discipline – terminal, cargo, ancillary facilities, and on- and off-airport ground transportation.

These four integrated concepts could reasonably meet the second iteration goals and objectives set forth by the LAWA for airport expansion. They were therefore carried forward for additional analysis in the third iteration of concept development.

2.2.2 Constrained Alternatives Evaluation

At the beginning of the third iteration, the four integrated alternatives were given extensive public review as part of a comprehensive scoping process for the environmental review documents. After the public review, the Hawthorne alternative (Alternative 4) was eliminated because of strong opposition from the City of Hawthorne and airline concerns. Alternative 3 was eliminated because Alternative 2 provided the same new runways and airport facilities as Alternative 3 without any potential intrusion west into the Los Angeles/El Segundo Dunes. A new alternative (Alternative 3) was developed which included a fifth runway on the south airfield.

The two remaining alternatives (Alternatives 1 and 2), the new five runway south alternative (Alternative 3), and a No Action/No Build Alternative, which assumes no additional improvements to LAX beyond what is currently programmed, were analyzed for airside performance and environmental impacts in the third iteration analysis.

This evaluation resulted in the elimination of Alternative 2 because of its high environmental impacts and limited capacity benefits. At this time, LAWA and the FAA decided to develop a scaled-down four-runway alternative similar to the "Minimal Change" option that was considered and dismissed during the first iteration. Thus, four alternatives were carried forward in the final iteration of the master plan analyses and in the Draft EIS/EIR (the build alternatives are now identified with the letters A, B, and C):

- No Action/No Project Alternative
- Alternative A – Added Runway North
- Alternative B – Added Runway South
- Alternative C – No Additional Runway

In the final iteration of analysis, the three final build alternatives and the No Action/No Project Alternative were evaluated based on how well they met the LAX Master Plan goals and objectives. The potential environmental effects of the alternative were evaluated in the Draft EIS/EIR for the LAX Master Plan, which was released for public review and comment in January 2001.

Taking into account the public comments received on Alternatives A, B and C and the Draft EIS/EIR, as well as the September 11, 2001 terrorist attacks, the Mayor of the City of Los Angeles directed LAWA to develop a security and safety plan, now known as Alternative D, as a fifth LAX Master Plan alternative. In July 2003, an Addendum to the Draft LAX Master Plan was published. The Addendum described Alternative D in the same manner that the previous alternatives were described. Additionally, Alternative D was subject to a detailed environmental review in the Supplement to the Draft EIS/EIR, and later integrated into the Final EIS/EIR. These documents were publicly circulated.

In December 2004, the Los Angeles City Council voted to move forward with the plan to modernize LAX. The City Council approved the LAX Master Plan (Alternative D), certified the Final EIR, and approved various entitlements to authorize the development of the proposed improvements.

2.2.3 End-Around Taxiway Concept Evaluation

As part of the planning effort for the LAX Master Plan, LAWA consultants and others analyzed various design concepts for improving the south airfield to reduce runway incursions, including several variations of an end-around taxiway concept. The feasibility and potential effects of the end-around taxiway concept were the subjects of several studies.

Initial simulations of the end-around taxiway concept, including potential effects on air traffic controller workload were conducted by NASA and documented in the *Los Angeles International Airport Runway Incursion Studies, Phase II Alternatives Simulation*[8]. The simulations were intended to test a variety of operational alternatives to determine which would provide the best operational scenario in terms of safety and efficiency and tested both physical and procedural alternatives for an end-around taxiway and its operation. Although the intent of those simulations was to compare alternatives, the results indicated that even the most efficient of the end-around taxiway concept alternatives would result in increase taxi times for aircraft arrivals.

The Taxiway B-16 Operational Analysis[9], was prepared in November 2001 and provided the results of operational analyses that were conducted to assess the performance of one of the end-around taxiway concepts, assuming two different operational scenarios regarding aircraft exiting from Runway 25L after arrival. The analysis was conducted using simulation models of the airfield that reflected the forecast 2005 No Action/No Project aircraft operations from the LAX Master Plan and incorporated the required air traffic control procedures. The following results were documented:

[8] NASA FutureFlight Central, Ames Research Center, *Los Angeles International Airport Runway Incursion Studies, Phase II Alternatives Simulation*, August 22, 2001.
[9] Landrum & Brown, *Los Angeles International Airport Taxiway B-16 Operational Analysi,* November 27, 2001.

- The implementation of the end-around taxiway, as tested, would result in a decrease in hourly capacity and an increase in unimpeded taxi time and delay, particularly for arrivals on Runway 25L. The overall additional delay and taxi time assuming the forecast 2005 No Action/No Project operations was estimated to be approximately 3 minutes per operation annually. Increases in peak hour delay and taxi time were estimated to range from 4 to 8 minutes per arrival.
- The maximum rate of arrivals on the south runway complex would be reduced by about 5 arrivals per hour to allow for crossings at the end of Runway 25L.
- Based on the 2005 No Action/No Project forecast level of operations, the operational cost of the additional delay and taxi time was estimated to range from $64 million to $83 million per year in 2001 dollars.

Overall, the results indicated that the operational effects of the end around taxiway would be detrimental to the operation of the south airfield in terms of aircraft taxi and delay.

A subsequent assessment was conducted to address the potential noise effects associated with a different end-around taxiway concept that assumed the western extension of Taxiway A at the airport and a north-south taxiway connection to the central airport taxiways west of the south runways. The results were documented in a memorandum in December 2001[10] and showed that the taxi noise levels of individual operations along the end-around taxiway would range for 4 to 11 decibels higher than under existing airfield conditions. The memorandum did note that the overall taxi noise levels were lower than those of aircraft operating on the runway and as a result the effect on overall cumulative noise levels measured in terms of CNEL would be less than significant.

The South Airfield and New Large Aircraft Final Report (SA-NLA Final Report)[11] evaluated both physical construction and new technology options. Three series of construction options with alternatives were developed and evaluated. These series include:

- A Series: End-Around Taxiway. This series describes various options to route aircraft around the ends of active runways to reduce crossings in reaching their ultimate destination.
- B Series: Center Taxiway/Runway 25L Relocation. This series describes various options to provide a new parallel taxiway between Runways 7R-25L and 7L-25R.
- C Series: Operational Changes. This series describes various operating scenarios for the south airfield, modeled using FutureFlight, an ATC simulator (referred to as virtual tower), to identify traffic flow implications and effects on Runway Incursions.

The alternatives were evaluated using SIMMOD PRO (a computer modeling software) assuming the current airspace configuration with existing and proposed airfield structures built into the model. The simulation modeling provided quantitative analysis of the impacts of the alternative designs in terms of runway throughput, runway crossing, ground taxi travel and delay times, and average annual taxi time at LAX. Noise analyses were also completed and reported using the Sound Exposure Level

[10] Memorandum from Jon Woodward, Landrum & Brown, Inc., to Rick Wells, LAWA, "Quantitative Calculation of Noise Levels Associated with the Extension of Taxiways A and AA", December 10, 2001.
[11] HNTB, South Airfield and New Large Aircraft (NLA) Studies, Final Report, April 2004.

(SEL) metric, which addresses the effects of A-weighted noise.[12] In addition, a qualitative assessment of the potential air quality implications of the airfield development options was performed, taking into consideration the findings of the simulation results, which quantified changes in aircraft taxi times and taxi distances.

As a result, the SA-NLA Final Report determined that the end-around taxiway design concept was not feasible for a number of reasons. First, the end-around taxiway design options resulted in the greatest average taxi delay times compared to existing airfield and the center taxiway option. Secondly, the taxi-only noise contours indicated that the end-around taxiway design options would result in a significant increase in taxi noise in the residential areas of El Segundo near the west ends of the south runways. Lastly, the end-around taxiway options resulted in greater taxi distances and hence higher pollutant emissions, which would imply a decrease in air quality.

2.3 New Information

This section provides a summary of pertinent information that is now available and was not available at the time the LAX Master Plan Final EIR was certified.

2.3.1 Conceptual Drainage Plan

The LAX Master Plan Final EIR was a programmatic document that evaluated four build alternatives; detailed drainage and water quality planning for each individual alternative was not conducted as part of the Final EIR. Therefore, the LAX Master Plan Final EIR included Master Plan Commitment HWQ-1, which required LAWA to prepare a Conceptual Drainage Plan (CDP) to identify the overall improvements necessary to provide adequate drainage capacity to prevent flooding as well as Best Management Practices (BMPs) options to prevent a net increase in pollutant loads to surface water. LAWA has completed the CDP in accordance with Master Plan Commitment HWQ-1 (see Appendix A). The CDP provides the basis by which detailed drainage improvement plans shall be designed in conjunction with site engineering specific to each LAX Master Plan improvement project. The project-specific drainage analysis conducted for the SAIP was based on the methodology in the CDP.

The CDP is included in this EIR as Appendix A for informational purposes. Certain components of the CDP that would be implemented as part of the SAIP are included as part of the project analyzed in this EIR. The remainder of the CDP is not part of this project, but rather was developed as required by the Master Plan to guide future hydrology and water quality mitigation associated with future projects that are included in the LAX Master Plan and analyzed in the Master Plan EIR.

2.3.2 FAA Record of Decision

On May 20, 2005, the FAA published its Record of Decision (ROD) for the Proposed LAX Master Plan Improvements. After considering all reasonable alternatives, the FAA determined that Alternative D, of which the SAIP is an integral component, is the preferred alternative. The FAA determined that Alternative D directly supports the essential and most urgent air transportation and safety needs at LAX with the least adverse environmental effects, and is the most responsive to public comment. The FAA also recognized that Alternative D is considered by LAWA to be the alternative best able to respond to the current security environment. The FAA added that it has confidence in the accuracy of the Final EIS's disclosure of environmental impacts related to the

[12] The SEL metric was used because it is the best indicator for determining the specific differences in noise levels of individual aircraft movements along different taxiway configurations.

airside and aviation support elements of Alternative D.

2.3.3 Validation of End-Around Taxiway Studies

Following completion of the SA-NLA Final Report, the City of El Segundo requested further evaluation of one of the non-recommended end-around taxiway design options described in the SA-NLA Final Report – Alternative A4. This end-around taxiway design had envisioned a new taxiway that would extend west from Taxiway A approximately 3,500 feet, then turn north, roughly parallel to Pershing Drive, a distance of approximately 1,800 feet and then continue east approximately 900 feet where the taxiway would join Taxiway AA north of Taxiway C.

In particular, the City of El Segundo requested that two modifications to Alternative A4 be evaluated. The first end-around taxiway modification suggested by El Segundo addressed the possible need for aircraft to adjust their engine power settings to compensate for any grade differences, particularly up-grade, in their taxi route. Under this modification, the end-around taxiway would be constructed so that it would be at grade with existing Taxiway A, and aircraft would remain under their own power to taxi to their final destination at the airport. Modifying the grade would reduce the ascents and descents of the taxiway surface, thereby reducing the need for pilots to throttle engines up to a noisier level in order to taxi aircraft up hill. The modified end-around taxiway design would allow pilots to taxi through the noise sensitive area using the least amount of engine thrust feasible, reducing engine noise as much as possible. For the purposes of the planning study, this proposed modification was termed the "end-around taxiway at-grade" design. Under El Segundo's second suggested modification, tractor tugs would move most turbojet aircraft from their runway exiting point on the south airfield to their final destination at the airport. Under this modification, these tugs would tow aircraft from a proposed apron staging area located near the west end of Taxiway A to the CTA. For the purposes of the planning study, this proposed modification was termed "end-around taxiway with tugs" design.

In contrast to El Segundo's assumption that both suggested end-around modifications might reduce noise impacts on nearby El Segundo residential areas, results of the planning study concluded that the Full Length Center Taxiway Alternative B2 of the SA-NLA Final Report, overall, is more feasible than either one of the modified end-around taxiway designs. The SA-NLA Final Report further concluded that the center taxiway alternative would provide the greatest benefits during all LAX operating conditions without causing excessive delay. The planning study, therefore, validated and strengthened the findings of the SA-NLA Final Report. Please see Appendix B for more details.

2.3.4 Interim Operational Plan Analysis

The City of El Segundo raised concerns that the FAA would favor the use of the south airfield over the north airfield in the interim period between the completion of the SAIP and the initiation of improvements to the north airfield, consistent with the LAX Master Plan. The improvements to the north airfield are not anticipated to begin prior to 2013. Therefore, the concern was raised for the approximately five-year period following the completion the SAIP and the beginning of the north airfield improvements. In response, the *Interim Operational Plan Analysis, Existing and Future Runway Operations*[13], was prepared. A copy of the report is provided as Appendix C of this Draft EIR. The study process included interviews with FAA air traffic control personnel in the Southern California Center, Southern California Terminal Radar Approach Control (TRACON), the LAX

[13] *HNTB, Interim Operational Plan Analysis, Existing and Future Runway Operations, January 2005, (see Appendix C)*

Airport Traffic Control Tower (ATCT), and the Western Pacific Region Office. The results of the study confirmed that runway use during the five-year interim period would be the same after completion of the SAIP as it would be without the improvements, as had been documented in the LAX Master Plan and the LAX Master Plan Final EIR. A copy of the interim operations study is provided in **Appendix C**.

2.4 Proposed Project

2.4.1 Project Objectives

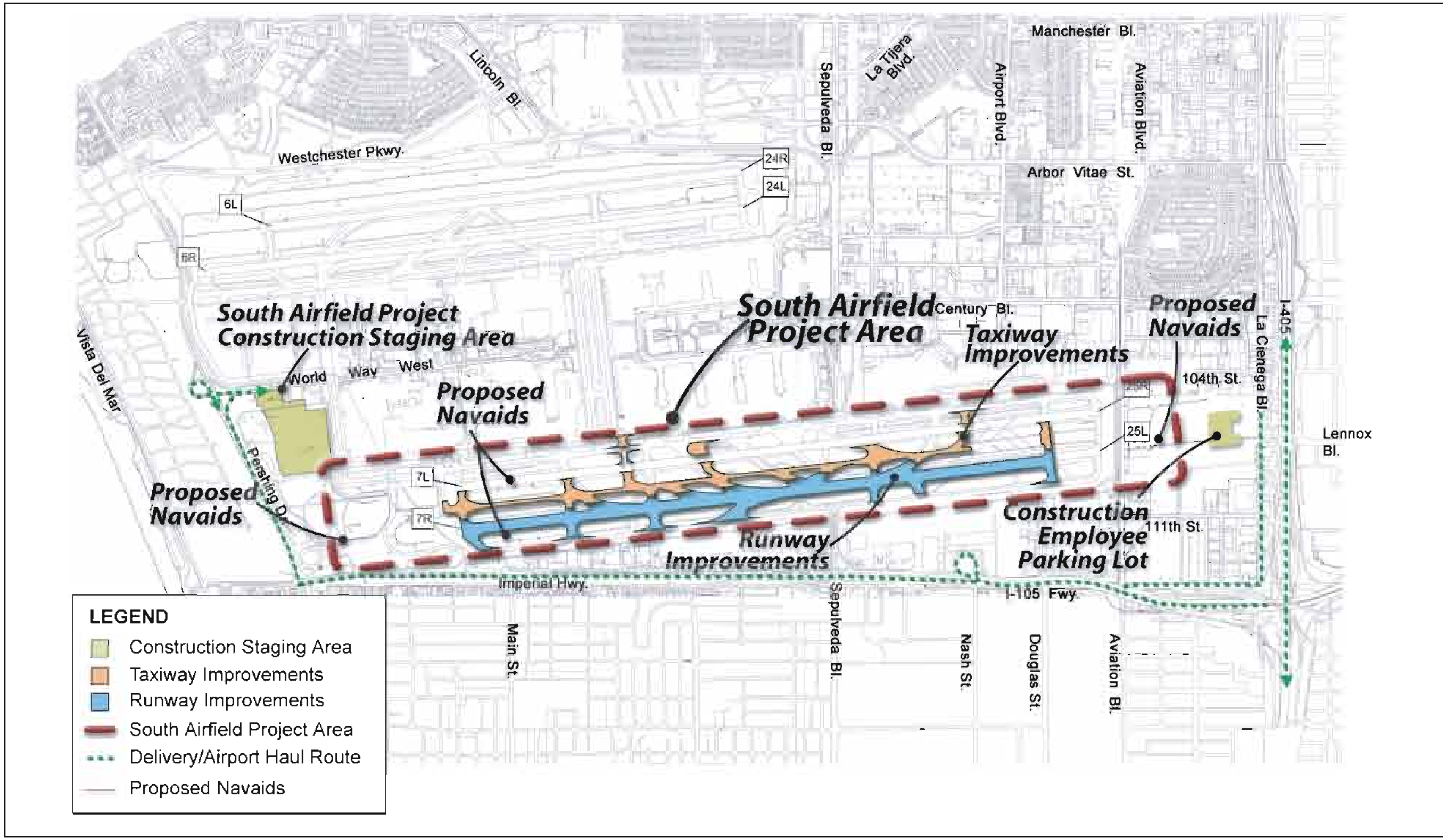
The purpose of this project is to implement the SAIP consistent with the purpose and objectives of the LAX Master Plan, as set forth in Chapter 1 of the Final LAX Master Plan and Chapter 2 of the LAX Master Plan Final EIR.

2.4.2 Project Description

Consistent with the LAX Master Plan, LAWA proposes to construct a new 75-foot wide Airplane Design Group VI (ADG) parallel taxiway between Runways 7L-25R and 7R-25L at LAX. The primary objective of the new center taxiway is the minimization of the potential for runway incursions. This project is the first airport improvement project that would be processed under the LAX Master Plan. The project area is located on airport property near the airport's southern boundary along Imperial Highway and World Way West. The site is currently paved and in active airfield use for commercial service aircraft operations.

To meet the FAA required centerline spacing of the new taxiway, the proposed project would require that the southernmost 11,096-foot by 200-foot Runway 7R-25L be relocated in its entirety 55.42 feet south of its current centerline location. The new center parallel taxiway would provide a runway-to-taxiway centerline spacing of 400 feet from both Runway 7L-25R and the relocated 7R-25L. The relocation of Runway 7R-25L would include the relocation and replacement of all navigational and visual aids and other associated site improvements, such as drainage, utilities, lighting, signage, and grading. **Exhibit 2-1** depicts the proposed project.

The relocated runway would be constructed primarily of concrete with temporary asphalt sections to tie in the runway to the north before the center taxiway is constructed. The design calls for all slopes on the runway to conform to current FAA standards for the identified critical design aircraft. Runway 7R-25L is designed to have transverse cross slopes of 1.5% on each side of centerline. In most cases, the minimum 1.5% cross slope was continued into the infield area, however in some cases the slopes in the infield within the Runway Safety Area (250 feet on either side of the runway centerline) would be within the FAA standards of a minimum of 1.5% to a maximum of 3%. Outside of the Runway Safety Area, cross slopes can be up to 25% or 4:1. Due to the proposed improvements, sections of the Sepulveda Boulevard tunnel superstructure underlying the airfield would be strengthened at two locations by placing a new poured in place concrete slab to support aircraft loads associated with the relocation of Runway 7R-25L and the new taxiway. The sections to be strengthened include 54.7 feet to the south of Runway 7R-25L, and a 241.5 foot section between Runway 7R-25L and Runway 7L-25R, and part of the center taxiway. It is anticipated that all bridge reconstruction would be conducted from the top of the structure, therefore avoiding any impacts to



Source: HNTB, 2004
Prepared by: Ricondo & Associates, Inc.

Exhibit 2-1

north Not to Scale

Project Description

traffic on Sepulveda Boulevard. The Runway 7R-25L widening and approach slab seat[14] strengthening would be completed while Runway 7R-25L is closed.

Existing Runway 7R-25L Navigational Aids (NAVAIDS) would be relocated to conform to the shifted runway centerline. Runway 7R-25L would be equipped with a new high intensity runway lighting (HIRL) system, centerline lighting, touchdown light zone system (TDZ) and new approach lighting systems (ALS) at both ends. Runway 7R would be outfitted with a Medium Approach Light System (MALSR) and Runway 25L would be equipped with a new ALSF-2 (Approach Light System with Flashers). These two approach light systems would maintain the current runway visibility and ceiling minima. New high intensity taxiway lighting would be installed along the length of the new center taxiway and the new connecting taxiways. Construction of additional south airfield exit taxiways and reconfiguration of some existing taxiways would also be undertaken with the installation of associated lighting facilities.

The proposed improvements for Runway 7R-25L and the center taxiway are designed to ensure proper drainage off the paved areas, in accordance with FAA standards. Drainage improvements include Best Management Practices (BMP) as outlined in the Standard Urban Storm Water Mitigation Plan (SUSMP) required by the City of Los Angeles Department of Public Works, Bureau of Sanitation, Watershed Protection Division (WPD). The SUSMP requires that the drainage improvements provide treatment capacity for the first ¾ inch rainfall for the project limits of Runway 7R-25L and the center taxiway. The project includes measures to meet this requirement including the placement of swales capable of enhancing the quality of run-off (also termed bioswales) which run the length of the airfield west of the Sepulveda Boulevard tunnel. The extent of the runway bioswale ditch would be approximately 174,800 square feet and the taxiway bioswale ditch would be approximately 56,800 square feet. These bioswales will include a combination of a grass paver with an infiltration ditch beneath. The grass paver provides a hard maintenance road while protecting the root structure of the grass. In addition to the bioswales, the project includes the installation of hydrodynamic units to provide first flush run-off protection on selected areas where the bioswales are not appropriate.

The new center taxiway would extend from Taxiway "U" at the west end of the airfield to Taxiway "WF" which is just east of Sepulveda Boulevard. The extension of the center taxiway from Taxiway "WF" to Taxiway "F" at the east end of the airfield would be deferred for future development due to current limitations of available technology and equipment needed for the replacement of the glide slope antenna for Runway 25L. The glide slope antenna is the portion of the Instrument Landing System (ILS) that includes the vertical controls for the approaching aircraft. GPS enhanced approach instruments are expected in the near future which may allow the glide slope antenna to be moved, ultimately allowing the center taxiway to connect to Taxiway "F" on the east end of the airfield. In the interim, a diagonal extension of the new center taxiway would angle north tying into Runway 7L-25R approximately 2,545 feet west of the existing Runway 25R threshold. This taxiway would continue north across Runway 7L-25R at a 90-degree angle tying into a point on Taxiway "B" generally midway between existing Taxiways "C-3" and "C-2".

[14] Approach slab seat is the base on which the approach slab is placed. The approach slab is defined to be a reinforced concrete slab placed on the approach embankment adjacent to and usually resting upon the abutment back wall; the function of the approach slab is to carry loads on the approaches directly to the abutment, thereby eliminating any approach roadway misalignment due to approach embankment settlement.

2.4.3 Construction Packaging

As described in the previous section, the SAIP consists of several airfield improvements, with the primary ones being the relocation of Runway 7R-25L and the construction of the center taxiway. The scale, and possible effects on airport operations associated with project construction, necessitates a careful assessment of the implementation of the project. This includes the factors considered in determining the number and size of the sub-projects (packages) to be used. The following points briefly describe the primary issues considered in the definition of the construction packages.

- **Competitive Bidding**. The magnitude of the construction contract should allow several local and national contractors to be able to bid and offer competitive prices. Contractors are required to post bonds (bid and performance). The ability of contractors to secure the proper level of funding is contingent on their demonstrating past performance and solvency. Larger projects tend to limit the number of financially qualified contractors; however at the same time ensure that project sponsors benefit from economies of scale, and ultimately more economical projects.
- **Construction Coordination**. Segregating the program into smaller, and more numerous projects, could lead to excessive coordination between different contractors performing the work concurrently. This could also lead to extensions of construction schedules, cost escalations and poor quality work, as the accountability for the performance of the work is diluted between all the involved parties. Responsibility and accountability is easier defined and managed if only one contractor is responsible for the work. A single contract is always preferred, especially when the overall construction schedule is limited.
- **Construction Related Impacts to Operations**. Similar to the point related to construction coordination, smaller and more numerous construction contracts add to the coordination complexity between the construction and airport operations. A larger size contract, with a single responsible party streamlines coordination and therefore reduces the potential for miscommunication that often leads to construction mishaps. Airport construction project are more complex because the construction has to coexist with the operations of the airport.
- **Availability of Materials**. Phasing the construction into several components (two or more) would ensure that the supply of material is adequate. Shortages of material could drastically increase the cost of construction.

Proposed Construction Packages

Considering all the issues listed above, the SAIP has been divided into two primary construction packages. It should be noted that the definition of these two packages does not necessarily mean that the two packages would be performed by two separate contractors. This is a decision that LAWA, as the project sponsor, would make based on schedule and cost constraints. Ultimately, these two projects would be executed sequentially.

A. Runway 7R-25L Relocation. As the first construction package, this project consists of the demolition of the existing pavement and relocation of Runway 7R-25L. All ancillary facilities, including NAVAIDS would be included in this project. The limits of the project area would be 20 feet north of the Runway 7R-25L Runway Safety Area (RSA) boundary assuming a reduced RSA of 200 feet from the centerline of the Runway, as allowed by the FAA during construction. The construction limits would extend 20 feet beyond the RSA boundary to the north therefore preventing construction encroachment onto the RSA during the subsequent construction phases of the SAIP.

B. Center Taxiway. This package completes the airfield program and consists of the construction of the center taxiway and all connecting taxiways to Runway 7R-25L and 7L-25R. This project includes the construction of small connecting taxiways between Runway 7R-25L and Taxiways B and C. This project is likely to have minimal impact on airport operations during construction.

Sequence of Construction Packages

As noted earlier, construction sequencing should minimize the impacts to airport operations as well as minimizing coordination efforts. The relocation of Runway 7R-25L is to be the first project implemented as part of the LAX Master Plan Program. Transitions to existing operating surfaces are provided in order to ensure a fully operational airfield at the completion of the project. Construction of the center taxiway would begin after the completion of relocation of Runway 7R-25L.

2.4.4 Construction Phasing Options

2.4.4.1 Project Phasing Options

This section addresses the general construction phasing criteria developed for the design of the SAIP. It is important to recognize that the continued and safe operation of the airport during and after construction is imperative. The airport is a 24-hour facility with limited capacity and any disruption to airport operation would have a significantly detrimental effect on air transportation service in the region and nationwide.

The construction phasing options considered for the project included a range of options from closure of the project site to aircraft operations in order for the site to be available to the contractor exclusively until construction completion to phasing the construction in a manner whereby the contractor shares the site with limited aircraft operations. Analysis of the impacts to airport operations caused by the closure of a runway and adjacent taxiways determines the tradeoffs inherent in the construction scheduling process. Taking all of these factors into consideration and construction packaging, design considerations, and project phasing, a proposed construction approach is presented.

General

The phasing options presented in this section focus on the work included in the relocation of Runway 7R-25L. There are three scenarios that were evaluated for the construction of the SAIP: total closure of Runway 7R-25L for the duration of its construction, closure of portions of the runway at a time as required, or off-peak construction (nighttime closures). Each of these options was evaluated in terms of their efficiency, safety, airport operational performance, and environmental factors. Each of these options, and as well as a brief assessment of the advantages and disadvantages of each, is discussed below.

Total Closure of Runway 7R-25L

This approach would entail the closure of Runway 7R-25L and, as needed, associated taxiways. With the runway closed, the contractor could focus on achieving the highest production without significant constraints associated with phasing, sequencing, and aircraft operations within the project site. This would ultimately lead to the shortest construction time and the highest product quality.

The contractor could assign resources to meet the schedule demands and apply work shifts as needed. Further, the contractor would benefit from large areas of work at one time. Staging areas, within the constraints outlined in the LAX Master Plan, could be located near the construction site, which would reduce any delays in delivering personnel, materials, and equipment.

Approximately half of the operations at the airport are from the south airfield complex, including almost all south and east bound traffic, as well as all wide-body departure traffic. The closure of Runway 7R-25L would require that portion of the traffic be routed to Runway 7L-25R and the north airfield complex.

In general, the total closure of Runway 7R-25L while the construction is performed would yield the shortest and most efficient construction schedule and would therefore yield the least construction impacts. Because the primary direct effects of construction are associated with changes in runway use patterns at the airport, and increased traffic on local roadways, a shorter and more efficient construction schedule would result in fewer, or less severe, environmental impacts by minimizing the duration of these impacts.

Partial Runway Closure

This approach would entail the closure of only portions of the Runway 7R-25L for an extended period of time. This might include the closure of the west end of the runway and subsequently, after its completion, the east end. The construction of the center portion of the runway over Sepulveda Boulevard would also require the complete closure of the runway. At any given time, except for the time while the center portion is being constructed, Runway 7R-25L would be open with length limitations, thus allowing operations of aircraft that could operate on the shorter runway.

Partial closure of Runway 7R-25L would still allow the contractor to locate the staging area near the construction site. The construction would be limited so that it is not within the safety area of the active runway. While this would create the requirement for phasing, the majority of the work should be possible during normal working hours, depending on contract time. Aircraft operations would be affected because the available landing and take-off runway lengths would be temporarily redefined. Sporadic total closure of the runway would still be required to accommodate construction of transition areas. These total closures could be accommodated during nighttime or during the weekend. This would extend the amount of time required for construction, because the contractor would have to work on portions of the runway partially completing these areas before moving and finishing. Operationally, delays would be created for both incoming and outgoing traffic, although the delays should be no greater than those created during runway closure for routine maintenance.

Aircraft would operate on limited runway length, therefore limiting the type and number of aircraft able to land and take-off, forcing traffic to be segregated by air traffic control. The shortened runway should meet the requirements of smaller (turbo prop and regional jet) traffic.

This approach to construction would add several months to the overall construction schedule. Also, the mixing of construction and aircraft operations increases the potential for accidents.

Similar to the total closure of the Runway 7R-25L, this option would require air traffic that would typically operate on Runway 7R-25L to be shifted to Runway 7L-25R and to the north airfield. These operational impacts, along with other construction impacts, would be extended compared to the total closure of Runway 7R-25L.

Off-Peak Construction

This approach would involve leaving Runway 7R-25L open and operational during the peak flight operation times of the day or week, allowing little or no delays or interruptions to flight operations. The construction approach would require that a portion of the construction, including the required demolition, excavation, forming, installation of lights and conduit and paving (runway) be carried out during a short window of off-peak air traffic. As the runway centerline is shifted, there would be a need for the crown of the new pavement to be transitioned to the old pavement surface after the completion of the construction and before the runway becomes operational again. This transition would be required on both sides of the work area established. The off-peak hours that could be made available for construction are during nighttime (11:00 PM to 6:00 AM) or during an extended period from Fridays at 11:00 PM to Sunday at noon. For each of the construction windows, the contractor must have completely demobilized from the site and left the construction area so that all FAA safety area requirements are met. Staging areas would be established in an area that would allow for the installation of one or more on-site batch plants. Nighttime delivery would minimize potential traffic delays.

Based on the short available construction window, this approach would extend the overall construction schedule beyond a reasonable time. Further, this approach would also require extensive temporary work, which in turn would increase the construction cost. For these reasons, this option was not recommended.

2.4.4.2 Findings Regarding Analysis of Construction Phasing Options

Three distinct construction phasing options were evaluated in order to procure the most feasible construction option for the SAIP. The phasing criteria and schedules for these three proposed approaches were based on a series of assumptions and developed with the help of local paving contractors. Assumptions included contractor stockpiling on in-field areas, batch plant on-site, production rates, construction logistics and a simplified structural design section.

As discussed in the following section, the proposed SAIP construction phasing option was selected due to safety, efficiency, airport operational performance, and environmental factors. The proposed construction schedule is the quickest and most efficient; and the environmental impacts would generally be less severe due to a shorter construction duration that results in a shorter period for closure or otherwise reduced capability of Runway 7R-25L.

2.4.5 Proposed Construction Phasing and Schedule

2.4.5.1 Introduction

In order to minimize the impacts to airport operations, the implementation of the SAIP was divided into two primary construction packages, which are further refined into a series of construction work areas. These construction work areas have been all sequenced to reflect the requirements of the FAA Airport Traffic Control Tower (ATCT). The location and extent of the work areas is defined by limits associated with aircraft operating surfaces (runways and taxiways), specifically FAA defined safety areas.

The proposed phasing option presented herein is a result of an ongoing coordination effort with LAX Operations Management and ATCT.

As shown on **Exhibit 2-2**, the construction schedule reflects the proposed construction phasing in terms of the extent, and nature of the work within each of the construction work areas, as well as their dependency.[15]

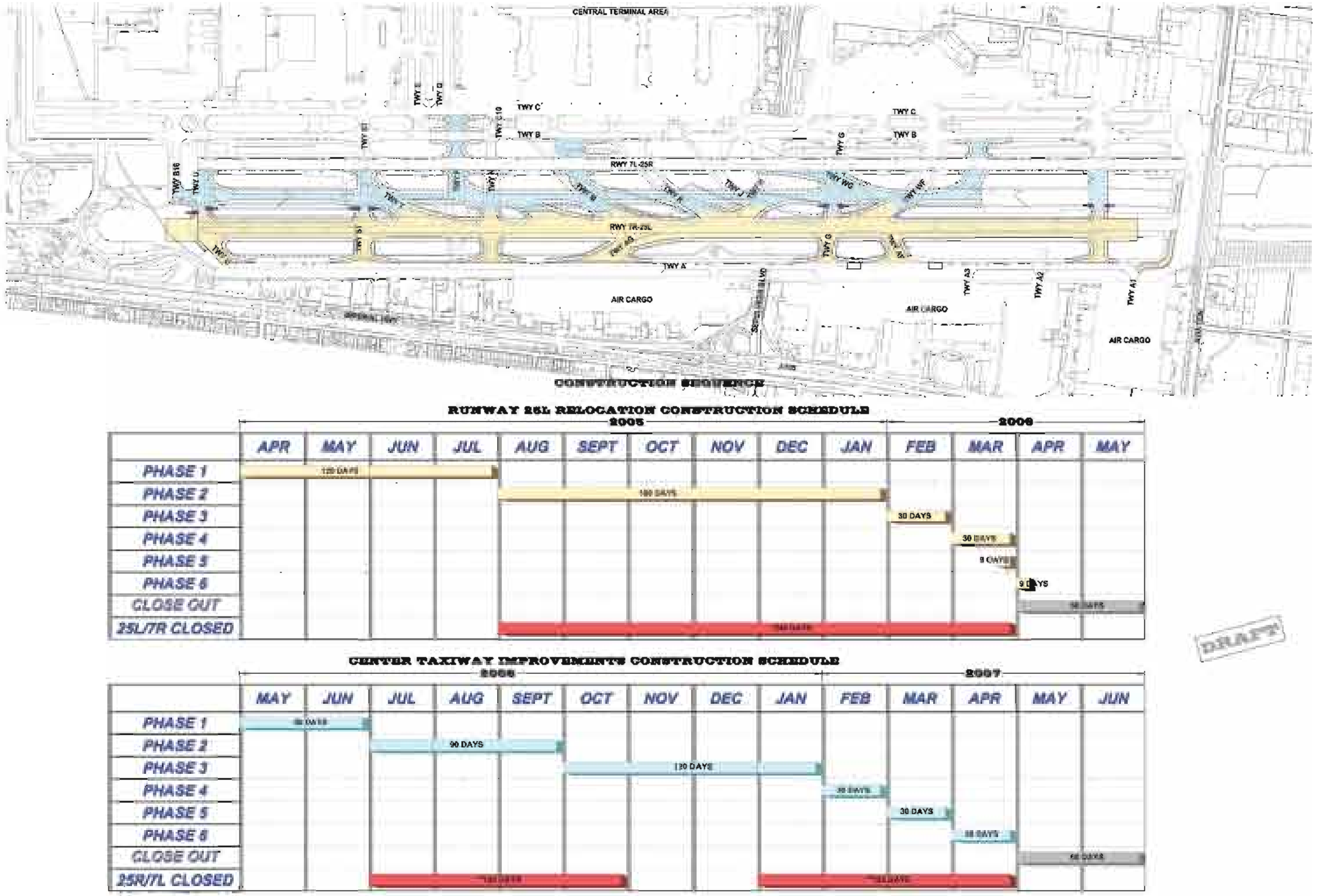
2.4.5.2 Proposed Construction Phasing

The first primary construction phase would be the relocation of Runway 7R-25L and the second primary phase would be the construction of the new center taxiway. During the estimated 14-month construction period of phase one, Runway 7R-25L would be closed for approximately eight months and all aircraft operations would be rerouted and distributed among the south airfield Runway 7L-25R and the two north airfield Runways 6L-24R and 6R-24L. During the estimated 12-month construction period of the second phase, no runway closures for any extended period of time are anticipated. During the taxiway construction, Runway 7L-25R would be closed periodically during night-time hours to complete tie-ins from the new center taxiway and the runway. All four runways would be operational at the airport after the completion of the first phase.

As shown on **Exhibit 2-3**, the relocation of Runway 7R-25L is further divided into six sub-phases and one close out phase (not illustrated) to minimize the impact of construction activities on airfield operations. The first of these seven phases consists of all preparatory work prior to closure of Runway 7R-25L. Typical preparatory work includes, but is not limited to, mobilization and setup, preparation of contractor staging area including concrete batch plant(s), obtaining all required permits, pre-demolition work, and placement of concrete pavement test strips. Phases two through five require the continuous closure of Runway 7R-25L for approximately eight months. Phases two through five consists of major construction activities for the relocated Runway 7R-25L sequenced in segments. The limit lines of the phased construction (shown in Exhibit 2-3) do not allow work within 200 feet of active runway centerlines, and within 125 feet of active taxiway centerlines. Major construction activities include, but are not limited to, relocation of landing and navigational aids, demolition and construction of airfield pavements, construction of underground utility improvements, lighting and signage improvements, and temporary markings to maintain safe separations of aircraft and construction areas.

Phase six and the close out phase would not require the closure of Runway 7R-25L. Construction activities during phase six include permanent markings and striping of Runway 7R-25L and all connecting taxiways to Runways 7R-25L and 7L-25R. Flight testing of Runway 7R-25L is also included. The close out phase concludes the construction for the relocation of Runway 7R-25L by completing remaining miscellaneous construction items. During the construction of the new taxiway, a similar phased construction is applied to construct the taxiway in segments sequentially as shown on **Exhibit 2-4**. Unlike the relocation of Runway 7R-25L, Runway 7L-25R would not be closed continuously but would only require occasional nighttime closures to accommodate construction activities. There would be no relocation and replacement of navigational and visual aids for the taxiway construction.

[15] After the technical analyses for this report were complete, it was determined that the construction period for the SAIP would not begin until after April 2005 as originally assumed. As described in the introduction to Chapter IV, it was determined that this delay would not change the profile of construction activity over the construction period – it would simply shift the profile in its entirety, with the peak construction period occurring in 2006 as opposed to 2005. Sensitivity analyses were performed to ensure that the results of the technical analyses were still reliable in terms of identifying the potential for or magnitude of environmental effects from the construction of the SAIP. As reported in Chapter IV, as well as Appendix D, there would be no change in significant impacts as a result of the shift in the construction period.



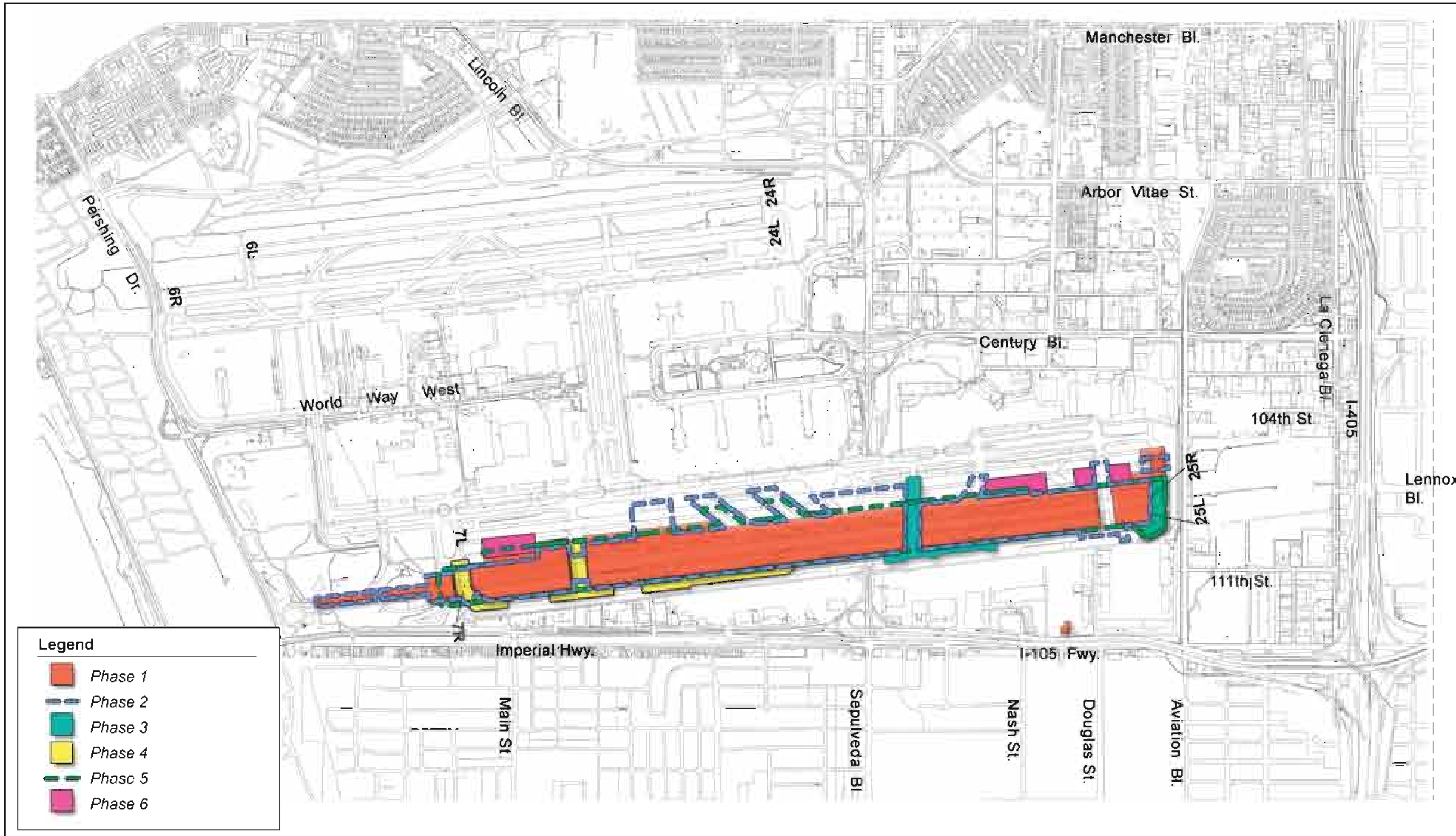
Note: After the technical analyses for this report were complete, it was determined that the construction period for the SAIP would not begin until after April 2005 as originally assumed. As described in the introduction to Chapter IV, it was determined that this delay would not change the profile of construction activity over the construction period - it would simply shift the profile in its entirety, with the peak construction period occurring in 2006 as opposed to 2005. Sensitivity analyses were performed to ensure that the results of the technical analyses were still reliable in terms of identifying the potential for or magnitude of environmental effects from the construction of the SAIP. As reported in Chapter IV, as well as Appendix M, there would be no change in significant impacts as a result of the shift in the construction period.

Source: HNTB, 2004
Prepared by: Ricondo & Associates, Inc.

Exhibit 2-2

Not to Scale
north

Project Schedule

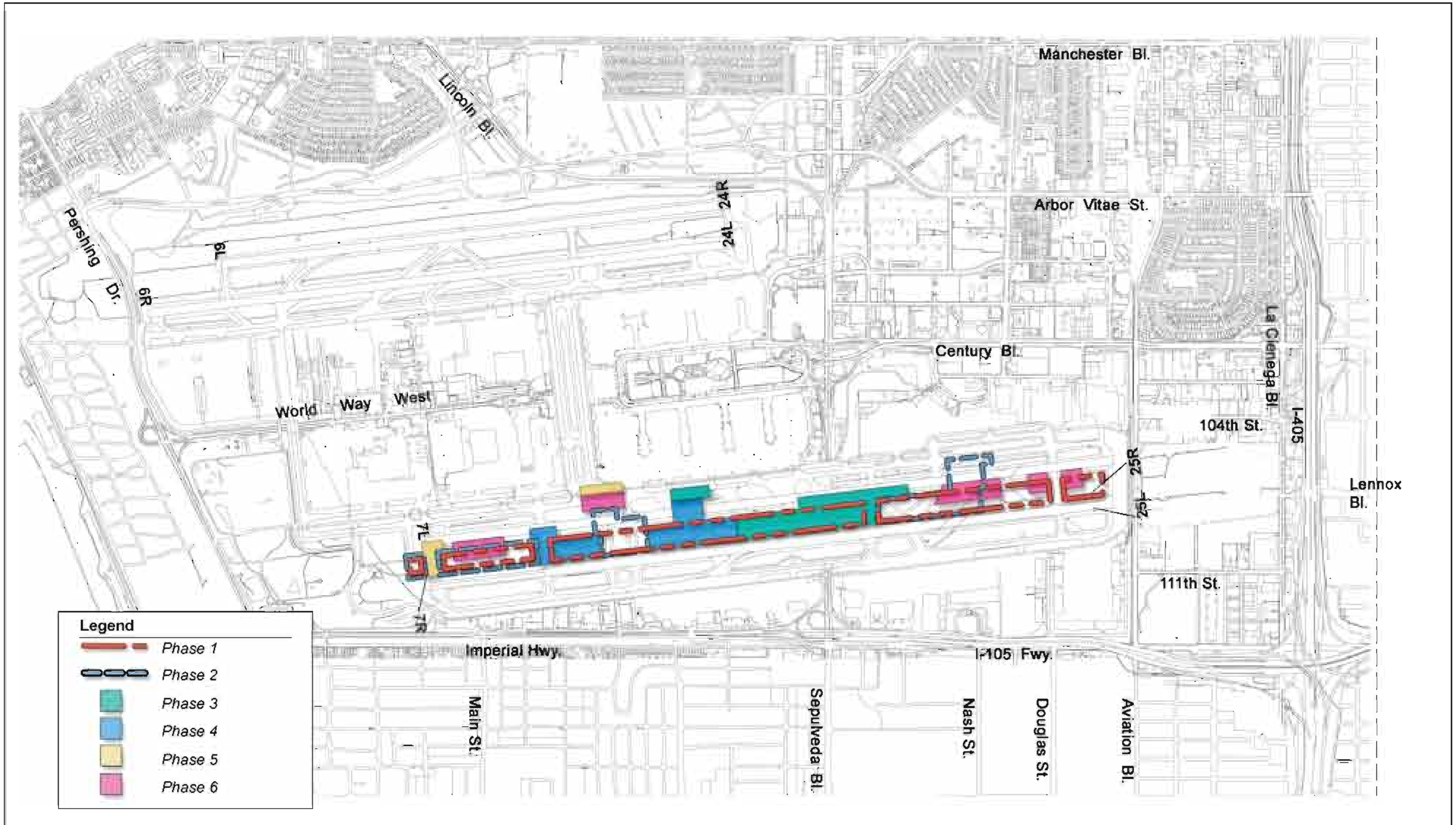


Source: HNTB, 2004
Prepared by: Ricondo & Associates, Inc.

Exhibit 2-3

north **Not to Scale**

Construction Phasing Runways



Source: HNTB, 2004
Prepared by: Ricondo & Associates, Inc.

Exhibit 2-4

north

Not to Scale

Construction Phasing Taxiways

During the entire construction period for the project, construction-related ground traffic (cars, trucks, and construction equipment) would enter and exit the project site from a construction staging area located to the west of the project site, at Pershing Drive and World Way West. A contractor parking area providing approximately 830 spaces would be located at a site north of existing Lot B on La Cienega and Imperial Highway to the east of the project site, and construction employees would be shuttled to the project site to minimize vehicular traffic in the area. Delivery and haul routes would occur on the perimeter of the airport, along Imperial Highway, Pershing Drive, Westchester Parkway, and Aviation Boulevard.

2.5 Airport Operational Characteristics Before and After Completion of Construction

The LAX Master Plan evaluated the overall capacity constraints of LAX as a whole. The primary constraint on the airport's practical capacity at present is the limited curbside capacity of the CTA at peak hour, which causes the practical capacity[16] to be approximately 78.7 MAP[17]. With the LAX Master Plan improvements, the airport's practical capacity in 2015 will be approximately the same, 78.9 MAP, based primarily on the constraints created by reducing the number of aircraft gates at the airport.

The SAIP is not expected to alter airspace traffic, runway operational characteristics, or the practical capacity of the airport. Under existing conditions, LAX's practical capacity is 78.7 MAP based on limited CTA curbside capacity. When the SAIP is completed in 2008, LAX's practical capacity will continue to be approximately the same. The proposed project does not alter this constraint.

The phasing of proposed LAX Master Plan improvements will lead to an approximately five year interim period between construction of the south airfield improvements and the north airfield improvements. The 55.42-foot southward relocation of the Runway 7R-25L will not lead to any procedural changes by FAA for LAX airspace operations. LAX operates in a safe and efficient manner and will continue to do so during and after the proposed modifications to the south airfield. FAA personnel participated in the planning of the south airfield improvements and balancing operations between the north and south runway complexes at LAX is a priority for air traffic control at all levels and will remain so, regardless of the proposed airfield modifications. No change in runway utilization is anticipated due to implementation of the proposed south airfield improvements.

Other airport improvement projects may be in construction concurrent with the construction of the SAIP. The Tom Bradley International Terminal (TBIT) Improvements and Baggage Screening Facilities project and the Terminals 1-8 In-Line Baggage System Construction have independent objectives and are not part of the larger plan to modify airport facilities. TBIT improvements would not increase existing passenger capacity or aircraft parking capacity at LAX. In fact, when the next generation aircraft are parked at the new gate facilities, TBIT would be able to accommodate 15 fewer passengers at those gates. In conclusion, even if other airport development projects, or components of the LAX Master Plan increased the efficiency or capacity of individual elements of the airport system, the overall capacity of the airport would still be constrained by the CTA's continuing curbside constraints. Currently, LAWA has not approved any projects that would alter this conclusion.

[16] Practical capacity is the maximum activity that can be processed by the facility over a specific period at a specified level of delay. (LAX Master Plan Final EIS/EIR, Section 2.3.1, Page 2-8.)
[17] LAX Master Plan Final EIR, Executive Summary, Page ES-4.

2.6 Project Alternatives

A wide range of alternatives to the SAIP were evaluated and rejected in the development and approval of the LAX Master Plan. As summarized in Section 2.2, during the concept development phase for the LAX Master Plan, numerous airfield configurations and locations were evaluated. Based on several factors, including safety, cost, operational efficiency, and environmental concerns, it was ultimately determined by the Los Angeles City Council that the LAX Master Plan (Alternative D) best met the project objectives. Unlike certain conceptual plans for airport facilities, airfield configurations were developed and designed at a precise level of detail to satisfy FAA requirements related to airport layout plans. Accordingly, this document does not reevaluate project alternatives.

2.7 Federal, State, and Local Actions and Required Permits

Implementation of the SAIP requires a number of actions at the federal, State, and local levels of government. Section 2.7 of the LAX Master Plan Final EIR provides a summary of governmental actions for the implementation of LAX Master Plan, of which SAIP is one component. This section provides a summary of the uses of this EIR and a list of the required approvals, permits, and other actions specific to the implementation of the SAIP. [18]

2.7.1 Uses of the EIR

This EIR will be used by LAWA,the Board of Airport Commissioners, and the Los Angeles City Council to evaluate and consider the potential environmental impacts of the SAIP. Certification of the SAIP would provide project-level CEQA approval only for the SAIP as described in this Draft EIR. Project-level approvals for other future components of the LAX Master Plan will be subject to the appropriate levels of environmental review. Information in this EIR may also be used by LAWA and the construction team as input for permit and other approval applications.

2.7.2 Federal Actions

U.S. Department of Transportation Federal Aviation Administration (FAA)

The FAA issued a Record of Decision (ROD) on the Environmental Impact Statement for Proposed LAX Master Plan Improvements. The specific federal actions that are the subject of the ROD and that relate to the SAIP and have therefore received federal environmental approval, include the following:

- Unconditional approval of the Airport Layout Plan (ALP), as depicted for Alternative D, with the exception of the collateral development project referred to as "LAX Northside." The components of the ALP related to the SAIP are included in the unconditional approval.
- A determination that the airport development is reasonably necessary for use in air commerce or in the interests of national defense.
- Runway improvements included under Alternative D, including the relocation of Runway 7R-25L, as addressed in this project-level EIR.
- Relocation of navigational and visual aid equipment, some of which would be required for the implementation of the SAIP.

[18] These actions may or may not be subject to CEQA. They are listed here for disclosure and informational purposes.

- Implementation of revised air traffic control procedures below 3,000 feet Above Ground Level, as would be required for arrivals to and departures from relocated Runway 7L-25R.
- Approval of appropriate amendments to the airport certification manual pursuant to 14 CFR Part 139 and any required modifications to the airport security plan pursuant to 14 CFR Part 107. This approval would include any such amendments or modifications specifically required for the construction or operation of the SAIP.
- Approval of the appropriate amendments to the airport certification manual, to maintain aviation and airfield safety pursuant to 14 CFR Part 139.
- Potential eligibility of the Master Plan projects for federal assistance through grants-in-aid authorized by the Airport and Airway Improvement Act of 1982, as amended, and/or for use of revenues collected through passenger facility charges at the Airport, pursuant to 49 U.S.C. § 47101 and 49 U.S.C. § 47117.

The ROD documents FAA's finding that the Final General Conformity Determination for Alternative D demonstrates that Alternative D conforms to the State Implementation Plan, because it includes a number of mitigation measures required under CEQA.

Additional FAA actions specific to the SAIP will be needed for either construction activities or for funding approvals, and the FAA may consider the EIR in taking these actions. These include:

- Approval of a FAA Notice of Construction or Alteration, to ensure safe and efficient operations during the construction of the SAIP. LAWA and its selected contractor will submit a FAA Form 7460-1, "Notice of Proposed Construction or Alteration", which includes information related to the construction location; duration; type, height, and location of construction; and any other information needed for FAA to make its determination.
- Approval of updated noise exposure maps and noise compatibility program measures for the Airport that may be submitted to FAA by LAWA under the provisions of 14 CFR Part 150, as implemented by Federal Aviation Regulations (FAR) Part 150. Such submittals would include operations on relocated Runway 7R-25L. This action is not required prior to implementation of the SAIP.
- Approval of requests for federal funding. In order for federal funding to be used for the SAIP, FAA would approve grant requests from LAWA and provide grant funding as authorized by the Airport and Airway Improvement Act of 1982, as amended. As described above, the ROD indicates that federal environmental requirements have been met to make LAWA eligible to apply for grant-in-aid funding for those components of the SAIP to which grant funding can be applied. The FAA would also certify plans and specifications prior to the award of grants. FAA's approval and provision of grants-in-aid for the SAIP is subject to availability of funding.
- Approval of requests to use passenger facility charge revenue for project funding. In order for LAWA to apply revenues collected through passenger facility charges at the Airport, FAA would be required to approve an application from LAWA to impose and use passenger facility charge revenue for the project. As described above, the ROD indicates that federal environmental requirements have been met to make LAWA eligible to apply for approval to use passenger facility charge revenue for those components of the SAIP to which such revenue can be applied.
- Approval of reimbursable agreements with LAWA to fund navigational aid improvements.

Other Federal Agencies

In the ROD, the FAA specifies that consultations with other federal agencies have been completed through the EIS process. With the implementation of the commitments and mitigation measures included in the LAX Master Plan MMRP and the LAX Master Plan Final EIR and the EIS, mitigation requirements would be satisfied. No impacts on wetlands would result from the SAIP, therefore the issuance of a Section 404 permit would not be required for the SAIP.

2.7.3 State and Regional Actions

California Department of Transportation (Caltrans)

Permits from or actions by Caltrans required for implementation of the SAIP 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 Amended/Corrected Airport Permit Application (DOA-0103 [Rev. 04/01]) for approval. The airfield and navigational and visual aid improvements associated with the SAIP will be the reflected on the application.
- California State Noise Standards. Continued operation of the airport, including operations with the SAIP in place, require compliance with California State Noise Standards, as prescribed in the California Code of Regulations, Title 21 § 5000 through 5090. Most air carrier airports within the State of California, including LAX, operate under a variance from the Standards, in accordance with Title 21 § 5050 through 5057. Operation of the airport after implementation of the SAIP would continue under the variance status and the airfield changes would be reflected in future reporting and further variance requests.
- Caltrans Encroachment Permit. Construction activity involving the Sepulveda Tunnel requires the issuance an encroachment permit.
- Review and approval of the Project Study Report and Plan Specification and Estimate related to the improvements of the Sepulveda Tunnel.

California State Historic Preservation Officer (SHPO)

The FAA completed its consultation with the SHPO, which included the development of treatment plans in the event that historic, archaeological, or paleontological resources are discovered during SAIP construction activities. If such resources were discovered, the appropriate measures, involving SHPO would be followed.

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

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

- General Industrial Storm Water Permit
- General Construction Storm Water Permit

South Coast Air Quality Management District (SCAQMD)

The SCAQMD is the regional agency granted the authority to regulate air pollutant emissions from stationary sources in the air basin and has been involved throughout the development of the LAX Master Plan Final EIR, the Final General Conformity Determination for the LAX Master Plan, and this EIR. No new permanent stationary sources would be added as a result of the SAIP, 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 requirement.

2.7.4 Local Actions

A number of actions to be taken by departments of the City of Los Angeles were identified in the LAX Master Plan Final EIR relating to the certification of that document, approval of the LAX Master Plan, LAX Specific Plan, and the LAX Plan. A number of those actions have been completed in the context of the LAX Master Plan. Local actions and approvals that may be required for the SAIP include, but may not be limited to the following:

- Certification of the project-level tiered Final EIR for the SAIP.
- Submittal of the following to the FAA:
  - Form 7460-1 "Notice of Proposed Construction or Alteration" for FAA approval. (The selected contractor will also be required to submit Form 7460-1.)
  - Applications for grants-in-aid, if such funding is to be sought.
  - Applications to apply passenger facility charge revenue to the project, if such funding is to be used for the project.
  - Requests for reimbursable agreement(s) for navigational aid improvements required for the SAIP.
  - Plans and specifications for the SAIP for certification by the FAA.
- Submittal of a Recycled Water Report to the RWQCB for the use of recycled water as a dust control measure for construction.
- Preparation of a Project-Specific Storm Water Management Plan or Standard Urban Storm Water Mitigation Plan for approval by the Bureau of Sanitation – Watershed Protection Division. (The Plan should be consistent with the overall Storm Water Pollution Prevention Plan and associated permits.)
- Preparation of a Report of Construction Air Quality Emissions for submittal to SCAQMD.

2.7.5 Miscellaneous Action and Permits

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

- Los Angeles Department of Building and Safety Electrical Permit.
- Los Angeles Department of Building and Safety Building Permit for removal, construction, repair, etc. of any structure(s).
- Board of Public Works Sewer/Storm Drain Permit.
- Los Angeles Fire Department Plan Check.

This page intentionally left blank.

III. Overview of Project Setting

This chapter provides an overview of the airport and surrounding areas as relevant to the SAIP, including a description of the existing physical facilities and a summary of the current airport activity statistics.

3.1 Los Angeles Regional Airport System

Los Angeles is the second most populous city in the United States, with a population of approximately 3.7 million people.[1] Numerous airports comprise the Los Angeles region's airport system with LAX being the primary international and domestic air service airport. There are six secondary airports in the region that supplement LAX, including John Wayne, Ontario International, Bob Hope (formerly Burbank-Glendale-Pasadena), Long Beach, Palmdale Regional, and Palm Springs International Airports. A third tier of airports, referred to as commuter airports, accommodate commuter flights to the primary and secondary airports in the region. Oxnard Airport is the only commuter airport in the Los Angeles region. Los Angeles World Airports (LAWA) owns and operates three of the airports in the region that accommodate commercial air service: Los Angeles International, Ontario International, and Palmdale Regional Airports. **Exhibit 3-1** shows the locations of all eight airports identified above, as well as other existing or proposed commercial airports in the Los Angeles region.

3.2 Existing Land Uses in the Project Area

LAX is located in Los Angeles County and is bounded by the communities of Westchester and Playa del Rey (City of Los Angeles) on the north; the City of El Segundo on the south; the City of Hawthorne and unincorporated Del Aire on the southeast; and the City of Inglewood, unincorporated Lennox, the City of Los Angeles, and the community of South Los Angeles on the east. West of the airport is the Santa Monica Bay and the Pacific Ocean. Existing off-airport land uses in the vicinity of the SAIP are depicted on **Exhibit 3-2.**

The site of the SAIP is located entirely within existing airport property on the south side of the airfield, within the City of Los Angeles. As shown on **Exhibit 3-3,** the SAIP area is generally bounded by Runway 7L-25R on the north; collateral development, ancillary facilities (air cargo, general aviation, flight kitchens, etc.), and Imperial Highway on the south; Aviation Boulevard on the east; and Pershing Drive on the west. The site, which has relatively flat topography, is within an area that currently supports airfield facilities.

The zoning designations of off-airport properties in the area of the SAIP are depicted on **Exhibit 3-4**. The overall area is generally built out with minimal development occurring in recent years. The areas surrounding the airport are zoned primarily residential, commercial, and manufacturing. The closest residential land uses are located along the airport's southern property boundary in El Segundo, across Imperial Highway.

[1] U.S. Census Bureau, April 2, 2001.

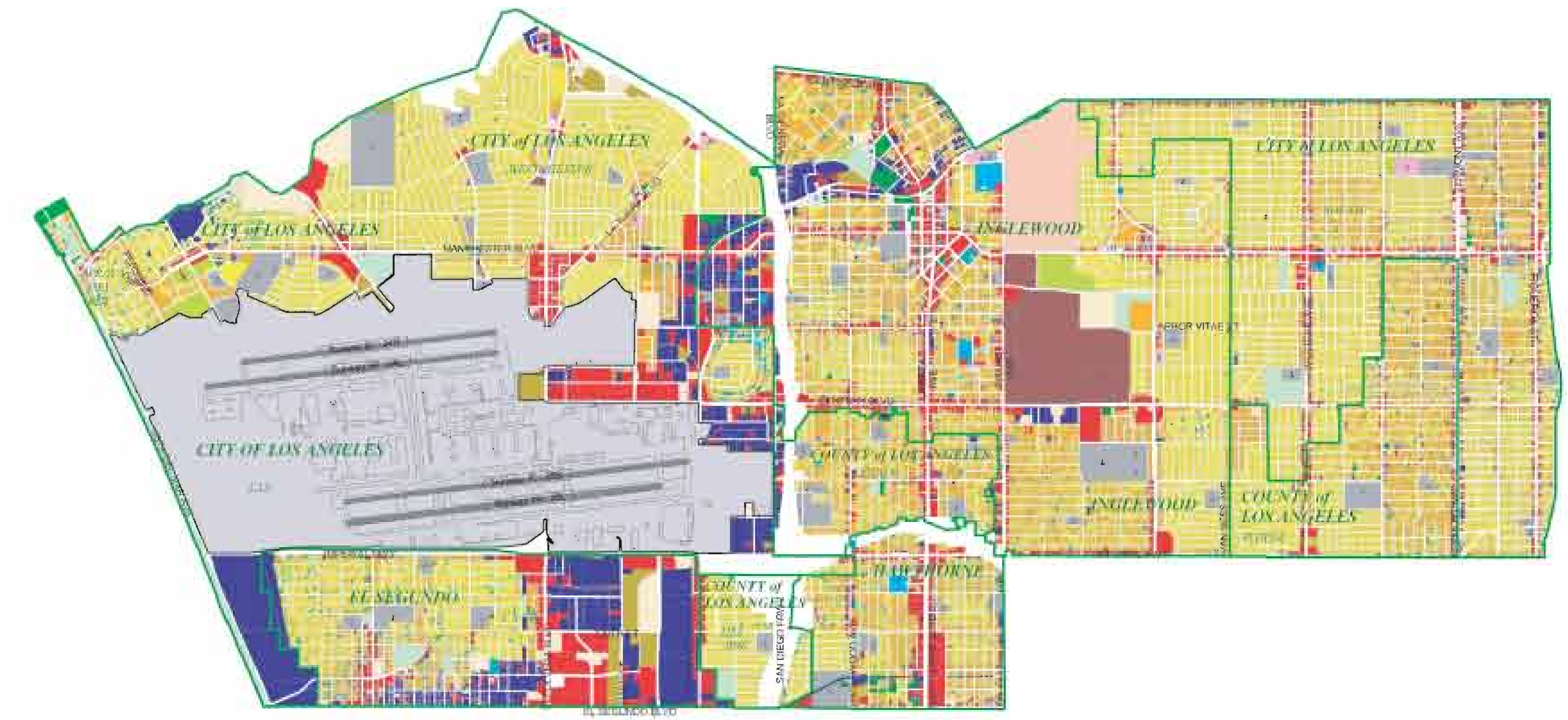
Source. LAX Master Plan EIS/EIR 2004, Landrum & Brown, 2000
Prepared by. Ricondo & Associates, Inc.

Exhibit 3-1

Not to Scale

north

Regional Location



Note: The designations shown are based on assesor parcel information compiled by LAWA and updated by Psomas and PCR Services Corporation. Since the study area includes several jurisdictions with different zoning designations, these categories have been generalized so that they are applicable to all jurisdictions.

LEGEND

Single Family Residential	Hospital, Convalescent	Cemetary	Runways
Multi Family Residential	Library	Title 21 Compliant	Airport Boundary
Mobile Home	Park	Title 24 Compliant	Jurisdictional Boundary
School	Commercial	Recreation	
Church	Industrial	Vacant	
Hospital	Government	Other Assumed Vacant	

Source:
Psomas, April 2000
El Segundo General Plan, December 1992
Hawthorne General Plan, April 1990
Inglewood General Plan, January 1980
Los Angeles County General Plan, November 1980
West Adams-Baldwin Hills-Leimert Community Plan, May 1998
West Athens/Westmont Community Plan, March 1990
Westchester-Playa del Rey Community Plan, June 1974
South Central Los Angeles Community Plan, October 1979
PCR Services Corporation, 2002 - GIS datasets and mapping

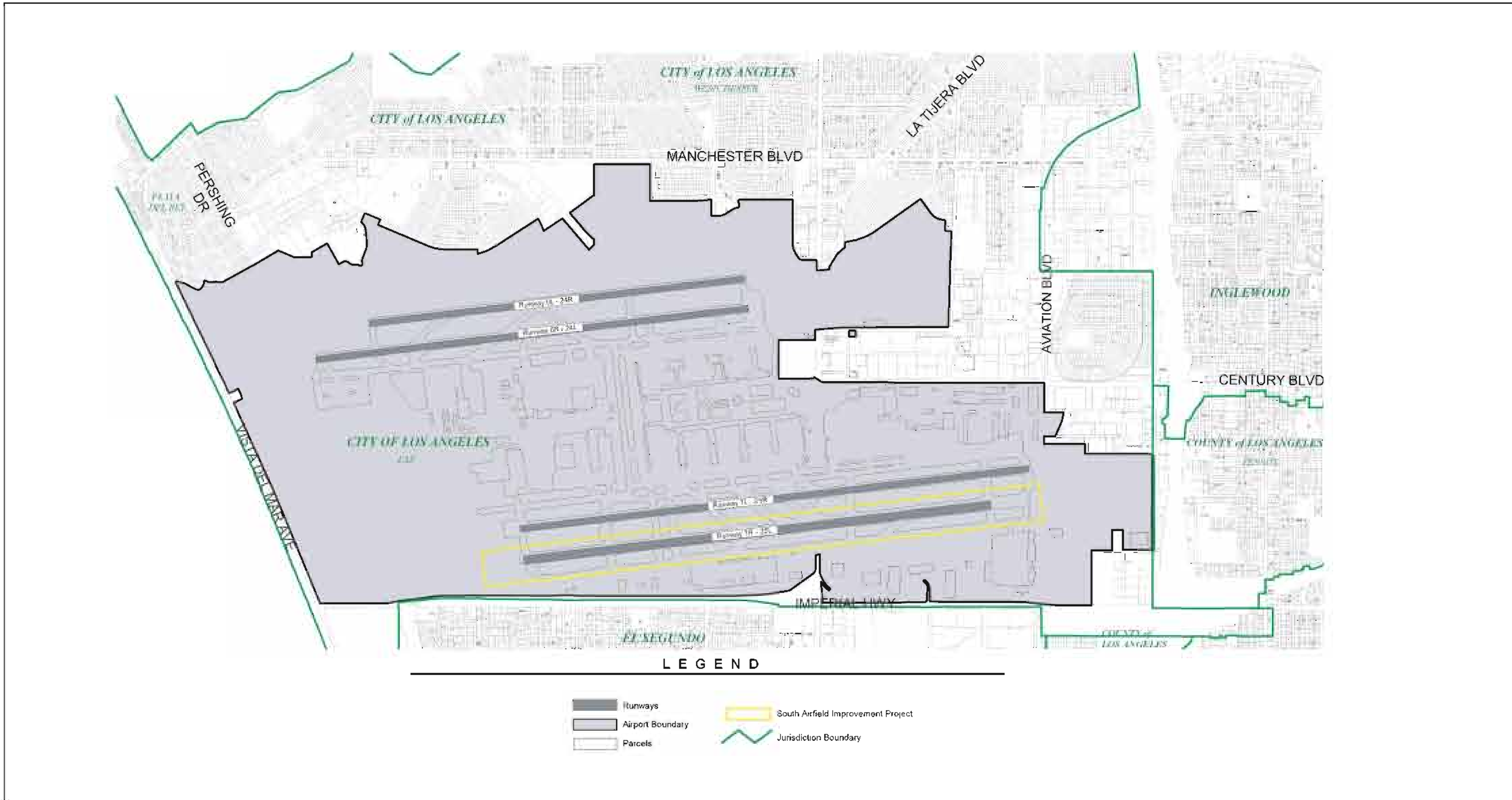
Prepared by: Ricondo & Associates, Inc.

Exhibit 3-2

north

Not to Scale

Off-Airport Generalized Land Uses

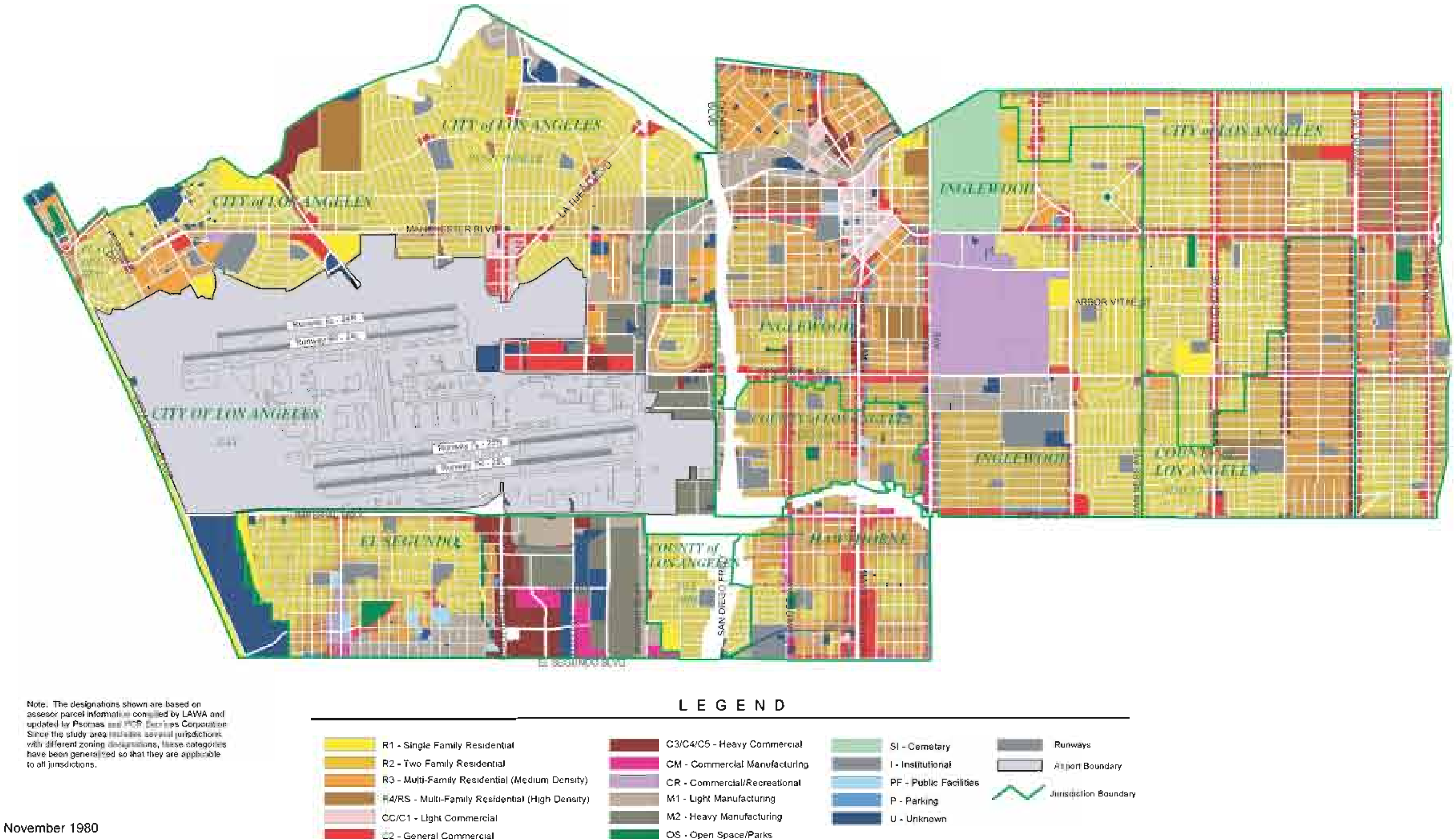


Source: Psomas, April 2000; Landrum & Brown, December 2002; LAWA, 1994; PCR Services Corporation, May 2003
Prepared by: Ricondo & Associates, Inc.

Exhibit 3-3

north Not to Scale

Project Location



Note. The designations shown are based on assesor parcel information compiled by LAWA and updated by Psomas and PCR Services Corporation. Since the study area includes several jurisdictions with different zoning designations, these categories have been generalized so that they are applicable to all jurisdictions.

Source:
Psomas, April 2000
Los Angeles County General Plan, November 1980
West Athens/Westmont Community Plan, March 1990
Westchester-Playa del Rey Community Plan, June 1974
South Central Los Angeles Community Plan, October 1979
PCR Services Corporation, 2002 - GIS datasets and mapping

Prepared by: Ricondo & Associates, Inc.

Exhibit 3-4

north **Not to Scale**

Composite Off-Airport Zoning Map

3.3 Airport Facilities

LAX encompasses 3,651[2] acres that contain the Central Terminal Area (CTA), airfield, air cargo facilities, and ancillary support facilities. The general layout of airport facilities is shown on **Exhibit 3-5**. As described in the LAX Master Plan Final EIR, airport-owned property includes the LAX Northside site along the airport's northern boundary, the Continental City site at the southeast corner of the airport, the long-term and employee parking and rental car area east of Sepulveda Boulevard on the north side of the airport, the El Segundo Blue Butterfly Habitat Restoration Area west of Pershing Drive, the open space north of the habitat restoration area, and portions of the recently acquired Belford area (southeast of the intersection of Arbor Vitae and Airport Boulevard) and Manchester Square area (northeast of the intersection of Aviation Boulevard and Century Boulevard).

The existing airfield consists of four parallel air carrier runways configured in two pairs. The north airfield complex includes outboard Runway 6L-24R (the northernmost runway at the airport) and inboard Runway 6R-24L. Similarly, the south airfield complex includes outboard Runway 7R-25L (the southernmost runway at the airport) and inboard Runway 7L-25R. The north airfield complex runways are separated by 700 feet (centerline-to-centerline), while the south airfield complex runways are separated by 745 feet (centerline-to-centerline).

A taxiway network to facilitate the movement of aircraft between the runways and the CTA and other airport facilities serves both sets of parallel runways. The north and south airfield complexes are separated by the CTA, aircraft maintenance hangar facilities, the fuel farm, and remote aircraft gates, all of which are located along an east-west spine through the airport.

3.3.1 North Airfield Complex

The SAIP does not propose any construction on, or permanent changes to the operation of, the North Airfield Complex. For background and context, however, the following information is provided.

As shown on Exhibit 3-5, the north airfield complex includes Runway 6L-24R, Runway 6R-24L, and a taxiway system. Visual lighting aids and navaids provide guidance for the use of the runway and taxiway system.

Runway 6L-24R is 8,925 feet long and 150 feet wide. Runway 6R-24L is 10,285 feet long and 150 feet wide. Runway 6R has a 331-foot displaced arrival threshold. Both runways are grooved and have high intensity runway edge lights (HIRL) and runway centerline lights. Runways 6L, 6R, and 24L are equipped to accommodate Category I aircraft instrument approaches and have medium intensity runway approach light systems with runway alignment indicator lights (MALSRs). Runways 6R and 6L are also equipped with 3-bar Visual Approach Slope Indicator (VASI) systems to provide visual vertical guidance to pilots. In addition, Runway 6R is equipped with Touchdown Zone (TDZ) lights identifying the touchdown area of the runway.

Runway 24R is equipped to accommodate Category II and Category III aircraft instrument approaches in weather conditions as low as 600 feet runway visual range (RVR)[3] and zero cloud ceiling (vertical cloud cover). To support the precision instrument approaches, the runway is equipped with an Approach Light System with Sequenced Flashing Lights (ALSF-2), as well as TDZ lights.

[2] LAX Master Plan Final EIR, Preface, pg. 3.
[3] Runway Visual Range (RVR) is a horizontal measurement of visibility along a runway.

Source: Los Angeles World Airports - Aerial Photo Background Taken November 11, 2003
Prepared by: Ricondo & Associates, Inc.

Exhibit 3-5

north

Existing Conditions 2003

Runway 6L-24R is connected to Runway 6R-24L by six crossover taxiways that extend south beyond Runway 6R-24L to provide aircraft access to the midfield complex, including the passenger terminal complex. Runway 6R-24L is served by eleven crossover taxiways that connect to a full-length parallel, Taxiway E. Taxiway E is utilized for the movement of aircraft to and from the runway ends, as well as to and from the existing remote aircraft gates and maintenance, ancillary, and fuel facilities located along the spine of the airport to the south of the runway.

3.3.2 South Airfield Complex

As shown on Exhibit 3-5, the south airfield complex includes Runway 7L-25R, Runway 7R-25L, and a taxiway system. Visual lighting aids and navaids provide guidance for the use of the runway and taxiway system.

Runway 7L-25R is 12,091 feet long and 150 feet wide. The runway is equipped with HIRL and centerline lights. Runway 25R has a 957-foot displaced arrival threshold. Each end of the runway is equipped to accommodate Category I aircraft instrument approaches and each has a MALSR approach lighting system to support aircraft approaches in weather conditions down to ½-mile visibility and a 200-foot cloud ceiling. Runway 7L is also equipped with TDZ lights and a VASI.

Runway 7R-25L is 11,096 feet long and 200 feet wide. Runway 25L is equipped to support Category III instrument approaches from the east. Runway 7R is equipped to support Category I 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 ½-mile visibility and a 200-foot cloud ceiling. Runway 25L is equipped with an ALSF-2 to accommodate aircraft arrivals in weather conditions as low as RVR 1200 feet and a 100-foot cloud ceiling.

Runway 7R-25L is connected to Runway 7L-25R with eleven crossover taxiways. These eleven taxiways plus four additional taxiways (a total of 15) extend northward from Runway 7L-25R to support aircraft movements to and from the midfield complex, including the CTA. Similar to the north airfield complex, there is no parallel taxiway between the two runways. Taxiway A is a full-length parallel taxiway that extends on south side of the complex to provide aircraft access to cargo and ancillary facilities located along the south side of the airfield. Runway 7L-25R is supported by dual full-length parallel taxiways, Taxiways B and C to the north of the runway, which are connected to the runway by the 15 crossover taxiways described above.

Sepulveda Boulevard, which is oriented north-south and passes east of the central terminal complex, is depressed between Imperial Highway and Century Boulevard and is in a tunnel under portions of the south airfield complex. Airfield elements that currently cross over Sepulveda Boulevard include existing Runway 7L-25R, Runway 7R-25L, and Taxiways A, B, C, H, and J.

3.3.3 Midfield Complex

As shown on Exhibit 3-5, the midfield area between the north and south airfield complexes encompasses several types of facilities located along an east-west spine through the airport. There are nine terminals (eight domestic and one international) located in the CTA. These terminal facilities encompass a total of approximately 4 million square feet of building space and accommodate 115 aircraft gates[4]. (There are an additional 19 remote jet gates and 29 remote

[4] LAX Master Plan Final EIR, Chapter 3, Table F3-2.

commuter/regional jet gates west of the CTA for a total of 163 aircraft gates.) Roadway circulation through the terminal area is via World Way, a two-level looped roadway in the CTA, linking the nine terminals. There are approximately 9,100 garage and surface lot parking stalls in the CTA, with inbound access from the upper and lower levels of World Way.

In addition to the passenger terminal and aircraft gate facilities, there are other ancillary aviation-related facilities in the midfield complex. There are 295 acres of airline maintenance/administration facilities and a 20-acre fuel farm west of the terminals. These facilities are located between the passenger terminal and the 19 remote jet gates, which are located at the west end of the midfield area. Total ancillary facilities at LAX include approximately nine acres of ground services facilities, 30 acres of miscellaneous LAWA and FAA facilities, ten acres of flight kitchens, one acre for aircraft rescue and firefighting (ARFF) facilities, and 5 acres of miscellaneous facilities (e.g., airport police, central utility plant, LNG/CNG station, ground run-up enclosures, and Coast Guard building).

3.3.4 Cargo Facilities

The airport has three areas of concentrated cargo facility development. The Century Cargo Complex is located between Century Boulevard and the south airfield complex. The Imperial Cargo Complex is located on the northwest corner of the intersection of Imperial Highway and Aviation Boulevard. The South Cargo Complex is located along the north side of Imperial Highway, which serves as the southern boundary of the airport. Collectively, the cargo complexes at LAX encompass over 2.1 million square-feet developed on 194 acres.

3.4 Public Roadway Access and Circulation

The roadway system in the project vicinity is illustrated on Exhibit 2-1. The following roadways provide airport access and general roadway circulation in the area of the proposed project and are described in more detail in Section 4.2.

- I-405 (San Diego Freeway) is a north-south freeway that provides regional access to the airport and the study area.
- I-105 (Glenn M. Anderson or Century Freeway) is an east-west freeway that extends from the San Gabriel Freeway (I-605) on the east to Sepulveda Boulevard on the west.
- Sepulveda Boulevard, also designated State Route (SR) 1 in the vicinity of the airport, is a major north-south arterial that connects to I-405 north of the airport and to I-105 south of the airport.
- Century Boulevard is an eight-lane divided road serving as the entrance road to the airport and the CTA.
- Aviation Boulevard runs north-south near the eastern edge of the south airfield complex.
- Pershing Drive, which runs north-south along the western edge of the airport intersects Imperial Highway and Westchester Parkway on the south and north sides of the airport, respectively.
- Imperial Boulevard bounds the south side of the airport, providing access to ancillary and cargo facilities located south of the south airfield complex.

3.5 LAX and Non-LAX Development

This section identifies LAX development projects (LAX Master Plan projects and other LAX projects with independent utility) and non-LAX development projects that may occur during the construction period for the SAIP.

3.5.1 Other LAX Master Plan Development Projects

The LAX Master Plan (Alternative D) is to be implemented in three phases. Phase I, of which the SAIP is one element, includes projects to be completed in the first five to six years and, for planning purposes, is scheduled for completion in 2009. Although some of the Phase I projects may overlap the SAIP construction period, the other Phase I LAX Master Plan projects have not reached a level of planning to allow further assessment of their individual environmental effects beyond that documented in the LAX Master Plan Final EIR.[5] LAWA will conduct further project-level environmental analysis, as necessary, and prepare additional documentation once the projects are ready for implementation and further planning has been completed. The other LAX Master Plan Phase I projects include:

- Redevelopment of the Continental City lot into a new Intermodal Transportation Center (ITC) containing 9,127 parking stalls.
- Reconfiguration of the existing long-term parking Lot B west of and adjacent to La Cienega Boulevard.
- Begin relocation of existing off-site utility infrastructure impacted by development program.
- Construction of a new Ground Transportation Center (GTC) north of Century Boulevard and south of Arbor Vitae Street, between Aviation and La Cienega Boulevards.
- Construction of a baggage tunnel from the site of the future GTC to the existing terminal passenger area.
- Construction of a new access roadway system east of Aviation Boulevard, including Century Boulevard overpasses.
- Construction of a new consolidated Rent-A-Car (RAC) facility in the general location of the existing long-term parking lots C and D.
- Construction of the West Employee Parking Garage.
- Demolition of the existing parking structures in the CTA, relocation of necessary utilities, and completion of site preparation for new terminal facilities.
- Construction of off-site roadway improvements required for Alternative D.
- Construction of a new passenger-processing center (terminal) in the area currently occupied by the parking garages in the CTA.
- Construction of a new aboveground Automated People Mover (APM) from the CTA to the RAC, GTC, and ITC.
- Installation of new baggage security and distribution systems in the CTA and the GTC, including a link between the two facilities.

[5] The environmental impacts expected to occur during construction of the LAX Master Plan are described in section 4.20 of the LAX Master Plan Final EIR.

3.5.2 LAX Development Projects Independent of the Master Plan

It is anticipated that two other stand-alone LAX construction activities that were not developed as a part of the LAX Master Plan would likely be ongoing concurrent with the construction of the SAIP. These projects include:

- Tom Bradley International Terminal (TBIT) Improvements and Baggage Screening Facilities Project – Portions of TBIT will be renovated, including food and beverage concessions, interline baggage area, in-transit lounge, and building power supply. In addition, aircraft parking areas will be reconfigured to accommodate alternative aircraft types at various times of the day, including the Airbus A380 and other New Large Aircraft (NLA) as they enter the fleet serving LAX. This project will also include improvements to the bus terminal on the west side of the building and new baggage screening facilities for TSA operations. The Mitigated Negative Declaration (MND) for the TBIT Improvements and Baggage Screening Facilities Project has been completed and was adopted by the Board of Airport Commissioners on January 25, 2005.
- Terminals 1-8 In-Line Baggage System Construction – This system will replace the temporary TSA baggage screening system that was placed into operation in 2003. The MND for the Terminals 1-8 In-Line Baggage System is currently under preparation and should be ready for public comment within the next few months.
- Airfield Intersection Improvements – Improvements to certain airfield intersections (e.g., runway/taxiway, taxiway/taxiway) are needed to accommodate the future introduction of NLA service at the airport. The project involves intersections that are not part of or affected by the SAIP. The first phase of the project, which was approved by the Board of Airport Commissioners on April 18, 2005, involves up to five airfield intersections in the north airfield complex and includes but is not limited to the removal of existing concrete and asphalt taxiway pavement, construction of Portland Cement concrete and asphalt concrete pavement, construction of asphalt shoulders, relocation of airfield signage and lighting, and new airfield markings. The project was determined to be exempt from CEQA analysis, pursuant to Article III, Class 1(3) of the Los Angeles City CEQA Guidelines. Phase I of the project is scheduled to be completed prior to the initiation of the SAIP. A maximum of approximately 20 employees will be on-site working at any given time
- Remote Boarding Facilities Modifications – This project, which was approved by the Board of Airport Commissioners on June 28, 2005, involves the reconfiguration and renovation of five remote boarding facilities and two remote gates and would include major interior upgrades, wall openings for new loading bridges, realignment of existing boarding bridges, and modifications to the aircraft parking and ramp service area. The need to undertake the modifications is to accommodate the introduction of service by NLA. The project was determined to be exempt from CEQA analysis, pursuant to Article III, Class 11(8) of the amended Los Angeles City CEQA Guidelines. The project is anticipated to be complete in August 2006. Given the nature of the project, a maximum of approximately 12 employees are expected to be on-site working at any given time.

3.5.3 Non-LAX Planned Development

Planned development projects in the City of Los Angeles and neighboring communities within the vicinity of the study area are listed in **Table 3-1**. The list was prepared to document and describe all known local area development projects that may contribute traffic to the SAIP project study area. This list is based on consultation with representatives of the Los Angeles Department of Transportation (LADOT), Culver City, El Segundo, Hawthorne, Inglewood, Los Angeles County, and Manhattan Beach.

Based on the project development information provided in the table, approximately 36 of the 110 development projects listed in the table are built, under construction or are anticipated to be operational during 2005. An estimated 67 of the projects would not be operational until 2006 or beyond. (As of July 2005, information was not available for 7 projects.) Of those projects anticipated to be operational during 2005, 23 are located more than five miles from the study area and would likely have minimal direct impact on the study area roadways and intersections. Of those 13 projects within five miles of the study area that are anticipated to be operational during 2005, most are relatively small, low-density developments (e.g., fitness center, single family homes, gas station/convenience store, school expansion) that are anticipated to generate few trips during the SAIP peak hours. Additional discussion of potential cumulative impacts associated with non-LAX projects is located in Section 4.2. Sensitivity analysis associated with the shift of peak-SAIP construction period from 2005 to 2006 and its effects on cumulative traffic is provided in Appendix D.

3.6 Aviation Activity

LAX was the world's fifth busiest airport in 2003 based on Airports Council International – North America (ACI-NA) records of aviation activity. The airport serves as a gateway to international destinations with approximately 27.1 percent of the airport's passenger activity being international.[6] **Table 3-2** summarizes aircraft operations (arrivals and departures) activity at the airport for the period from 1993 through 2003. Aircraft operations are listed in terms of four categories – air carrier, air taxi, military, and general aviation (GA)[7]. Approximately 55 million passengers utilized the airport in 2003 (LAWA, 2004). **Table 3-3** summarizes passenger activity at the airport for the period from 1993 through 2003. In terms of aviation statistics, a passenger is counted as an arriving passenger (deplanement) or a departing passenger (enplanement).

LAX is the sixth busiest cargo airport in the world according to the latest ACI-NA cargo activity statistics for 2003. Cargo activity generally comprises two components – air mail and air freight. Cargo can be carried in passenger aircraft as belly cargo or can be carried on a dedicated air cargo aircraft.

---

[6] Source: Los Angeles World Airports activity statistics, 2004.

[7] Air carrier operations represent commercial aircraft with seating capacity of more than 60 seats; air taxi operations represent commercial aircraft with 60 or fewer seats; military operations represent all aircraft operated by the military; and GA operations represent all civil aviation aircraft not classified as commercial or military.

Table 3-1 (1 of 4)

LAX South Airfield EIR—Non-LAX Planned Development Projects

No.	Project Name	Address	Distance to Study Area (miles) [1]	Description	City[2/]	2005	2006 or After
1	Apartment Bldg.	3863 Bentley Ave.	7.6	3-unit apartment building	CC	X	
2	Baldwin Hills Scenic Overlook Project	Hetzler Road	N/A	10,300 sq. ft. visitors' center and parking	CC		X
3	Commerce Center	10100 Jefferson Blvd	7.0	242,950 sq. ft. office/industrial bldg.	CC		X
4	Chevron Gas Station Convenience Store	10649 Jefferson Blvd	6.5	2,000 sq ft. store	CC	X	
5	Chevron Gas Station, Convenience Store/Car Wash	5975 Centinela Avenue	4.6	3,314 sq. ft.	CC	Under Const.	
6	Condominiums	3915 Bentley Ave.	7.7	4-unit condos	CC	Under Const.	
7	Commercial and Retail Development	13322 Washington Blvd.	7.9	4,257 sq. ft.	CC	Built	
8	Comprehensive Plan Amendment	9336 Washington Blvd.	8.5	128,000 sq. ft. office and parking structure	CC		X (after 2006)
9	Conjunctive Points Theater Complex	8511 Warner Drive	7.1	101,551 sq. ft. office space; 31,110 sq. ft retail; 18,076 sq. ft. restaurant; 3 theaters	CC		X[3/]
10	Culver City Transfer Station	9255 Jefferson Blvd.	7.6	Increased throughput	CC	X[3/]	
11	Distribution and Warehouse	3434 Wesley Street	9.0	10,500 sq. ft. office, warehouse, and distribution	CC		X[3/]
12	Dog Park	9910 Jefferson Blvd.	7.2	1-acre	CC		X
13	Echo Horizon School Expansion	3430 McManus Avenue	7.6	5,935 sq. ft; 40 additional students	CC	Under Const.	
14	Office and Retail Building	4447 Sepulveda Blvd.	6.6	9,000 sq. ft.	CC	Under Const.	
15	Grandview Palms	4061 Grandview Blvd.	8.0	62,737 sq. ft. multi-unit care facility	CC	Under Const.	
16	Hampton Inn	3954 Sepulveda Blvd.	7.4	77-unit hotel	CC		X[3/]
17	Hayden Tower	3585 Hayden Ave.	7.1		CC		X
18	Inspired Ventures	9599 Jefferson Blvd.	7.4	40,000 sq. ft. of offices	CC	Built	
19	Max Leather AUP	8533 Washington Blvd.	7.5	3,763 sq. ft. addition to clothing manufacturing facility	CC	Under Const.	
20	Mixed Use Development	8601-8637 Washington Blvd.	7.6	26,000 sq. ft. office/residential bldg.	CC	Under Const.	
21	Mixed Use Development	11511 Washington Blvd.	6.7	6,411 sq. ft.	CC		X[3/]
22	Mixed Use Development	11281 Washington Place	7.6	17,500 sq. ft. retail and residential	CC		X[3/]
23	Muffler Shop	11333 Washington Blvd.	6.6	2,500 sq. ft.	CC	X[3/]	
24	Office Building	3505 Hayden Avenue	7.3	151,000 sq. ft.	CC		X
25	Office and Retail	700-701 Corporate Pointe	5.8	240,612 sq. ft. office building; 4,242 sq. ft of retail	CC		X
26	Parcel B	9300 Culver Blvd.	8.5	115,108 sq. ft. office, restaurant and retail	CC		X[3/]
27	Park Century School	3939 Landmark Street	8.9	Conversion of industrial space to school use; addt'l 6,950 sq. ft.	CC		X[3/]
28	Residential Development	4210 Duquesne Avenue	7.6	8-unit apartment bldg.	CC	Under Const.	
29	Skateboard Park	9910 Jefferson Blvd.	7.2	27,000 sq. ft office bldg.	CC		X
30	Sony Studios	10202 Washington Boulevard	8.5	49,516 sq. ft. to Stage 6; converting to office	CC	Under Const.	

Table 3-1 (2 of 4)

LAX South Airfield EIR—Non-LAX Planned Development Projects

No.	Project Name	Address	Distance to Study Area (miles) [1]	Description	City[2/]	2005	2006 or After
31	SPE Television Building	9050 Washington Blvd.	8.6	27,000 sq. ft office bldg.	CC	Built	
32	Surfas Restaurant Supplies	8777 Washington Blvd.	9.0	Reoccupy a 14,856 sq. ft. w/ fast food service	CC		X
33	Symnatec Office Multiphase Development	800 – 900 Corporate Pointe	5.8	550,000 sq. ft research/devt. office & parking structure	CC		X
34	Veterinary Clinic	11182 Culver Boulevard	6.8	7,000 sq. ft. clinic and caretaker unit	CC	Under Const.	
35	Washington-National TOD	Washington and National Boulevards	7.7	48,000 sq. ft retail; 59 live-work units; 181 town homes	CC		X
36	Westfield Mall Expansion	200 Fox Hills Mall	5.2	293,786 sq. ft. department store and 427 parking spaces	CC		X
37	Aquatic Youth Center	Dockweiler State Beach	8.2	20,000 sq. ft.; with 550 parking spaces	CO		X
38	Baldwin Hills Regional Park Master Plan	La Cienega Boulevard, La Brea Avenue, Stocker Street	7.6	1,400 acre park	CO		X
39	Condominiums	109th Street/Redfern Ave.	7.5	8 condos	CO	N/A	N/A
40	Magic Johnson Fitness Center	5045 Slauson Ave	4.2	3 story fitness ctr	CO	Built	
41	Marina del Rey Development	Marina del Rey	9.3	N/A	CO		X
42	Mixed Use	5101 Overhill Dr	5.5	1.84-acre office building	CO		X
43	Residential Development	6200-6220 S. La Brea Ave.	4.2	16 single unit housing units	CO		X
44	Residential Development	4615 W. Slauson Ave.	4.7	39 apartments	CO		X
45	West LA College Facilities Plan	Overland Avenue/Freshman Drive	10.1	6,785 additional students	CO		X
46	The Aerospace Corp. (Office and Laboratory)	2350 El Segundo Blvd.	1.7	150,000 sq. ft. office and 15,000 sq. ft lab	ES		X
47	Car Wash	111 N. Sepulveda Boulevard	2.3	Car Wash	ES	Under Const.	
48	Commercial Buildings	126, 130, 134 & 138 Lomita Street	3.0	4 new commercial buildings	ES	N/A	N/A
49	Condominiums[4/]	425 & 429 Indiana Street	2.1	8 condos	ES	N/A	N/A
50	Condominiums[4/]	1700 Mariposa Avenue	1.9	11 condos	ES	N/A	N/A
51	Condominiums[4/]	712 Virginia Street	3.1	4 condos	ES	N/A	N/A
52	Condominiums[4/]	505 W. Grand Avenue	3.5	4 condos	ES	N/A	N/A
53	Corporate Headquarters Office[4/]	455/475 Continental Blvd	2.0	330,000 sf office; 22,500 sf Research and Development	ES		X
54	Campus El Segundo	700-800 N. Nash Street	1.2	1,740,000 sf office; 75,000 sf retail; 7,000 sf child care; 7,000 sf medical office; 19,000 sf health club; 75,000 sf restaurant; 100-room hotel; 25,000 sf light industrial, 75,000 sf research & development; 65,000 sf technology/ telecommunications	ES		X
55	High Bay Lab	901 N. Nash Street	0.9	55,772 sq. ft.	ES	N/A	N/A
56	LA Air Force Base – Area A	SE corner of El Segundo Blvd and Aviation Blvd	1.3	750 condominiums	ES		X
57	LA Air Force Base – Area B	NW corner of El Segundo Blvd and Aviation Blvd	1.3	63,000 sf warehouse; 153,000 sf office park; 93,750 sf base exchange; 43,125 sf health club; 34,463 sf medical office	ES		X

Table 3-1 (3 of 4)

LAX South Airfield EIR —Non-LAX Planned Development Projects

No.	Project Name	Address	Distance to Study Area (miles) [1]	Description	City[2/]	2005	2006 or After
58	Mixed Use	445 N. Douglas Street	1.7	99,450 sq. ft office; 110,000 sq ft light industrial; 1,000 sq ft restaurant	ES	Built	
59	Northrup-Grumman	SE corner of Mariposa Ave and Douglas Street	1.0	190,000 sq ft. industrial uses	ES		X
60	Office	2151 E Grand Avenue	1.7	125,000 sq. ft.	ES	Built	
61	Office	888 N. Sepulveda Blvd	1.5	120,000 sq. ft.	ES		X
62	Plaza El Segundo + other commercial (Phase I)	NE corner, Rosecrans Ave and Sepulveda Blvd	3.2	425,000 sq. ft of commercial	ES		X
63	Town Homes	Grand Ave and Kansas St, NW corner	2.4	N/A	ES	Under Const.	
64	Work-Live Lofts	1221 Grand Avenue	2.4	N/A	ES	Under Const.	
65	Xerox Phase IV	1951-1961 El Segundo Blvd.	2.3	255,242 sq. ft office; 350-room hotel	ES		X
66	Fusion at South Bay	Aviation Boulevard, E/S, south of 33rd Street	1.0	Condos, built to suit	HA	X	
67	Hotel	11434 Hawthorne Boulevard	2.1	300-room hotel	HA		X
68	Beach Affordable Housing	716-720 Beach Street	3.4	5 single family homes	ING	X	
69	LA CycleSport Expansion	Olive Avenue and Glasgow Avenue	2.1	60,000 sq-ft motorcycle showroom and service facility	ING		X
70	Locust St Intergenerational Ctr.	111 N. Locust St.	3.5	32,000 sq.-ft senior ctr and 58 units	ING		X
71	Medical Office/Surgical Center	Century Blvd. between Yukon and Prairie	3.3	140,000 sq. ft	ING		X
72	Movie Theatre Complex	Century Blvd between Yukon and Prairie	3.3	14 screen multiplex theatre	ING		X
73	Renaissance Project	90th St/ Hollywood Park/Darby Park	3.3	395 single family homes	ING	Under Const.	
74	The Village at Century	3555 W. Century Blvd. (between Club Drive and Crenshaw Blvd)	3.3	193,000 sq. ft. of retail & commercial	ING		Spring 2006
75	YMCA	101st St and Prairie Avenue	2.8	35,000 sq-ft recreation center	ING		X
76	Yukon Affordable Housing	Yukon Avenue and 118th Place	3.1	9 single family homes	ING		X
77	Apartment Building	5535 Westlawn Ave.	6.5	310 unit apartments	LA	Under Const.	
78	Apartment Building	10001 Venice Blvd.	8.8	118-unit apartments	LA	Under Const.	
79	Apartment Complex	8000 West Manchester Ave	5.5	846 Apartment units	LA	Final Phase Under Const.	
80	Baja Fresh	245 South Main Street	3.6	2,790 sq. ft.	LA		X
81	Bank	1762 Westwood Blvd.	10.9	4,422 sq. ft of commercial	LA	X	
82	Barrington Landmark	11677 Wilshire Blvd.	11.4	64,000 sq. ft of mixed use	LA		X
83	Bed, Bath & Beyond	11854 Olympic Boulevard	10.4	90,000 sq. ft retail	LA		X
84	Century Pacific Hotel	6225 West Century Boulevard	1.7	180 units	LA		X
85	Decron Development (Furama Hotel)	8601 Lincoln Blvd.	4.1	527 apartments, 12 live/work units, 22,600 sq. ft. retail, 8,000 sq. ft of restaurant	LA		X
86	Industrial/Light Manufacturing	5927 Beethoven St.	8.7	N/A	LA		X
87	Le Lycee Francais High School	10309 W. National Blvd	10.2	School for 340 students	LA		X
88	Leo Baeck Temple Expansion	1300 N. Sepulveda Boulevard	13.5	168 students; 70,000 sq. ft synagogue, parking, etc.	LA		X

Table 3-1 (4 of 4)

LAX South Airfield EIR—Non-LAX Planned Development Projects

No.	Project Name	Address	Distance to Study Area (miles) [1]	Description	City[2/]	2005	2006 or After
89	Lincoln Center Project	1400 Lincoln Boulevard	5.1	188,600 sq ft. retail; 280 dwelling units	LA		X
90	Mixed Use Project	100 East Sunset Avenue	16.5	225 dwelling units	LA		X
91	New West Middle School	11625 Pico Blvd.	10.3	250 students	LA		X
92	Office Building	8787 Venice Blvd.	12.6	45,712 sq. ft.	LA		X
93	Playa Vista (Phase 1)	Lincoln Blvd./ Jefferson Blvd.	4.9	Multi-use	LA	X (part)	X
94	The Village at Playa Vista	Jefferson Blvd / McConnell Dr.	6.7	2,600 residential units, 175,000 sq. ft office, 150,000 sq. ft retail, 40,000 sq. ft community serving	LA		X
95	Palazzo Westwood	1000 – 1070 Glendon Avenue.; 1001-1029 Tiverton Ave	11.7 11.6	350 Apartments	LA		X
96	Palazzo Westwood	1000 Glendon Ave.	11.7	115,000 sq. ft of mixed use	LA		X
97	Senior Housing	5227 Knowlton Ave.	3.1	187-unit apartments	LA		X
98	Shopping Center	8985 Venice Blvd.	11.2	132,802 sq. ft.	LA		X
99	Stephen S. Wise Nursery School	15500 Stephen Wise Drive	16.6	240 student nursery school	LA		X
100	Transit Center	Jefferson Blvd.	13.0	175 MTA bus operation	LA		X
101	Villa Marina	13480 – 13490 Maxella Avenue; 4350 – 4358 Lincoln Boulevard	7.9	244 condos, 9,000 sq. ft. retail, 594 parking spaces	LA		X
102	Wells Fargo Bank	13400 Washington Blvd.	8.9	4,300 sq. ft. walk-in bank	LA	X	
103	West Bluff	7400 West 80th St.	4.3	120 single family homes	LA	Under Const.	
104	Westchester Lutheran School	7831 Sepulveda Blvd.	3.4	School expansion	LA	X	
105	Westchester Neighborhood School	5401 Beethoven Street	5.6	School for 420 students	LA		X
106	Westside Pavilion	10850 Pico Blvd.	9.8	751,557 st. ft of retail	LA		X
107	Metlox[5/]	NW corner, Valley Dr. and Manhattan Beach Boulevard (between Morningside Drive and 13th Street)	5.2	460 space parking structure; 63,850 sq,. ft commercial (including 8,000 sf restaurant use; 17,000 sq. ft. office; 20,000 sq. ft retail; 38-room inn), police and fire facility	MB	Parking struct. built. Comm., police and fire under const.	
108	Mixed Use Development[5/]	2201 Highland Ave.	5.2	1,600 sf restaurant; 6 dwelling units	MB	Under Const.	
109	Office[5/]	330 S. Sepulveda Blvd.	5.0	56,000 sq. ft.	MB		X
110	Ristani Building[5/]	1100 Manhattan Ave.	5.2	4,543 sq. ft retail; 3,636 sq. ft office	MB		X

Notes:

X – Denotes that the project may be operational in either (a) 2005 or (b) 2006 or beyond.

N/A = Not Available

1/ Approximate driving distance from the study area (intersection of Aviation Boulevard and 111th Street) to the proposed project obtained from Yahoo.com maps.

2/ CC = Culver City, CO = County of Los Angeles, ES = El Segundo, HA = Hawthorne, LA = Los Angeles, ING = Inglewood, MB = Manhattan Beach.

3/ Culver City project in entitlement phase, per information provided by Ms. Heather Burton of City of Culver City planning staff.

4/ Project information from City of El Segundo websitehttp://www.elsegundo.org/cityservices/planning/planning/website_active_projects_applications_06_29_05.pdf

5/ Information for Manhattan Beach projects from City of Manhattan Beach website, http://www.ci.manhattan-beach.ca.us/commdev/sections/metlox/index.htm and telephone conversation with Ms. Rosemary Lackow, City of Manhattan Beach, on July 12, 2005.

Source: LAWA based on data compiled by LADOT in consultation with representatives from local jurisdictions, July 2005

Prepared by: Ricondo & Associates, Inc.

Table 3-2

LAX Annual Operations – 1993 to 2003

	Year										
Category	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Air Carrier	408,043	418,166	472,134	502,056	524,035	525,089	542,082	565,805	524,014	449,712	433,370
Air Taxi	212,592	214,473	230,997	233,832	227,479	219,123	215,886	198,306	195,892	177,123	171,199
Military	14,784	14,213	3,178	3,262	3,572	3,326	2,646	2,304	2,052	2,115	2,561
GA	47,027	43,036	26,330	24,716	26,406	26,031	18,536	17,018	16,156	16,474	15,248
Total	682,446	689,888	732,639	763,866	781,492	773,569	779,150	783,433	738,114	645,424	622,378
% change[1/]		1.1%	6.2%	4.3%	2.3%	-1.0%	0.7%	0.5%	-5.8%	-12.6%	-3.6%

Note:

1/ Percent change from previous (increase or decrease) from previous year.

Source: Los Angeles World Airports Website, http://www.lawa.org, 2004

Prepared by: Ricondo & Associates, Inc.

Table 3-3

LAX Annual Passengers – 1993 to 2003

	Year										
Passengers	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Departing	24,141,068	25,812,087	27,234,353	29,162,942	30,313,688	30,826,859	32,298,944	33,836,077	31,007,930	28,181,481	27,544,606
Arriving	23,703,726	25,238,188	26,674,870	28,811,617	29,828,900	30,388,853	31,980,627	33,467,105	30,598,274	28,042,362	27,438,232
Total	47,844,794	51,050,275	53,909,223	57,974,559	60,142,588	61,215,712	64,279,571	67,303,182	61,606,204	56,223,843	54,982,838

Source: Los Angeles World Airports Website, http://www.lawa.org, 2004
Prepared by: Ricondo & Associates, Inc.

This page intentionally left blank.

IV. Setting, Environmental Impacts, and Mitigation Measures

This chapter describes the analytical framework for the environmental review of the SAIP, including a description of (1) program level versus project level environmental review, (2) the baseline for determining whether the potential impacts of the SAIP would be significant, (3) the method by which mitigation measures and LAX Master Plan commitments have been, and will be, incorporated into this project-level analysis and as conditions of approval to the project to avoid or minimize potential impacts of the SAIP, including potentially significant impacts, (4) the cumulative impacts analysis that was conducted for the SAIP, and (5) the peak period of construction activity that was analyzed for the SAIP.

Program Level versus Project Level Environmental Review

As described in Chapter I, in April 2004 LAWA published a Final EIR that analyzed the potential environmental effects associated with the implementation of comprehensive long-term plans to modernize LAX (the LAX Master Plan), including the processing of "program level" entitlements, such as a general plan amendment and zoning regulations (the LAX Plan and LAX Specific Plan). The LAX Master Plan included the SAIP as an implementing project of the Plan, and thus the Master Plan EIR analyzed the potential impacts of the SAIP to the extent feasible and appropriate at that time.

As discussed under Section 15146(b) of the *State CEQA Guidelines*, an EIR prepared for program level entitlements, "need not be as detailed as an EIR on the specific construction projects that might follow." The CEQA Guidelines incorporate the "rule of reason" and advise public agencies to avoid "speculative analysis of environmental consequences for future and unspecified development."

Consequently, the LAX Master Plan Final EIR addresses the more general level of detail that is required for program level entitlements under CEQA. In an effort to be as comprehensive and thorough as possible, the Final EIR nonetheless also contains extensive "project level" analysis that is beyond the level of detail normally found in a program level environmental document.

Where a program level environmental document has been prepared, CEQA encourages the public agency to "tier" subsequent project level environmental analyses. Pub. Res. Code § 21093. Section 15152(a) of the CEQA Guidelines describe this approach as follows:

> "Tiering" refers to using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project.

Because the SAIP was analyzed in the Master Plan EIR, this Draft EIR is "tiered" from, and incorporates by reference, the LAX Master Plan Final EIR.[1] To avoid a repetitive discussion of issues, this Draft EIR provides project-specific information on the construction of the SAIP, focusing

[1] Final Environmental Impact Report (State Clearinghouse No. 1997061047) for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004. The Final EIR was certified by the Los Angeles City Council on December 7, 2004.

on potentially significant environmental effects that may not have been fully addressed in the prior EIR at the project level of detail. Based on an initial review of the SAIP, LAWA has determined that six categories of environmental resources require additional discussion. These six categories are: hydrology/water quality, ground transportation, air quality, human health risks, noise, and biotic resources. They are evaluated in detail in Chapter IV of this Draft EIR.

Table IV-1 describes in which document – the LAX Master Plan Final EIR and/or this Draft EIR – each environmental impact assessment can be found related to the construction and operation of the SAIP.

Table IV-1

Impact Assessment by Document: SAIP Draft EIR and LAX Master Plan Final EIR

Impact Assessment	Construction - Related	Operations - Related
Hydrology and Water Quality	MP and SAIP	MP - SAIP
Off-Airport Surface Transportation	MP and SAIP	MP
Air Quality	MP and SAIP	MP
Human Health Risks	SAIP	MP
Noise	MP and SAIP	MP
Biotic Communities	MP and SAIP	MP
Land Use	MP	MP
Population, Housing, Employment and Growth-Inducement	MP	MP
Cultural Resources	MP	MP
Endangered and Threatened Species of Flora and Fauna	MP	MP
Wetlands	MP	MP
Energy Supply and Natural Resources	MP	MP
Solid Waste	MP	MP
Aesthetics	MP	MP
Earth and Geology	MP	MP
Hazards and Hazardous Materials	MP	MP
Public Utilities	MP	MP
Public Services	MP	MP
Schools	MP	MP

MP = LAX Master Plan Final EIR
SAIP = South Airfield Improvement Project EIR

Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

In general, with the exception of hydrology/water quality, all effects related to the operation of the airport following the completion of the SAIP are considered to be fully addressed in the LAX Master Plan Final EIR and are not evaluated further in this document. Although the post-project noise exposure patterns were fully addressed in the LAX Master Plan Final EIR, a qualitative evaluation of expected post-construction aircraft noise exposure patterns is included in this Draft EIR to confirm that future conditions would be consistent with the noise exposure patterns evaluated in the LAX Master Plan Final EIR and to address Notice of Preparation (NOP) comments provided by the City of El Segundo. Chapter V of this Draft EIR includes a review of all other environmental resources and provides project-specific information on potentially significant effects on these resources related to construction of the SAIP.

This Draft EIR includes certain intermediate level information necessary for the design of the south airfield's drainage facilities that were called for by the Mitigation Monitoring and Reporting Program

(MMRP) for the LAX Master Plan. In particular, LAWA has developed a conceptual drainage plan (CDP) for the airport in order to identify the improvements necessary to provide adequate drainage capacity and preserve water quality (see Appendix A). This CDP was used to develop the project specific design elements for the SAIP.

Baseline for Determining Significant Environmental Impacts

In accordance with Section 15125 of the *State CEQA Guidelines*, the affected environment (referred to in the Guidelines as the "environmental setting") typically constitutes the baseline physical conditions against which project impacts are compared to determined whether an impact would be significant.

Two baseline conditions were used in the analysis of the SAIP, as described below. These are the environmental baseline, or the physical conditions that existed at the time the Notice of Preparation (NOP) was published, and the adjusted environmental baseline, which reflects current environmental baseline conditions on the airport plus future "background" conditions (allowing for airport-related and regional growth). The environmental baseline was used for all environmental disciplines except off-airport surface transportation and construction vehicle traffic noise. The adjusted environmental baseline was used to evaluate off-airport surface transportation and construction vehicle traffic noise impacts to ensure that background events that would occur regardless of the SAIP do not incorrectly appear as project-induced effects.

Environmental Baseline

For this Draft EIR, the environmental baseline consists of the physical conditions that existed in July 2004, the month in which the NOP was published.[2] When a full year's worth of data was appropriate for describing the existing environmental setting, data was used from 2003, the latest full year before the date of the July 2004 NOP. Although the environmental baseline conditions described in this Draft EIR are sometimes the same as, or similar to, the environmental baseline conditions analyzed in the LAX Master Plan Final EIR, where circumstances have changed, this EIR provides updated information for July 2004 or Year 2003.

Adjusted Environmental Baseline

The adjusted environmental baseline describes current environmental baseline conditions on the airport, but also includes background land use activity anticipated to occur in the peak construction year (2005). This is done to distinguish the project's impact from unrelated regional impacts due to other causes (such as general population and employment growth and land use development in areas outside the airport). Environmental professionals have developed standardized approaches to isolate impacts caused by the project from impacts caused by background growth trends.

For example, procedures to isolate traffic growth due to the project from all other traffic growth have been used for many years. Policies and guidelines for both the City of Los Angeles and the County of Los Angeles require an adjusted environmental baseline approach for traffic analyses.[3] For this Draft EIR, the adjusted environmental baseline includes growth in background traffic, including both

[2] Section 15125(a) of the CEQA Guidelines states that "[a]n EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published." Furthermore, the Guidelines state that "[t]his environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

[3] Los Angeles World Airports. *Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*, April 2004, Sec. 4, Pg. 4-8.

airport-related traffic and regional growth.[4] To measure off-airport surface transportation impacts, SAIP construction-related traffic was added to the adjusted environmental baseline to create a with-project scenario. Transportation impacts were then determined by comparing traffic levels under the adjusted environmental baseline to the with-project scenario. The off-airport construction noise assessment builds upon information reported in the traffic analysis. Consequently, this section is also based on an adjusted environmental baseline methodology.

Incorporation of LAX Master Plan Commitments and Mitigation Measures into the Environmental Analysis

In conjunction with approval of the LAX Master Plan and certification of the Final EIR, in December 2004, the Los Angeles City Council adopted a MMRP to ensure that mitigation measures and LAX Master Plan commitments identified in the Final EIR are implemented.[5]

Mitigation measures are activities, policies or practices designed to avoid or minimize significant environmental impacts. Due to the programmatic nature of the LAX Master Plan Final EIR, in some cases, mitigation features could not be identified with specificity until additional design work was undertaken. In these situations, performance standards were established and a range of options for meeting the standard provided.

Besides mitigation measures, the MMRP for the LAX Master Plan includes Master Plan commitments. LAX Master Plan commitments were determined to be more appropriate than mitigation measures where: (1) standards and regulations exist with which compliance is already required by the applicable regulatory agency; (2) potential impacts would be adverse but not significant; and (3) design refinements could be incorporated into the project to reduce or avoid potential impacts. In some cases, Master Plan commitments also include performance standards and a range of options for meeting the standard.

The timing of implementation of mitigation measures and Master Plan commitments is set forth in the MMRP. In some cases, LAWA is required to implement certain mitigation measures and Master Plan commitments prior to or at the same time as construction of the SAIP. This Draft EIR describes the mitigation measures and Master Plan commitments that are applicable to the SAIP and provides project level information when necessary to evaluate the potentially significant environmental effects of this project.

---

4 The LAX Master Plan Final EIR calculated the adjusted environmental baseline by assuming that there would be no change in on-site trip generation in the without-project scenario, but that regional traffic growth due to all other factors would continue. For this Draft EIR, it is not anticipated that implementation of the SAIP would result in the generation (or reduction) of airport-related traffic or affect the overall distribution of this traffic within the study area. Unlike the aggregate effect of the overall LAX Master Plan program, this project would not be expected to change the patterns of vehicle trips from airline passengers, employees, or cargo. Accordingly, to estimate traffic-related impacts due to construction traffic from this project, the adjusted environmental baseline includes growth in both airport-related traffic and regional growth.

5 *See* Cal. Pub. Res. Code § 21081.6; *see also* Cal. Code Regs. tit. 14, §§ 15091(d), 15097. In addition, the LAX Specific Plan, approved by the City Council to establish zoning and development regulations, requires in each specific project approval a finding that appropriate mitigation measures are being adopted as a condition of approval. Further, the LAX Specific Plan requires that LAWA prepare and submit to the City Council, among others, annual reports indicating the status of implementation of the MMRP. FAA also requires, as a condition of its final approval in the Record of Decision, that LAWA and the City implement the mitigation measures as contemplated in the MMRP. Mitigation measures and LAX Master Plan commitments are applicable to the extent that the use of airport revenue to fund such measure is permissible under federal law and policies, or the ability of LAWA to develop other state or federal funding sources.

For example, LAX Master Plan Commitment HWQ-1 requires that LAWA develop a conceptual drainage plan (CDP) for the airport in order to identify the overall improvements necessary to provide adequate drainage capacity to prevent flooding. The CDP must also include BMPs to minimize the effect of airport operations on surface water quality and prevent a net increase in pollutant loads to receiving water bodies. In order to ensure that drainage and water quality issues are adequately addressed in this Draft EIR, a CDP was developed (see Appendix A) and those elements that are applicable to the SAIP were incorporated into the project and thus into the environmental impact analysis.

Other plans, such as the Construction Noise Control Plan (MM-N-7) and the Archaeological Treatment Plan (MM-HA-4), will be approved and incorporated into the MMRP at a later point. Unlike the development of the CDP, which was prepared early in the planning process to allow for the incorporation of design elements into the south airfield project description, these environmental plans were not required in order to complete the project level design of the south airfield. However, to the extent that project level information is necessary to address potentially significant environmental effects, components of the anticipated plans have been incorporated into the SAIP project itself for the purposes of this Draft EIR.

All MMRP mitigation measures and Master Plan commitments that are applicable to the SAIP are described in the text, along with project specific information as necessary. The environmental analysis assumes that these measures will be implemented in conjunction with the SAIP as required in the MMRP. To the extent that these measures would not reduce potential environmental effects to a less than significant level, and project level information has revealed additional feasible mitigation measures, new mitigation measures are separately identified after the various impact conclusions and proposed for adoption as conditions of approval.

Description of Cumulative Impacts

Cumulative impacts are the impacts of the project in conjunction with past, present, and probable future projects. The environmental impacts of the project may be individually minor, but collectively significant when considered in conjunction with other projects. In accordance with the *State CEQA Guidelines*, the LAX Master Plan Final EIR evaluated the contributions of the LAX Master Plan to cumulative impacts for each environmental discipline to determine if they would be significant. The SAIP is consistent with the entitlements approved for the LAX Master Plan, and thus, the cumulative effect of this project has been adequately addressed in the LAX Master Plan Final EIR. Additional information is provided in Chapter IV confirming this conclusion. Pursuant to sections 15130(d) and 15152(f) of the CEQA Guidelines, no further evaluation is required.

Although a cumulative impacts analysis is not required, this Draft EIR includes information related to past, present, and probable future projects in its analysis of construction impacts related to hydrology/water quality, ground transportation, air quality, noise, and biotic resources, as well as the operations-related impacts associated with hydrology. For example, to accurately assess the potential traffic impact that may result during construction of the south airfield improvements, the traffic analysis takes into account the background traffic conditions that would result from past, present, and probable future projects in the study area during the peak month of construction activity. Future projects included in the SAIP's cumulative impacts analysis include renovations to the Tom Bradley International Terminal (TBIT) and construction of in-line baggage systems for TBIT, Terminals 1 through 8, the Airfield Intersection Improvements project, and the Remote Boarding Facilities Modifications project. Based on their advanced level of planning and environmental review, these projects are considered in the analysis, as appropriate. The traffic volumes related to construction of these facilities were estimated and added to the study area roadway system as additional background traffic. The non-LAX planned development listed in Section 3.5.3 were also included in the project's cumulative impacts analysis, as appropriate. The information provided for the non-LAX planned development projects reflects the latest available data provided by the surrounding jurisdictions.

Although other LAX Master Plan projects, such as the West Employee Parking Garage and Intermodal Transportation Center, may overlap the construction period for the SAIP, these LAX Master Plan components have not reached a level of planning that would allow for an accurate assessment of the volume, timing, or location of vehicle trips. Thus, it would be speculative to attempt to analyze the environmental impacts of those projects at a greater level of detail at this time. Nonetheless, based on the current level of planning, it is unlikely that these projects would contribute appreciably to the environmental impacts of the SAIP. To the extent that any overlap occurs, the potential construction traffic impact will be assessed during the project level environmental review for each subsequent component of the LAX Master Plan.

Peak Period of Construction Activity

The peak period of construction for the SAIP was originally anticipated to occur in 2005 and the evaluation of potential environmental effects was conducted accordingly. It was later determined that the peak construction period would likely occur in 2006 rather than 2005. In order to ensure that the forecast of potential environmental effects reported in this EIR is reliable, sensitivity analyses were performed to determine what, if any, differences would result if the peak construction period were to occur in 2006. Technical memoranda describing the sensitivity analyses and their results are provided in **Appendix** D.

As further described in Appendix D, it was determined that the profile of construction activity over the construction period would not change – it would simply shift in its entirety, with the peak construction period occurring in 2006. The only difference that would result from the shift in the construction period would be a change in aircraft and passenger activity in 2006. A review of the LAX Master Plan forecasts was performed to determine the change in activity for 2006.

Based on the results of the sensitivity analyses, it was determined that there would be no change in significant impacts expected during the peak construction period in 2006 compared to 2005. There would be no additional significant impacts, nor would any of the significant impacts identified for a construction period in 2005 be materially increased if the peak construction period occurred in 2006. Therefore, the technical analyses completed assuming the peak construction period would occur in 2005 – referred to throughout this EIR as Project (2005) conditions – are reliable for determining the potential for and magnitude of significant environmental effects from construction of the SAIP.

4.1 Hydrology and Water Quality

4.1.1 Introduction

The hydrology analysis addresses the potential for flooding associated with the SAIP. The water quality analysis addresses the potential water quality impacts of storm water runoff associated with the SAIP. Each of these analyses addresses impacts that may occur during both construction and operation of the proposed project. The analyses performed for the SAIP do not address recharge or dry weather flows at the airport because the LAX Master Plan Final EIR adequately addressed these potential effects and concluded that the environmental effects would be less than significant. The analyses conducted as part of the LAX Master Plan Final EIR are provided in Technical Report 6, Technical Report S-5, and Section 4.7 of the LAX Master Plan Final EIR.

The hydrology and water quality analyses for the SAIP are tiered from the analyses performed for the LAX Master Plan. The LAX Master Plan Final EIR evaluated potential hydrology and water quality impacts associated with the entirety of the LAX Master Plan improvements at a programmatic level of detail. As detailed design of the future drainage system had not been undertaken at the time that the LAX Master Plan Final EIR was prepared, the analysis considered potential changes in storm water runoff based on proposed changes in land uses. The analysis concluded that increases in impervious surfaces within the LAX Master Plan boundaries would result in increased storm water runoff and increased pollutant loadings to receiving water bodies. In order to prevent these increases from causing flooding or adverse water quality impacts, LAX Master Plan Commitment HWQ-1, *Conceptual Drainage Plan*, was proposed. With implementation of this commitment, potential flooding and water quality impacts associated with the LAX Master Plan were found to be less than significant.

As required by LAX Master Plan Commitment HWQ-1 of the LAX Master Plan Final EIR (see Section 4.1.5), LAWA has prepared a Conceptual Drainage Plan (CDP) that provides a basis by which detailed drainage improvement plans shall be designed in conjunction with site engineering specific to each LAX Master Plan improvement project. Specifically, the CDP provides a conceptual plan of required improvements plus recommendations for project-specific design of drainage facilities that will accommodate future flows associated with the proposed LAX Master Plan improvements. The CDP also recommends a set of Best Management Practices (BMPs) that will be incorporated to minimize the effects of future of airport operations on surface water quality and to prevent a net increase in pollutant loads to receiving water bodies resulting from implementation of LAX Master Plan Alternative D. Certain components of the CDP are applicable to the SAIP and are thus considered in this EIR. The entire CDP is provided in **Appendix A** for informational purposes. A project-specific drainage analysis was conducted for the SAIP based on the methodology in the CDP and a detailed design was prepared that includes both existing and new drainage infrastructure that will provide protection equivalent to or greater than the CDP recommendations.

Detailed supporting calculations for the SAIP hydrology analysis are provided in the *Program Refinement/Preliminary Engineering Report,* prepared for the SAIP. Volume one of three of this report is provided in **Appendix E** and supporting calculations for water quality impacts associated with the SAIP are provided in **Appendix F** of this EIR.

4.1.2 Methodology

The methodology used for evaluating hydrology and water quality impacts associated with the SAIP is based on the methodologies utilized in the LAX Master Plan Final EIR with minor exceptions, as noted below. Project-specific engineering data are now available that were not available during preparation of the LAX Master Plan Final EIR. Additional details regarding the methodologies used in the LAX Master Plan Final EIR are provided in Technical Report 6 and Technical Report S-5 of the LAX Master Plan Final EIR.

4.1.2.1 Hydrology/Drainage

The analysis of hydrology in the LAX Master Plan Final EIR considered potential changes in storm water runoff flow rates (i.e., drainage) resulting from the LAX Master Plan alternatives. The objective of the drainage analysis was to assess the potential for localized flooding to occur under the LAX Master Plan alternatives compared with baseline conditions. For the LAX Master Plan analysis, land use acreages and relative imperviousness were quantified for the drainage areas within the study area draining to major outfall pipelines that discharge to either the Santa Monica Bay or Dominguez Channel for the baseline conditions and each of the Master Plan alternatives. The flow rate and volume of runoff in a drainage system is a direct function of total drainage area, rainfall, and relative imperviousness of the land use. Because the overall drainage areas and rainfall would not change between the alternatives, the differences in relative imperviousness were used to assess potential increases in surface water runoff flow rates and, consequently, the potential for flooding.

With the availability of project design engineering data, the hydrology methodology for the SAIP was adjusted to take into account quantifiable impervious and pervious areas within the project boundaries compared to existing conditions instead of determining pervious and impervious areas by land use. The revised methodology substitutes the impervious data obtained from land use areas with actual calculated impervious area data based on the construction-level engineering plans. Furthermore, design of the SAIP required the replacement and/or re-alignment of a number of the existing interior storm drain systems within the project construction area to accommodate the modified site design, so that a number of new drainage systems, including swales, pipelines and miscellaneous structures, are also accounted for in the analysis.

The project-level hydrologic and hydraulic analyses and the capacity evaluation of the existing system and sizing of new systems were conducted in conjunction with project design (see Appendix E).

At LAX, surface water is discharged to both County of Los Angeles and City of Los Angeles drainage and flood control structures. County of Los Angeles facilities include the Dominguez Channel, which discharges to San Pedro Harbor, as well as some of the individual drains that discharge into Santa Monica Bay. The City regulates the remaining drainage and flood control structures at the airport. The City of Los Angeles hydrologic design standards for these facilities are based upon their Peak Rate Method,[1] which uses a pattern storm from a 50-year storm return frequency and then establishes specific minimum return frequencies for determining the design flow in proportion to the 50-year storm depth and pattern for different types of facilities. For storm drain systems in areas without sumps, which is the applicable condition for the facilities within the SAIP, a 10-year storm return frequency is used as the minimum basis of design. Major regional (offsite)

---

[1] City of Los Angeles Department of Public Works, Bureau of Engineering Manual - Part G, Storm Drain Design, 1973.

drainage facilities owned and maintained by the County of Los Angeles, are designed for the Capital Flood, (defined by the County as the runoff from a 50-year frequency design storm) such as for natural watercourses, floodways, culverts or other major regional systems. The city also allows use of the Los Angeles County Department of Public Works (LACDPW) *Hydrology Manual*,[2] Modified Rational Method for design of drainage and flood control facilities.[3]

The proposed drain system for the SAIP project area was analyzed and designed according to LACDPW's Modified Rational Method**.** To provide a higher level of protection (e.g., accommodating larger, less frequent storm events than the minimum 10-year frequency requirement per City standards), within-project systems are designed to accommodate a 25-year design storm using LACDPW's Modified Rational Method to determine the hydrology. The proposed storm drain system is designed to accommodate the ultimate runway/taxiway configuration for the south airfield. Whenever possible, the existing storm drain system is being used. However, based on the storm drain criteria established for this project (i.e., 25-year design storm), larger-diameter pipe would replace the existing systems in many cases to accommodate the design flow rates. Additional discussion of the drainage system design is provided in Section 4.1.6.1.

Certain assumptions were required to determine adequate sizing of the drainage system. Key design criteria include:

- **Rainfall Zones** – The project falls within rainfall zone "K" for coastal plain conditions per Appendix A of the *Hydrology Manual* corresponding to a 24-hour rainfall of 3.91 to 6.40 inches for a 25-year storm frequency.
- **Soil Classification** – Soil types for the project area are identified as "009 (Montezuma Clay Adobe)", "010 (Oakley Fine Sand)", and "014 (Ramona Sandy Loam)" in the LACDPW design manual.
- **Time of Concentration (t_c)** – Times of concentration (period from start of rainfall to time of maximum runoff rate) were computed based on unburned, unbulked flow velocities, and flow path lengths. In the project area, the minimum is 4 minutes and the maximum is 30 minutes.
- **Runoff Coefficients (c)** – Runoff coefficients (fraction of rainfall that becomes runoff) were developed for each tributary area based on the imperviousness of soil, soil type, and rainfall intensity.

As noted above, the proposed storm drain design criteria for the project is a 25-year design storm (24-hour rainfall of 3.91 to 6.40 inches at the airport) using the Modified Rational Method.

4.1.2.2 Water Quality

The objective of the water quality analysis in the LAX Master Plan Final EIR was to compare the estimated surface water pollutant loads that would be discharged from the LAX Master Plan alternatives to estimated surface water pollutant loads under baseline conditions. The baseline

[2] Los Angeles County Department of Public Works, Hydraulic/Water Conservation Division, Hydrology Manual, December 1991.

[3] The Modified Rational Method is the standard method used by LACDPW to convert rainfall to runoff. LACDPW modified the classic and simplified Rational Formula method to account for variability in the factors used for the classic rational formula. As a result, the modified method has the ability to produce a hydrograph of storm water flow. A hydrograph is a graphical representation that displays the change in flow as a function of time at a specific location. Hydrographs provide a way of seeing variations in flow or discharge from a drainage area or drainage system over the duration of a storm event.

analysis estimated the existing on-airport pollutants loads discharged, as well as those associated with other areas within the study area. The LAX Master Plan methodology utilized land use data to determine runoff coefficients, as design-engineering data were not available.

With the availability of project-specific construction design engineering data for the SAIP, the LAX Master Plan water quality methodology was adjusted for purposes of this EIR. Detailed pre-development and post-development impervious data developed from the project design information were used for the proposed project area to calculate the runoff coefficient for the two watersheds (Santa Monica Bay and Dominguez Channel). After the post-development storm water pollutant loads were determined for each of the watersheds and pollutants of concern, the watersheds were further subdivided into areas that are proposed to be treated with specific Best Management Practice (BMP) devices that have been selected for the project and included in the project's Standard Urban Storm Water Mitigation Plan (SUSMP) and design documents. BMPs designed to respond to SUSMP requirements have been previously determined in the Standard SUSMP adopted by the Los Angeles Regional Water Quality Control Board to provide the equivalent to capturing at least 80 percent of the total long-term runoff volume from watersheds within the Los Angeles area.[4] This project used a consistent assumption that BMPs would treat 80 percent of all runoff based on the sizing criteria used to design the proposed project BMPs, as described in Section 4.1.6. The removal factors for each BMP device were then proportionately applied to the flows to each device and the load reductions subtracted from the watershed storm water pollutant loads yielding an annual net mass of discharged pollutants for each watershed sorted by pollutant of concern.

The pollutants of concern evaluated in this analysis are the same as those evaluated for the LAX Master Plan and were based upon studies of the Santa Monica Bay, the primary receiving water body for runoff from LAX. Nineteen pollutants of concern have been identified for the Santa Monica Bay.[5] Ten of these pollutants were selected for analysis based on the reasonable likelihood that they would be present in storm water runoff from LAX. These pollutants include total suspended solids, phosphorus, total Kjeldahl nitrogen, copper, lead, zinc, biochemical oxygen demand, chemical oxygen demand, oil and grease, and pathogenic bacteria. The specific types of pathogenic bacteria chosen for analysis were fecal coliform, fecal enterococcus, and total coliform bacteria. In addition, ammonia, a component of total Kjeldahl nitrogen, was analyzed.

Pollutant loads discharged to the Santa Monica Bay and the Dominguez Channel receiving water bodies were calculated by multiplying pollutants' Event Mean Concentrations (EMCs)[6] and average annual runoff. Average annual runoff volumes were calculated from average annual precipitation, drainage area, and runoff coefficients and impervious fractions.[7] The rationale for the selection of pollutants of concern and further discussion regarding EMCs is presented in Technical Report 6 and Technical Report S-5 of the LAX Master Plan Final EIR.

The nature, location, and extent of construction activities would vary during the construction period. Moreover, some of the variables that could affect water quality during construction cannot be

[4] Regional Board Executive Officer, Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County, March 8, 2000. Subsequently, the City of Los Angeles adopted an ordinance authorizing implementation of the SUSMP for public and private development projects in the City (Ordinance No. 173494, passed by the Council of the City of Los Angeles on September 6, 2000).

[5] Santa Monica Bay Restoration Project, Characterization Study of the Santa Monica Bay Restoration Plan - State of the Bay 1993, January 1994.

[6] An EMC represents the average concentration of a particular pollutant for a storm event.

[7] The impervious fraction is the proportion of the surface that is not pervious to water.

accurately projected, such as quantities of hazardous materials or other substances that might spill or leak during construction. Furthermore, the range of construction activities is expected to be typical of other similar projects covered by the statewide NPDES general permit for storm water discharges associated with construction activities and LAWA's associated Stormwater Pollution Prevention Plan (see Section 4.1.3.2.1). As a result, construction-related impacts to water quality were evaluated qualitatively. Potential sources of pollutants during construction were identified, and standard practices for minimizing the effects of construction activities on water quality were evaluated to determine if they would be sufficient to prevent adverse impacts to water quality.

4.1.3 Baseline Conditions

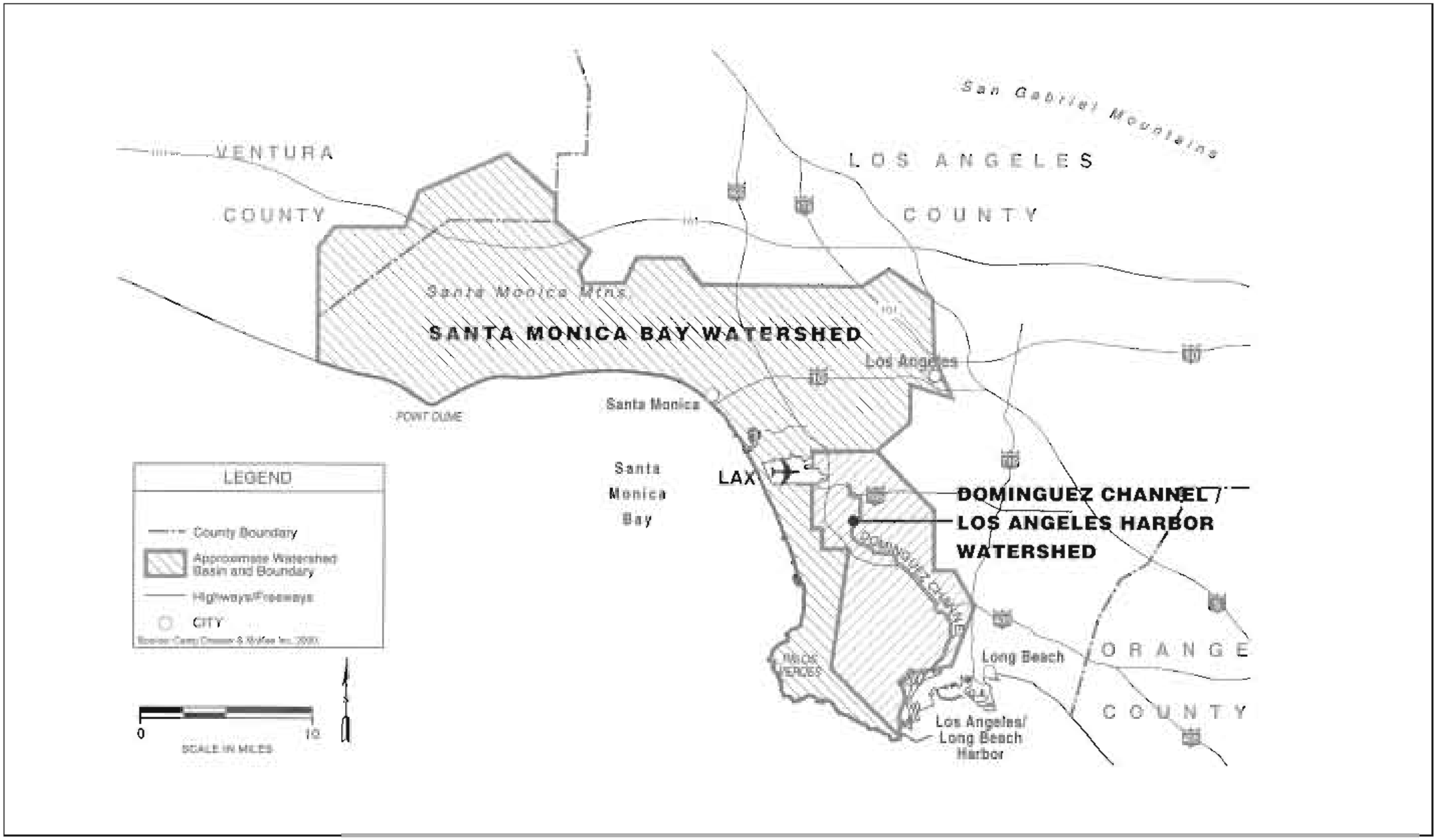
Descriptions of conditions relative to hydrology and water quality are presented in Technical Report 6 and Section 4.7 of the LAX Master Plan Final EIR and are incorporate by reference herein. Due to the built out nature of the project site, conditions regarding hydrology and water quality within the SAIP project area have not changed materially from those presented in the LAX Master Plan Final EIR. Baseline conditions for hydrology and water quality as described in the LAX Master Plan Final EIR (based on 1996 conditions as updated by later reports of on-site conditions) are summarized below. As these conditions have not materially changed since publication of the LAX Master Plan Final EIR, they are used here to describe baseline conditions for the SAIP EIR.

The two major receiving water bodies for the airport drainage are the Santa Monica Bay and the Dominguez Channel. Santa Monica Bay is located directly west of LAX and is the receiving water body for surface water drainage from approximately 265,000 acres of land. The Dominguez Channel collects storm water from a 46,000-acre watershed before ultimately discharging into San Pedro Harbor. 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 the Dominguez Channel. **Exhibit 4.1-1**, Santa Monica Bay and Dominguez Watersheds, illustrates these two watersheds.

4.1.3.1 Hydrology/Drainage

4.1.3.1.1 Regulatory Provisions

Hydrology is discussed as it relates to the management of stormwater runoff to prevent flooding. The environmental setting with respect to drainage and the potential for flooding focuses on the regulatory issues that apply in designing drainage and flood controls structures and the existing drainage system at the airport. Improvement to drainage and flood control structures in the County of Los Angeles are subject to review and approval by the LACDPW, while structures and improvements in the City of Los Angeles are subject to review and approval by the City of Los Angeles Department of Public Works (LADPW), Bureau of Engineering. Both agencies utilize design standards to provide a specified level of protection against flooding for different types of land uses. Storm water discharges are regulated by both agencies through plan approvals and permits. In cases where a proposed project would exceed the drainage system's capacity, methods for reducing impacts to the storm drain system are required, and can include controlling peak and total discharge through storm water detention or increasing site perviousness.



Source: Camp Dresser & McKee Inc., 2000
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.1-1

Santa Monica Bay and Dominguez Channel Watersheds

4.1.3.1.2 Existing Drainage System

The existing drainage system at the airport consists of catch basins, subsurface storm drains and open channels, and outfalls.[8] The principal storm water outfalls for surface water captured on the airport property are the Dominguez Channel, the Argo Drain, the Imperial Drain, the Pershing Drain (which receives runoff from the Vista del Mar subbasin), and the Culver Drain. The service boundaries for each of these outfalls form distinct subbasins that collect surface water runoff. Most of these subbasins extend off airport property and collect surface water runoff from surrounding communities. The locations of these subbasins are illustrated on **Exhibit 4.1-2**, Drainage Subbasins at the airport.

Three of the five principal subbasins are present in the project study area, as illustrated on **Exhibit 4.1-3**, Subbasin Flows. These subbasins are the Dominguez Channel (referred to in Project Design Documents as Project Watershed A), Argo Drain (Project Watershed B), and Imperial Drain (Project Watershed C). The Argo and Imperial drains ultimately discharge to the Santa Monica Bay, while the Dominguez Channel ultimately discharges to San Pedro Harbor. These subbasins are described below.

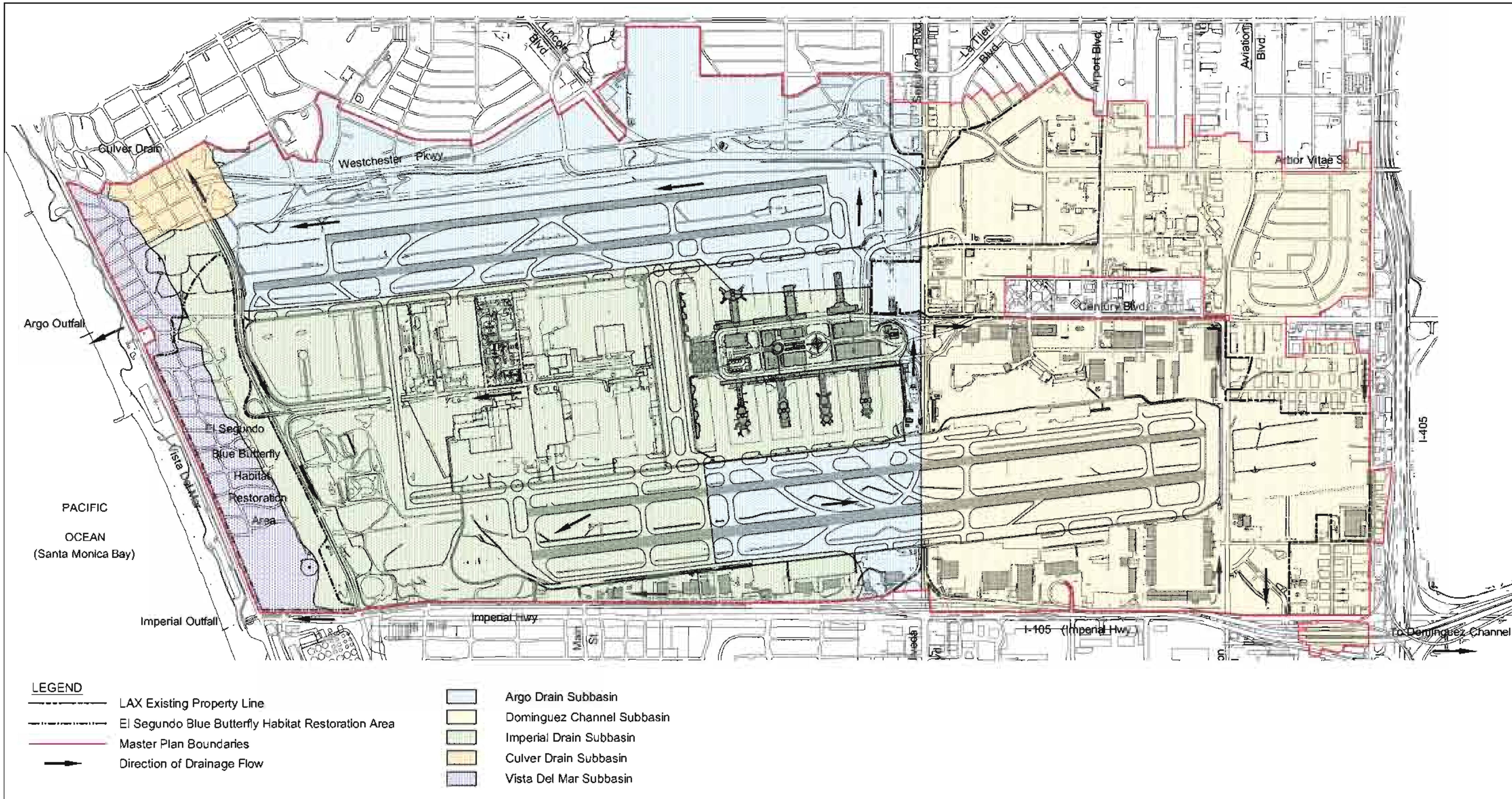
Dominguez Channel Subbasin

Drainage from the area generally east of Sepulveda Boulevard flows to the Dominguez Channel. The total airport property draining into the Dominguez Channel is approximately 1,600 acres, which is less than 4 percent of the total Dominguez Channel watershed. Runoff from airport property generally east of Sepulveda Boulevard and south of Century Boulevard includes the eastern portion of the southern runway complex. This runoff is collected in a perimeter drain that runs along a portion of Sepulveda Boulevard to Century Boulevard, turns east on Century Boulevard to Aviation Boulevard, and then turns south along Aviation Boulevard to Imperial Highway. The perimeter drain enters an 8-foot box drain, which crosses east below the Atchison Topeka and Santa Fe Railroad at about 111th Street. After the crossing, the 8-foot box drain turns south and continues to the start of the Dominguez Channel at 116th Street. The perimeter drain is a trapezoidal, concrete-lined open channel from Bellanca Avenue on Century Boulevard to about the end of the southern taxiways along Aviation Boulevard.

Argo Subbasin

The drainage area for the Argo drain is approximately 2,450 acres, not all of which is within airport property. The Argo drain forms the northern and eastern perimeter drains for the airport and discharges into Santa Monica Bay. The upstream end of the Argo drain on the airport is located at the intersection of Sepulveda Boulevard and Imperial Highway. The drain piping creates a perimeter drain along the west side of Sepulveda Boulevard, collecting surface runoff from a portion of runway areas 25R-7L and 25L-7R that is west of the drainage break on airport property. The storm drain turns west on Century Boulevard to Sky Way, where it again turns north and extends past the northern Runway 6L-24R. In the area near the northern runways, the drain begins to collect storm water from the area outside the airport property. The storm drain piping then turns west and parallels Lincoln Boulevard for a short distance before becoming an open earthen ditch. The ditch collects storm water from both the airport and the community of Westchester north of the airport. This ditch extends nearly the length of the northern runways before it discharges into a concrete box drain. The box drain continues west and south under Pershing Drive to Argo Street, west of the airport. The culvert follows Argo Street and extends out and into Santa Monica Bay where the outfall is located.

[8] An outfall is the point at which drainage conveyance facilities discharge.



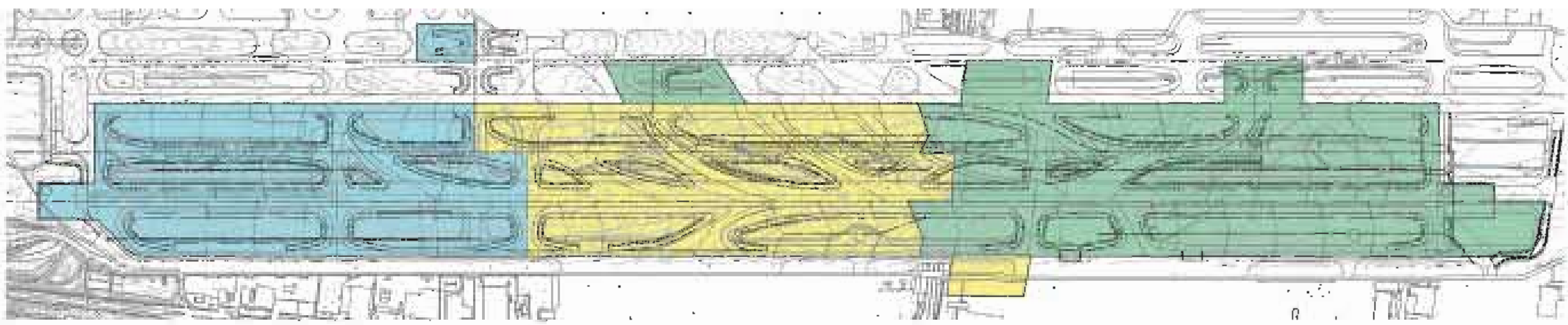
Source: Camp Dresser & McKee Inc., 2000
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.1-2

north

300' 600' 1,800'
500' 0 1,200'

Drainage Subbasins at LAX



LEGEND

Dominguez Channel Subbasin (Project Watershed A)

Argo Drain Subbasin (Project Watershed B)

Imperial Drain Subbasin (Project Watershed C)

Source: Camp Dresser & McKee Inc , 2000
Prepared by: Ricondo & Associates, Inc

Exhibit 4.1-3

South Airfield Improvement Project
Subbasin Flows

north **Not to Scale**

Imperial Subbasin

The Imperial Subbasin includes the central and southwestern areas of the airport, as well as the northern and western portions of the City of El Segundo. Approximately 1,300 acres of the subbasin are located on airport property under baseline conditions. On the airport property, perimeter storm drains for the west and south areas of the airport are connected at the corner of Pershing Drive and Imperial Highway. These drains are hydraulically connected to two storm water outfalls located along the western end of Imperial Highway, which discharge into Santa Monica Bay. The outfall for this watershed is an 8'-6" wide by 10'-0" high box culvert that passes diagonally through the south airfield from northeast to southwest.

4.1.3.1.3 Existing Drainage System Capacity

Previous hydrologic analyses of the conveyance systems within the Argo and Imperial subbasins of the Santa Monica Bay Watershed indicate that the existing regional, off-airport drainage facilities have the capacity to carry the LACDPW 50-year Capital Flood design storm without flooding.[9],[10],[11] The studies also indicate that, flooding would occur in parts of the regional, off-airport Dominguez Channel Watershed under the same conditions. The studies also note that LAWA records indicate that existing on-airport drainage systems were designed for the 10-year storm event. The Conceptual Drainage Plan evaluated the capacity of the on-airport drainage facilities and found that while the capacity of some existing facilities exceeded the 10-year storm event criteria (i.e., they had more capacity than required) there were others that did not have sufficient capacity to meet this criteria.

4.1.3.2 Water Quality

Water quality is discussed as it relates to the transport of water quality constituents in surface waters generated by storm water and urban activities and their effects on receiving bodies. For the purpose of this analysis, a constituent may be a pollutant or other measurable component of water quality.

4.1.3.2.1 Regulatory Provisions

There are a number of federal, state, and local regulatory programs pertaining to the maintenance and enhancement of water quality. Included below is a summary of three major regulatory provisions concerning water quality. The purposes of these programs are generally to protect and enhance water quality. As previously stated, a more in-depth discussion of the environmental baseline, including regulatory provisions, is provided in Technical Report 6 and Section 4.7 of the LAX Master Plan Final EIR.

National Pollutant Discharge Elimination System (NPDES)

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States from any point source unless the discharge is in compliance with a National Pollution Discharge Elimination System (NPDES) permit. In accordance with the CWA, the U.S. Environmental Protection Agency (USEPA) promulgated regulations for permitting storm discharges by municipal and industrial facilities and construction activities through the NPDES program. The Phase 1 NPDES municipal storm water program applies to urban areas with a population greater than

[9] City of Los Angeles, Los Angeles World Airports, Revised Hydrology Report for Los Angeles International Airport North Perimeter Storm Drain, Prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc., December 2001.

[10] City of Los Angeles, Los Angeles World Airports, Conceptual Drainage Plan for Los Angeles International Airport, June 2005.

[11] City of Los Angeles, Los Angeles World Airports, Final On-Site Hydrology Report for Los Angeles International Airport, Prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc., October 2002.

100,000 while the industrial program applies to specific types of industry, including airports. The NPDES program for construction sites applies to activities that disturb an area of one acre or more.

A Phase 1 NPDES permit is required for certain municipal separate storm sewer discharges to surface waters. The airport is within the region covered by NPDES Permit No. CAS004001. The permit is a joint permit, with the County of Los Angeles as the "Principal Permittee" and 85 incorporated cities within Los Angeles County, including the City of Los Angeles, as "co-Permittees." The objective of the permit, and the associated storm water management program, is to effectively prohibit non-storm storm water discharges and to reduce pollutants in urban storm water discharges to the "maximum extent practicable." The municipal permit requires the City to undertake a number of program elements as they apply to City-owned facilities such as LAX. These include compliance with the statewide industrial and construction storm water general permits as discussed below; and compliance with the SUSMP program for new development and redevelopment projects discussed below.

The State Water Resources Control Board (SWRCB) issued a statewide Industrial Activities Storm Water General Permit (Industrial Permit)[12] that applies to all industrial facilities, including airports, that discharge storm water and requires a NPDES permit. The major provisions of the Industrial Permit require that the Permittees eliminate or reduce non-storm water discharges, develop and implement a Storm Water Pollution Prevention Plan (SWPPP), and monitor discharges to the storm water system from their facilities. LAWA has prepared a SWPPP to address the permitting of storm water discharges associated with industrial activities at LAX. The LAX SWPPP contains general information, such as drainage system layout and tenant and site activities; describes past and present potential sources of pollutants in storm water; designates programs to identify and eliminate non-storm water discharges; and describes the storm management controls being implemented at the airport and the ongoing storm water monitoring program.

The SWRCB issued a statewide NPDES general permit for storm water discharges associated with construction activities (General Permit for Construction).[13] Project proponents planning construction activities that disturb an area greater than one acre are required to file a Notice of Intent (NOI) to discharge under the Construction Permit. After an NOI has been submitted, the discharger is authorized by the SWRCB to discharge storm water under the terms and conditions of the general permit. The major provisions of the Construction Permit are generally the same as those for the Industrial Permit although they focus on impacts associated with construction activities. LAWA has prepared a Storm Water Guidance Manual for Construction Activities. This document outlines the procedures for preparing and implementing a construction SWPPP, including BMPs, before beginning construction operations so that the activities are in compliance with the general permit.

Standard Urban Storm Water Mitigation Plan Program

As part of the municipal storm water program associated with the NPDES Phase 1 Permit, the Los Angeles Regional Water Quality Control Board (LARWQCB) adopted the Standard Urban Storm Water Mitigation Plan (SUSMP) to address storm water pollution from new development and

[12] California State Water Resources Control Board, Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities, April 1997.

[13] California State Water Resources Control Board (SWRCB), Water Quality Order No. 99-08-DWQ, NPDES General Permit No. CAS000002, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity, December 1999.

redevelopment projects. The SUSMP is a model guidance document for use by permittees to select post-construction BMPs. The SUSMP program applies to specified project types.

BMPs are defined in the SUSMP as any program, technology, process, siting criteria, operational methods or measures, or engineered systems, which, when implemented, prevent, control, remove or reduce pollution.[14] The general requirements of the SUSMP include:

- Controlling peak storm water runoff discharge rates
- Conserving natural areas
- Minimizing storm water pollutants of concern
- Protecting slopes and channels
- Providing storm drain stenciling and signage
- Properly designing outdoor material storage areas
- Properly designing trash storage areas
- Providing proof of ongoing BMP maintenance

Three types of BMPs are described in the SUSMP: source control, structural, and treatment control BMPs.[15] The SUSMP also specifies design standards for structural or treatment control BMPs to either infiltrate or treat storm water runoff and to control peak flow discharge.

Total Maximum Daily Load Program

Under Section 303(d) of the CWA, states are required to identify the water bodies that do not meet water quality objectives through control of point source discharges under NPDES permits. For these water bodies, states are required to develop appropriate total maximum daily loads (TMDLs). TMDLs are the sum of the individual pollutant load allocations for point sources, nonpoint sources,[16] and natural background conditions, with an appropriate margin of safety for a designated water body. The TMDLs are established based on a quantitative assessment of water quality problems, the contributing sources, and load reductions or control actions needed to restore and protect an individual water body.[17] As opposed to the NPDES programs, which focus on reducing or eliminating non-storm water discharges and reducing the discharge of pollutants to the maximum

[14] Regional Board Executive Officer, Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County, March 8, 2000. Subsequently, the City of Los Angeles adopted an ordinance authorizing implementation of the SUSMP for public and private development projects in the City (Ordinance No. 173494, passed by the Council of the City of Los Angeles on September 6, 2000).

[15] As defined in the SUSMP:

"Source control BMP means any schedules of activities, prohibition of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution."

"Structural BMP means any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution (e.g. canopy, structural enclosure). The category may include both source control and treatment BMPs."

"Treatment control BMP means any engineered system designed to remove pollutants by simple gravity setting of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process."

[16] Discharges originating from single sources, like power and wastewater treatment plants, are referred to as point source discharges, while storm water and/or urban runoff are non-point sources of water pollution because their origins cannot be attributed to a single identifiable source.

[17] U.S. Environmental Protection Agency, Total Maximum Daily Load Fact Sheet, Available: http://www.epa.gov/region09/water/tmdl/fact.html [4/24/00].

extent practicable, TMDLs provide an analytical basis for planning and implementing pollution controls, land management practices, and restoration projects needed to protect water quality.

A list indicating which pollutants and stressors are priorities for each water body, called a 303(d) list, has been developed by the State of California. The 303(d) list indicates that both non-point and point sources of pollution degrade the water quality of the Santa Monica Bay and the Dominguez Channel.[18] The pollutants and TMDL priority schedule for the Santa Monica Bay Offshore and Nearshore and the Dominguez Channel (Estuary to Vermont) are further described in the LAX Master Plan Final EIR (page 4-762 and Tables F4.7-1 and F4.7-2). Priorities (i.e., high, medium, low) were established by the SWRCB based on a combination of factors that included the degree of non-attainment/complexity of the problem, the relative importance of the watershed, and the resources available at the LARWQCB to complete the TMDL. To date, TMDLs have not been completed for the Dominguez Channel (Estuary to Vermont) or for Santa Monica Bay Offshore and Nearshore. However, two bacteria TMDLs have been developed for Santa Monica Bay beaches. USEPA approved the dry and wet weather bacteria TMDLs in July 2003. A coordinated monitoring plan has been submitted to the LARWQCB.

4.1.3.2.2 Receiving Water Bodies

As indicated previously, the receiving water bodies for surface flows at the airport and the project site are the Santa Monica Bay and Dominguez Channel, draining into San Pedro Harbor. The boundary for these two watersheds is located generally along Sepulveda Boulevard with areas west of Sepulveda Boulevard draining to Santa Monica Bay and areas east draining to the Dominguez Channel.

The amount of impervious area within each of the two watersheds under baseline conditions was determined from project-specific construction design engineering data. Using these data, it was determined that, within the Santa Monica Bay Watershed (Project Watersheds B and C), a total of 114.92 acres, or 56 percent of the project area draining to this watershed, consist of impervious surfaces; the remaining acres consist of pervious surfaces. Within the portion of the project area draining to the Dominguez Channel (Project Watershed A), a total of 90.28 acres, or about 60 percent of the project area draining to this watershed, consist of impervious surfaces. The total drainage acreage of the study area is 355.43 acres, of which 205.2 acres, or approximately 58 percent, consist of impervious surfaces.

Santa Monica Bay

Santa Monica Bay is an open embayment of the Pacific Ocean with a designated surface area of approximately 266 square miles and is the receiving body for surface water drainage from approximately 414 square miles of land. Regionally, urban, industrial, and open space land uses compromise most of the Santa Monica Bay Watershed and surface water runoff from these areas has drastically altered the environment of the Bay. Nineteen pollutants were identified in the Santa Monica Bay Restoration Project's (SMBRP) report, *Characterization Study of the Santa Monica Bay Restoration - State of the Bay 1993*[19]*,* as pollutants of concern. These pollutants include toxic organic compounds, heavy metals, pathogens, nutrients, sediments, trash and debris, oil and grease, and others. Sources for the pollutants of concern in the Santa Monica Bay include both point sources

---

[18] U.S. Environmental Protection Agency, Total Maximum Daily Load Program, Available: http://www.epa.gov/region09/water/tmdl/index.html#303d [11/1/00].

[19] Santa Monica Bay Restoration Project, Characterization Study of the Santa Monica Bay Restoration Plan - State of the Bay 1993, January 1994.

and non-point sources and are further described in Technical Report 6 of the LAX Master Plan Final EIR. According to the SMBRP report, *Taking the Pulse of the Bay - State of the Bay 1998*, runoff from urban areas is the most important uncontrolled source of pollution discharging into the Bay.[20] According to the SWRCB *1994 Water Body Fact Sheet* and the LARWQCB, the waters of Santa Monica Bay have been assigned an impaired rating.[21] This rating is based on findings that the waters preclude, compromise, or do not support their designated beneficial uses, which are contained in the Water Quality Control Plan. The Santa Monica Bay's biological community has been identified as being imbalanced, severely stressed, or known to contain toxicities in concentrations that are hazardous to human health.[22]

Dominguez Channel

The Dominguez Channel delivers surface water from approximately 72 square miles of urban area within Los Angeles. The channel extends from central Los Angeles, approximately two miles east of the airport, to San Pedro Bay at the Los Angeles Harbor. The Dominguez Channel Watershed is located entirely within the County of Los Angeles and is bordered to the north and west by the Santa Monica Bay Watershed, to the east by the Los Angeles River Watershed, and to the south by the Los Angeles/Long Beach Harbor. The Dominguez Channel is a concrete-lined channel that drains surface waters from the watershed into the Los Angeles Harbor and is the only major surface water feature within the watershed. The Dominguez Channel has been designated by the LARWQCB as an Inland Surface Water Body and, as such, beneficial uses for the channel have been designated as further described in Technical Report 6 and Section 4.7 of the LAX Master Plan Final EIR.

Regionally, urban and industrial land uses comprise most of the Dominguez Channel Watershed. The subarea of this watershed within which the airport is located has been designated as impaired due to point source discharges from industrial and municipal activities, accidental 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.

4.1.3.2.3 Stormwater Pollutant Loads

Pollutant loads delivered from the project site to receiving water bodies under baseline conditions, as estimated using the methods described in Section 4.1.2, are presented in **Table 4.1-1**. Detailed pollutant load calculations for baseline conditions are presented in Appendix F.

[20] Santa Monica Bay Restoration Project, Taking the Pulse of the Bay - State of the Bay 1998, April 1998.
[21] State Water Resources Control Board, Water Body Fact Sheet, May 18, 1994.
[22] Santa Monica Bay Restoration Project, Characterization Study of the Santa Monica Bay Restoration Plan - State of the Bay 1993, January 1994.

Table 4.1-1
Average Annual Pollutant Loads (lbs/yr) From Project Study Area, 2003 Baseline Conditions

Pollutant	Santa Monica Bay Watershed	Dominguez Channel Watershed	Total
TSS (lbs/yr)	5,408	4,186	9,595
Total P(lbs/yr)	68	53	121
TKN (lbs/yr)	304	236	540
Total Cu (lbs/yr)	16	12	28
Total Pb (lbs/yr)	3	2	5
Total Zn (lbs/yr)	83	64	147
O & G (lbs/yr)	652	504	1,156
BOD5(lbs/yr)	1,872	1,449	3,321
COD (lbs/yr)	13,002	10,064	23,066
Ammonia (lbs/yr)	83	64	146
Total Coliform (MPN/yr)	197,015,434	152,504,041	349,519,475
Fecal Coliform (MPN/yr)	93,528,987	72,398,128	165,927,115
Fecal Enterococcus (MPN/yr)	9,103,962	7,047,118	16,151,080

Source: CDM, 2004
Prepared by: CDM

4.1.4 Thresholds of Significance

4.1.4.1 Hydrology

A significant hydrology impact would occur if the direct and indirect changes in the environment that may be caused by the proposed project would potentially result in one or more of the following future conditions:

- An increase in runoff that would cause or exacerbate flooding with the potential to harm people or damage property.
- Substantial alteration of the existing drainage pattern of the site in a manner that would result in substantial erosion or siltation on- or off-site.

These thresholds of significance are utilized because they address potential concerns relative to flooding associated with the proposed project. These thresholds reflect those contained in the *Draft L.A. CEQA Thresholds Guide*[23] that are relevant to this project, as well as relevant issues identified in the suggested Initial Study Checklist contained in the State CEQA Guidelines.

4.1.4.2 Water Quality

A significant water quality impact would occur if the direct and indirect changes in the environment that may be caused by the proposed project would potentially result in the following future condition:

- An increased load of a pollutant of concern delivered to a receiving water body by surface water runoff.

This threshold of significance was developed because it addresses the potential water quality impacts resulting from project-related runoff being discharged to receiving water bodies that are already

[23] City of Los Angeles, Draft L.A. CEQA Thresholds Guide, May 14, 1998. In January 1999, the Los Angeles City Council approved a one-year pilot period to allow City departments and the public to become familiar with the Draft Thresholds Guide and provide comments on its content and use. In 2001, an evaluation was presented to the City Council. The City Council directed that the document be finalized. A final Thresholds Guide is currently in preparation. In the meantime, the Draft Thresholds Guide provides guidance regarding significance thresholds to be applied to projects within the City.

considered impaired. The threshold is based on guidance provided by the *Draft L.A. CEQA Thresholds Guide*[24] as well as relevant issues identified in the suggested Initial Study Checklist contained in the State CEQA Guidelines.

4.1.5 LAX Master Plan Commitments and Mitigation Measures

The following LAX Master Plan Mitigation Measures and Commitments identified in the LAX Master Plan Final EIR are applicable to the SAIP:

- **HWQ-1. Conceptual Drainage Plan.** This LAX Master Plan commitment requires the preparation of a Conceptual Drainage Plan (CDP) that identifies the overall improvements necessary to provide adequate drainage capacity to prevent flooding. The CDP will provide the basis and specifications by which detailed drainage improvement plans shall be designed in conjunction with site engineering specific to each LAX Master Plan project. Best Management Practices (BMPs) will be incorporated to minimize the effect of airport operations on surface water quality and to prevent a net increase in pollutant loads to surface water. In accordance with this commitment, LAWA will prepare SUSMPs for individual LAX Master Plan projects. The overall result of LAX Master Plan Commitment HWQ-1 will be a drainage infrastructure that provides adequate drainage capacity to prevent flooding with the potential to harm people or damage property and to control peak flow discharges, and that incorporates BMPs to minimize the effect of airport operations on surface water quality and prevent a net increase of pollutant loads to receiving water bodies.

The CDP has been prepared by LAWA and provides the basis for the detailed drainage improvement plans for the SAIP. The CDP is provided in Appendix A of this EIR. The proposed, project-specific drainage improvements and storm water BMPs are consistent with the framework provided in the CDP.

The following mitigation measure was adopted as part of the LAX Master Plan Final EIR to reduce cumulative drainage impacts within the Argo, Imperial, and Dominguez Channel subbasins.

- **MM-HWQ-1. Upgrade Regional Drainage Facilities.** This mitigation measure requires the Los Angeles County Department of Public Works and/or the City of Los Angeles Department of Public Works, Bureau of Engineering to upgrade regional drainage facilities, as necessary, in order to accommodate current and projected future flows within the watershed of each storm water outfall resulting from cumulative development.

This measure is incorporated into the SAIP and will address potential cumulative drainage and water quality impacts resulting from implementation of the SAIP, in conjunction with other cumulative development.

4.1.6 Impact Analysis

This chapter describes the environmental impacts of the proposed project as they relate to hydrology and water quality.

4.1.6.1 Hydrology/Drainage

The drainage analysis evaluates the changes in impervious areas and how these changes would be expected to affect the potential for flooding to occur, as well as the proposed drainage system and

[24] City of Los Angeles, Draft L.A. CEQA Thresholds Guide, May 14, 1998.

how it addresses potential flooding and meets the objectives and Conceptual Drainage Plan. As described in Section 4.1.2, the drainage analysis is based on calculations of total impervious area. The Project would involve demolition and replacement of the existing runways and taxiways that would result in some changes in impervious surfaces. **Table 4.1-2** identifies the existing impervious area and the proposed impervious area within the project study area draining to the Santa Monica Bay and the Dominguez Channel. Within the Santa Monica Bay and Dominguez Channel watersheds, the impervious area would increase by 26 percent and 14 percent, respectively, with implementation of the proposed project. Combined, the total project impervious area would increase from 205.2 acres to 247.44 acres, or approximately 21 percent compared to baseline conditions. **Exhibit 4.1-4**, shows the proposed impervious and pervious areas. The increased impervious surfaces would result in a similar relative increase in runoff volume, and peak flow rates. In addition, some of the existing drainage infrastructure within the Project area does not have sufficient capacity to meet the drainage criteria as identified in the Conceptual Drainage Plan.

Table 4.1-2

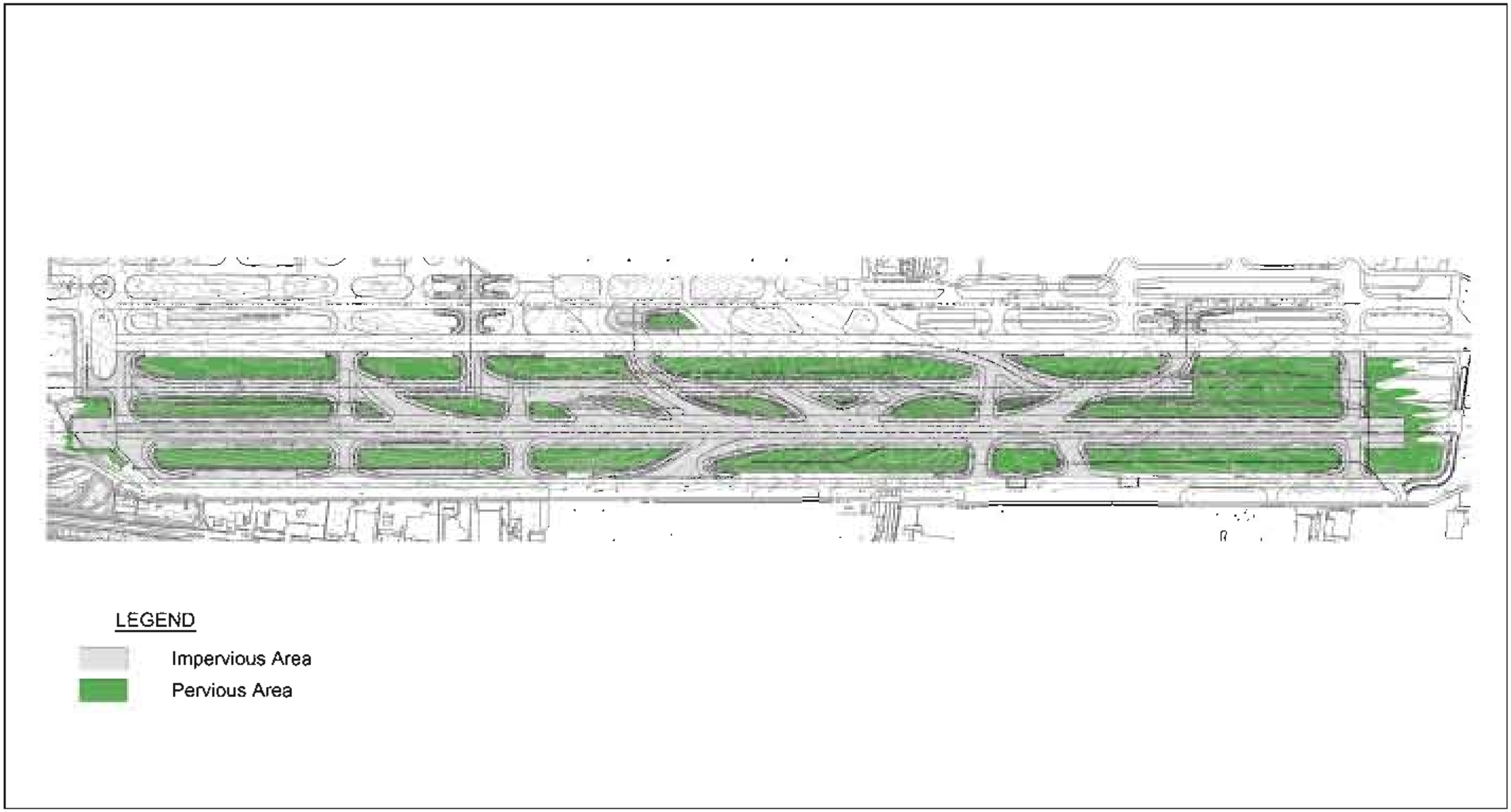
Impervious Area in South Airfield Improvement Project Study Area

Area	Impervious Area (acres)		
	Existing	Proposed	Percent Change
Santa Monica Bay	114.92	144.95	26%
Dominguez Channel	90.28	102.49	14%

Source: HNTB, 2003
Prepared by: CDM

On-Site Drainage

Detailed project drainage calculations using the design drainage areas and impervious surfaces, and a detailed drainage system layout and design were prepared based on the methodology described in Section 4.1.2 (see Appendix E). The proposed storm drain system for the SAIP is similar to the existing system and follows the same general layout as the CDP for the LAX Master Plan. Runoff would be collected via a system of paved swales, catch basins, and underground pipes. The drainage system design incorporates some existing facilities, as well as new facilities as shown on **Exhibit 4.1-5**. The watersheds would continue to drain to their current outfall locations. All new facilities within the Project area, have been sized to accommodate the increase in the impervious areas and to meet the project storm drain criteria of a 25-year return frequency design storm, which provides a higher level of on-airport protection than the 10-year design storm for which it is believed the existing system was designed and the minimum recommended criteria in the CDP. This includes a combination of using existing drainage infrastructure that has adequate capacity as well as constructing new drainage systems to accommodate the project design layout and to replace existing systems that have insufficient capacity.

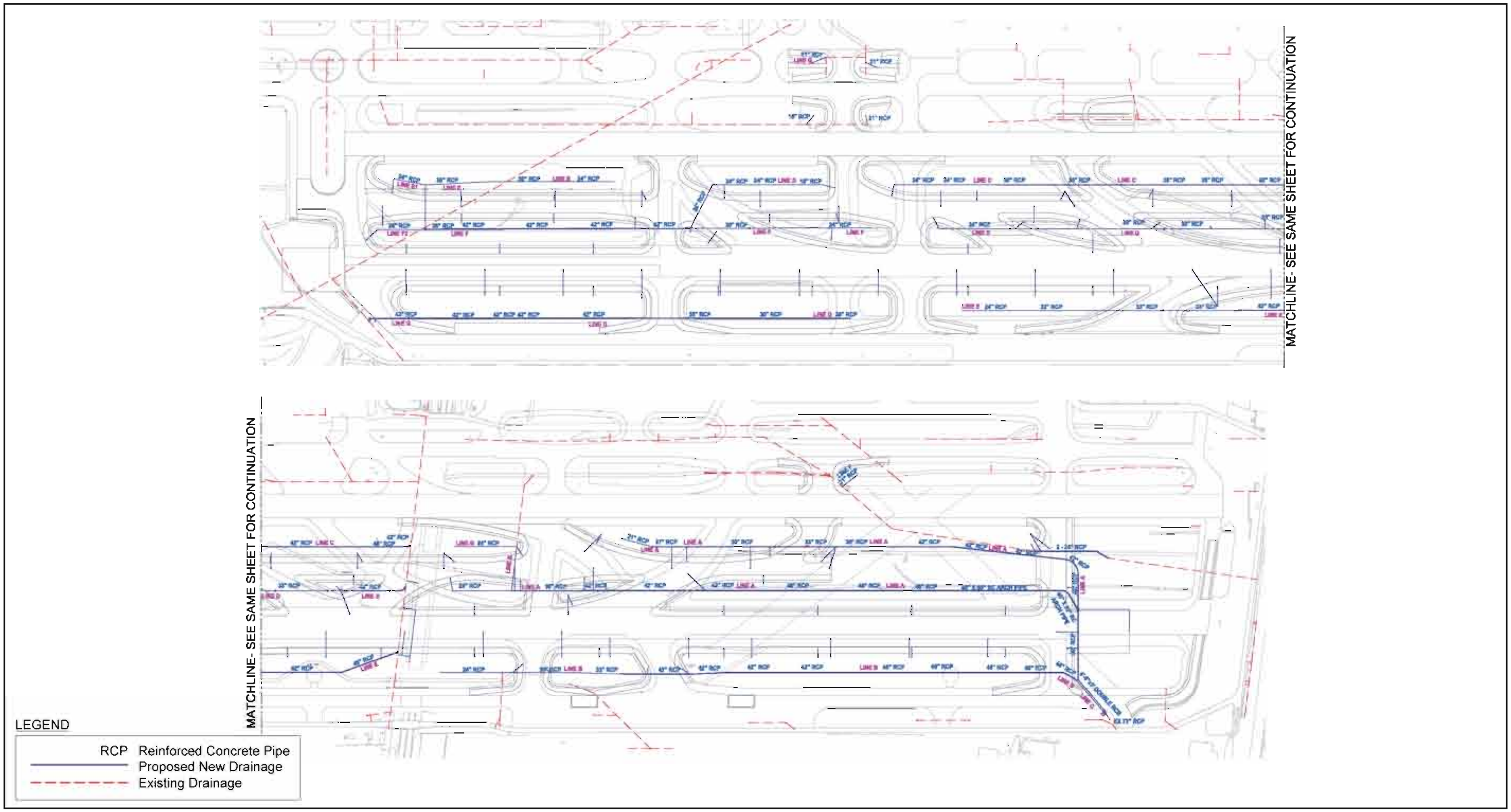


Source. Camp Dresser & McKee Inc., 2000
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.1-4

north Not to Scale

South Airfield Improvement Project
Pervious and Impervious Area



Source: HNTB Corporation, 2004
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.1-5

Proposed Drainage Facilities

north **Not to Scale**

Calculations using LACDPW's Modified Rational Approach to determine proper sizing for the storm drain system are provided for each subbasin in Appendix E. The storm drain system improvements discussed above will prevent flooding on-site throughout the project area up to a 25-year storm event.

The downstream point of the discharge from the project within the Dominguez Channel subbasin (Project Watershed A) is an existing on-airport 72-inch storm drain (Line G), which then connects into an on-airport 8' by 8' box culvert that joins the main north-south drain along Aviation Boulevard, which eventually drains to the Dominguez Channel. The estimated 25-year peak flow from the project that would be conveyed to Line G is estimated to be 166.6 cfs compared to the design capacity of 162.8 cfs. Thus, Line G has sufficient capacity to convey close to the 25-year design storm event with only potentially short duration minor on-airport ponding at the upstream end, and a significantly reduced potential for flooding at that location compared to existing conditions. The drainage system also serves as temporary run-off storage by virtue of its length and flow capacity. Any minor ponding that would result from a 25-year design storm would be limited to infield areas and is expected to be of short duration, and would not harm people or damage property. These infields are located outside of any aircraft operating areas and would serve to equalize the flow during peak rainfall periods. Therefore, the SAIP would be designed to address flooding within the boundaries of the project study area. Moreover, existing drainage patterns would not be altered in such a way as to result in substantial erosion or siltation on- or off-site. As a result, onsite impacts relative to drainage would be less than significant and no additional mitigation would be required.

Off-Site Drainage

Recent studies indicate that, under existing conditions, the conveyance capacity of off-site (downstream) drainage infrastructure within the Argo and Imperial subbasins is adequate for the LADPW 50-year storm. As the design capacity of the on-site drainage systems is limited to the 25-year storm event, the peak flows from the SAIP project area to the Imperial and Argo outfall systems would be less than the design capacity of these off-site systems. Therefore, the peak flows to the Imperial and Argo outfall systems would be less than the design capacity of these systems and no off-site flooding is expected to occur as a result of the project. Conversely the Dominguez Channel subbasin off-site (downstream) infrastructure would flood under existing and future conditions.[25,26,27] Off-site impacts related to the Dominguez Channel are discussed under Section 4.1.7, as they occur in the context of other past, present, and probable future (i.e., cumulative) projects.

4.1.6.2 Water Quality

The water quality analysis evaluates the storm water pollutant load that would be discharged to receiving water bodies from operation of the completed project, and assesses the effects of construction associated with the project. As described in Section 4.1.2, storm water pollutant loads are based on EMC data and calculations of annual runoff.

4.1.6.2.1 Storm Water Pollutant Loads from Project Operations

As discussed in Section 4.1.2, pollutant loads from the project are related to the quantity of runoff, the estimated concentration of pollutants in the runoff, and the reduction that would be accomplished

---

[25] City of Los Angeles, Los Angeles World Airports, Revised Hydrology Report for Los Angeles International Airport North Perimeter Storm Drain, Prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc., December 2001.

[26] City of Los Angeles, Los Angeles World Airports, Final On-Site Hydrology Report for Los Angeles International Airport, Prepared by Parsons, Brinckerhoff, Quade & Douglas, Inc., October 2002.

[27] City of Los Angeles, Los Angeles World Airports, Los Angeles International Airport Conceptual Drainage Plan, June 2005.

in the treatment BMPs. The type and design capacity of the proposed BMPs are documented in the Standard Urban Storm Water Mitigation Plan prepared as part of the project design.[28]

Several different BMPs were selected and are incorporated in the project design for different portions of the project watersheds depending upon the drainage configuration and the underlying soil conditions. Four different BMP treatment systems, including catch basin inserts, bioswales, infiltration, and storm water treatment systems (SWTS), would be utilized in various locations to remove pollutants from storm water prior to discharge into the Santa Monica Bay and Dominguez Channel watersheds. These BMPs are generally similar to the conceptual BMPs identified in the CDP and would treat runoff from similar tributary areas. **Exhibit 4.1-6** depicts the locations of the proposed treatment devices.

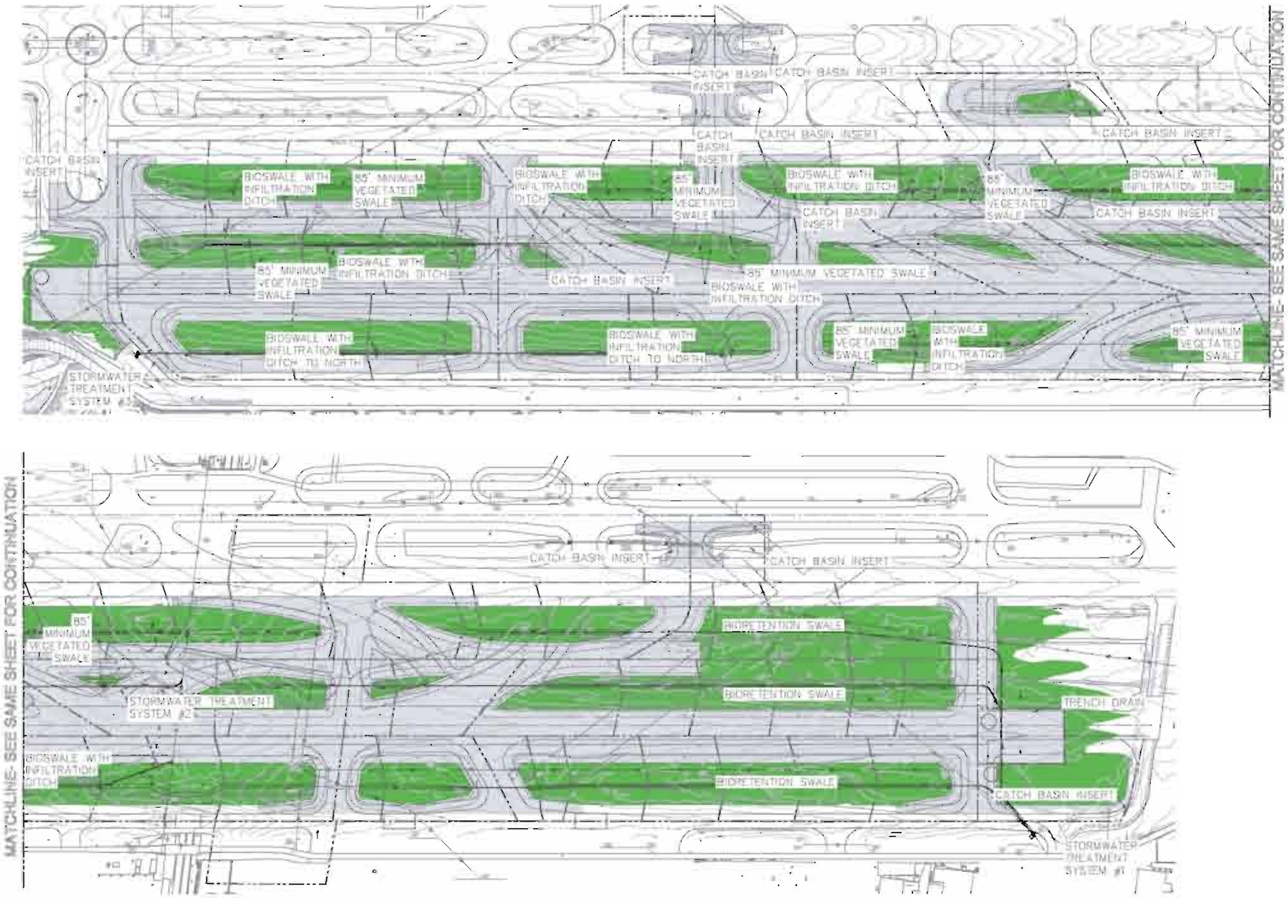
In the Argo and Imperial drainage areas, where soils have a much higher permeability, most of the area would drain to bioswales/infiltration ditch systems in the areas between runways and paved areas. These are designed to provide full infiltration of the water quality design volume for each subarea. In the Dominguez Watershed area, where existing soil characteristics are unfavorable for infiltration, bioretention systems which are bioswales with a constructed sublayer of pervious soils to provide limited retention of water and pollutants are proposed to be constructed between the runways, and additional treatment would be accomplished through a manufactured storm water treatment system (SWTS) using a vortex separation approach.

For this project, more refined pollutant removal data were developed for the specific devices being considered than were presented in the LAX Master Plan Final EIR. The pollutant removal data were obtained from published data and studies and are shown in **Table 4.1-3**. Where combinations of BMPs are proposed (e.g. bioswales followed by SWTS), reductions were calculated only for the BMP most effective at removing each specific pollutant; that is, removals were not incrementally added for any pollutant, so as not to overestimate potential reductions.

The methodology used to determine the capacity of each proposed BMP required a series of steps. First, the treated flows were calculated for each tributary area (see Appendix F). Then the assumption was made that a combination infiltration ditch/bioswale (termed a bioswale) would be used as the BMP for the Argo and Imperial drainage areas (Project Watersheds B and C).

The required calculations for a water quality treatment volume were then computed and the required width of infiltration ditch/bioswale was determined for each tributary area based on infiltration capacity. For those areas in which a SWTS was the selected BMP (primarily in Project Watershed A), sizing was based on the water quality treatment flow rate.

[28] City of Los Angeles, Los Angeles World Airports, Standard Urban Stormwater Mitigation Plan (SUSMP) Volume I: Southside Airfield Improvements, Los Angeles International Airport (LAX), Prepared by HNTB. 2004.



Source: HNTB Corporation, 2004
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.1-6

north **Not to Scale**

Proposed Subbasin Treatment Devices

Table 4.1-3

Structural BMP Expected Pollutant Removal Efficiency for South Airfield Improvement Project

Pollutant	Catch Basin Insert	Bioswale with retention[1/]	Infiltration	SWTS
TSS	15	----	80	50
Total P	0	----	80	15
Total N	0	30	80	----
Total Cu	5	60	80	----
Total Pb	10	60	80	----
Total Zn	5	60	80	----
O & G	10	----	80	80
BOD_5	15	----	80	50
COD	15	-----	80	50
Ammonia	0	30	80	----
Total Coliform	0	20	80	---
Fecal Coliform	0	20	80	---
Fecal Enterococcus	0	20	80	---

Note:

--- Indicates either sources show no significant pollutant removal or insufficient data available to substantiate removal.

1/ Use only for bioswales upstream of SWTS (i.e., Dominguez Channel Watershed)

Source: California Stormwater Quality Association, Best Management Practices Handbooks, New Development and Redevelopment, 2003; California Department of Transportation, BMP Retrofit Final Report ID CTSW-RT-01-050, January 2004; U.S. Environmental Protection Agency, Preliminary Data Summary of Urban Storm Water Best Management Practices Methodology, August 1999; Center for Watershed Protection, Ellicott City Maryland, National Pollutant Removal Performance Database for Storm Water Treatment Practices 2nd Edition, June 2000; American Society of Civil Engineers and U.S. Environmental Protection Agency National Storm Water Best Management Practices (BMP) Database. http:\\www.bmpdatabase.org; Vortechics, Inc. – Design literature and field study data.

Prepared by: CDM, 2004

Some of the key design criteria used in the BMP sizing are described as follows:

- **¾-inch Event:** Per LADWP's Best Management Practices, water quality treatment volume was determine based on the runoff volume from a ¾-inch rainfall event, and the water quality flow rate was determined based on the intensity-duration data for the ¾-inch rainfall event, which corresponds to an intensity of 0.447 in/hr to 0.193 in/hr. This is consistent with the BMP sizing requirements in the CDP.
- **Soil Classification:** The soil type for the project falls into soil types "009", "010" and "014" as identified in the LACDPW design manual.
- **Time of Concentration (tc):** Times of concentration were computed using an iterative procedure based on unburned, unbulked flow velocities and flow path lengths. The minimum tc is 4 minutes; the maximum tc is 30 minutes for any given tributary area.
- **Runoff Coefficients (c)**: Runoff coefficients were developed using an average but conservative value of 0.8 for each watershed.
- **Retention Time:** Based on the requirements of the LADPW Watershed Protection Division, the maximum retention time allowed for infiltration was 48 hours.

BMPs designed to capture and treat either the volume or flow rate from a ¾ inch storm event have been previously determined in the Standard SUSMP adopted by the Los Angeles Regional Water Quality Control Board to provide the equivalent to capturing at least 80 percent of the total long-term runoff volume from watersheds within the Los Angeles area.[29] Therefore, the pollutant load model assumes that 80 percent of the runoff from each drainage area would be treated and the removal rates for each BMP or combination of BMPs would be as shown in Table 4.1-3.

A summary of the results of the pollutant load modeling is provided in **Table 4.1-4**, which compares the estimated baseline pollutant loads, previously presented in Table 4.1-1, with pollutant loads from the completed project both with and without the implementation of the proposed BMPs. The complete model results are presented in Appendix F. As shown in Table 4.1-4, under the proposed project, the estimated annual net pollutant loads generated within the project watersheds draining to Santa Monica Bay and Dominguez Channel after BMPs are implemented would be reduced for all pollutants of concern as compared to baseline conditions.

Because BMPs would be incorporated in the project design and construction, the proposed project would not increase loadings of pollutants of concern to either the Santa Monica Bay or Dominguez Channel Watersheds. As a result, impacts on water quality would be less than significant and no additional mitigation would be required.

4.1.6.2.2 Construction Effects

Construction of the proposed improvements could generate sources of pollution that could potentially affect water quality. Pollutants of concern from proposed construction activities include sediment, spills or leaks of fuels or hazardous materials, and contaminants associated with construction materials.

Construction of the SAIP would require grading and other earthmoving activities. The estimated area of disturbance is 296 acres. Relocation of Runway 7R-25L would result in 300,855 cubic yards of material to be exported; construction of the center taxiway would generate approximately 515,000 additional cubic yards of material for export. These activities would expose soils to erosion, which could result in sedimentation in receiving waters.

Project construction would require the use of vehicles and equipment that use fuels, oils, and other liquids. These substances could spill or leak during refueling and maintenance, or during routine use. Similarly, construction materials, such as asphalt, concrete, and paint, could spill, resulting in adverse water quality impacts. Such spills or leaks have the potential to contaminate site runoff and enter receiving waters. The exposure of construction equipment to rain could also introduce contaminants to storm water runoff.

[29] Regional Board Executive Officer, Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County, March 8, 2000.

Table 4.1-4

Average Annual Pollutant Loads – South Airfield Improvement Project

Watershed	Parameter	Existing Conditions	Future Conditions No BMPs	Future Conditions With BMPs	Percent Change from Pre to Post Development With BMPs
			lbs/yr		%
Santa Monica Bay Watershed (Combination of all Subbasins in Project Watershed C)					
	TSS	2,492	3,125	2,061	-17
	Total P	31	39	26	-16
	TKN	140	176	104	-26
	Total Cu	7	9	5	-37
	Total Pb	1	2	1	-37
	Total Zn	38	48	24	-37
	O&G	300	376	250	-17
	BOD5	863	1,082	713	-17
	COD	5,991	7,513	4,955	-17
	Ammonia	38	48	28	-26
	Total Coliform *	90,780,302	113,847,826	76,428,929	-16
	Fecal Coliform *	43,096,064	54,046,892	36,283,047	-16
	Fecal Enterococcus *	4,194,902	5,260,838	3,531,734	-16
Argo Channel Watershed (Combination of all Subbasins in Project Watershed B)					
	TSS	2,916	3,409	1,680	-42
	Total P	37	43	27	-27
	TKN	164	192	130	-21
	Total Cu	9	10	7	-21
	Total Pb	2	2	1	-22
	Total Zn	45	52	35	-21
	O&G	351	411	160	-55
	BOD5	1,009	1,180	581	-42
	COD	7,011	8,195	4,038	-42
	Ammonia	44	52	35	-21
	Total Coliform *	106,235,132	124,172,984	83,816,380	-21
	Fecal Coliform *	50,432,924	58,948,547	39,790,087	-21
	Fecal Enterococcus *	4,909,060	5,737,957	3,873,103	-21
Dominguez Channel Watershed (Combination of all Subbasins in Project Watershed A)					
	TSS	4,186	4,644	2,918	-30
	Total P	53	59	52	-1
	TKN	236	261	207	-12
	Total Cu	12	14	8	-36
	Total Pb	2	2	1	-36
	Total Zn	64	71	41	-36
	O&G	504	559	233	-54
	BOD5	1,449	1,608	1,010	-30
	COD	10,064	11,165	7,015	-30
	Ammonia	64	71	56	-12
	Total Coliform *	152,504,041	169,180,465	145,742,487	-4
	Fecal Coliform *	72,398,128	80,314,914	69,188,229	-4
	Fecal Enterococcus *	7,047,118	7,817,725	6,782,200	-4
Total Pollutant Loading					
	TSS	9,595	11,178	6,659	-31
	Total P	121	141	106	-13
	TKN	540	629	440	-18
	Total Cu	28	33	19	-32
	Total Pb	5	6	3	-32
	Total Zn	147	171	100	-32
	O&G	1,156	1,347	643	-44
	BOD5	3,321	3,869	2,305	-31
	COD	23,066	26,872	16,007	-31
	Ammonia	146	171	119	-18
	Total Coliform *	349,519,475	407,201,275	305,987,795	-12
	Fecal Coliform *	165,927,115	193,310,353	145,261.354	-12
	Fecal Enterococcus *	16,151,080	18,816,521	14,187,037	-12

Note:

1/ Load expressed in organisms/yr

Source: CDM, 2004
Prepared by: CDM

Because the proposed improvements would affect an area of greater than one acre, LAWA's existing construction policy would require the development of a project-specific construction SWPPP in compliance with the state's construction permit. Temporary construction BMPs specified in LAWA's existing Construction SWPPP for LAX to minimize the effects of construction activities on water quality include:

- Soil stabilization (erosion control) techniques such as seeding and planting, mulching, and check dams
- Sediment control methods such as detention basins, silt fences, and dust control
- Contractor training programs
- Material transfer practices
- Waste management practices such as providing designated storage areas and containers for specific waste for regular collection
- Roadway cleaning/tracking control practices
- Vehicle and equipment cleaning and maintenance practices
- Fueling practices

As indicated above, for the SAIP, a project-specific SWPPP would be required to be developed in compliance with the state's construction permit. The project-specific SWPPP would follow the procedures outlined in LAWA's existing Construction SWPPP and would employ all appropriate temporary construction BMPs from the list above. As a result, impacts to water quality associated with construction activities would be less than significant and no additional mitigation would be required.

4.1.7 Cumulative Impacts

Several other on-airport projects and other general development ongoing in the project area are expected to occur in the same timeframe as construction of the SAIP. On-airport projects include renovations of Tom Bradley International Terminal, including an inline baggage system, an inline baggage system for Terminals 1 through 8, airfield intersection improvements, and remote boarding facilities modifications. Renovations of the Tom Bradley International Terminal will involve minimal exterior construction and associated impacts related to hydrology and water quality. The inline baggage system project will consist primarily of interior improvements that will have no impacts on hydrology or water quality. In addition, the inline baggage system project will involve construction of a new building between Terminals 1 and 2 with minimal surface disruption. As the new building will not increase impervious surfaces, no significant cumulative impacts on hydrology or water quality would result. The airfield intersection improvements project and the remote boarding facilities modifications both involve minor modifications to airport facilities. Both projects were determined to be exempt from CEQA as the projects would not result in significant environmental impacts, including impacts to hydrology and water quality. As a result, these projects will not contribute to cumulative impacts on hydrology or water quality.

In addition to the on-airport projects, there are a number of projects planned in the general vicinity of the project site. These projects include several mixed-use developments, a health club, residential uses, and two private schools. The majority of these projects are located between 8 and 10 miles from the project study area and are located within the Santa Monica watershed. Among the closest projects is the Playa Vista development, located approximately 3½ miles north of the proposed project. Due to the distance of the cumulative projects from the SAIP site, and the lack of capacity limitations within the Santa Monica Bay drainage system, no cumulative impacts to drainage infrastructure within the Santa Monica Bay watershed would occur. However, as noted above, there are currently capacity constraints within the Dominguez Channel Watershed, especially at the point where the Dominguez subbasin drains into a Los Angeles County conveyance facility that was designed for a 10-year storm event. Although the SAIP would be designed to address flooding within the boundaries of the project study area, increased surface water runoff and peak flows resulting from the project, in conjunction with runoff and peak flows from past and present projects, may not be able to be accommodated by the regional drainage infrastructure serving the Dominguez Channel watershed. This would be a significant cumulative impact.

Cumulative projects, in conjunction with the SAIP, would increase impervious surfaces within the Santa Monica Bay and Dominguez Channel watersheds, with a resulting potential for impacts to water quality. As noted in Section 4.1.3, sizable development projects in the Los Angeles area are subject to the SUSMP provisions adopted by LARWQCB. In accordance with the SUSMP provisions, each of the cumulative projects will be required to develop a plan to prevent, control, remove, or reduce pollution resulting from increased impervious surfaces and resulting pollutant loads. With implementation of these provisions, cumulative water quality impacts will be less than significant and no additional mitigation is required.

4.1.8 Mitigation Measures

As indicated above, the proposed project would contribute to a significant cumulative impact to drainage facilities within the Dominguez Channel Watershed. Mitigation Measure MM-HWQ-1 from the LAX Master Plan Final EIR would address this cumulative impact. This mitigation measure would also apply to the SAIP. Mitigation Measure MM-HWQ-1 requires the Los Angeles County Department of Public Works and/or the City of Los Angeles Department of Public Works to upgrade regional drainage facilities in order to accommodate future peak flows resulting from cumulative development. With implementation of this measure, cumulative drainage impacts resulting from the proposed project, in conjunction with past and present projects, could be mitigated. However, this mitigation is not fully within the jurisdiction of the lead agency to implement because responsibility for some of the regional facilities to which the project would contribute are owned and operated by the County of Los Angeles. If the agencies with jurisdiction do not resolve deficiencies in regional drainage infrastructure identified as having insufficient capacity to convey storm water, this cumulative impact would remain significant and unavoidable.

4.1.9 Level of Significance After Mitigation

Cumulative impacts resulting from implementation of the SAIP, in conjunction with past, present, and probable future projects, could be mitigated through implementation of Mitigation Measure HWQ-1 under the LAX Master Plan. Because this mitigation measure is not fully within the jurisdiction of the lead agency to implement, the implementation of the mitigation cannot be guaranteed and, therefore, the cumulative impact is considered to be potentially significant and unavoidable.

4.2 Off-Airport Surface Transportation

4.2.1 Introduction

The LAX Master Plan Final EIR analyzed future roadway traffic conditions with and without implementation of the Master Plan projects and various alternatives and proposed mitigation measures to address potential Master Plan related traffic impacts during the peak year for Master Plan project construction (2008) and for operational conditions in 2015. The information provided in this project-level tiered EIR was prepared to examine, at a greater level of detail, the potential surface transportation related impacts associated specifically with the SAIP. As described in Chapter 1, the analysis in this section "tiers" from the analysis and findings documented in the LAX Master Plan Final EIR. However, the analyses have been further refined to incorporate updated traffic volume data, detailed project-related assumptions specific to anticipated traffic activity generated by the construction of the SAIP, and updated information pertaining to other projects anticipated to be under construction during the construction of the SAIP.

This off-airport surface transportation analysis provides an assessment of the anticipated traffic operations at intersections within a focused study area that would experience construction-related traffic from construction employee vehicles, construction delivery trucks, and other construction-related roadway traffic activity (e.g., employee shuttles and transfer trucks). As necessary, LAX Master Plan commitments and mitigation measures consistent with the Master Plan Mitigation Monitoring and Reporting Program (MMRP) have been identified to mitigate the anticipated short-term construction-related impacts. Master Plan commitments are incorporated into the SAIP and thus analyzed as part of the project. The analysis concludes that one intersection would potentially be significantly impacted by construction of the SAIP under Los Angeles Department of Transportation (LADOT) criteria for determining significant impacts. The intersection would continue to operate at LOS D or better during the peak hours analyzed and the impacts would be temporary in nature, on the order of one month in duration, but the impact is nonetheless conservatively determined to be significant. Because the SAIP would not alter roadway circulation patterns or increase traffic volumes, post-construction traffic operations are not addressed in this analysis.

As described in the introduction to Chapter IV, when this EIR was initiated it was assumed that the peak period of SAIP construction would occur in 2005 and all of the traffic analyses described in this report were performed accordingly. However, it is now anticipated that the peak period of construction would occur in 2006 rather than 2005. Sensitivity analyses on the traffic findings were performed to assess the effect of shifting the peak construction period to 2006. The analysis also reviewed the effects that changes to other traffic-related assumptions could have on the results. As described in Appendix D, the sensitivity analysis demonstrated that the findings in this section are fully reliable in assessing the impacts of SAIP construction traffic in 2006.

4.2.2 Methodology

4.2.2.1 Overview

In July 2004, LAWA staff submitted a draft of the traffic analysis methodology described in this section to LADOT staff for their review and comment. In an electronic mail response to LAWA dated July 29, 2004, LADOT staff provided review comments on the proposed methodology. In their response, LADOT indicated that no traffic study was required because there was "no requirement to assess the temporary traffic impacts of a project resulting from construction activities. Thus, the proposal to prepare a traffic study is voluntary." However, LAWA has determined that the preparation of a traffic study is useful in order to provide full assessment and documentation of the potential impacts that may be generated by the construction of the SAIP.

This study focuses on construction impacts related to the SAIP, evaluating construction peak hours in a smaller study area than was previously evaluated in the LAX Master Plan Final EIR. The study area includes a focused area comprised of intersections and roadways that are anticipated to be directly affected by the construction of the SAIP. The limits of the study area and the potentially affected intersections were determined through consultation with LAWA and LADOT, and include those facilities that would be most affected by construction-related employee and truck traffic resulting from construction of the SAIP. The methodology used for this study is based on data and procedures used for the LAX Master Plan Final EIR traffic study and information defined in the document, *Los Angeles Department of Transportation (LADOT) Traffic Study Policies and Procedures*, Revised March 2002.

The following steps and assumptions were used to develop the study methodology:

- The study area, peak hours analyzed, and analytical methodology were selected to estimate the potential impacts of construction-related traffic (e.g., truck deliveries, employee vehicles, employee shuttles) generated by the SAIP.
- The study area was defined to measure the potential impacts on roadways that accommodate construction-related traffic accessing the construction site and staging area for equipment and materials. Because the travel paths for construction activity can generally be regulated, those routes helped to define the study area. On-airport roadways, such as the Central Terminal Area (CTA) roadways, and other roadway facilities outside this study area were assumed not to be affected by construction-related traffic and, therefore, were not analyzed.
- New data were collected at the key study area intersections during three peak periods corresponding with: (a) the peak inbound hour for construction employees (a.m. peak hour), (b) the peak outbound hour for construction employees (p.m. peak hour), and (c) the peak hour for construction truck deliveries. Based on analyses prepared for the LAX Master Plan Final EIR, construction truck and construction employee activity would be scheduled to avoid producing construction-related traffic during the morning commuter peak (7:00 to 9:00 a.m.) and the afternoon commuter peak (4:30 to 6:30 p.m.) periods that were analyzed for the LAX Master Plan Final EIR. The estimated peak hours for construction-related traffic were determined by reviewing the estimated hourly construction-related trip activity during the peak month.
- Analyses of key off-airport intersections, including intersections with freeway ramps in the proposed study area, were conducted for project-related traffic impacts. Analyses of roadway segments and freeway links were not required given that the peak construction-related traffic activity is anticipated to occur during periods that do not coincide with peak commute periods. Furthermore, during a review of the proposed analysis methodology and study area, LADOT staff indicated in their July 29, 2004 communication that "intersection analysis for this type of study is more than sufficient" and that roadway and freeway link analyses would not be required. A CMP analysis is not required for construction-related activity because the SAIP construction would not generate traffic during the a.m. or p.m. peak periods. Additionally, because the SAIP would not alter roadway circulation patterns or increase

traffic volumes, a Congestion Management Program (CMP) analysis is not required for post-construction traffic operations.

The analysis prepared for this study tiers from the assumptions and analyses included in the LAX Master Plan Final EIR; however, new baseline data were collected in order to prepare technical analyses that (a) incorporate the most current available data, (b) accommodate a more focused study area, and (c) analyze alternative peak hours that were not specifically modeled or analyzed in the LAX Master Plan Final EIR (i.e., construction peak hours specific to the SAIP).

The methodology described in this EIR identifies a process that is anticipated to result in generally conservative assumptions and traffic volume forecasts for purposes of estimating potential construction-related impacts and mitigation measures for the SAIP.

4.2.2.2 Baseline (2003) Traffic

The Baseline is intended to describe and document the existing conditions within the project study area at the time that the Notice of Preparation (NOP) was filed for the SAIP. For purposes of this study, traffic data were collected in 2004 and were used as a basis for preparing the traffic analysis. Although current data are used for preparing the analysis, the volumes describing Baseline conditions were adjusted to represent 2003 conditions in order to provide a common analysis year with the other impact categories (e.g., air quality, noise) that use a Baseline condition based on the most recent full calendar year for which aviation-related activity data were available (at the time of the NOP).

The following steps were taken to develop the Baseline (2003) traffic information:

Prepare Model of Study Area Roadways and Intersections – A traffic analysis model of study area roadways and intersections was developed to assist with intersection capacity analyses. The model was developed using TRAFFIX[1], a commercially available traffic engineering analysis program designed for preparing traffic forecasts and intersection and roadway capacity analysis. The model uses widely accepted traffic engineering methodologies and procedures, including the Transportation Research Board Critical Movement Analysis (CMA) Circular 212 Planning Method[2], which is the required intersection analysis methodology for traffic impact studies conducted within the City of Los Angeles.

Determine Peak Month for Traffic Analyses – The peak month for the traffic analyses was determined to be the month when the total traffic from construction activity would be at peak levels based on a review of monthly construction activity schedules (truck deliveries and employee activity). According to the schedules, the peak month of construction traffic activity for the SAIP was anticipated to occur during September 2005 (HNTB, 2004). For purposes of the traffic analysis, the peak month of construction traffic was combined with peak month for Airport-related traffic (August) to provide a conservative estimate of traffic volumes using the study area.

Collect Off-Airport Traffic Data in 2004 – New data were collected at each of the study area intersections because the construction peak hours for this study would not coincide with the traditional commuter peak hours analyzed for the LAX Master Plan Final EIR. The new data were

[1] TRAFFIX Version 7.6, Dowling Associates. Based on information provided by Dowling Associates, over 310 site TRAFFIX licenses are owned by public and private entities, including licenses owned by 38 cities, 3 counties, and Caltrans within the State of California.
[2] Source: Transportation Research Board, *Interim Materials on Highway Capacity*, Transportation Research Circular No. 212, January 1980.

collected during the same season to help provide consistency in the analyses prepared for this EIR. The traffic data were collected at the end of July and in early August 2004 to correspond with the peak month for airport roadway traffic activity. The survey times were established to correspond with the anticipated peak construction-related hours based on a review of estimated hourly construction-related vehicle trips.

Estimate 2003 Baseline Traffic Volumes – The data collected in July/August 2004 were adjusted to represent 2003 Baseline conditions by multiplying the intersections' through and turning movement volumes collected in 2004 by an adjustment factor. The adjustment factor was estimated for multiple locations throughout the study area by calculating the weighted average change in 2003 to 2004 historical activity for each of four roadway traffic components: airline passenger vehicles, airport employee vehicles, airport cargo-related vehicles, and non-airport background traffic. In making these calculations, the relative composition of the four roadway traffic components was assumed to be the same for the 2003/2004 analysis as it was for the 2005 No Action/No Project a.m. and p.m. peak hour conditions analyzed in Technical Report 3b[3] of the LAX Master Plan Final EIR.

4.2.2.3 Adjusted Baseline (2005) Traffic

The Baseline scenario described in the previous section provides a snapshot representation of existing traffic conditions and transportation infrastructure and is the basis for developing the Adjusted Baseline condition. The Adjusted Baseline is a hypothetical scenario that combines Baseline volumes with the growth from all sources other than the Project and is the basis of comparison under CEQA for determining potentially significant traffic impacts resulting from the Project. Project-related impacts for the SAIP were estimated by comparing 2005 Construction year (with Project) traffic conditions to 2005 Adjusted Baseline traffic conditions[4]. The comparison of a "with project" condition to an "adjusted baseline" condition is consistent with the methodology used in the LAX Master Plan Final EIR traffic study and the requirements set forth in the *Draft L.A. CEQA Thresholds Guide,* May 1998.

For the "operational" analysis prepared for the LAX Master Plan Final EIR, the Adjusted Baseline condition was calculated by assuming airport-related traffic would remain at levels consistent with the Baseline condition while allowing non-airport-related "background" traffic to increase at an expected forecast rate. As described previously, airport-related traffic is generally comprised of vehicles from airline passengers, employees and cargo, and background traffic is comprised of ambient non-airport related traffic plus any local area (non-airport) projects that would contribute vehicle trips to the study area. The operational traffic impacts associated with the LAX Master Plan were evaluated and accounted for in the LAX Master Plan Final EIR and, therefore, no further study of operational impacts is necessary for the SAIP.

For purposes of estimating construction traffic impacts associated with the SAIP, the analysis assesses the potential impacts from construction-related traffic during the peak period of construction of the SAIP and not the operational impacts created by growth in activity from airline passengers, employees, and cargo and modification to their travel patterns which was the basis for the operational analysis prepared for the LAX Master Plan Final EIR. This is because it is not anticipated that the implementation of the SAIP would result in the generation (or reduction) of airport-related traffic or affect the overall distribution of this traffic within the study area, unlike the aggregate operational

[3] Technical Report 3b, *Off-Airport Ground Access Impacts and Mitigation Measures*, January 2001.

[4] See the introduction to Chapter IV for a discussion of the reliability of using technical analyses based on a peak construction period in 2005.

effect of the overall LAX Master Plan program, which would provide new facilities that accommodate additional demand and alters the distribution of vehicle trips from airline passengers, employees, cargo and other airport-related trips using the local roadway system. Because the SAIP would not induce airport-related roadway traffic demand or alter traffic patterns from airport-related traffic, airport-related traffic is considered to be part of "background" traffic for purposes of preparing the Adjusted Baseline (2005) condition and, therefore, was not held constant at Baseline levels. More specifically, to estimate traffic-related impacts due to construction of the SAIP, the Adjusted Baseline condition was assumed to include growth in airport-related traffic and in ambient "background" traffic.

The following steps were taken to develop the Adjusted Baseline (2005) traffic:

Prepare 2005 Focused Study Area Roadway Network – The TRAFFIX model was updated to reflect any committed study area transportation improvements that would be in place by 2005.

Prepare 2005 Traffic Adjustment Factor – Similar to the Baseline adjustment, an adjustment factor that comprised of the weighted average change in the four traffic components (i.e., airline passenger vehicles, airport employee vehicles, airport cargo-related vehicles, and non-airport background traffic) between 2004 and 2005 was calculated. The weighted average adjustment varies by location throughout the study area and is calculated as the weighted average growth of the four components for a given roadway segment. For this EIR, the background traffic component was assumed to increase at 2 percent per year (LADOT, 2004). The growth in the airport-related traffic component (i.e., airline passengers, airport employees and cargo) was assumed to increase in proportion with aviation activity forecasts used for the LAX Master Plan Final EIR (LAWA, 2004).

Estimate 2005 Traffic Volumes – Future 2005 traffic volumes were projected by multiplying the actual through and turning movement counts collected in 2004 by the adjustment factors described in the previous step. The factors used to adjust the volumes at a specific intersection were applied on an individual movement (left turn, through, or right turn) basis using the factors calculated for the nearest roadway segments. In addition, the location and trip generation characteristics of approved "non-airport" development projects that would be in place by 2005 were reviewed and incorporated into the analysis, as applicable.

4.2.2.4 Project (2005) Traffic

The Project-related (2005) traffic conditions were comprised of traffic volumes associated with construction of the SAIP added to the traffic volumes comprising the Adjusted Baseline condition described in the previous section.

The following steps were conducted to develop the Project (2005) traffic:

Analyze Project (2005) Construction Activity – Vehicle trips associated with the construction of the SAIP were estimated and distributed throughout the study area network. The trips were estimated based on a review of the construction schedule for the SAIP summarized to include peak month inbound and outbound construction employee and truck trips by hour of the day. The trip distribution patterns were based on regional patterns from the modeling prepared for the LAX Master Plan Final EIR, specific haul route information, and other available data and assumptions.

Estimate Project (2005) Construction Traffic Volumes – The project traffic volumes were calculated by adding the SAIP construction-related traffic to the anticipated traffic conditions that would be in place if the SAIP were not being implemented (i.e., the Adjusted Baseline volumes described previously).

4.2.2.5 Identify Impacts and Mitigation Measures

Intersection level of service was analyzed for the 2003 Baseline, 2005 Adjusted Baseline, and Project (2005) traffic conditions. Potential mitigation measures for intersections anticipated to be impacted by the project would be analyzed using criteria set forth in the *Draft L.A. CEQA Thresholds Guide,* May 1998.

The following steps were conducted to identify impacts and potential mitigation measures:

Prepare Level of Service Analysis—Level of service analyses for the study area intersections and roadways were prepared using TRAFFIX. Intersection level of service was estimated using the Critical Movements Analysis (CMA) planning level methodology as defined in *Transportation Research Board Circular 212*, in accordance with the *LADOT Traffic Studies Policies and Procedures Guidelines*, Revised March 2002, and the *Draft L.A. CEQA Thresholds Guide*, May 1998.

Identify Project Impacts—Project-related impacts associated with construction of the SAIP were identified. Impacts were determined by comparing the level of service results for the future Project (2005) traffic to that of the 2005 Adjusted Baseline condition traffic. Intersections were identified that were anticipated to be significantly impacted by project-related construction according to the criteria established in the *Draft L.A. CEQA Thresholds Guide,* May 1998. .

Identify Potential Mitigation Measures—Potential measures were identified, as necessary, for mitigating intersections anticipated to be impacted by construction-related traffic. Potential mitigation measures include both physical improvements and operational improvements (e.g., signalization, changes to construction schedules).

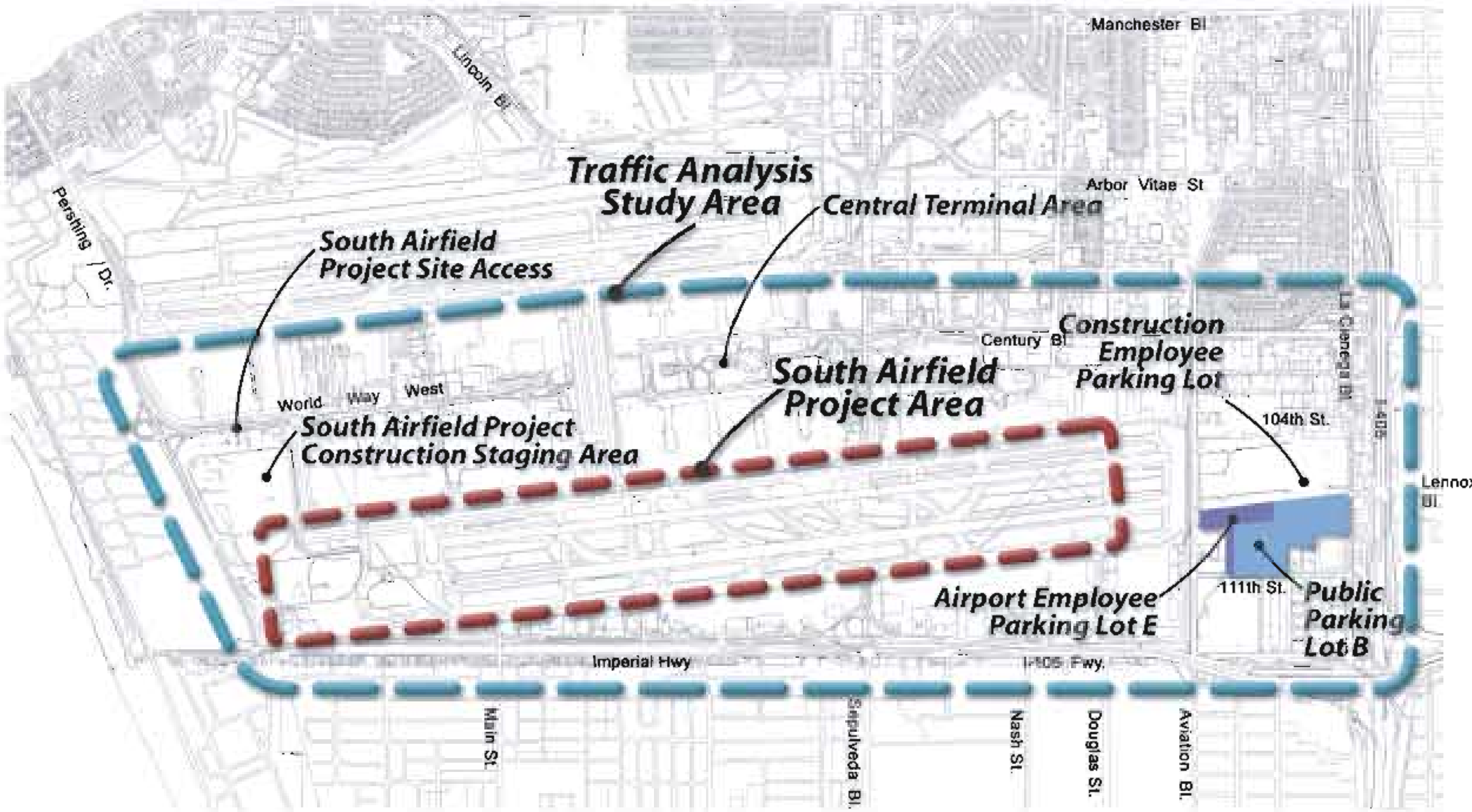
Identify Level of Service with Mitigation—If mitigation would be required, level of service analyses for the study area intersections and roadways would be prepared using the same methodology described previously.

4.2.3 Baseline Conditions

The Baseline describes the facilities and general conditions that existed the month in which the NOP was published. However, Baseline traffic volumes collected in July/August 2004 were adjusted (decreased) to represent 2003 conditions to maintain consistency with other technical area analyses that were based on the most recent calendar year of data available at the time of the NOP.

4.2.3.1 Study Area

The traffic analysis study area is depicted on **Exhibit 4.2-1**. The scope of the study area was determined by identifying the intersections most likely to be used by construction-related vehicles accessing the SAIP construction site and construction employees accessing construction parking areas, as discussed in Section 4.2.3.3. The study area is generally bounded by the I-405 freeway to the east, the I-105 freeway and Imperial Highway to the south, Pershing Drive to the west, and Century Boulevard to the north. The study area includes the SAIP construction site, which would be accessed via a gate located on World Way West. Construction employees would park in a dedicated parking lot located east of the project site that would be accessed via a new driveway from



Prepared by: Ricondo & Associates, Inc.

Exhibit 4.2-1

north

Not to Scale

Traffic Analysis Area

La Cienega Boulevard located north of the intersection with Lennox Boulevard. Airport Public Parking Lot B and the Airport Employee Parking Lot E are located south of the proposed employee construction parking lot and are accessed via driveways located on 111th Street between Aviation Boulevard and La Cienega Boulevard. These existing public and employee lots would remain operational during the construction of the SAIP.

4.2.3.2 Study Area Roadways

The principal freeways and roadways serving as access routes within the traffic analysis study area include the following:

- **I-405 (San Diego Freeway) –** This north-south freeway generally forms the eastern boundary of the traffic analysis study area and provides regional access to the airport and the study area. Access to the study area is provided via ramps at Century Boulevard, I-105, Imperial Highway, and three locations along La Cienega Boulevard.
- **I-105 (Glenn M. Anderson or Century Freeway) –** This east-west freeway forms the southern boundary of the traffic analysis study area, and extends from the San Gabriel Freeway (I-605) on the east to Sepulveda Boulevard on the west. Access to the study area is provided via ramps at Sepulveda Boulevard and Imperial Highway.
- **Aviation Boulevard –** Aviation Boulevard is a north-south, four-lane roadway that bisects the study area.
- **Century Boulevard –** Century Boulevard is an eight-lane divided roadway that serves as the primary entry to the LAX CTA. The roadway also serves as access to off-airport businesses and hotels and on-airport aviation-related uses (e.g., air cargo facilities) located between the airport CTA and I-405.
- **Imperial Highway –** Imperial Highway is an east-west roadway that is located on-grade and beneath much of the elevated I-105 freeway. The facility varies in lane width from six-lanes east of the merge with I-105 to four-lanes west of the merge with I-105.
- **La Cienega Boulevard –** La Cienega Boulevard is a north-south, four-lane arterial roadway that would serve as the primary access route to the proposed construction employee parking lot.
- **Pershing Drive –** Pershing Drive is a north-south, six-lane divided roadway that forms the western boundary of the traffic analysis study area. This roadway would serve as the access route for construction-related traffic accessing the SAIP site via World Way West.
- **Sepulveda Boulevard –** Sepulveda Boulevard is a major north-south, six-lane arterial providing direct access to the airport and Project study area via I-105 on the south. Sepulveda 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 painted median. This roadway provides access to the airport Public Parking Lot B and Airport Employee Parking Lot E and other businesses in the study area.

4.2.3.3 Existing Traffic Conditions

4.2.3.3.1 Study Area Intersections

Intersection Locations

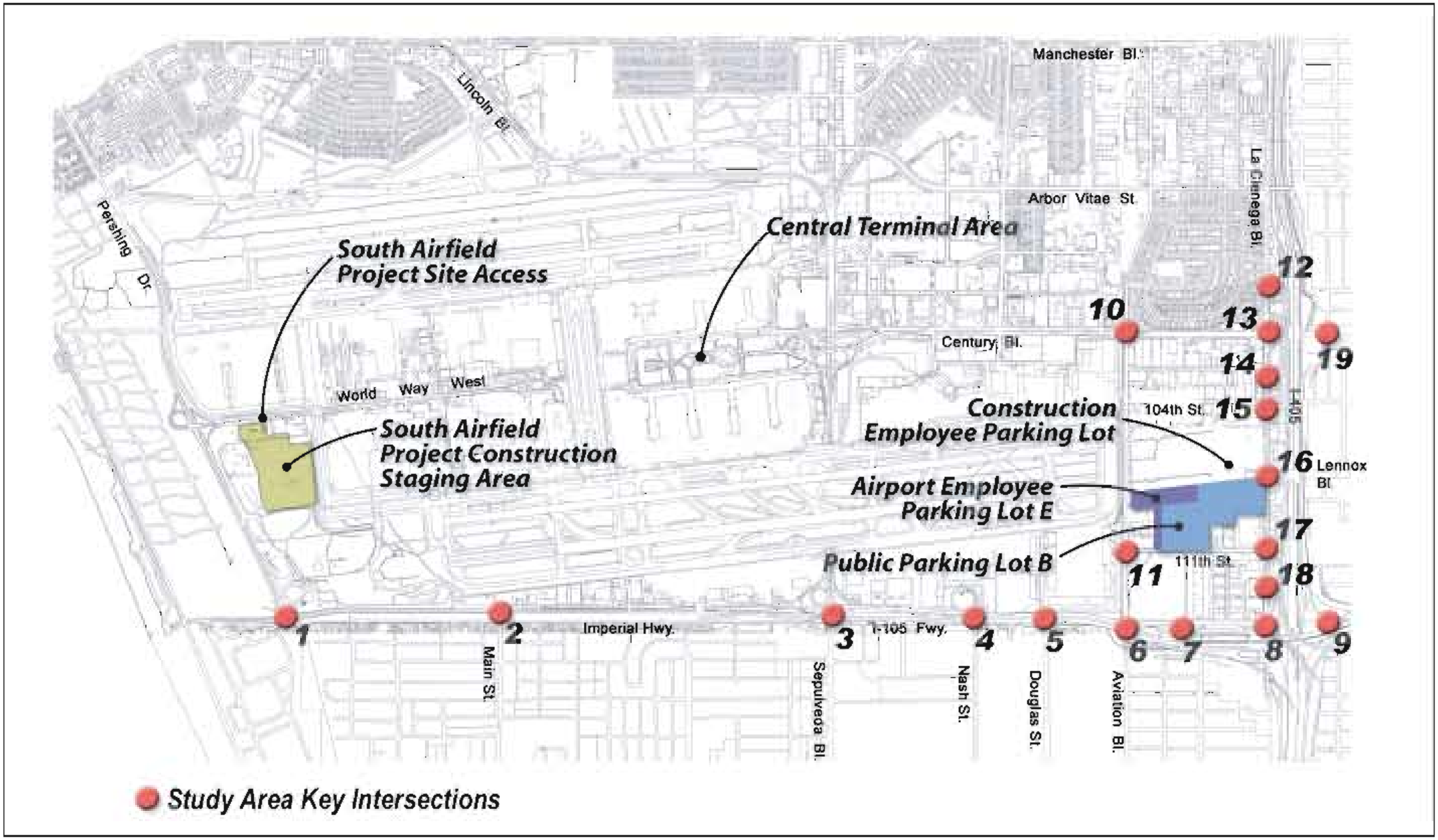
The anticipated routes used by construction-related vehicles were reviewed to identify the intersections likely to be used by vehicles accessing the SAIP construction site or the construction employee parking lot off of La Cienega Boulevard. Based on this review, the key intersections to be analyzed for this study are depicted on **Exhibit 4.2-2** and are summarized as follows:

1. Imperial Highway and Pershing Drive
2. Imperial Highway and Main Street
3. Imperial Highway and Sepulveda Boulevard
4. Imperial Highway and Nash Street
5. Imperial Highway and Douglas Street
6. Imperial Highway and Aviation Boulevard
7. Imperial Highway and I-105 ramps east of Aviation Boulevard
8. Imperial Highway and La Cienega Boulevard
9. Imperial Highway and I-405 northbound ramps east of La Cienega Boulevard
10. Aviation Boulevard and Century Boulevard
11. Aviation Boulevard and 111th Street
12. La Cienega Boulevard and I-405 southbound ramps north of Century Boulevard
13. La Cienega Boulevard and Century Boulevard
14. La Cienega Boulevard and I-405 southbound ramps south of Century Boulevard
15. La Cienega Boulevard and 104th Street
16. La Cienega Boulevard and Lennox Boulevard
17. La Cienega Boulevard and 111th Street
18. La Cienega Boulevard and I-405 southbound ramps north of Imperial Highway
19. Century Boulevard and I-405 northbound ramps east of La Cienega Boulevard

Intersection Control and Geometry

All of the study area intersections listed above and depicted on Exhibit 4.2-2 are signalized. In addition, all of the intersections are included in the Automated Traffic Surveillance and Control (ATSAC) system, except Imperial Highway and Sepulveda Boulevard (#3), Imperial Highway and I-405 northbound ramps east of La Cienega Boulevard (#9), and Century Boulevard and I-405 northbound ramps east of La Cienega Boulevard (#19). The ATSAC system operated by LADOT provides for monitoring of traffic conditions at intersections and the flexibility to adjust the traffic signal timing to react to current conditions.

Intersection geometry for the intersections listed above is provided in **Appendix G**.



Prepared by: Ricondo & Associates, Inc.

Exhibit 4.2-2

Study Area Intersections

Not to Scale north

4.2.3.3.2 Traffic Activity

Traffic data collected to support the traffic analyses required for the SAIP are summarized below.

Peak Month Activity

The average daily traffic (ADT) volumes accessing the CTA by month for the period January 2000 through December 2004 are provided in **Table 4.2-1**. As shown, CTA traffic reaches peak activity during the summer months of July and August. August is typically the peak month for airport roadway traffic activity followed closely by July; however, in 2004 the July ADT volume of 78,674 was slightly higher than the August ADT of 77,986 vehicles. August 2004 ADT levels are about 28 percent lower than the peak level of 108,871 vehicles in August 2000.

Table 4.2-1

CTA Average Daily Traffic Volume

Month	2000	2001	2002	2003	2004
January	82,136	90,683	65,135	66,039	61,775
February	79,791	87,509	61,148	60,808	59,802
March	86,627	93,186	66,794	59,921	64,431
April	92,863	96,566	68,164	60,434	68,164
May	98,052	96,341	70,867	64,306	68,155
June	102,392	101,585	72,282	65,903	74,650
July	106,445	105,842	75,433	74,047	78,674
August	108,871	103,308	79,427	76,556	77,986
September	95,917	59,987	66,630	60,762	66,276
October	92,169	42,370	65,166	59,904	66,395
November	96,308	56,579	62,264	59,944	65,525
December	94,551	60,649	71,845	68,666	73,107
Annual	1,138,122	996,606	827,157	779,293	824,940

Source: Landside Operations, LAWA, 2005
Prepared by: Ricondo & Associates, Inc.

The intersection traffic volumes used for the SAIP traffic study were collected during August 2004. The peak SAIP construction period was originally anticipated to occur during September 2005; however, as described in the introduction to Chapter IV it is now anticipated that the peak construction period will shift into 2006. The project-related traffic analysis is based on the use of August traffic activity combined with peak SAIP construction activity (September). Using peak August data for background and airport-related roadway traffic activity combined with peak SAIP construction activity would produce a conservative analysis representing the peak potential traffic level that would occur in the study area. This peak hour condition comprised of "aligned" peak months for airport and construction traffic would likely exceed the actual traffic volumes during the peak SAIP construction period given that the peak airport traffic and peak construction traffic activities are not anticipated to be concurrent.

Existing Hourly Traffic Volumes

Roadway traffic counts were conducted at multiple locations within the study area to evaluate traffic peaking patterns throughout the day and to estimate the likely peak hours when background traffic levels are combined with projected construction-related traffic volumes. Hourly traffic volume activity (total two-way volumes), counted at seven locations within the study area, is depicted on

Exhibit 4.2-3. The volumes depicted on the exhibit represent traffic activity along the following roadways: (a) Aviation Boulevard, (b) Century Boulevard, (c) Imperial Highway [two locations], and (d) La Cienega Boulevard [three locations]. These data were collected on July 27-28 and on August 3, 2004, concurrent with the date for the manual intersection turning movement counts conducted for this study. The reported traffic conditions represent the activity occurring on a typical busy weekday (Tuesday through Thursday) during the peak month.

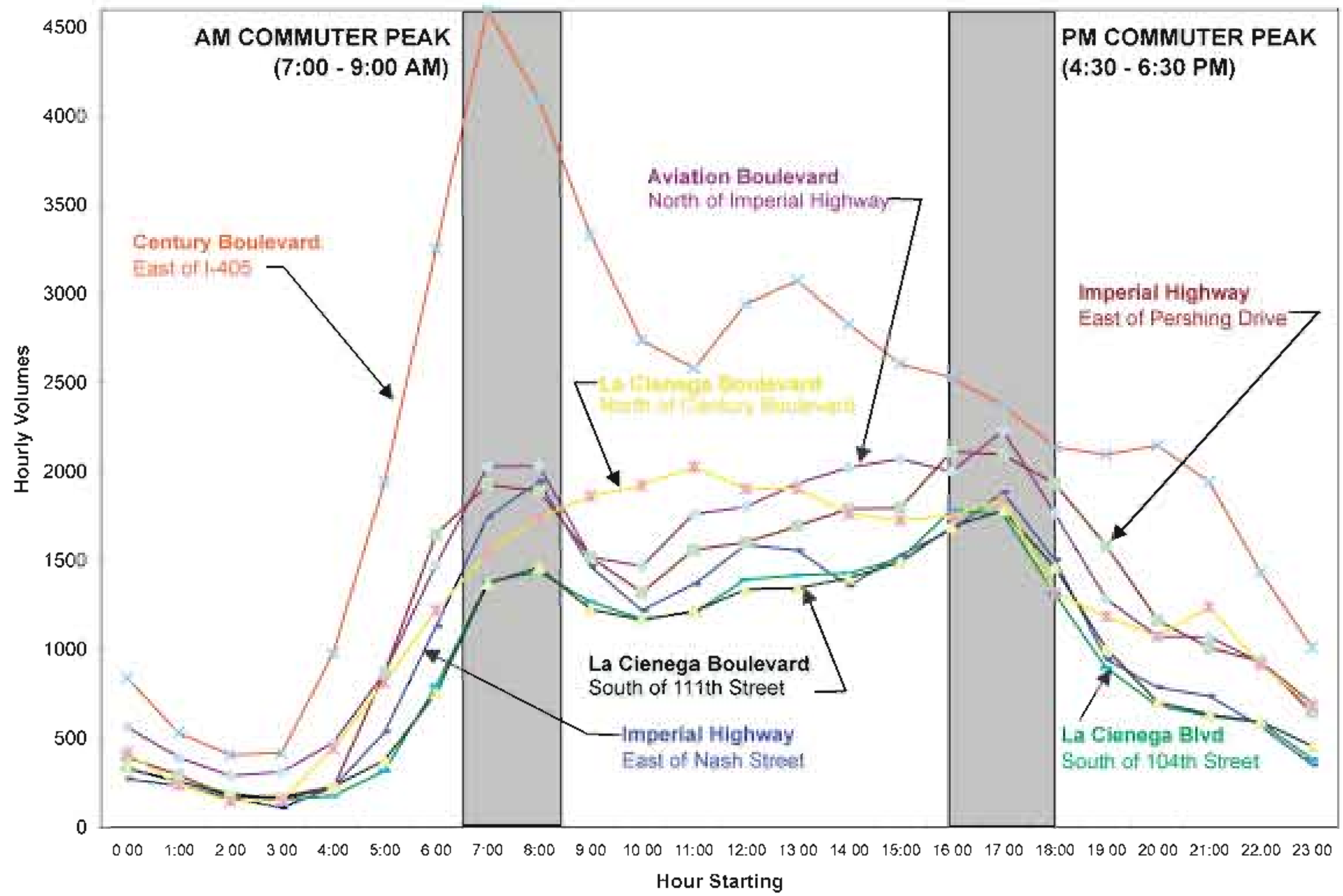
As shown, the study area roadways tend to experience peaking patterns similar to the regional commute peaks. The morning peak period in the study area generally occurs over a sustained period between 7:00 and 9:00 a.m., which directly corresponds with the commuter a.m. peak period (i.e. 8:00 to 9:00 a.m.). The afternoon peak period generally occurs between 5:00 and 6:00 p.m., which falls within the commuter p.m. peak period from 4:30 to 6:30 p.m.

Project-Related Peak Hours

Certain Master Plan Commitments identified in the LAX Master Plan Final EIR are required to be implemented prior to the commencement of LAX Master Plan development projects, and many of these commitments would have a direct effect on the traffic activity generated by the construction of the SAIP. Specifically, 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 commuter a.m. peak period (7:00 to 9:00 a.m.) and the commuter p.m. peak period (4:30 to 6:30 p.m.) and must implemented prior to commencement of SAIP construction. These commitments, along with other transportation-related commitments relevant to the SAIP, are listed in Section 4.2.5.

It was necessary to develop an early estimate of the project-related peak hours in order to establish the intersection turning movement data collection schedule for this study. The anticipated project-related peak hours were identified by reviewing preliminary estimates of the anticipated construction-related traffic activity associated with the SAIP in combination with the hourly traffic activity depicted on Exhibit 4.2-3. Using these data, the peak hours to be analyzed for the project were determined to be the following:

- **SAIP Construction Employee A.M. Peak Hour (6:00 a.m. to 7:00 a.m.) –** The SAIP construction employee a.m. peak hour represents the peak period for construction employees arriving to the construction employee parking lot accessed via La Cienega Boulevard. Based on the review of the employee schedule, employees would likely arrive during the 5:00 to 6:00 a.m. period. However, it was determined that analysis of the 6:00 to 7:00 a.m. peak period volumes in combination with the peak employee activity would produce a more conservative estimate of activity in the event that the future construction contractor chooses to allow employee arrivals up to the desired “cut-off” time of 7:00 a.m.
- **SAIP Construction Delivery Peak Hour (3:00 p.m. to 4:00 p.m.) –** The delivery peak hour represents the peak activity period corresponding with trucks delivering materials to the SAIP site.
- **SAIP Construction Employee P.M. Peak Hour (3:30 p.m. to 4:30 p.m.) –** The SAIP construction employee p.m. peak hour represents the peak period when construction employees are leaving from the construction employee parking lot. The peak period is assumed to end at the “cut-off” time – 4:30 p.m. for the afternoon commute.



Source: Data collected by Wiltec on July 27-28 and August 3, 2004.
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.2-3

Roadway Two-Way Hourly Volumes

As shown previously on Exhibit 4.2-3, the traffic volumes using the study area roadways during the project-related construction peak hours are lower than the volume levels during the a.m. and p.m. commuter peak periods. During the typical morning commuter peak (7:00 to 8:00 a.m.) the roadway volumes are about 46 percent higher on average than the volumes during the construction employee a.m. peak hour (6:00 to 7:00 a.m.). During the typical evening commuter peak (5:00 to 6:00 p.m.) the roadway volumes are about 9 percent higher on average than the volumes during the construction employee p.m. peak hour (3:30 to 4:30 p.m.) and about 18 percent higher on average than during the delivery peak hour (3:00 to 4:00 p.m.). Unlike other airport roadways, Century Boulevard serves as the primary access route to the airport CTA and, therefore, experiences peaking patterns affected more by the airport than the other roadways that generally peak in accordance with a.m. and p.m. commuter peaking pattern. As a result, traffic volume levels on Century Boulevard are higher during the construction employee p.m. peak hour than during the adjacent commuter p.m. peak period for this roadway section.

<u>Intersection Traffic Counts</u>

Intersection through and turning movement counts were collected for the three peak periods described above. However, traffic volumes reported for the delivery peak hour were limited to those intersections that would accommodate traffic associated with delivery trucks accessing the project construction site. The delivery routes established by LAWA require that trucks use freeways whenever possible. Therefore, the only study area intersections that would be impacted are along the western segment of Imperial Highway (intersections #1 and #2).

The turning movement volumes at the key study area intersections for the peak hours described above are provided in **Appendix H**.

<u>Composition of Roadway Traffic</u>

As described in the Methodology section, traffic volume adjustment factors were estimated based on the assumed composition of traffic using the study area roadway system. The composition of traffic at key roadway locations during the peak periods analyzed for this project is assumed to be the same as the distributions used for the analysis of a.m. and p.m. peak period traffic conditions for the 2005 No Action/No Project condition analyzed and documented in Technical Report 3b prepared for the LAX Master Plan Final EIR.

The assumed distributions of traffic at 12 locations on the study area roadway system comprised of vehicles generated by airline passengers, airport employees, air cargo, and background traffic are listed in **Table 4.2-2**. As shown at the bottom of the table, approximately 60 percent of the study area traffic is background traffic and the remaining 40 percent is airport related traffic (i.e., passengers, employees, and cargo).

Table 4.2-2

Assumed Composition of Roadway Traffic

		A.M. Peak Hour [1/]					P.M. Peak Hour [1/]				
Location	Direction	Airline Passengers	Airport Employees	Airport Cargo	Background	Total	Airline Passengers	Airport Employees	Airport Cargo	Background	Total
La Cienega Blvd. South of 104th St.	NB	18%	7%	19%	56%	100%	13%	9%	18%	60%	100%
	SB [2/]	18%	7%	19%	56%	100%	36%	8%	18%	38%	100%
La Cienega Blvd. South of 111th St.	NB	16%	11%	9%	64%	100%	19%	17%	14%	50%	100%
	SB	17%	8%	11%	64%	100%	16%	13%	10%	60%	100%
Imperial Hwy. East of Aviation Blvd.	WB	5%	8%	25%	61%	100%	4%	6%	20%	69%	100%
	EB	30%	13%	43%	14%	100%	13%	8%	20%	59%	100%
Imperial Hwy. West of I-405 NB Ramps	WB	2%	6%	13%	79%	100%	16%	17%	25%	42%	100%
	EB	7%	7%	32%	54%	100%	7%	5%	18%	71%	100%
Imperial Hwy. East of Pershing Dr.	WB	2%	0%	16%	82%	100%	4%	0%	6%	89%	100%
	EB	1%	0%	11%	88%	100%	1%	0%	17%	81%	100%
La Cienega Blvd. South of I-405 SB Ramps	NB	17%	4%	7%	73%	100%	21%	5%	9%	65%	100%
	SB	16%	3%	18%	62%	100%	7%	2%	7%	84%	100%
Century Blvd. West of I-405 NB Ramps	NB	17%	5%	12%	66%	100%	27%	6%	14%	53%	100%
	SB	6%	1%	3%	90%	100%	13%	3%	3%	81%	100%
Aviation Blvd. South of 111th St.	NB	16%	8%	20%	55%	100%	19%	9%	19%	53%	100%
	SB	40%	8%	31%	21%	100%	23%	10%	20%	46%	100%
Imperial Hwy. East of Nash St.	WB	1%	3%	16%	80%	100%	3%	6%	22%	69%	100%
	EB [3/]	1%	3%	16%	80%	100%	6%	12%	46%	37%	100%
104th St. East of Aviation Blvd.	WB	9%	5%	16%	70%	100%	6%	11%	30%	53%	100%
	EB	32%	8%	24%	36%	100%	16%	5%	11%	68%	100%
111th St. East of Aviation Blvd.	WB	13%	29%	16%	42%	100%	13%	47%	13%	27%	100%
	EB	15%	38%	25%	22%	100%	15%	57%	11%	16%	100%
Sepulveda Blvd. North of Imperial Hwy.	NB	15%	3%	9%	73%	100%	9%	2%	3%	86%	100%
	SB	19%	3%	10%	68%	100%	24%	3%	7%	66%	100%
Average		14%	8%	18%	61%	100%	14%	11%	16%	59%	100%

Notes:

1/ Peak hours from the LAX Master Plan Final EIR are 8:00 - 9:00 a.m. and 5:00 - 6:00 p.m.

2/ Data for the AM SB was unavailable; therefore, the NB percentages were applied.

3/ Data for the AM EB was unavailable; therefore, the WB percentages were applied.

Source: Data from the 2005 No Action/No Project analysis, provided by Parsons, August 2004, from traffic volume data used to prepare Technical Report 3b. Off-Airport Ground Access Impacts and Mitigation Measures, January 2001.

Prepared by: Ricondo & Associates, Inc.

4.2.3.3.3 Historical and Forecast Aviation Activity

Historical aviation activity from 2002 through 2004 and forecast activity for 2005 are depicted in **Table 4.2-3**. As shown in the table, annual airline passenger activity increased approximately 5.8 percent from 2003 to 2004. Roadway traffic entering the CTA during an average day during the peak month of July increased at a similar rate of 6.2 percent from 2003 to 2004. Typically, airport-related roadway traffic volume will change in proportion to changes in originating passengers (excluding connecting passengers that do not use roadways and other landside access facilities). For short time horizons of one or two years, total passengers can also be used as an indicator of future changes in roadway traffic volume given that dramatic changes to the distribution of originating and connecting passengers are not likely to take place within the short time frame. As shown in the table, the traffic volumes have tended to change in relative proportion with total annual passenger volumes. The table also depicts historical aircraft operations and annual cargo volume (LAWA, 2004).

Table 4.2-3

Historical and Projected Airport Activity

	Annual Operations		Annual Cargo Volume (Tons)		Annual Passengers		CTA Average Daily Traffic (July)	
Year	Total	Percent Change	Total	Percent Change	Total	Percent Change	Vehicles per Day [1/]	Percent Change
Historical [2/]								
2002	658,568	NA	1,877,514	NA	56,111,600	NA	75,433	NA
2003	639,309	-2.9%	2,021,214	7.7%	55,323,100	-1.4%	74,047	-1.8%
2004	637,030	**-0.4%**	2,057,852	**1.8%**	58,526,200	**5.8%**	78,674	6.2%
Future [3/]								
2005	*745,000*	***16.9%***	*2,500,000*	***21.5%***	*70,811,200*	***21.0%***	*95,188*	*21.0%*
2003 to 2005	NA	16.5%	NA	23.7%	NA	28.0%	NA	28.6%

Notes:

1/ Historical (2002 through 2004) ADT volumes accessing the CTA provided by LAWA staff; forecast (2005) ADT based on the assumption that airport-related traffic will increase in proportion with forecast growth in annual passengers.

2/ Historical activity for annual operations, annual cargo volume, and annual passengers is depicted for the 12-month period beginning July 1 and ending June 30 from monthly aviation statistics, www.LAWA.org/lax. ADT volumes obtained from automatic vehicle identification (AVI) system records provided by LAWA.

3/ Future annual operations and annual passenger forecast (2005) from Table D-1, LAX Master Plan, Appendix D, page D-2, April 2004. Future cargo tonnage for Alternative D assumed to equal 2005 No Action/No Project volume (Draft Master Plan, Chapter 5 Vol. 2, pg V-3.186).

Source: LAX Master Plan and LAWA, 2004
Prepared by: Ricondo & Associates, Inc.

The forecasts for annual passengers, aircraft operations, and cargo volume for 2005 are consistent with the aviation forecasts from the LAX Master Plan EIR. As shown, annual operations represent a 16.9 percent increase from 2004 to 2005, forecast annual cargo volume represents an increase 21.5 percent from 2004 to 2005, and annual passenger activity represents an increase of 21.0 percent from 2004 to 2005 (LAWA, 2004).

The historical information for 2004 depicted in the table represents the 12-month period ending June 30, 2004, which was the most recent year period for which data were available in July and

August 2004, when data collection was conducted. The historical data for 2002 and 2003 represent the year-long periods ending on June 30, 2002 and June 30, 2003, respectively. The use of the more recent aviation activity data closely corresponding with the roadway traffic data for the same period provided a more accurate basis for developing adjustment factors to derive roadway traffic estimates from aviation activity forecasts for other years. For purposes of this study, for example, estimated 2005 peak month airport-related traffic volumes are assumed to increase in proportion to the forecast increases in annual passenger volumes.

4.2.3.3.4 Baseline (2003) Intersection Volumes

Although intersection through and turning movement volumes were collected in August 2004, these traffic volumes were adjusted downward to provide an estimated Baseline (2003) traffic condition that would be consistent with the other technical areas evaluated for this EIR. Traffic adjustment factors were calculated at the 12 locations within the study area that corresponded with the roadway traffic composition data presented in Table 4.2-2. The adjustment factors were based on the weighted average growth in the four traffic components presented previously. The estimated growth of the four components is based on the following:

- **Airline passenger traffic** – Airline passenger traffic is assumed to change in proportion to annual passenger activity.
- **Airport employee traffic** – Airport employee traffic is assumed to increase in proportion to the average of the changes in annual passenger activity and annual aircraft operations.
- **Cargo-related traffic** – Cargo-related traffic is assumed to increase in proportion to the change in annual cargo volume.
- **Background traffic** – Ambient background traffic is assumed to increase 2 percent per year as provided by LADOT.

The resulting aggregate growth factors are listed in **Table 4.2-4**. To estimate the Baseline (2003) condition, the intersection through and turning movement volumes collected in August 2004 were adjusted using the aggregate growth factor calculated at nearby roadway locations. As shown on the table, the traffic in the study area was estimated to grow approximately 2 percent to 3 percent at most locations within the study area from 2003 to 2004. Therefore, the Baseline (2003) condition was calculated by reducing the August 2004 traffic counts in proportion to the factors presented in the table.

The 2004 intersection through and turning movement counts and the Baseline (2003) through and turning movement volumes are provided in **Appendix H**.

Table 4.2-4 also depicts the aggregate growth factors that were used to convert 2004 actual intersection through and turning movement volumes to estimated 2005 intersection through and turning movement volumes (to be discussed later in this section). As shown in the table, the aggregate growth factors from 2004 to 2005 are significantly higher than the factors used to convert from the 2004 to 2003 activity levels. This is because of the growth in the airport-related components that include increases from 17 percent to 21 percent from 2004 to 2005 as described previously in Table 4.2-3 which is significantly higher than the growth in activity from 2003 to 2004. As shown in Table 4.2-4, the 2004 to 2005 adjustment factors are estimated to range from 4 percent to 18 percent which is comprised of the weighted average growth in background traffic (at 2 percent per year) combined with the airport-related traffic components.

Table 4.2-4

Aggregate Growth Factors

Roadway	Location	Peak Hour [1/]	2003 to 2004 Inbound [2/]	2003 to 2004 Outbound [2/]	2004 to 2005 Inbound [2/]	2004 to 2005 Outbound [2/]
La Cienega Boulevard	South of 104th Street	Employee AM	3%	3%	10%	10%
		Delivery	3%	3%	14%	9%
		Employee PM	3%	3%	14%	9%
La Cienega Boulevard	South of 111th Street	Employee AM	3%	3%	9%	9%
		Delivery	3%	3%	11%	9%
		Employee PM	3%	3%	11%	9%
Imperial Highway	East of Aviation Boulevard	Employee AM	2%	3%	9%	18%
		Delivery	2%	3%	8%	10%
		Employee PM	2%	3%	8%	10%
Imperial Highway	West of I-405 NB Ramps	Employee AM	2%	2%	6%	11%
		Delivery	3%	2%	13%	8%
		Employee PM	3%	2%	13%	8%
Imperial Highway	East of Pershing Drive	Employee AM	2%	2%	4%	6%
		Delivery	2%	2%	6%	4%
		Employee PM	2%	2%	6%	4%
La Cienega Boulevard	South of I-405 SB Ramps	Employee AM	3%	3%	9%	7%
		Delivery	2%	3%	5%	9%
		Employee PM	2%	3%	5%	9%
Century Boulevard	West of I-405 NB Ramps	Employee AM	3%	2%	8%	4%
		Delivery	3%	3%	11%	6%
		Employee PM	3%	3%	11%	6%
Aviation Boulevard	South of 111th Street	Employee AM	3%	4%	10%	17%
		Delivery	3%	3%	11%	12%
		Employee PM	3%	3%	11%	12%
Imperial Highway	East of Nash Street	Employee AM	2%	2%	6%	6%
		Delivery	2%	3%	8%	14%
		Employee PM	2%	3%	8%	14%
104th Street	East of Aviation Boulevard	Employee AM	3%	2%	14%	8%
		Delivery	3%	2%	8%	11%
		Employee PM	3%	2%	8%	11%
111th Street	East of Aviation Boulevard	Employee AM	3%	3%	16%	12%
		Delivery	3%	3%	17%	15%
		Employee PM	3%	3%	17%	15%
Sepulveda Boulevard	North of Imperial Highway	Employee AM	3%	3%	7%	8%
		Delivery	2%	3%	5%	8%
		Employee PM	2%	3%	5%	8%

Notes:

1/ Employee AM refers to SAIP Construction Employee a.m. peak hour (7:00 - 8:00 a.m.); the Delivery peak hour is 3:00 - 4:00 p.m.; SAIP Construction Employee PM refers to the Employee p.m. peak hour (3:30 - 4:30 p.m.).

2/ Inbound refers to vehicle trips accessing the airport and/or Study Area and outbound refers to vehicle trips departing the airport and/or Study Area.

Source: Ricondo & Associates using roadway traffic composition data in Table 4.2-2 provided by Parsons, August 2004

Prepared by: Ricondo & Associates, Inc.

4.2.3.3.5 Baseline (2003) Intersection Analyses

A level of service analysis was prepared using the Critical Movement Analysis (CMA) methodology to assess the estimated operating conditions during the Baseline (2003) period for the hours that would ultimately coincide with the peak hours for construction related traffic generated during construction of the SAIP. Level of service is a qualitative measure that describes traffic operating conditions (e.g., delay, queue lengths, congestion). Intersection level of service ranges from LOS A (i.e., excellent conditions with little or no vehicle delay) to LOS F (i.e., excessive vehicle delays and queue lengths). Level of service definitions for the CMA methodology are presented in **Table 4.2-5**.

In accordance with LADOT analysis procedures, the v/c ("volume/capacity") value calculated using the CMA methodology is further reduced by 0.07 for those intersections that are included within the ATSAC system (previously discussed in Section 4.2.3.3.1) 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 Manual.

The estimated intersection level of service for the Baseline (2003) condition is provided in **Table 4.2-6**. As shown in the table, it was estimated that most of the intersections operated at LOS C or better in 2003 during the peak periods analyzed for the SAIP. The one exception occurred at the intersection of Imperial Highway and Sepulveda Boulevard, which was estimated to operate at LOS F during the SAIP construction employee p.m. peak period.

Appendix I provides the level of service results from the TRAFFIX program including the volume, geometry and other inputs used to produce these analyses.

Table 4.2-5

Level of Service Threshold and Definitions for Signalized Intersections

Level of Service	Volume/Capacity Ratio	Definition
A	0.000 - 0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	0.601 - 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 - 0.800	GOOD. Occasionally, drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 - 0.900	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 - 1.000	POOR. Represents the most vehicles that intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	Greater than 1.000	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, Interim Materials on Highway Capacity, Transportation Research Circular No. 212, January 1980

Prepared by: Ricondo & Associates, Inc.

Table 4.2-6

Baseline (2003) Analysis Results

	Intersection	Peak Hour 1/	V/C 2/	LOS 3/
1.	Imperial Highway & Pershing Drive	Employee AM	0.492	A
		Delivery	0.396	A
		Employee PM	0.403	A
2.	Imperial Highway & Main Street	Employee AM	0.324	A
		Delivery	0.516	A
		Employee PM	0.531	A
3.	Imperial Highway & Sepulveda Boulevard	Employee AM	0.743	C
		Employee PM	1.092	F
4.	Imperial Highway & Nash Street	Employee AM	0.521	A
		Employee PM	0.263	A
5.	Imperial Highway & Douglas Street	Employee AM	0.103	A
		Employee PM	0.293	A
6.	Imperial Highway & Aviation Boulevard	Employee AM	0.452	A
		Employee PM	0.611	B
7.	Imperial Highway & I-105 Ramps E/O Aviation Boulevard	Employee AM	0.223	A
		Employee PM	0.578	A
8.	Imperial Highway & La Cienega Boulevard	Employee AM	0.143	A
		Employee PM	0.352	A
9.	Imperial Highway & I-405 Northbound Ramps	Employee AM	0.204	A
		Employee PM	0.406	A
10.	Century Boulevard & Aviation Boulevard	Employee AM	0.576	A
		Employee PM	0.793	C
11.	Aviation Boulevard & 111th Street	Employee AM	0.330	A
		Employee PM	0.443	A
12.	La Cienega Boulevard & I-405 Southbound Ramps	Employee AM	0.406	A
		Employee PM	0.569	A
13.	La Cienega Boulevard & Century Boulevard	Employee AM	0.537	A
		Employee PM	0.719	C
14.	La Cienega Boulevard & I-405 Southbound Ramps	Employee AM	0.171	A
		Employee PM	0.432	A
15.	La Cienega Boulevard & 104th Street	Employee AM	0.124	A
		Employee PM	0.309	A
16.	La Cienega Boulevard & Lennox Boulevard	Employee AM	0.158	A
		Employee PM	0.326	A
17.	La Cienega Boulevard & 111th Street	Employee AM	0.124	A
		Employee PM	0.337	A
18.	La Cienega Boulevard & I-405 Southbound Ramps	Employee AM	0.162	A
		Employee PM	0.256	A
19.	Century Boulevard & I-405 Northbound Ramps	Employee AM	0.641	B
		Employee PM	0.529	A

Notes:

1/ The hours of analysis include the Construction Employee a.m. peak (6:00 - 7:00 a.m.), the Construction Delivery peak (3:00 - 4:00 p.m.) and the Construction Employee p.m. peak (3:30 - 4:30 p.m.).

2/ Volume to capacity ratio

3/ Level of Service. Range: A (excellent) to F (failure).

Source: Ricondo & Associates using Traffix, September 2004.

Prepared by: Ricondo & Associates, Inc.

4.2.4 Thresholds of Significance

As described in Section 4.2.2.1, LADOT has stated that intersection analysis is sufficient for this study and analysis of freeway and roadway links is not required; therefore, criteria for determining significant impacts is limited to analysis of intersections. In accordance with LADOT criteria, a transportation impact at an intersection is considered to be significant if one of the following thresholds is exceeded:

- The LOS is C, its final link 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 link 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 link 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" is defined as the future v/c ratio at an intersection that includes volume from the project, ambient background, and other related projects, but without proposed traffic mitigation. The "Project-Related v/c Increase" is defined as the change in the unmitigated condition between the future v/c with project, ambient background, and other related project growth, and the future v/c without the project but with ambient background and other related project growth.

4.2.5 LAX Master Plan Commitments and Mitigation Measures

The following transportation-related Master Plan commitments identified in the LAX Master Plan Mitigation Monitoring and Reporting Program are applicable to the SAIP and thus are included as part of the project for the purposes of environmental review:

- **C-1. Establishment of a Ground Transportation/Construction Coordination Office.** This office will 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 will periodically analyze traffic conditions on designated routes during construction to see whether there is a need to improve conditions through signage and other means. The Ground Transportation/Construction Coordination Office for the SAIP is planned to be located on airport property on World Way West near the construction staging area.
- **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.
- **ST-9. Construction Deliveries.** Construction deliveries requiring lane closures shall receive prior approval from the Ground Transportation/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 nighttime hours and shall avoid the peak periods of 7:00 to 9:00 a.m. and 4:30 to 6:30 p.m. This measure provides guidelines for controlling the arrival and departure times of construction related traffic during peak commuter periods, and served as input for developing an estimated schedule of SAIP construction delivery activity[5].

[5] Although traffic is encouraged to use nighttime hours, the peak delivery hour was assumed to occur at 3:30 to 4:30 p.m. to provide a conservative volume consisting of truck delivery activity combined with the high traffic activity occurring adjacent to the p.m. peak periods.

- **ST-14. Construction Employee Shift Hours.** Shift hours that do not coincide with the heaviest commuter traffic periods (7:00 a.m. to 9:00 a.m., and 4:30 p.m. to 6:30 p.m.) will be established. Work periods will be extended to include weekends and multiple work shifts, to the extent possible and necessary. 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 SAIP. 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 during the weekends.
- **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 will 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 for the SAIP are planned to include, but will not necessarily be limited to: Pershing Drive (Imperial Highway to the project site at World Way West); Imperial Highway (Pershing Drive to I-105); I-405; and I-105.

4.2.6 Impact Analysis

This section describes future (2005) conditions anticipated during the construction of the SAIP.

4.2.6.1 Adjusted Baseline (2005) Condition

The Adjusted Baseline serves as the basis of comparison for determining whether construction of the Project would result in significant impacts to the study area intersections. As described previously, the Adjusted Baseline represents the traffic conditions that would be in place in 2005 regardless of the Project.

The Adjusted Baseline includes growth in ambient background traffic and non-airport developments in the vicinity of the airport. This section describes known development projects in the airport vicinity other than the SAIP that may contribute traffic to the SAIP study area roadway system during the SAIP peak construction month resulting from either the construction or the ultimate operation of those development projects. The list of local area development projects presented later in this section represents a snapshot in time. The “list” 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 local area developments is represented in the traffic volume data that was collected for the SAIP study in 2004 and used as a basis for the traffic study. In addition to this ambient volume associated with construction and operation of local area development projects, it is important to review the development schedule and traffic characteristics of larger projects within close proximity to the SAIP study area and incorporate the effects of these development projects, as necessary. The characteristics of several of the known larger projects summarized in the list are discussed in this section. The growth in background traffic comprised of ambient growth and traffic from specific local area development projects that would not be represented in the ambient growth rate are included in the Adjusted Baseline condition.

Transportation Network Improvements

The California Department of Transportation (Caltrans) is currently constructing High Occupancy Vehicle (HOV) lanes northbound and southbound on the I-405 Freeway from the I-10 Freeway to the I-105 Freeway. This project began in spring 2003 and, according to the Caltrans' website, is expected to be completed in winter 2006[6]. It is not believed that this on-going construction has resulted in traffic diverting from the freeway to local surface streets.

In addition, Caltrans is scheduled to begin widening Lincoln Boulevard between La Tijera Boulevard and Jefferson Boulevard. The first segment, between LMU Drive and La Tijera Boulevard, would add one northbound lane to the three existing northbound lanes. Construction is scheduled to begin in August 2005 and end in early 2007.[7] Given the location of this project on the north side of the airport, it is anticipated that the construction along Lincoln Boulevard would not have a material effect on traffic accessing the study area intersections.

Planned Local Area Development Projects

Planned development projects in the City of Los Angeles and neighboring communities within the vicinity of the study area are listed in **Table 4.2-7**. The list was prepared to document and describe all known local area development projects that may contribute traffic to the SAIP project study area. The list is based on consultation with representatives of the Los Angeles Department of Transportation (LADOT), Culver City, El Segundo, Hawthorne, Inglewood, Los Angeles County, and Manhattan Beach. The table describes the approximate distance from each project to the study area, the estimated daily and hourly trips generated by the development project, and whether the project would be operational during the near term (2005) or as a longer-term project to be operational in 2006 or beyond. The a.m. and p.m. peak hour trips presented in the table represent the development-related traffic generated during the a.m. and p.m. peak commuter periods that do not coincide with the "off-peak" construction peak periods analyzed for the construction of the SAIP. As described in Section 4.2.5, the SAIP construction-related traffic would be managed such that construction-related trips from the project would be negligible during those a.m. and p.m. peak commuter periods. Therefore, it is anticipated that traffic volumes generated by these projects during the peak hours analyzed for construction traffic would be generally lower than the volumes shown in the table.

[6] California Department of Transportation, District 7, Current Project Information, at http://www.dot.ca.gov/dist07/aboutdist7/currproj/project_detail.php?id=2, last accessed on July 12, 2005.

[7] Telephone conversation with Mr. Yunus Ghausi, Senior Transportation Engineer, Caltrans, June 23, 2005.

Table 4.2-7 (1 of 4)

Planned Development Projects

No.	Project Name	Address	Distance to Study Area (miles) [1]	Description	City[2/]	Net Daily Trips	Net AM Trips[3/]	Net PM Trips[4/]	2005	2006 or After
1	Apartment Bldg.	3863 Bentley Ave.	7.6	3-unit apartment building	CC	20	1	2	X	
2	Baldwin Hills Scenic Overlook Project	Hetzler Road	N/A	10,300 sq. ft. visitors' center and parking	CC	265	3	12		X
3	Commerce Center	10100 Jefferson Blvd	7.0	242,950 sq. ft. office/industrial bldg.	CC	2,620	378	352		X
4	Chevron Gas Station Convenience Store	10649 Jefferson Blvd	6.5	2,000 sq ft. store	CC	N/A	155	192	X	
5	Chevron Gas Station, Convenience Store/Car Wash	5975 Centinela Avenue	4.6	3,314 sq. ft.	CC	N/A	257	319	Under Const.	
6	Condominiums	3915 Bentley Ave.	7.7	4-unit condos	CC	27	2	3	Under Const.	
7	Commercial and Retail Development	13322 Washington Blvd.	7.9	4,257 sq. ft.	CC	896	24	79	Built	
8	Comprehensive Plan Amendment	9336 Washington Blvd.	8.5	128,000 sq. ft. office and parking structure	CC	N/A	N/A	N/A		X (after 2006)
9	Conjunctive Points Theater Complex	8511 Warner Drive	7.1	101,551 sq. ft. office space; 31,110 sq. ft retail; 18,076 sq. ft. restaurant; 3 theaters	CC	4,940	127	289		X[5/]
10	Culver City Transfer Station	9255 Jefferson Blvd.	7.6	Increased throughput	CC	N/A	17	17	X[5/]	
11	Distribution and Warehouse	3434 Wesley Street	9.0	10,500 sq. ft. office, warehouse, and distribution	CC	N/A	N/A	N/A		X[5/]
12	Dog Park	9910 Jefferson Blvd.	7.2	1-acre	CC	N/A	N/A	N/A		X
13	Echo Horizon School Expansion	3430 McManus Avenue	7.6	5,935 sq. ft; 40 additional students	CC	N/A	30	0	Under Const.	
14	Office and Retail Building	4447 Sepulveda Blvd.	6.6	9,000 sq. ft.	CC	99	14	13	Under Const.	
15	Grandview Palms	4061 Grandview Blvd.	8.0	62,737 sq. ft. multi-unit care facility	CC	151	4	12	Under Const.	
16	Hampton Inn	3954 Sepulveda Blvd.	7.4	77-unit hotel	CC	630	43	45		X[5/]
17	Hayden Tower	3585 Hayden Ave.	7.1		CC	400	47	48		X
18	Inspired Ventures	9599 Jefferson Blvd.	7.4	40,000 sq. ft. of offices	CC	440	62	60	Built	
19	Max Leather AUP	8533 Washington Blvd.	7.5	3,763 sq. ft. addition to clothing manufacturing facility	CC	70	10	9	Under Const.	
20	Mixed Use Development	8601-8637 Washington Blvd.	7.6	26,000 sq. ft. office/residential bldg.	CC	471	64	108	Under Const.	
21	Mixed Use Development	11511 Washington Blvd.	6.7	6,411 sq. ft.	CC	150	1	11		X[5/]
22	Mixed Use Development	11281 Washington Place	7.6	17,500 sq. ft. retail and residential	CC	N/A	N/A	N/A		X[5]
23	Muffler Shop	11333 Washington Blvd.	6.6	2,500 sq. ft.	CC	N/A	8	8	X[5/]	
24	Office Building	3505 Hayden Avenue	7.3	151,000 sq. ft.	CC	1663	236	225		X
25	Office and Retail	700-701 Corporate Pointe	5.8	240,612 sq. ft. office building; 4,242 sq. ft of retail	CC	2,649	374	359		X
26	Parcel B	9300 Culver Blvd.	8.5	115,108 sq. ft. office, restaurant and retail	CC	N/A	N/A	N/A		X[5/]
27	Park Century School	3939 Landmark Street	8.9	Conversion of industrial space to school use; addt'l 6,950 sq. ft.	CC	365	162	-25		X[5/]
28	Residential Development	4210 Duquesne Avenue	7.6	8-unit apartment bldg.	CC	28	7	23	Under Const.	
29	Skateboard Park	9910 Jefferson Blvd.	7.2	27,000 sq. ft office bldg.	CC	297	42	40		X
30	Sony Studios	10202 Washington Boulevard	8.5	49,516 sq. ft. to Stage 6; converting to office	CC	58	30	28	Under Const.	

Table 4.2-7 (2 of 4)

Planned Development Projects

No.	Project Name	Address	Distance to Study Area (miles) [1]	Description	City[2/]	Net Daily Trips	Net AM Trips[3/]	Net PM Trips[4/]	2005	2006 or After
31	SPE Television Building	9050 Washington Blvd.	8.6	27,000 sq. ft office bldg.	CC	297	42	40	Built	
32	Surfas Restaurant Supplies	8777 Washington Blvd.	9.0	Reoccupy a 14,856 sq. ft. w/ fast food service	CC	1,030	47	59		X
33	Symnatec Office Multiphase Development	800 – 900 Corporate Pointe	5.8	550,000 sq. ft research/devt. office & parking structure	CC	4,910	726	696		X
34	Veterinary Clinic	11182 Culver Boulevard	6.8	7,000 sq. ft. clinic and caretaker unit	CC	N/A	N/A	4	Under Const.	
35	Washington-National TOD	Washington and National Boulevards	7.7	48,000 sq. ft retail; 59 live-work units; 181 town homes	CC	N/A	N/A	N/A		X
36	Westfield Mall Expansion	200 Fox Hills Mall	5.2	293,786 sq. ft. department store and 427 parking spaces	CC	5,377	104	531		X
37	Aquatic Youth Center	Dockweiler State Beach	8.2	20,000 sq. ft.; with 550 parking spaces	CO	N/A	N/A	N/A		X
38	Baldwin Hills Regional Park Master Plan	La Cienega Bouevard, La Brea Avenue, Stocker Street	7.6	1,400 acre park	CO	174	2	8		X
39	Condominiums	109th Street/Redfern Ave.	7.5	8 condos	CO	N/A	N/A	N/A	N/A	N/A
40	Magic Johnson Fitness Center	5045 Slauson Ave	4.2	3 story fitness ctr	CO	N/A	13	185	Built	
41	Marina del Rey Development	Marina del Rey	9.3	N/A	CO	N/A	2,410	2,373		X
42	Mixed Use	5101 Overhill Dr	5.5	1.84-acre office building	CO	359	47	52		X
43	Residential Development	6200-6220 S. La Brea Ave.	4.2	16 single unit housing units	CO	153	12	16		X
44	Residential Development	4615 W. Slauson Ave.	4.7	39 apartments	CO	N/A	12	15		X
45	West LA College Facilities Plan	Overland Avenue/Freshman Drive	10.1	6,785 additional students	CO	6,785	481	433		X
46	The Aerospace Corp. (Office and Laboratory)	2350 El Segundo Blvd.	1.7	150,000 sq. ft. office and 15,000 sq. ft lab	ES	N/A	N/A	N/A		X
47	Car Wash	111 N. Sepulveda Boulevard	2.3	Car Wash	ES	N/A	N/A	N/A	Under Const.	
48	Commercial Buildings	126, 130, 134 & 138 Lomita Street	3.0	4 new commercial buildings	ES	N/A	N/A	N/A	N/A	N/A
49	Condominiums[6/]	425 & 429 Indiana Street	2.1	8 condos	ES	N/A	8	8	N/A	N/A
50	Condominiums[6/]	1700 Mariposa Avenue	1.9	11 condos	ES	N/A	11	11	N/A	N/A
51	Condominiums[6/]	712 Virginia Street	3.1	4 condos	ES	27	4	4	N/A	N/A
52	Condominiums[6/]	505 W. Grand Avenue	3.5	4 condos	ES	27	4	4	N/A	N/A
53	Corporate Headquarters Office[6/]	455/475 Continental Blvd	2.0	330,000 sf office; 22,500 sf Research and Development	ES	N/A	664	632		X
54	Campus El Segundo	700-800 N. Nash Street	1.2	1,740,000 sf office; 75,000 sf retail; 7,000 sf child care; 7,000 sf medical office; 19,000 sf health club; 75,000 sf restaurant; 100-room hotel; 25,000 sf light industrial, 75,000 sf research & development; 65,000 sf technology/ telecommunications	ES	N/A	2,267	2,795		X
55	High Bay Lab	901 N. Nash Street	0.9	55,772 sq. ft.	ES	N/A	69	60	N/A	N/A
56	LA Air Force Base – Area A	SE corner of El Segundo Blvd and Aviation Blvd	1.3	750 condominiums	ES	N/A	330	405		X
57	LA Air Force Base – Area B	NW corner of El Segundo Blvd and Aviation Blvd	1.3	63,000 sf warehouse; 153,000 sf office park; 93,750 sf base exchange; 43,125 sf health club; 34,463 sf medical office	ES	N/A	395	517		X

Table 4.2-7 (3 of 4)

Planned Development Projects

No.	Project Name	Address	Distance to Study Area (miles) [1]	Description	City[2/]	Net Daily Trips	Net AM Trips[3/]	Net PM Trips[4/]	2005	2006 or After
58	Mixed Use	445 N. Douglas Street	1.7	99,450 sq. ft office; 110,000 sq ft light industrial; 1,000 sq ft restaurant	ES	N/A	296	310	Built	
59	Northrup-Grumman	SE corner of Mariposa Ave and Douglas Street	1.0	190,000 sq ft. industrial uses	ES	N/A	175	186		X
60	Office	2151 E Grand Avenue	1.7	125,000 sq. ft.	ES	N/A	223	219	Built	
61	Office	888 N. Sepulveda Blvd	1.5	120,000 sq. ft.	ES	N/A	217	214		X
62	Plaza El Segundo + other commercial (Phase I)	NE corner, Rosecrans Ave and Sepulveda Blvd	3.2	425,000 sq. ft of commercial	ES	19,151	915	1,790		X
63	Town Homes	Grand Ave and Kansas St, NW corner	2.4	N/A	ES	N/A	N/A	N/A	Under Const.	
64	Work-Live Lofts	1221 Grand Avenue	2.4	N/A	ES	N/A	N/A	N/A	Under Const.	
65	Xerox Phase IV	1951-1961 El Segundo Blvd.	2.3	255,242 sq. ft office; 350-room hotel	ES	N/A	629	614		X
66	Fusion at South Bay	Aviation Boulevard, E/S, south of 33rd Street	1.0	Condos, built to suit	HA	N/A	N/A	N/A	X	
67	Hotel	11434 Hawthorne Boulevard	2.1	300-room hotel	HA	N/A	N/A	N/A		X
68	Beach Affordable Housing	716-720 Beach Street	3.4	5 single family homes	ING	N/A	5	5	X	
69	LA CycleSport Expansion	Olive Avenue and Glasgow Avenue	2.1	60,000 sq-ft motorcycle showroom and service facility	ING	N/A	N/A	N/A		X
70	Locust St Intergenerational Ctr.	111 N. Locust St.	3.5	32,000 sq.-ft senior ctr and 58 units	ING	N/A	N/A	N/A		X
71	Medical Office/Surgical Center	Century Blvd. between Yukon and Prairie	3.3	140,000 sq. ft	ING	N/A	N/A	N/A		X
72	Movie Theatre Complex	Century Blvd between Yukon and Prairie	3.3	14 screen multiplex theatre	ING	N/A	N/A	N/A		X
73	Renaissance Project	90th St/ Hollywood Park/Darby Park	3.3	395 single family homes	ING	N/A	N/A	N/A	Under Const.	
74	The Village at Century	3555 W. Century Blvd. (between Club Drive and Crenshaw Blvd)	3.3	193,000 sq. ft. of retail & commercial	ING	N/A	N/A	N/A		Spring 2006
75	YMCA	101st St and Prairie Avenue	2.8	35,000 sq-ft recreation center	ING	N/A	N/A	N/A		X
76	Yukon Affordable Housing	Yukon Avenue and 118th Place	3.1	9 single family homes	ING	N/A	9	9		X
77	Apartment Building	5535 Westlawn Ave.	6.5	310 unit apartments	LA	2,055	157	217	Under Const.	
78	Apartment Building	10001 Venice Blvd.	8.8	118-unit apartments	LA	782	60	58	Under Const.	
79	Apartment Complex	8000 West Manchester Ave	5.5	846 Apartment units	LA	5,205	424	476	Final Phase Under Const.	
80	Baja Fresh	245 South Main Street	3.6	2,790 sq. ft.	LA	N/A	0	78		X
81	Bank	1762 Westwood Blvd.	10.9	4,422 sq. ft of commercial	LA	571	2	64	X	
82	Barrington Landmark	11677 Wilshire Blvd.	11.4	64,000 sq. ft of mixed use	LA	984	174	112		X
83	Bed, Bath & Beyond	11854 Olympic Boulevard	10.4	90,000 sq. ft retail	LA	2,883	14	198		X
84	Century Pacific Hotel	6225 West Century Boulevard	1.7	180 units	LA	3,188	246	255		X
85	Decron Development (Furama Hotel)	8601 Lincoln Blvd.	4.1	527 apartments, 12 live/work units, 22,600 sq. ft. retail, 8,000 sq. ft of restaurant	LA	899	N/A	N/A		X
86	Industrial/Light Manufacturing	5927 Beethoven St.	8.7	N/A	LA	347	66	72		X
87	Le Lycee Francais High School	10309 W. National Blvd	10.2	School for 340 students	LA	946	280	108		X
88	Leo Baeck Temple Expansion	1300 N. Sepulveda Boulevard	13.5	168 students; 70,000 sq. ft synagogue, parking, etc.	LA	N/A	N/A	364		X

Table 4.2-7 (4 of 4)

Planned Development Projects

No.	Project Name	Address	Distance to Study Area (miles)[1]	Description	City[2/]	Net Daily Trips	Net AM Trips[3/]	Net PM Trips[4/]	2005	2006 or After
89	Lincoln Center Project	1400 Lincoln Boulevard	5.1	188,600 sq ft. retail; 280 dwelling units	LA	N/A	196	460		X
90	Mixed Use Project	100 East Sunset Avenue	16.5	225 dwelling units	LA	1,319	99	158		X
91	New West Middle School	11625 Pico Blvd.	10.3	250 students	LA	799	230	98		X
92	Office Building	8787 Venice Blvd.	12.6	45,712 sq. ft.	LA	503	71	68		X
93	Playa Vista (Phase 1)	Lincoln Blvd./ Jefferson Blvd.	4.9	Multi-use	LA	29,447	2,825	3,155	X (part)	X
94	The Village at Playa Vista	Jefferson Blvd / McConnell Dr.	6.7	2,600 residential units, 175,000 sq. ft office, 150,000 sq. ft retail, 40,000 sq. ft community serving	LA	24,220	1,626	2,302		X
95	Palazzo Westwood	1000 – 1070 Glendon Avenue.; 1001-1029 Tiverton Ave	11.7 11.6	350 Apartments	LA	2,043	92	151		X
96	Palazzo Westwood	1000 Glendon Ave.	11.7	115,000 sq. ft of mixed use	LA	3,768	146	352		X
97	Senior Housing	5227 Knowlton Ave.	3.1	187-unit apartments	LA	908	69	96		X
98	Shopping Center	8985 Venice Blvd.	11.2	132,802 sq. ft.	LA	5,700	136	496		X
99	Stephen S. Wise Nursery School	15500 Stephen Wise Drive	16.6	240 student nursery school	LA	1,311	67	161		X
100	Transit Center	Jefferson Blvd.	13.0	175 MTA bus operation	LA	1,666	107	103		X
101	Villa Marina	13480 – 13490 Maxella Avenue; 4350 – 4358 Lincoln Boulevard	7.9	244 condos, 9,000 sq. ft. retail, 594 parking spaces	LA	1,817	136	217		X
102	Wells Fargo Bank	13400 Washington Blvd.	8.9	4,300 sq. ft. walk-in bank	LA	N/A	0	72	X	
103	West Bluff	7400 West 80th St.	4.3	120 single family homes	LA	1,226	93	127	Under Const.	
104	Westchester Lutheran School	7831 Sepulveda Blvd.	3.4	School expansion	LA	250	64	32	X	
105	Westchester Neighborhood School	5401 Beethoven Street	5.6	School for 420 students	LA	N/A	1,470	66		X
106	Westside Pavilion	10850 Pico Blvd.	9.8	751,557 st. ft of retail	LA	2,045	2	152		X
107	Metlox[7/]	NW corner, Valley Dr. and Manhattan Beach Boulevard (between Morningside Drive and 13th Street)	5.2	460 space parking structure; 63,850 sq,. ft commercial (including 8,000 sf restaurant use; 17,000 sq. ft. office; 20,000 sq. ft retail; 38-room inn), police and fire facility	MB	N/A	141	387	Parking struct. built. Comm., police and fire under const.	
108	Mixed Use Development[7/]	2201 Highland Ave.	5.2	1,600 sf restaurant; 6 dwelling units	MB	N/A	25	34	Under Const.	
109	Office[7/]	330 S. Sepulveda Blvd.	5.0	56,000 sq. ft.	MB	N/A	117	142		X
110	Ristani Building[7/]	1100 Manhattan Ave.	5.2	4,543 sq. ft retail; 3,636 sq. ft office	MB	N/A	35	28		X

Notes:
X – Denotes that the project may be operational in either (a) 2005 or (b) 2006 or beyond.
N/A = Not Available
1/ Approximate driving distance from the study area (intersection of Aviation Boulevard and 111th Street) to the proposed project obtained from Yahoo.com maps.
2/ CC = Culver City, CO = County of Los Angeles, ES = El Segundo, HA = Hawthorne, LA = Los Angeles, ING = Inglewood, MB = Manhattan Beach.
3/ Represents peak hour trips during the am commuter peak hour (8:00 am to 9:00 am).
4/ Represents peak hour trips during the pm commuter peak hour (5:00 pm to 6:00 pm).
5/ Culver City project in entitlement phase, per information provided by Ms. Heather Burton of City of Culver City planning staff.
6/ Project information from City of El Segundo websitehttp://www.elsegundo.org/cityservices/planning/planning/website_active_projects_applications_06_29_05.pdf
7/ Information for Manhattan Beach projects from City of Manhattan Beach website, http://www.ci.manhattan-beach.ca.us/commdev/sections/metlox/index.htm and telephone conversation with Ms. Rosemary Lackow, City of Manhattan Beach, on July 12, 2005.

Source: LAWA based on data compiled by LADOT in consultation with representatives from local jurisdictions, July 12, 2005
Prepared by: Ricondo & Associates, Inc.

As described previously, the traffic analysis depicted in this report is based the assumption that the peak period of SAIP construction would occur in 2005. The list of projects described in the table was developed to identify those projects that would likely be operational during the peak SAIP construction year (2005). Given that the peak construction year is now anticipated to occur in 2006, it is logical that additional non-airport projects identified to be in place in 2006 or beyond will be under construction or operational during the peak construction year. Sensitivity analyses were conducted to assess the cumulative effect from these projects in the event that peak construction traffic occurs in 2006. Based on the sensitivity analyses described in Appendix D, it is anticipated that the assumptions and analyses described in this section remain valid for determining the potential effects of construction in 2006.

Based on the project development information provided in the table, approximately 36 of the 110 development projects listed in the table are built, under construction or are anticipated to be operational during 2005. An estimated 67 of the projects would not be operational until 2006 or beyond. (As of July 2005, information was not available for 7 projects). Of those projects anticipated to be operational during 2005, 23 are located more than five miles from the study area (defined for this purpose as the intersection of Aviation Boulevard and 111th Street) and would likely have minimal direct impact on the study area roadways and intersections. Of those 13 projects within five miles of the study area that are anticipated to be operational during 2005, most are relatively small, low-density developments (e.g., fitness center, single family homes, gas station/convenience store, school expansion) that are anticipated to generate few trips during the SAIP peak hours.

The construction schedules and specific dates of occupancy for the developments identified as being within five miles of the study area are not available. However, given the locations of these projects, it is reasonable to assume that construction-related traffic would access those projects via freeway ramps and roadways that are outside the study area for the SAIP. 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 study area intersections.

The largest near-term development in the immediate vicinity of the airport is the Playa Vista project (Project No. 93 in the table), a mixed-use development located approximately five miles to the north of the airport. Playa Vista Phase I construction is on-going with about two-thirds of the residential dwelling units now built and occupied. As such, any traffic associated with these occupied properties or any ongoing construction of these properties that may use the study area roadways would have been included in the traffic counts conducted for this EIR in August 2004. LADOT staff has also indicated that (a) no significant increases in the Playa Vista development are anticipated during the time horizon for the SAIP, (b) any difference in Playa Vista related traffic between 2004 and the peak construction period for SAIP construction would be negligible during the off-peak periods (i.e., non-commute peaks), and (c) the 2 percent annual growth rate for background traffic assumed for this study would be sufficient to account for any Playa Vista Phase I traffic from now through the peak construction period for the SAIP.

Another local area project of significance is the proposed Sepulveda/Rosecrans Site Rezoning and Plaza El Segundo Development in the City of El Segundo (Project No. 62 in the table) located approximately 3.2 miles from the study area. The Draft EIR for this project was released for review in September 2004. The proposed project consists of two components within a 108 acre site: (1) the redesignation and rezoning of approximately 85.8 acres of property with the City of El Segundo currently and formerly used for industrial purposes to a new Commercial Center land use designation and C-4 zoning classification; and (2) construction and operation of a proposed development project on a 43.3-acre portion of the site, if rezoned C-4. Construction of development to the maximum levels allowable under the C-4 zone for (1) above would not be completed until 2012. Construction of (2) above is anticipated to be completed in 2007.[8] Although neither of these proposed project components, if approved, would be operational until 2007, it is anticipated that the project could feasibly be under construction concurrent with the construction of the SAIP. However, given that the site is not directly adjacent to the SAIP study area and construction vehicles would not likely share the same freeway access routes as the SAIP, it is anticipated that any construction traffic associated with this project that might enter the study area roadway system would be accounted for in the assumed 2 percent growth rate for background traffic.

Campus El Segundo (Project No. 54 in the table) is located approximately 1.2 miles south of the study area. The development encompasses approximately 46.5 acres and, upon full build, would provide approximately 2.2 million square feet of mixed-use development in a corporate campus environment. Based on discussions with the project developer[9], the development is planned to be implemented in multiple phases with construction beginning in late 2005 at the earliest and full build anticipated by 2014. The first phase of the project comprising 330,000 square feet of development is anticipated to be available for occupancy by late 2007. The second phase of the project comprised of an additional 300,000 square feet of development is anticipated to begin construction in late 2006. Given that construction of the Campus El Segundo project is not anticipated to begin construction until late 2005 at the earliest, and the project may experience further delays beyond the start dates currently envisioned, it is not anticipated that the cumulative effects of this project combined with the SAIP construction over the remainder of the project would result in traffic volumes that exceed those analyzed for the SAIP traffic study.

In summary, the few local development projects anticipated to be operational during the peak SAIP construction period and that are located within close proximity to the study area are anticipated to generate relatively few commuter construction peak hour trips (and even fewer trips during the peak hours analyzed for the SAIP) within the SAIP study area. Give these characteristics, it is anticipated that traffic volumes generated by any of the developments listed in Table 4.2-7 that are under construction or operational during the SAIP peak construction period would be included in the assumed 2 percent growth factor for background traffic. The potential effect of trips generated by local developments on the study area intersections would be further reduced given that the peak hours being evaluated for this study do not coincide with the commuter a.m. and p.m. peaks that generally correspond with the peak traffic generation periods for most of these developments.

Other LAX Construction

As discussed in Section 3.5, LAX development includes both project components of the LAX Master Plan and projects with independent utility. The major projects with independent utility that are anticipated to be under construction concurrent with the SAIP are:

- Tom Bradley International Terminal (TBIT) Improvements and Baggage Screening Facilities Project
- Terminals 1-8 In-Line Baggage System Construction
- Airfield Intersection Improvements—Phase 1
- Southside Airfield Improvement Program—Remote Boarding Facilities Modifications

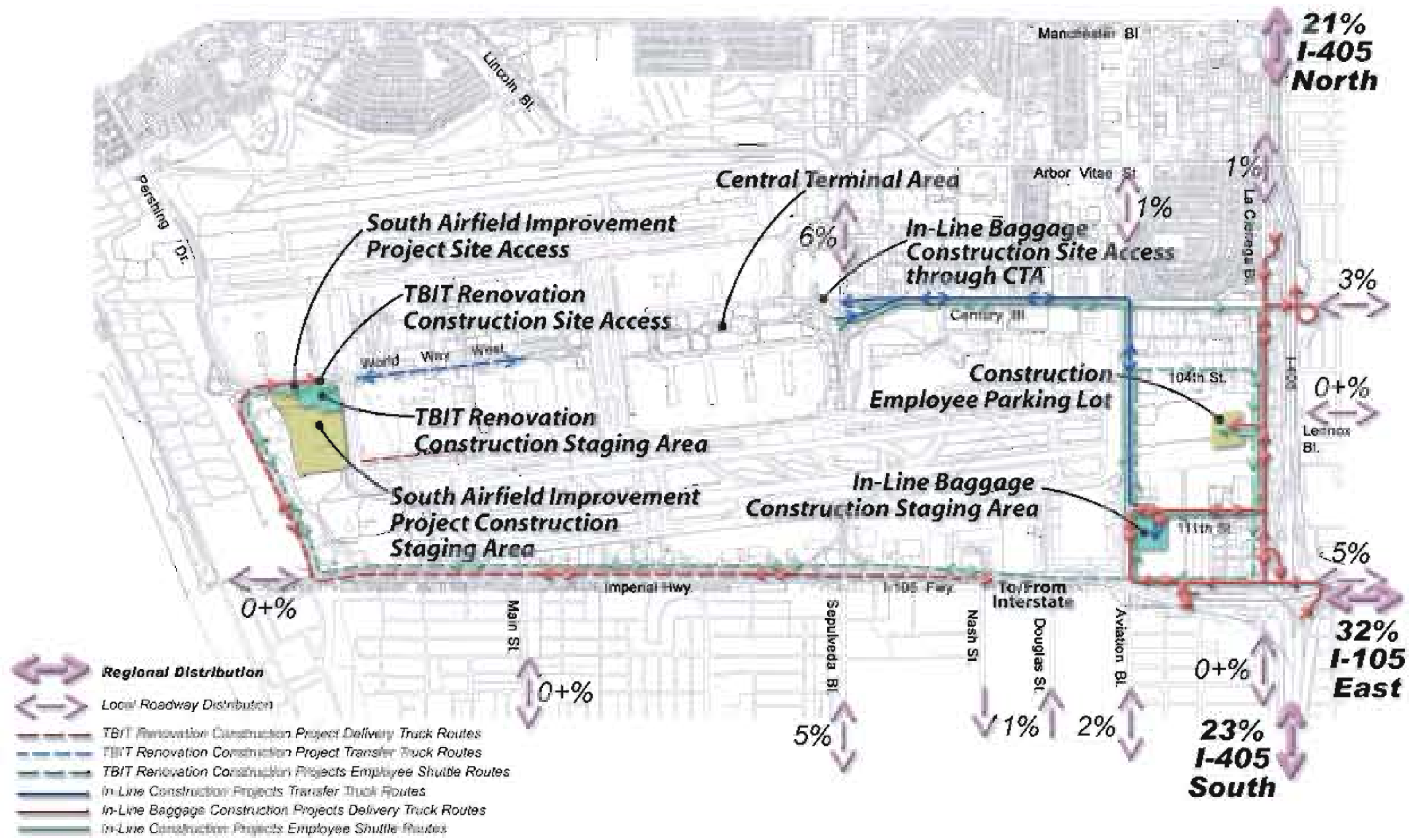
[8] Source: City of El Segundo website under Business Community, Major Developments.
[9] Source: Discussion between LAWA staff and Mr. Tom Ricci of Thomas Properties Group on March 17, 2005.

It is possible that other LAX Master Plan projects would be under construction during the construction period for the SAIP. Although these projects may overlap the construction of the SAIP, they have not reached a level of planning that would allow for an accurate estimate of traffic related characteristics of the construction activities. Moreover, based on the current level of planning and anticipated timing of these projects, it is unlikely that these projects would contribute appreciably to the background or construction-related impacts during the peak month of construction-related traffic activity for the SAIP. However, as discussed in Section 4.2.3.3.3 the assumed conservative growth in airport-related traffic is anticipated to produce a conservative traffic volume scenario that would account for the effects of additional construction-related traffic in the event that additional LAX Master Plan construction projects were to be initiated during the time horizon evaluated for this study.

For purposes of estimating the Adjusted Baseline conditions, the traffic volumes related to the construction of the TBIT Improvements and Baggage Screening Facilities and Terminals 1-8 In-Line Baggage System Construction projects were estimated and added to the study area roadway system as additional background traffic. Traffic generated by the Airfield Intersections Improvement Project and Southside Airfield Improvement Program Remote Boarding Facilities Modifications Project is not directly represented in the Adjusted Baseline volumes because these projects were not developed to a level that would allow a specific estimate of construction related traffic activity at the time the SAIP traffic study was prepared. However, it is estimated that (a) a maximum of 32 employees (i.e., 20 for the airfield intersection project and 12 for the remote boarding facilities project) would be on-site during the construction of both of these projects and (b) the airfield intersection project construction would not overlap with the peak activity of the SAIP. It is not anticipated that the construction of these projects would alter the Adjusted Baseline conditions given the conservative estimate of airport related traffic, the anticipated timing of these two projects relative to the SAIP, and the relatively small scale (32 employees) compared with the TBIT and Terminals 1-8 projects (613 employees at peak).

The locations of TBIT and in-line baggage facility construction sites, construction staging areas and general circulation patterns of construction-related vehicle activity for the TBIT and in-line baggage construction projects are depicted on **Exhibit 4.2-4**.[10] Based on information provided by LAWA, it was assumed that construction staging for the TBIT project would be accommodated in two locations. Specifically, separate staging sites have been assumed for activities associated with terminal improvements and renovations (TBIT Renovations) and for activities associated with in-line

[10] The TBIT and Terminals 1-8 projects were under design during the preparation of the SAIP traffic study. The staging and employee parking locations and trip generation characteristics of the TBIT and Terminals 1-8 projects that were assumed for these analyses were based on the best information available at the time of the study. HNTB, *Employee/Construction Truck Data Estimate for TBIT Renovations, TBIT Inline, Terminals 1-8 In-Line*, August 25, 2004 Subsequent to the preparation of this study, however, it was determined that staging and employee parking areas for the TBIT and Terminals 1-8 projects would be located on the west side of the Airport and that construction delivery and employee trips generated by the TBIT and Terminals 1-8 projects would be lower than were assumed for the SAIP traffic study. Also according to the LAWA project manager for the In-Line project, because of airfield constraints it is now anticipated that the majority of the construction work for the In-Line project will take place at night (approximately 10 p.m. to 6 a.m.). As described in the sensitivity analyses provided in Appendix D, it is anticipated that these revised assumptions would result in improved operations for most of the study area intersections. However, the analysis provided in this report has not been revised to reflect these new assumptions given that the original assumptions result in a conservative analysis that generally overestimates traffic activity in the study area.



Prepared by: Ricondo & Associates, Inc.

Exhibit 4.2-4

north

Not to Scale

Other LAX Construction Projects Vehicle Routes and Trip Distribution

baggage system construction (TBIT In-Line). As shown on the exhibit, the staging area for the TBIT Renovations activities are planned to be located on the west side of the airport accessed via World Way West (just east of the entrance to the SAIP site). Materials would be transported from the staging area to the project site via World Way West and across the secure airside. The staging areas for the TBIT In-Line and Terminals 1-8 In-Line Baggage System project components are assumed to be located on adjacent parcels near the southeast quadrant of the intersection of Aviation Boulevard and 111th Street, with access provided via 111th Street. It is assumed that materials would be transported from the staging area to the CTA via Aviation Boulevard and Century Boulevard.

Construction employees for both TBIT construction components and for the Terminals 1-8 In-Line construction activities are assumed to use the construction employee parking lot located off of La Cienega Boulevard. It was assumed that separate employee shuttle systems would be operated for each of the three construction project components (i.e., TBIT Renovations, TBIT In-line, and Terminals 1-8 Inline) as these shuttles may be operated under different contracts. The employee shuttle for the TBIT Renovations project component is assumed to stop at the project staging area en-route to the TBIT Renovations project site via the secure airside. The shuttles for both in-line baggage system project components are assumed to use Aviation Boulevard and Century Boulevard en-route to the upper level of the CTA roadway system.

For purposes of the intersection analyses, the trips have been converted to a "passenger car equivalent" (PCE) to account for the additional impact that large vehicles such as delivery trucks and shuttle buses 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 from the LAX Master Plan Final EIR:

Vehicle Type	PCE Factor
Construction Employees	1.0
Construction Employee shuttle bus	2.0
Construction Delivery trucks	2.5
Construction Transfer trucks	1.5

The employee shuttle bus is assumed to accommodate approximately 40 passengers. Delivery trucks may range from single-unit, box-body vehicles to large semi-trailer trucks. Transfer trucks that would move materials from the construction staging area to the construction site are anticipated to range from pickup trucks to larger vehicles such as dump trucks.

Vehicle trips associated with the construction of these projects are presented in **Table 4.2-8**. The first table represents the vehicle trips associated with the TBIT Renovations project component, and the second table represents the combined trips from the TBIT In-Line project component and Terminals 1-8 In-line Baggage System construction projects. As described previously, the trips associated with the baggage system construction projects have been combined because it was assumed that they would use co-located construction staging and employee parking facilities. As shown in the table, the peak morning flow was assumed to occur between 5:00 and 6:00 a.m. with approximately 130 equivalent passenger car trips generated by the TBIT Renovations project and approximately 320 trips generated by the In-Line Baggage System projects. As discussed previously, these peak morning trips have been combined with the 6:00 a.m. to 7:00 a.m. roadway traffic volumes to form the employee a.m. peak hour (6:00 a.m. to 7:00 a.m.). Adding construction-related trips to the construction 6:00 to 7:00 a.m. volumes would provide for a conservative volume estimate that is higher than the traffic volumes that would result from adding the construction-related volumes

Table 4.2-8 (1 of 2)

Other LAX Construction Traffic Volumes

Hour			TBIT Renovations Construction Project Passenger Car Equivalent (PCE) Trips						
			Employee Trips In 1/	Employee Trips Out 1/	Shuttle Trips In 2/	Shuttle Trips Out 2/	Delivery Trips In 3/	Delivery Trips Out 3/	Total Construction
12:00	-	1:00 a.m	0	0	0	0	3	3	6
1:00	-	2:00	0	0	0	0	3	3	6
2:00	-	3:00	0	0	0	0	3	3	6
3:00	-	4:00	0	0	0	0	3	3	6
4:00	-	5:00	0	0	0	0	3	3	6
5:00	-	6:00	99	0	12	12	3	3	129
6:00	-	7:00	0	0	0	0	3	3	6
7:00	-	8:00	0	0	0	0	0	0	0
8:00	-	9:00	0	0	0	0	0	0	0
9:00	-	10:00	0	0	0	0	3	3	6
10:00	-	11:00	0	0	0	0	10	10	20
11:00	-	12:00	0	0	0	0	8	8	16
12:00	-	1:00 p.m.	0	0	0	0	8	8	16
1:00	-	2:00	0	0	0	0	8	8	16
2:00	-	3:00	0	0	0	0	8	8	16
3:00	-	4:00	49	0	12	12	8	8	89
4:00	-	5:00	0	99	12	12	5	5	133
5:00	-	6:00	0	0	0	0	0	0	0
6:00	-	7:00	0	0	0	0	0	0	0
7:00	-	8:00	0	0	0	0	3	3	6
8:00	-	9:00	0	0	0	0	3	3	6
9:00	-	10:00	0	0	0	0	3	3	6
10:00	-	11:00	0	49	12	12	3	3	78
11:00	-	12:00 a.m.	0	0	0	0	3	3	6
Total			148	148	48	48	94	94	580

Summary of Analysis Hours--TBIT Renovation Construction Project

Employee AM (5:00-6:00 a.m.)	99	0	12	12	3	3	129
Delivery (3:00-4:00 p.m.)	49	0	12	12	9	9	91
Employee PM 4/ (3:30-4:30 p.m.)	49	99	24	24	9	9	214

Table 4.2-8 (2 of 2)

Other LAX Construction Traffic Volumes

Hour	TBIT In-Line and Terminal 1-8 Baggage Construction Projects Passenger Car Equivalent (PCE) Trips								
	Employee Trips In 1/	Employee Trips Out 1/	Shuttle Trips In 2/	Shuttle Trips Out 2/	Delivery Trips In 3/	Delivery Trips Out 3/	Transfer Trucks In 3/	Transfer Trucks Out 3/	Total Construction
12:00 - 1:00 a.m.	0	0	0	0	5	5	9	9	28
1:00 - 2:00	0	0	0	0	5	5	9	9	28
2:00 - 3:00	0	0	0	0	5	5	9	9	28
3:00 - 4:00	0	0	0	0	8	8	11	11	38
4:00 - 5:00	0	0	0	0	5	5	11	11	32
5:00 - 6:00	242	0	24	24	5	5	11	11	322
6:00 - 7:00	0	0	0	0	5	5	9	9	28
7:00 - 8:00	0	0	0	0	0	0	0	0	0
8:00 - 9:00	0	0	0	0	0	0	0	0	0
9:00 - 10:00	0	0	0	0	10	10	17	17	54
10:00 - 11:00	0	0	0	0	20	20	36	36	112
11:00 - 12:00 p.m.	0	0	0	0	20	20	36	36	112
12:00 - 1:00	0	0	0	0	18	18	36	36	108
1:00 - 2:00	0	0	0	0	20	20	36	36	112
2:00 - 3:00	0	0	0	0	20	20	36	36	112
3:00 - 4:00	121	0	24	24	20	20	36	36	281
4:00 - 5:00	0	242	24	24	10	10	17	17	344
5:00 - 6:00	0	0	0	0	0	0	0	0	0
6:00 - 7:00	0	0	0	0	3	3	8	8	22
7:00 - 8:00	0	0	0	0	8	8	11	11	38
8:00 - 9:00	0	0	0	0	5	5	11	11	32
9:00 - 10:00	0	0	0	0	5	5	11	11	32
10:00 - 11:00	0	121	24	24	5	5	11	11	201
11:00 - 12:00	0	0	0	0	8	8	11	11	38
Total	363	363	96	96	210	210	382	382	2,102
Summary of Analysis Hours-TBIT and Terminal 1-8 In-line Baggage Construction Projects									
Employee AM (5:00-6:00 a.m.)	242	0	24	24	5	5	11	11	322
Delivery (3:00-4:00 p.m.)	121	0	24	24	20	20	33	33	275
Employee PM 4/ (3:30-4:30 p.m.)	121	242	48	48	20	20	33	33	565

Notes:

1/ An occupancy of 1.2 employees per vehicle is included in the employee trip calculations. Employee data for TBIT projects based on “Employee/Construction Truck Data Estimate,” HNTB, August 25, 2004; data for Terminals 1-8 project based on LAWA estimate of 250 vehicles, plus an additional 20% to provide a conservative estimate.

2/ It is assumed that shuttles with maximum 40 person capacity or smaller would transport employees between the construction parking lot and the construction site with 6 trips in the 30 minutes before shift start and 30 minutes after shift end. Shuttle is equivalent to 2 passenger cars.

3/ The construction project includes trucks delivering materials to a construction staging area and additional trucks transferring materials between the staging area and construction site. Delivery trucks are equivalent to 2.5 passenger cars and transfer trucks are equivalent to 1.5 passenger cars.

4/ Employee trips entering the site would be compressed into a 30-minute period from 3:30 to 4:00 p.m. and employees exiting the site would leave during the 30-minute period from 4:00 to 4:30. Delivery vehicle and transfer truck trips are comprised of half of the trips from 3:00 to 4:00 p.m. period plus all of the trips from 4:00 to 5:00 hour (which are assumed to access the site from 4:00 to 4:30 p.m.)

Source: HNTB "Employee/Construction Truck Data Estimate" memo, August 25, 2004; LAX Master Plan Supplement to the Draft EIR Table S29.

Prepared by: Ricondo & Associates, Inc.

to the 5:00 to 6:00 a.m. "background" traffic volumes. The analysis is conservative because it would potentially result in more project-related impacts than would evaluation of the 5:00 to 6:00 a.m. time period. It is anticipated that the analysis would be representative of actual conditions in the event that construction scheduling provides employee shift start times closer to 7:00 a.m.

During the construction employee p.m. peak hour (3:30 p.m. to 4:30 p.m.), the TBIT Renovations project component is estimated to generate about 220 equivalent passenger car trips and the combined in-line baggage system projects are anticipated to generate approximately 570 equivalent passenger car trips. Note that it was conservatively assumed that entering and exiting employee trips would overlap during the 3:30 to 4:30 peak hour. Employee trips entering the site would be compressed into a 30-minute period from 3:30 to 4:00 p.m. and employees exiting the site would leave during the 30-minute period from 4:00 to 4:30. Delivery vehicle and transfer truck trips accommodated during the 3:30 to 4:30 p.m. employee peak hour are comprised of half of the trips from 3:00 to 4:00 p.m. period plus all of the trips from 4:00 to 5:00 hour (which are assumed to access the site from 4:00 to 4:30 p.m.).

For purposes of distributing traffic on the study area roadway network, it was assumed that construction employee and delivery vehicle trips would originate from geographic locations in proportion to the regional population distribution shown in **Table 4.2-9**. The regional population distribution is based on information obtained from the LAX Master Plan Final EIR. As shown on the table and on Exhibit 4.2-4, 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 presented at the roadway level represent the last roadway that a construction-related vehicle would use before entering the study area and do not necessarily represent the entire trip from the point of origination.

In assigning traffic to the study area roadways, it was assumed that construction vehicles comprised of deliver trucks and construction employee automobiles would approach the study area in proportion to the regional distributions described above. The freeway ramps, roadways, and intersection comprising the travel paths for construction-related vehicles within the 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 these 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 study area via a limited number of freeway access points that may accommodate traffic originating from several regional directions.

Detailed trip distribution patterns were estimated for vehicles within the study area based on consultation with LAWA staff. The assumed study area circulation routes for construction employees, shuttle buses, delivery trucks, and transfer trucks are described in **Appendix J**.

4.2.6.2 Estimated 2005 Adjusted Baseline Traffic Volumes

Estimated total volumes at the study area intersections for the Adjusted Baseline (2005) condition are summarized in **Table 4.2-10**. These volumes reflect growth in airport-related and non-airport-related background traffic plus the addition of traffic generated by the other LAX construction projects described previously. The table also compares the Adjusted Baseline (2005) volumes to the Baseline (2003) volumes. As shown, the growth assumptions presented previously and the addition of other LAX construction traffic result in an average increase of 17 percent for the two-year period from 2003 to 2005.

Table 4.2-9
Regional Population Distribution

Area	Population (2002)	Percent of Population	Route Percentage to Airport: I-405 North	I-405 South	I-105 East	Local Roads	Total
Primary 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 County	2,961,693	18%	0%	4%	12%	2%	18%
Ventura County	771,734	5%	4%	0%	0%	0%	5%
Total	16,687,468	100%	21%	23%	32%	24%	100%

Source: LAX Master Plan Final EIR Figure F4.3.2-3 (Existing 1996 Airport Traffic versus Non-Airport Traffic comparison) and 2001 LAX Passenger Survey Report Table 39.
Prepared by: Ricondo & Associates, Inc.

Table 4.2-10

Comparison of Baseline (2003) and Adjusted Baseline (2005) Total Intersection Volumes

	Intersection	Peak Hour [1/]	Baseline (2003) Intersection Volumes	Adjusted Baseline (2005) Intersection Volumes	Increase from 2003 to 2005 Volume	Increase from 2003 to 2005 Percent
1.	Imperial Highway & Pershing Drive	Employee A.M.	1,760	1,900	140	8%
		Delivery	2,200	2,390	190	9%
		Employee P.M.	2,301	2,530	229	10%
2.	Imperial Highway & Main Street	Employee A.M.	2,300	2,510	210	9%
		Delivery	2,680	2,910	230	9%
		Employee P.M.	2,820	3,100	280	10%
3.	Imperial Highway & Sepulveda Boulevard	Employee A.M.	3,910	4,330	420	11%
		Employee P.M.	6,150	6,820	670	11%
4.	Imperial Highway & Nash Street	Employee A.M.	2,670	2,940	270	10%
		Employee P.M.	2,190	2,540	350	16%
5.	Imperial Highway & Douglas Street	Employee A.M.	940	1,070	130	14%
		Employee P.M.	2,090	2,410	320	15%
6.	Imperial Highway & Aviation Boulevard	Employee A.M.	2,380	2,970	590	25%
		Employee P.M.	4,160	4,880	720	17%
7.	Imperial Highway & I-105 Ramps E/O Aviation Boulevard	Employee A.M.	2,010	2,440	430	21%
		Employee P.M.	3,020	3,640	620	21%
8.	Imperial Highway & La Cienega Boulevard	Employee A.M.	1,520	1,740	220	14%
		Employee P.M.	3,230	3,920	690	21%
9.	Imperial Highway & I-405 Northbound Ramps	Employee A.M.	1,350	1,490	140	10%
		Employee P.M.	2,290	2,660	370	16%
10.	Century Boulevard & Aviation Boulevard	Employee A.M.	4,210	4,720	510	12%
		Employee P.M.	6,110	6,990	880	14%
11.	Aviation Boulevard & 111th Street	Employee A.M.	1,590	2,020	430	27%
		Employee P.M.	2,450	3,080	630	26%
12.	La Cienega Boulevard & I-405 Southbound Ramps	Employee A.M.	1,430	1,660	230	16%
		Employee P.M.	2,270	2,510	240	11%
13.	La Cienega Boulevard & Century Boulevard	Employee A.M.	3,840	4,430	590	15%
		Employee P.M.	5,630	6,400	770	14%
14.	La Cienega Boulevard & I-405 Southbound Ramps	Employee A.M.	970	1,310	340	35%
		Employee P.M.	2,310	2,800	490	21%
15.	La Cienega Boulevard & 104th Street	Employee A.M.	760	1,240	480	63%
		Employee P.M.	1,690	2,170	480	28%
16.	La Cienega Boulevard & Lennox Boulevard	Employee A.M.	810	950	140	17%
		Employee P.M.	1,670	2,350	680	41%
17.	La Cienega Boulevard & 111th Street	Employee A.M.	840	980	140	17%
		Employee P.M.	1,820	2,560	740	41%
18.	La Cienega Boulevard & I-405 Southbound Ramps	Employee A.M.	890	1,030	140	16%
		Employee P.M.	1,680	2,240	560	33%
19.	Century Boulevard & I-405 Northbound Ramps	Employee A.M.	3,090	3,480	390	13%
		Employee P.M.	3,840	4,320	480	13%
Total Average Percent Growth			99,871	116,430	16,559	17%

Notes:

1/ The hours of data collection included the SAIP Construction Employee a.m. peak (6:00 - 7:00 a.m.), the SAIP Construction Delivery peak (3:00 - 4:00 p.m.) and the SAIP Construction Employee p.m. peak (3:30 - 4:30 p.m.).

Source: Ricondo & Associates using data collected by Wiltec on August 3 and 4, 2004 and other information described in text.
Prepared by: Ricondo & Associates, Inc.

4.2.6.3 Project (2005) Condition

Project Related Construction

The locations of the SAIP construction site, construction employee parking lot, and other relevant features are depicted on **Exhibit 4.2-5**. As shown on the exhibit, delivery trucks are anticipated to use the regional freeway system to Imperial Highway to access the Project site located on World Way West. Project-related construction employees are anticipated to park in the same parking lot with the other LAX construction employees and would, therefore, follow the same regional access patterns that were described previously in Section 4.2.6.1 and provided in **Appendix J**.

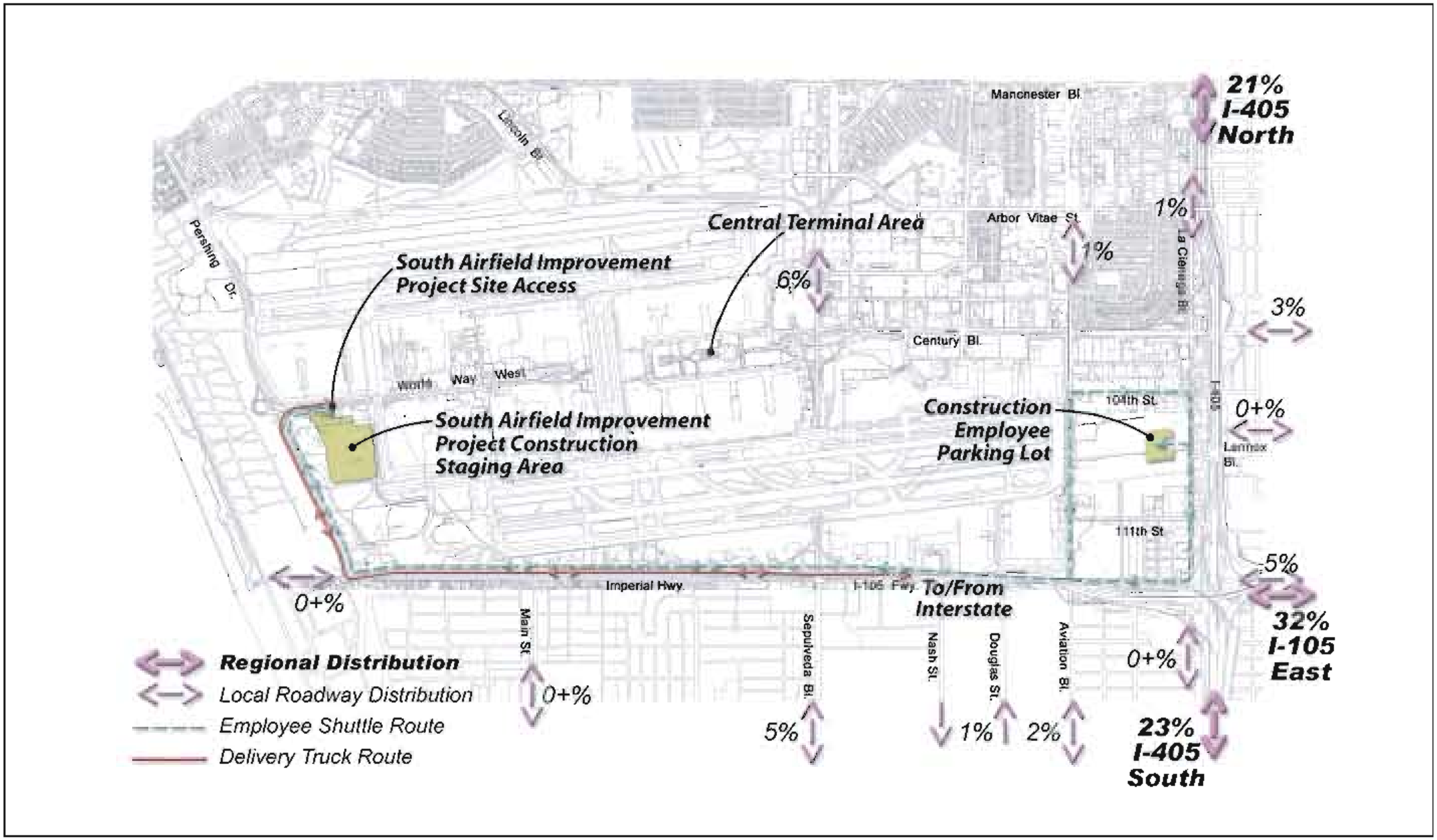
Employee and delivery vehicle trips were developed over the course of the SAIP construction period for all anticipated categories of construction employees including trips associated with the operation of a concrete batch plant and rock crushing facilities. During the peak day of construction for the SAIP, it was estimated that the following numbers of employees, summarized by category, would access the construction site:

Classification	Number of Employees[11]
Electrical crew	8
Saw cut crew	8
Grading crew	80
Demolition crew	12
Drainage crew	20
Paving crew	24
Survey crew	24
Administrative support crew	14
LAWA engineer / CM	8
LAWA inspection	16
Batch crew	6
Contractor QC team	12
Environmental crew	10
Miscellaneous crew	10
Total	252 employees

As shown, it is estimated that 252 construction employees would access the SAIP construction site on a daily basis during the peak period of construction. Using an assumed vehicle occupancy factor of 1.2 employees per vehicle, it was estimated that 210 construction employee vehicles per day would access the study area.

In addition to employee vehicle trips, it was estimated that approximately 640 construction related truck trips would access the site during the peak day. The trips would be comprised of an estimated 300 aggregate/cement deliveries, 300 excavation and grading, and 40 miscellaneous deliveries (e.g., electrical, saw cut, demolition, drainage). Using an assumed passenger car equivalency (PCE)

[11] Peak period construction employee activity is based on information in the memorandum, "Runway 25L Relocation Employee/Construction Truck Data Estimate," HNTB, August 19, 2004, and "Runway 25L Relocation, Preliminary Construction Schedule," HNTB, August 9, 2004. Subsequent construction schedule analysis prepared March 25, 2005 (Source: HNTB), indicates peak daily employee activity to be 232 employees, or about 9 percent lower than the estimate used to prepare the analyses. The traffic analysis has not be changed to reflect this reduction because it currently provides a conservative scenario that increases use of the study area roadways.



Prepared by Ricondo & Associates, Inc.

Exhibit 4.2-5

north **Not to Scale**

Project Construction Vehicles Routes and Trip Distribution

factor of 2.5 per vehicle, it was estimated that an equivalent 1,600 vehicles would enter and exit the study area during the peak construction period.

The estimated project-related construction trips (in PCEs) are summarized in **Table 4.2-11**. As shown, during the morning, construction employees are assumed to arrive during the 5:00 to 6:00 a.m. time period to begin work at 6:00 a.m. However, consistent with previous assumptions, these volumes have been added to the 6:00 to 7:00 a.m. hour traffic volumes to produce a conservative construction employee a.m. peak hour that would be higher than would occur if the peak construction traffic was added to the 5:00 to 6:00 a.m. "background" traffic activity. During the afternoon, the second-shift employees are assumed to arrive during a half-hour period from 3:30 to 4:00 p.m. to begin the second shift at 4:00 p.m. The first shift is assumed to end at 4:00 p.m., with most employees accessing the parking lot and leaving the airport during the half-hour period from 4:00 to 4:30 p.m.

During the construction employee a.m. peak hour approximately 280 equivalent passenger car trips were estimated to use the study area roadway network. The peak trip generation is estimated to occur during the construction delivery peak hour (3:00 p.m. to 4:00 p.m.) when an estimated 530 PCE construction vehicles would use the study area roadway network. However, these construction-related trips would primarily affect the intersections accommodating delivery truck traffic on the western segment of Imperial Highway. During the construction employee p.m. peak hour (3:30 to 4:30 p.m.) approximately 480 equivalent passenger car trips would use the study area intersections.

The total estimated number of construction employees generated by the SAIP each week over the duration of the project are depicted on **Exhibit 4.2-6**.[12] As shown, it is anticipated that peak construction employee activity would include a three-week period culminating in a peak weekly demand of about 1,390 employees (or a peak daily employee volume of about 232 employees assuming a 6 day work week). A smaller spike of approximately two weeks in duration is anticipated to occur about one month later, followed by a decrease in employee traffic volumes over the next few months. There are three additional peaks anticipated; however, the magnitudes of these peaks are much smaller than the primary peak (67 percent to 77 percent of peak) with short durations lasting from 1 to 3 weeks.

<u>Estimated Project (2005) Traffic Volumes</u>

Estimated total volumes using the study area intersections for the Project (2005) condition are summarized in **Table 4.2-12**. These volumes are comprised of the traffic associated with the Adjusted Baseline (2005) condition plus the project-related traffic volumes. The table also compares the Project (2005) condition with the Adjusted Baseline (2005) condition. As shown, the addition of project-related traffic volumes to the study area intersections results in an average increase of 3 percent across the study area network for the Project (2005) condition as compared with the Adjusted Baseline (2005) condition, with those intersections nearest construction access driveways experiencing the largest increase.

[12] Construction employee activity and peak analysis is based upon resource loaded construction schedule for the South Airfield Improvement Project, HNTB, March 25, 2005. The profile reflects an initial start of construction in 2005. The profile of construction trips would be the same over the course of the project, regardless of when construction begins. Therefore, Exhibit 4.2-6 provides an accurate portrayal of the peak construction activity of the project duration.

Table 4.2-11

Project-Related Construction Traffic Volumes

	Construction Trips in Passenger Car Equivalents (PCEs)						
Hour	Employee Trips In[1/]	Employee Trips Out[2/]	Shuttle Trips In[2/]	Shuttle Trips Out[2/]	Delivery Trips In[3/]	Delivery Trips Out[3/]	Total Construction
12:00 – 1:00 a.m.	0	0	0	0	45	45	90
1:00 – 2:00	0	0	0	0	45	45	90
2:00 – 3:00	0	68	12	12	45	45	182
3:00 – 4:00	0	0	0	0	45	45	90
4:00 – 5:00	0	0	0	0	45	45	90
5:00 – 6:00	142	0	12	12	60	60	286
6:00 – 7:00	0	0	0	0	195	195	390
7:00 – 8:00	0	0	0	0	0	0	0
8:00 – 9:00	0	0	0	0	0	0	0
9:00 – 10:00	0	0	0	0	0	0	0
10:00 – 11:00	0	0	0	0	70	70	140
11:00 – 12:00	0	0	0	0	70	70	140
12:00 – 1:00 p.m.	0	0	0	0	70	70	140
1:00 – 2:00	0	0	0	0	220	220	440
2:00 – 3:00	0	0	0	0	220	220	440
3:00 – 4:00	68	0	12	12	220	220	532
4:00 – 5:00	0	142	12	12	0	0	166
5:00 – 6:00	0	0	0	0	0	0	0
6:00 – 7:00	0	0	0	0	0	0	0
7:00 – 8:00	0	0	0	0	70	70	140
8:00 – 9:00	0	0	0	0	45	45	90
9:00 – 10:00	0	0	0	0	45	45	90
10:00 – 11:00	0	0	0	0	45	45	90
11:00 – 12:00	0	0	0	0	45	45	90
Total	210	210	48	48	1,600	1,600	3,716
Summary of Analysis Hours							
Employee AM (5:00-6:00 a.m.)	142	0	12	12	60	60	286
Delivery 3:00-4:00 p.m.)	68	0	12	12	220	220	532
Employee PM [4/] (3:30-4:30 p.m.)	68	142	24	24	110	110	478

Notes:

1/ An occupancy of 1.2 employees per vehicle is included in the construction employee trip calculations.

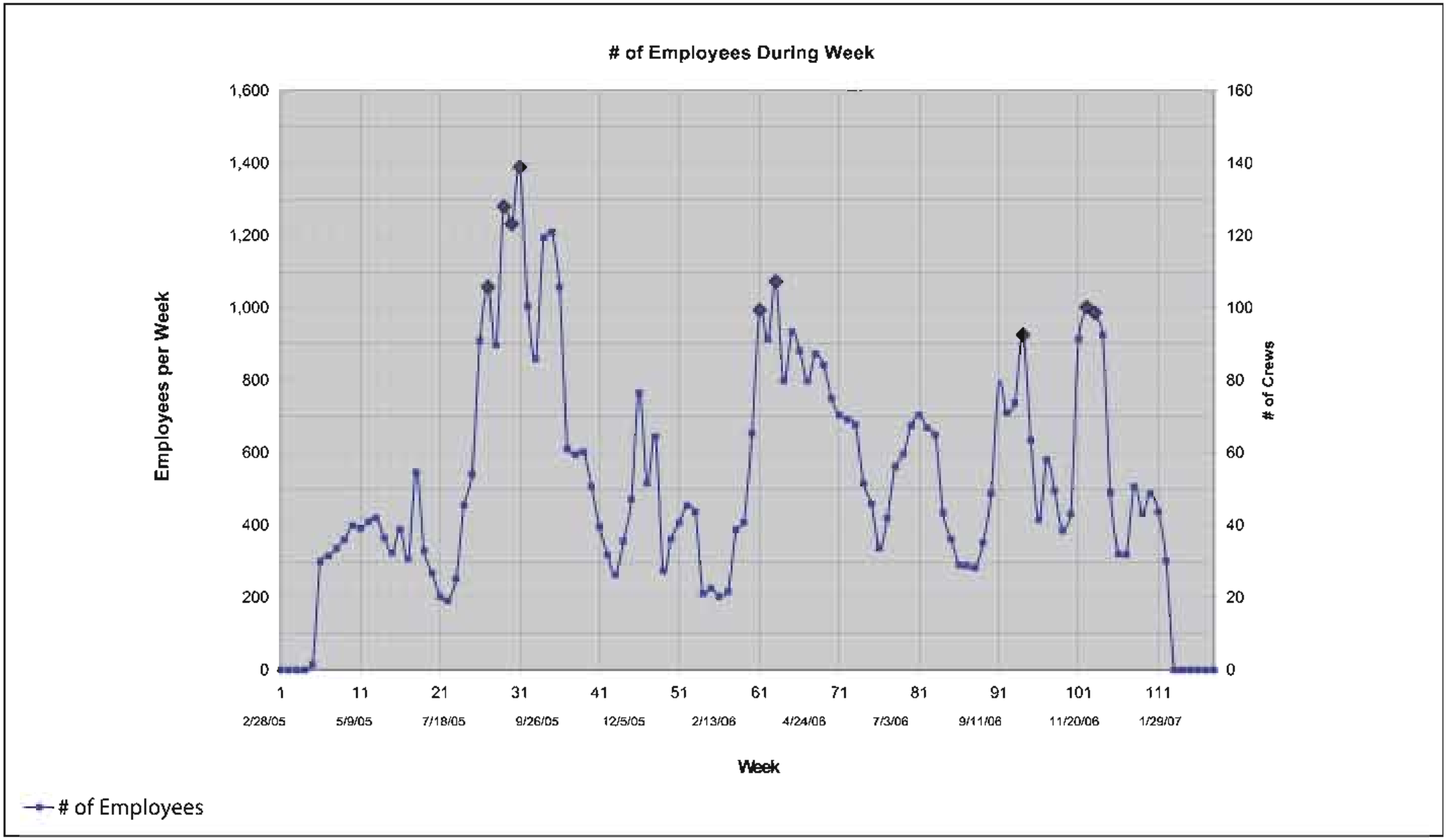
2/ Shuttles with maximum 40 person capacity or smaller would transport employees between the construction parking lot and the construction site with 6 trips in the 30 minutes before and after each shift. Shuttle trips converted at a rate of 2 to PCE trips.

3/ Truck trips converted at a rate of 2.5 to PCEs trips.

4/ Based on Master Plan Commitment ST-14, construction employee shift hours would be scheduled to occur outside of the heaviest commuter traffic periods of 7:00 - 9:00 a.m. and 4:30 - 6:30 p.m. Employee trips entering the site would be compressed into a 30-minute period from 3:30 to 4:00 p.m. and employees exiting the site would leave during the 30-minute period from 4:00 to 4:30. Delivery vehicle and transfer truck trips are comprised of half of the trips from 3:00 to 4:00 p.m. period plus all of the trips from 4:00 to 5:00 hour (which are assumed to access the site from 4:00 to 4:30 p.m.)

Source: HNTB "Runway 25L Relocation, Employee/Construction Truck Data Estimate" memo, August 19, 2004; LAX Master Plan Supplement to the Draft EIR Table S29.

Prepared by: Ricondo & Associates, Inc.



Source: Los Angeles International Airport South Airfield Improvement Project, Preliminary Construction Schedule, March 25,2005
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.2-6

South Airfield Improvement Project Construction Employees by Week

Table 4.2-12

Comparison of Adjusted Baseline (2005) and Project (2005) Total Intersection Volumes

	Intersection	Peak Hour [1/]	Adjusted Baseline (2005) Intersection Volume	Project (2005) Intersection Volume	Increase Volume	Increase Percent
1.	Imperial Highway	Employee AM	1,900	2,040	140	7%
	&	Delivery	2,390	2,850	460	19%
	Pershing Drive	Employee PM	2,530	2,790	260	10%
2.	Imperial Highway	Employee AM	2,510	2,650	140	6%
	&	Delivery	2,910	3,370	460	16%
	Main Street	Employee PM	3,100	3,360	260	8%
3.	Imperial Highway &	Employee AM	4,330	4,360	30	1%
	Sepulveda Boulevard	Employee PM	6,820	6,870	50	1%
4.	Imperial Highway &	Employee AM	2,940	2,970	30	1%
	Nash Street	Employee PM	2,540	2,600	60	2%
5.	Imperial Highway &	Employee AM	1,070	1,100	30	3%
	Douglas Street	Employee PM	2,410	2,450	40	2%
6.	Imperial Highway &	Employee AM	2,970	3,050	80	3%
	Aviation Boulevard	Employee PM	4,880	4,970	90	2%
7.	Imperial Highway & I-105 Ramps E/O	Employee AM	2,440	2,510	70	3%
	Aviation Boulevard	Employee PM	3,640	3,750	110	3%
8.	Imperial Highway &	Employee AM	1,740	1,760	20	1%
	La Cienega Boulevard	Employee PM	3,920	4,040	120	3%
9.	Imperial Highway &	Employee AM	1,490	1,500	10	1%
	I-405 Northbound Ramps	Employee PM	2,660	2,700	40	2%
10.	Century Boulevard &	Employee AM	4,720	4,730	10	0%
	Aviation Boulevard	Employee PM	6,990	7,010	20	0%
11.	Aviation Boulevard &	Employee AM	2,020	2,100	80	4%
	111th Street	Employee PM	3,080	3,140	60	2%
12.	La Cienega Boulevard &	Employee AM	1,660	1,690	30	2%
	I-405 Southbound Ramps	Employee PM	2,510	2,520	10	0%
13.	La Cienega Boulevard &	Employee AM	4,430	4,510	80	2%
	Century Boulevard	Employee PM	6,400	6,440	40	1%
14.	La Cienega Boulevard &	Employee AM	1,310	1,390	80	6%
	I-405 Southbound Ramps	Employee PM	2,800	2,840	40	1%
15.	La Cienega Boulevard &	Employee AM	1,240	1,400	160	13%
	104th Street	Employee PM	2,170	2,270	100	5%
16.	La Cienega Boulevard &	Employee AM	950	960	10	1%
	Lennox Boulevard	Employee PM	2,350	2,520	170	7%
17.	La Cienega Boulevard &	Employee AM	980	990	10	1%
	111th Street	Employee PM	2,560	2,740	180	7%
18.	La Cienega Boulevard &	Employee AM	1,030	1,040	10	1%
	I-405 Southbound Ramps	Employee PM	2,240	2,390	150	7%
19.	Century Boulevard &	Employee AM	3,480	3,510	30	1%
	I-405 Northbound Ramps	Employee PM	4,320	4,340	20	0%
Total Average Percent Growth			116,430	120,220	3,790	3%

Note:

1/ The hours of data collection included the SAIP Construction Employee a.m. peak (6:00 - 7:00 a.m.), the SAIP Construction Delivery peak (3:00 - 4:00 p.m.) and the SAIP Construction Employee p.m. peak (3:30 - 4:30 p.m.)

Source: Ricondo & Associates using data collected by Wiltec on August 3 and 4, 2004, and other information described in the text.
Prepared by: Ricondo & Associates, Inc.

Estimated Project (2005) Impacts

Estimated intersection levels of service for both the Adjusted Baseline (2005) and Project (2005) conditions are shown in **Table 4.2-13**.

Determination of Potentially Significant Impacts

As described previously, the potential for significant impacts measured under CEQA are determined by comparing the Project (2005) condition to the Adjusted Baseline (2005) condition and applying the LADOT criteria for significance described in Section 4.2.4. As shown in Table 4.2-13, it is estimated that the construction of the SAIP would have a potentially significant but temporary impact at the following intersection:

- **Imperial Highway & I-105 Ramps East of Aviation Boulevard (#7)**—This intersection is estimated to potentially be significantly impacted during the employee p.m. peak hour. Specifically, it is estimated that the intersection would operate at LOS D during the construction of the project, as compared to a LOS C condition with the 2005 Adjusted Baseline. The impact is primarily the result of construction employee traffic departing the study area using the westbound left-turn movement along with additional construction-related vehicles traveling westbound through the intersection on Imperial Highway.

Although the intersection listed above has been determined to potentially be significantly impacted by project traffic in 2005, it is important to note that project-related trips would not occur during the peak commute period that begins during the hour after the employee p.m. peak hour. Based on a comparison of hourly automatic traffic recorder (ATR) data collected on July 27 and 28, 2004, an average volume of 2,660 vehicles per hour was accommodated on Imperial Highway near the intersection with the I-105 Ramps east of Aviation Boulevard during the 5:00 to 6:00 p.m. commuter peak hour. This peak hour volume is approximately 30 percent higher than the 2,040 vehicles per hour counted during the 3:00 to 4:00 p.m. period that generally corresponds with the peak period for the project. Given that the peak period for project related traffic activity is not expected to coincide with the peak commuter period, it is anticipated that the traffic levels at the intersection of Imperial Highway with the I-105 Ramps east of Aviation Boulevard would be lower in the project afternoon peak hours than during the adjacent commuter peak hour.

The impact described above would be significant based on LADOT criteria; however, it is estimated that the intersection would continue to operate at LOS D or better during the employee peak hours and the impacts would be temporary in nature. As shown previously on Exhibit 4.2-6, peak project construction activities would last for about one month in duration before decreasing significantly. It is anticipated that construction-related traffic would also decrease in proportion to the decrease in construction activity such that traffic impacts associated with the project would cease to be significant. Nonetheless, the project's temporary construction-related traffic impact would remain significant.

Appendix I provides the level of service results from the TRAFFIX program for the Adjusted Baseline (2005) and Project (2005) conditions.

Table 4.2-13

2005 Level of Service Analysis Results

			Baseline (2003) [2/]		Adjusted Baseline (2005)		Project (2005)			
	Intersection	Peak Hour [1/]	V/C [3/]	LOS [4/]	V/C [3/]	LOS [4/]	V/C [3/]	LOS [4/]	Change in V/C [5/]	Significant Impact [5/]
1.	Imperial Highway	Employee A.M.	0.492	A	0.543	A	0.594	A	0.051	
	&	Delivery	0.396	A	0.436	A	0.603	B	0.167	
	Pershing Drive	Employee P.M.	0.403	A	0.458	A	0.553	A	0.095	
2.	Imperial Highway	Employee A.M.	0.324	A	0.357	A	0.374	A	0.017	
	&	Delivery	0.516	A	0.539	A	0.593	A	0.054	
	Main Street	Employee P.M.	0.531	A	0.587	A	0.618	B	0.031	
3.	Imperial Highway &	Employee A.M.	0.743	C	0.820	D	0.828	D	0.008	
	Sepulveda Boulevard	Employee P.M.	1.092	F	1.196	F	1.196	F	0.000	
4.	Imperial Highway &	Employee A.M.	0.521	A	0.575	A	0.575	A	0.000	
	Nash Street	Employee P.M.	0.263	A	0.317	A	0.324	A	0.007	
5.	Imperial Highway &	Employee A.M.	0.103	A	0.124	A	0.126	A	0.002	
	Douglas Street	Employee P.M.	0.293	A	0.339	A	0.344	A	0.005	
6.	Imperial Highway &	Employee A.M.	0.452	A	0.636	B	0.680	B	0.044	
	Aviation Boulevard	Employee P.M.	0.611	B	0.710	C	0.710	C	0.000	
7.	Imperial Highway &									
	I-105 Ramps E/O	Employee A.M.	0.223	A	0.445	A	0.470	A	0.025	
	Aviation Boulevard	Employee P.M.	0.578	A	0.769	C	0.813	D	0.044	Yes
8.	Imperial Highway &	Employee A.M.	0.143	A	0.186	A	0.192	A	0.006	
	La Cienega Boulevard	Employee P.M.	0.352	A	0.442	A	0.458	A	0.016	
9.	Imperial Highway &	Employee A.M.	0.204	A	0.225	A	0.228	A	0.003	
	I-405 Northbound Ramps	Employee P.M.	0.406	A	0.456	A	0.458	A	0.002	
10.	Century Boulevard &	Employee A.M.	0.576	A	0.661	B	0.661	B	0.000	
	Aviation Boulevard	Employee P.M.	0.793	C	0.946	E	0.950	E	0.004	
11.	Aviation Boulevard &	Employee A.M.	0.330	A	0.473	A	0.500	A	0.027	
	111th Street	Employee P.M.	0.443	A	0.647	B	0.670	B	0.023	
12.	La Cienega Boulevard &	Employee A.M.	0.406	A	0.482	A	0.494	A	0.012	
	I-405 Southbound Ramps	Employee P.M.	0.569	A	0.632	B	0.636	B	0.004	
13.	La Cienega Boulevard &	Employee A.M.	0.537	A	0.625	B	0.654	B	0.029	
	Century Boulevard	Employee P.M.	0.719	C	0.838	D	0.852	D	0.014	
14.	La Cienega Boulevard &	Employee A.M.	0.171	A	0.205	A	0.205	A	0.000	
	I-405 Southbound Ramps	Employee P.M.	0.432	A	0.497	A	0.497	A	0.000	
15.	La Cienega Boulevard &	Employee A.M.	0.124	A	0.309	A	0.384	A	0.075	
	104th Street	Employee P.M.	0.309	A	0.456	A	0.494	A	0.038	
16.	La Cienega Boulevard &	Employee A.M.	0.158	A	0.190	A	0.190	A	0.000	
	Lennox Boulevard	Employee P.M.	0.326	A	0.390	A	0.390	A	0.000	
17.	La Cienega Boulevard &	Employee A.M.	0.124	A	0.169	A	0.169	A	0.000	
	111th Street	Employee P.M.	0.337	A	0.510	A	0.552	A	0.042	
18.	La Cienega Boulevard &	Employee A.M.	0.162	A	0.197	A	0.197	A	0.000	
	I-405 Southbound Ramps	Employee P.M.	0.256	A	0.365	A	0.386	A	0.021	
19.	Century Boulevard &	Employee A.M.	0.641	B	0.746	C	0.758	C	0.012	
	I-405 Northbound Ramps	Employee P.M.	0.529	A	0.585	A	0.585	A	0.000	

Notes:

1/ The hours of analysis include the SAIP Construction Employee a.m. peak (6:00 - 7:00 a.m.), the SAIP Construction Delivery peak (3:00 - 4:00 p.m.) and the SAIP Construction Employee p.m. peak (3:30 - 4:30 p.m.).

2/ Baseline (2003) conditions are repeated in this table to illustrate the change between the Baseline and Adjusted Baseline conditions.

3/ Volume to capacity ratio

4/ Level of Service. Range: A (excellent) to F (failure).

5/ In accordance with LADOT criteria, the Project is compared to the Adjusted Baseline for purposes of determining whether construction of the project will result in significant impacts.

Source: Ricondo & Associates using Traffix, September 2004

Prepared by: Ricondo & Associates, Inc.

4.2.7 Cumulative Impacts

The methodology used in the analysis of surface transportation impacts is based on the Adjusted Baseline conditions and as a result is cumulative in nature. Therefore, the impacts discussed in Subsection 4.2.6 represent both project and cumulative conditions. More specifically, the transportation analysis of future conditions assumes growth in background traffic including local area development projects approved by local jurisdictions that are anticipated to be under construction or operational during the peak month of construction of the SAIP. In addition, trips associated with the construction of other LAX projects with independent utility (i.e., the TBIT Improvements and Baggage Screening Facilities Project and Terminals 1-8 In-Line Baggage System Construction) were specifically included in the analysis.

As described in Section 3.5, it is anticipated that the construction of other LAX Master Plan project components may overlap with the construction of the SAIP. However, these other project components have not reached a level of planning that allow for a reasonable estimate of the associated traffic volumes and distribution of these trips within the study area. Based on the current level of planning, it is unlikely that these projects will contribute appreciably to the background traffic during the peak month of construction activity for the SAIP. To the extent that overlap would occur, the potential cumulative impact will be assessed during the project-level review for each subsequent component of the LAX Master Plan.

4.2.8 Mitigation Measures

The LAX Master Plan Final EIR proposes traffic mitigation improvements for the intersection of Imperial Highway and the I-105 Ramps east of Aviation Boulevard. The traffic mitigation includes roadway widening to accommodate additional lanes of traffic to offset traffic impacts caused by the full build-out of the LAX Master Plan. The details of the mitigation are described in the Third Addendum of the LAX Master Plan Final EIR (see Table AD(3)2-4, intersection # 45). The mitigation improvements for this intersection are also included in the LAX Master Plan Mitigation Monitoring & Reporting Program (MM-ST-6, *Add New Traffic Lanes [Alternative D]*). The detailed mitigation phasing plan provided in the Third Addendum of the LAX Master Plan Final EIR (see Table AD(3)2-8) indicates that capacity enhancements to this intersection will be implemented as part of Phase 1B related to the construction of the Intermodal Transportation Center (ITC).

Installing the capacity enhancements proposed in the Final EIR for the intersection of Imperial Highway and the I-105 Ramps east of Aviation Boulevard in order to offset the construction impact of the SAIP project is not feasible or justified as part of this project. The project-related impacts associated with the SAIP would be short term, on the order of one month in duration. In addition, the overall project-related conditions during the project peak hours are anticipated to be similar to or better than the conditions that would be experienced during the adjacent commuter peak periods, thus the project would not cause peak hour conditions to noticeably deteriorate. Widening the roadway in order to install additional traffic lanes at this intersection would create a greater disruption to the flow of traffic and for a longer period of time than the impact caused by the SAIP project-related construction traffic. In addition, existing street widths do not permit the restriping of the intersection to provide additional lane capacity without widening of the roadway.

Although not a new mitigation measure developed for the SAIP, the LAX Master Plan Commitment C-1 provides for the establishment of a Ground Transportation/Construction Coordination Office to assist with the management of traffic and transportation related activity associated with the implementation of the LAX Master Plan. The Ground Transportation Office will be responsible for coordinating processes to help minimize the traffic-related effects of implementing various Master Plan projects. To reduce temporary project-related impacts associated directly with the SAIP component, the following operational refinements of LAX Master Plan Commitment C-1 would be implemented in response to the actual traffic characteristics of the SAIP:

- **Monitor Traffic Operations**. The Ground Transportation/Construction Coordination Office will coordinate with construction contractors to plan shuttle bus routes, employee shifts, truck haul routes, delivery times, and other characteristics specific to the SAIP to minimize traffic congestion associated with the SAIP. For the SAIP, LAWA is planning to have the Ground Transportation/Construction Coordination Office located on airport property on World Way West near the construction staging area.
- **Modify Signal Timing Characteristics**. The Ground Transportation/Construction Coordination Office will coordinate with LADOT and other local jurisdictions, as necessary, to modify signal timing characteristics to address real-time traffic conditions in the vicinity of the construction employee parking areas, construction staging locations, and other potentially affected roadways in the study area. Coordination will include notifying LADOT regarding peak employee and delivery activity periods during the peak construction months such that the capabilities of the ATSAC system can be maximized.
- **Minimize Employee Shuttle Trips**. To the extent practicable, multiple construction contractors with employees using the same employee parking areas shall be encouraged to use a common shuttle bus system.

The measures listed above are intended to improve overall traffic operations by improving the operational characteristics of the project or the study area roadways. Prior to implementing these measures the Construction Coordination Office would review potential refinements to ensure that the proposed measure would not potentially result in additional significant impacts. For example, modification of the signal timing characteristics at an intersection shall not degrade operations at an adjacent intersection such that traffic conditions at that other intersection would potentially become significantly impacted.

4.2.9 Level of Significance After Mitigation

Although the measures listed in Section 4.2.8 could improve traffic operations and reduce the anticipated temporary impacts reported previously, it is not anticipated that the measures would reduce the temporary construction-related traffic impact to a less than significant level and no other feasible mitigation measures have been identified. As a result, temporary impacts to the intersection of Imperial Highway at I-105 Ramps east of Aviation Boulevard would be significant and unavoidable.

4.3 Air Quality

4.3.1 Introduction

The LAX Master Plan Final EIR analyzed future air pollutant emissions and proposed mitigation measures to address potential Master Plan related air quality impacts. The LAX Master Plan Final EIR documents potential pollutant emissions for the assumed peak construction year for Alternative D (2005), an interim year (2013), and a future operational year (2015). The purpose of this air quality analysis is to examine, at a greater level of detail, potential air quality impacts specifically associated with the SAIP. This analysis "tiers" from the analysis and findings documented in the LAX Master Plan Final EIR. The analyses have been further refined to incorporate detailed project-related assumptions regarding construction equipment that will be utilized and airport activity levels during the construction of the SAIP. The analyses are also based on updated information pertaining to other projects anticipated to be under construction during the construction of the SAIP.

This air quality analysis conducted for the SAIP addresses temporary emissions from construction sources (e.g., onsite and offsite construction equipment, fugitive dust) that would occur during the construction of the SAIP and emissions from airport sources (e.g., aircraft, ground support equipment, stationary sources, ground access vehicles) that would occur during the construction period. The analysis describes conditions in two years: 2003 (the latest full calendar year before the date of the July 2004 NOP and referred to throughout this section as the Baseline year) and 2005 (the assumed Project peak construction year).[1] The analysis also provides a qualitative assessment of 2008 airfield operating characteristics to confirm that post-construction emissions were adequately addressed in the LAX Master Plan Final EIR. Off-airport ground access vehicle traffic not directly associated with the construction activity was not evaluated as part of this analysis, because the SAIP is expected to have a negligible effect on non-construction airport-related vehicle trips.

The emissions inventories and air quality dispersion analysis were conducted using standard industry software/models and federal, State of California, and locally approved methodologies. The results of the emissions inventories were compared to daily and quarterly emissions thresholds established by the South Coast Air Quality Management District (SCAQMD) for the South Coast Air Basin.[2] Results of the air quality dispersion analysis were compared with national and State ambient air quality standards. Project-level impacts to air quality are summarized in Section 4.3.9. The significance conclusions presented in this project-level tiered EIR are consistent with information presented in the Final LAX Master Plan EIR.

4.3.1.1 Pollutants of Interest

Six criteria pollutants were evaluated for the SAIP, including sulfur dioxide (SO_2), carbon monoxide (CO), 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 micrometers ($PM_{2.5}$),

[1] This Draft EIR analyzes potential environmental impacts assuming a peak construction period in 2005. Sensitivity analyses have shown that the impacts associated with this analysis would be substantially the same if the peak construction period occurred in 2006. Refer to Appendix D for more information. Therefore, the results for 2005 are reliable for predicting significant impacts if the peak construction period were in 2006.

[2] South Coast Air Quality Management District, Regulation XIII – New Source Review, Rule 1303, Appendix A, December 6, 2002; South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993.

nitrogen dioxide (NO_2), and ozone (O_3). These pollutants were analyzed due to the current nonattainment status of the South Coast Air Basin and to be consistent with the air quality analysis documented in Section 4.6 of the Final LAX Master Plan EIR. Although lead (Pb) is a criteria pollutant, it was not evaluated in this EIR, because lead is typically not considered in airport air quality analyses and because the construction of the SAIP and ongoing airport operations would have a negligible impact on lead emissions in the South Coast Air Basin.

Following standard industry practice, the evaluation of ozone was conducted by evaluating emissions of volatile organic compounds (VOC) and nitrogen oxides (NO_x), which are precursors in the formation of ozone. Because ozone is a regional pollutant and ambient concentrations can only be predicted using regional photochemical models that account for all sources of precursors, the dispersion modeling conducted for the SAIP did not include ozone. Consistent with the approach described in the LAX Master Plan Final EIR[3], emissions of NO_x were used to determine NO_2 impacts and in the emissions inventories NO_x and NO_2 were considered to be equivalent. Additional information regarding the six criteria pollutants that were evaluated in the air quality analysis is presented below.

4.3.1.1.1 Ozone (O_3)

Ozone**,** commonly referred to as smog, is formed in the atmosphere rather than being directly emitted from pollutant sources. Ozone forms as a result of volatile organic compounds (VOCs) and oxides of nitrogen (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 ozone.

Ozone 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. Ozone can cause health effects such as chest discomfort, coughing, nausea, respiratory tract and eye irritation, and decreased pulmonary functions.

4.3.1.1.2 Carbon monoxide (CO)

Carbon monoxide is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels. The primary sources of this pollutant in Los Angeles County are automobiles and other ground-based vehicles. The health effects associated with exposure to carbon monoxide 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, and impaired mental abilities.

4.3.1.1.3 Particulate matter (PM_{10}) and fine particulate ($PM_{2.5}$)

Particulate matter 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 particulate matter with an aerodynamic diameter less than or equal to 10 micrometers and $PM_{2.5}$ refers to particulate matter 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 particulate matter thought to represent the greatest hazard to public health.[4] PM_{10} and $PM_{2.5}$ can accumulate in the respiratory system and is

[3] Los Angeles World Airports. *Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*, April 2004. Section 4.6. Page 4-656.
[4] U.S. Environmental Protection Agency. *Particle Pollution and Your Health*. September 2003.

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 particulate matter in the air are the elderly, individuals with cardiopulmonary disease, and children. Aside from physical negative effects, particulate matter in the air causes a reduction of visibility and damage to paints and building materials.

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

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 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 the aquatic visibility, create eutrophication of estuarine and coastal waters, and increase the levels of toxins harmful to aquatic life.

4.3.1.1.4 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 (O_2). Most sources of NO_2 are man-made sources; 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 irritations, coughing, choking, headaches, nausea, stomach or chest pains, and lung inflammations (e.g., bronchitis, pneumonia).

4.3.1.1.5 Sulfur dioxide (SO_2)

Sulfur dioxide is formed when fuel containing sulfur (typically, coal and oil) is burned, during the metal smelting process, and during other industrial processes. Large 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.

4.3.1.2 Scope of Analysis

As discussed above, the air quality analysis conducted for the SAIP addresses three analysis years – 2003, 2005, and 2008. The basic steps involved in performing the analysis are listed below.

- Identify construction and airport-related emissions sources.
- Develop emissions inventories for the Baseline and project year.
- Conduct dispersion modeling for the project year.
- Obtain 2003 background concentration data from SCAQMD and estimate future background concentrations.

- Compare Project (2005) emissions inventories and pollutant concentrations with appropriate CEQA thresholds.
- Perform qualitative analysis of post-construction conditions (2008).
- Identify potential mitigation measures beyond LAX Master Plan commitments and mitigation measures (if required).

4.3.2 Methodology

The air quality assessment for the SAIP was conducted in accordance with FAA guidelines for assessing environmental impacts and the SCAQMD's *CEQA Air Quality Handbook.*[5] The details of emissions estimating and modeling used in this evaluation are consistent with those used in the preparation of the LAX Master Plan Final EIR and/or the Final General Conformity Determination[6]. The methodologies followed in the LAX Master Plan Final EIR and Final General Conformity Determination vary slightly as a result of agency comments that were submitted regarding the protocol developed for the Draft General Conformity Determination. The following methodology discussion is designed to supplement the methodology discussions provided in Appendix F-B of the LAX Master Plan Final EIR and Appendix B of the Final General Conformity Determination and indicates where and if assumptions vary from information contained in the LAX Master Plan Final EIR.

4.3.2.1 Construction Emission Sources

Annual, quarterly, and peak day air pollutant emissions inventories were developed for the SAIP for the 2005 analysis year to document construction-related emissions. Employing standard industry practices, CO, VOC, NO_x, SO_2, PM_{10}, and $PM_{2.5}$ emissions estimates were developed for off-road construction equipment, on-road on-site construction equipment, and on-road off-site construction equipment. Emissions caused by off-road equipment and by on-road equipment (tractor trailers, light duty trucks, employee travel vehicles, etc., which can travel on highways and local roads) were evaluated separately to account for the different emissions standards that are in place for off-road and on-road vehicles. Fugitive dust emissions resulting from wind erosion of dirt piles and vehicle travel on paved and unpaved roadways were also quantified as part of the construction emissions inventories.

In order to estimate construction emissions, resource requirements and construction schedules were developed. Busy day and monthly estimates of equipment usage (in hours) were also developed for specific construction activities and crews (e.g., demolition, earthwork, pavement). A month-by-month construction schedule detailing the crews, equipment, and busy day and monthly estimates of equipment usage is presented in **Appendix K**.

Annual, quarterly and peak day emissions estimates were developed for the peak construction year using data regarding the type, magnitude and duration of construction activities and emission factors obtained from models and documents developed by the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (USEPA). The peak construction year in terms of emissions, referred to as 2005 throughout this document, actually covers the twelve-month period between April 2005 and March 2006. Quarterly emissions estimates were developed by adding monthly emissions estimates for three consecutive months (i.e., Quarter 1 includes April, May and June 2005; Quarter 2 includes July, August and September 2005, etc.). Peak day emissions estimates

[5] South Coast Air Quality Management District. *CEQA Air Quality Handbook*. 1993

[6] Federal Aviation Administration. *Clean Air Act Final General Conformity Determination, Los Angeles International Airport Proposed Master Plan Improvements Alternative D*. January 2005.

were developed for each construction quarter for the busiest month in terms of construction equipment utilization (hours).

The LAX Master Plan Final EIR did not account for VOC emissions from architectural coatings, solvents, hot-mix asphalt paving, and runway/taxiway striping, because these activities were determined to be insignificant relative to the overall Master Plan emissions and insufficient detail regarding construction at the program level was available. However, VOC emissions from these sources were evaluated at the project-level based on project-specific information for the SAIP (See Section 4.3.2.3.5).

4.3.2.2 Airport Emission Sources

Airport related emission sources characterized for this assessment include the following:

- Aircraft
- Ground support equipment (GSE)
- Ground access vehicles (associated with movements on airport roadways and in parking lots)
- Stationary sources, such as power plants, fuel tanks, maintenance and surface coating facilities, and other miscellaneous sources

4.3.2.2.1 Aircraft

Important parameters to characterize aircraft activity levels include the number of landing and takeoff (LTO) cycles, the aircraft fleet mix (types of aircraft used), and the length of time aircraft spend taxiing and idling on the ground. Aircraft activity levels used to model the 2003 Baseline conditions in the FAA's Emission and Dispersion Modeling System (EDMS) incorporate annual aircraft activity data as summarized in FAA tower counts and the 4th Quarter 2003 INM noise contour files prepared by LAWA. Aircraft activity levels used to model Project (2005) conditions incorporate aircraft activity forecasts prepared for the LAX Master Plan[7].

4.3.2.2.2 Ground Support Equipment and Auxiliary Power Units

Ground support equipment (GSE) includes a wide range of vehicles that are used to service aircraft. Examples of GSE include tugs that haul baggage carts and other equipment, fuel trucks, catering trucks and other service vehicles, and auxiliary power units (APUs) and ground power units (GPUs) that provide electrical power to aircraft when they are parked and the engines are not running.

Data on the specific GSE types and times-in-mode used for servicing several common aircraft types were based on a survey conducted at the airport. Default APU information included in the EDMS were used to supplement the site-specific data. Centralized gate power and preconditioned air systems, which reduce APU operation were assumed for the 2003 Baseline and Project (2005) conditions. Default GSE information included in the EDMS and emission factors taken from the California Air Resources Board OFFROAD model were used to supplement the site-specific data.[8] The use of alternative-fueled GSE in 2003 and 2005 was determined using information contained in Appendix F-B, Attachment 3, of the LAX Master Plan Final EIR.

[7] Los Angeles World Airports. *Final LAX Master Plan, Taking Flight For a Better Future*. April 2004.
[8] California Air Resources Board, *Emission Inventory of Off-Road Large Compression-Ignited Engines (>25HP) Using the New Off-road Emissions Model* (Mailout MSC #99-32), March 2003.

4.3.2.2.3 Ground Access Vehicles

All vehicles traveling on CTA roadway links were considered in the analysis, including privately-owned vehicles, government-owned vehicles, and commercially owned vehicles such as rental cars, shuttles, buses, taxicabs, and trucks. Traffic counts and temporal data that identify the vehicle volumes by hour of the day for on-airport traffic and parking were determined from the transportation analysis developed for the LAX Master Plan Final EIR and data collected in 2004, as described in Section 4.2.

4.3.2.2.4 Stationary Sources

Stationary sources include fixed combustion equipment, coating and solvent activities, organic liquid storage and transfer activities, and miscellaneous activities around the airport. The equipment capacities, typical operating hours, existing control equipment, and emissions data were based on data obtained from a survey of LAWA and tenant facilities conducted in 1997 and 1998 for the LAX Master Plan. The results of the survey are presented in Technical Report 4 of the LAX Master Plan Final EIR.[9] Future capacities and hours of operation for stationary sources were scaled up based on future-to-existing ratios of either aircraft operations or the number of passengers. Centralized gate power and cooling systems, which reduce APU operation and replace portable air conditioning (AC) units at terminal gates, were assumed for the 2003 Baseline and Project (2005) conditions. Cargo and general aviation gates were also assumed to have power connections that can run on-board AC units, to be consistent with information in EDMS input files developed for the LAX Master Plan Final EIR.

4.3.2.3 Construction Emission Inventories

4.3.2.3.1 Off-Road Equipment

Examples of off-road construction equipment include dozers, loaders, sweepers and other heavy-duty construction equipment that does not travel on roadways. Off-road equipment types, fuel and horsepower ratings data were correlated with equipment types from the Caterpillar Performance Handbook[10] and the National Construction Estimator[11]. Emission rates were adjusted using load factors from Table A9-8-D of the SCAQMD CEQA Air Quality Handbook. Usage factors developed for off-road equipment were based on the assumption that they would be operated at their rated horsepower and load factor for an average of 50 minutes per hour (50/60=0.83), to account for breaks and lunch during a typical workday. Off-road construction equipment data are presented in **Appendix K**.

Off-road exhaust emission factors for CO, VOC, NO_x and PM_{10} were developed using the CARB OFFROAD Model[12]. SO_2 emission factors were derived from sulfur limits set by SCAQMD Rule 431.2, which specifies that a liquid fuel's maximum sulfur content is 500 parts per million by weight (ppmw) until January 1, 2005 and 15 ppmw thereafter. $PM_{2.5}$ emission factors were developed using the PM_{10} emission factors derived from the OFFROAD Model and information contained in the

---

[9] Los Angeles World Airports. *Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*, April 2004, Technical Report 4 – Air Quality.
[10] Caterpillar, Caterpillar Performance Handbook, 30th Edition, October 1999.
[11] Ogershok, D., Editor, National Construction Estimator, 49th Edition, Craftsman Book Co., 2001.
[12] California Air Resources Board, Emission Inventory of Off-Road Large Compression-Ignited Engines (>25 HP) Using the New Offroad Emissions Model (Mailout MSC #99-32), March 2003, http://www.arb.ca.gov/msei/msei.htm.

CARB-approved California Emission Inventory and Reporting System (CEIDARS) PM size speciation profile database. The emission factors used to estimate emissions for off-road construction equipment are presented in Appendix K.

Monthly emissions for off-road equipment were calculated by multiplying an emission factor by the horsepower, load factor, usage factor, and monthly operational hours for each type of equipment and adding the results. Annual and quarterly off-road emissions were derived from the monthly emissions estimates.

In addition to annual and quarterly emissions, off-road peak day emissions were calculated for each quarter. The first step in this calculation was to identify, for each quarter (during the original construction schedule), the month with the most equipment hours, as follows:

- 1st Quarter: June 2005 – 25,264 equipment hours
- 2nd Quarter: September 2005 – 66,880 equipment hours
- 3rd Quarter: October 2005 – 68,548 equipment hours
- 4th Quarter: January 2006 – 13,250 equipment hours

Peak day emissions for off-road equipment operating in the respective peak month were calculated by multiplying an emission factor by the equipment's horsepower, load factor, usage factor and peak daily operational hours.

4.3.2.3.2 On-Road On-Site Equipment

On-road on-site construction equipment emissions are generated from on-site pickup trucks, crew vans, water trucks, dump trucks, haul trucks, and other on-road vehicles. Exhaust emissions from on-road on-site sources were calculated using emission factors developed with the CARB emission factor model EMFAC2002, Version 2.2[13]. Due to varying vehicle emissions characteristics, CARB divides on-road vehicles into vehicle classes based on vehicle weight and fuel type. The vehicle categories used in the on-road construction vehicle fleet mix are listed below.

- LDA – light duty automobiles (non-catalyst, catalyst and diesel), typical passenger car; does not include vans, pickup trucks or sport-utility vehicles (SUVs)
- LDT2 – light duty trucks, including vans, pickup trucks and SUVs (non-catalyst, catalyst and diesel) with a gross vehicle weight of 5,750 pounds or less
- MDV – medium-duty vehicle (catalyst) with a gross vehicle weight between 5,751 and 8,500 pounds
- MHDT – medium-heavy diesel trucks with a gross vehicle weight between 14,001 and 33,000 pounds
- HHDT – heavy-heavy diesel trucks with a gross vehicle weight between 33,001 and 60,000 pounds

CARB regulations and forecasts for alternative-fuel vehicle use, including low-emission vehicles, ultra low-emission vehicles, super ultra low-emission vehicles and zero-emission vehicles are incorporated into the EMFAC2002 model.

[13] California Air Resources Board, Research Division, EMFAC 2002 On-Road Emissions Inventory Estimation Model, Version 2.2. The U.S. Environmental Protection Agency has approved this model for use in estimating emissions for on-road vehicles as noticed in the Federal Register Vol 68, No. 62, April 1, 2003, pp 15720-15723.

On-road on-site equipment types were substituted with vehicle types corresponding to CARB vehicle classes. Average speeds consistent with the LAX Master Plan Final EIR were assumed for each vehicle type. EMFAC2002 was used to generate emission factors for each vehicle class in grams per unit (e.g., hour, mile or trip) for each criteria pollutant. The model was further used to generate factors for running exhaust emissions, variable start-up emissions and evaporative emissions, which consist of diurnal, hot soak, running and resting losses. Diurnal and resting evaporative emissions were not included for on-road construction-related vehicles. The average emission factors were determined for on-road vehicles using the average of the summer (75 degrees Fahrenheit) and winter (50 degrees Fahrenheit) emission factors. The emission factors, vehicle substitutions, average assumed speeds and other data used to estimate emissions for on-road construction-related vehicles are presented in Appendix K.

EMFAC2002 emission factors, which are expressed in grams per mile, were used to calculate emissions in pounds per hour.[14] To calculate CO, NO_x and SO_2 emissions, an EMFAC2002 running emission factor was multiplied by an average vehicle speed and added to two times the start-up emission factor (for gasoline engines only, assuming two starts per day). VOC emissions were calculated by multiplying a running emission factor by an average speed and then adding two times the start-up plus hot soak evaporative emission factor (for gasoline engines only, assuming two trips per day). Exhaust PM_{10} and $PM_{2.5}$ emissions were calculated by multiplying a running emission factor by an average speed and then adding two times the start-up emission factor (for gasoline engines only, assuming two starts per day). PM_{10} emissions caused by brake wear and tire wear were also calculated.[15] The break wear and tire wear emissions were calculated by multiplying an average speed by the sum of appropriate brake wear and tire wear emission factors. The resulting emissions of each pollutant (in grams per hour) were divided by a conversion factor to derive vehicle emissions in pounds per hour.

Monthly emissions inventories for on-road on-site equipment were calculated by multiplying the appropriate emission factor (in pounds per hour) by monthly operational hours. Annual and quarterly on-road on-site emissions were derived from the monthly emissions estimates.

Peak day emissions for on-road on-site vehicles were derived for each quarter using the same method described previously for peak day off-road emissions.

4.3.2.3.3 On-Road Offsite Equipment

Data regarding construction employee trips to and from the employee parking lot, and construction hauling trips between the construction staging area and locations off airport property were developed. On-road off-site trip types identified in the construction schedule include personal vehicles used by contractor personnel/employees and inspectors to access the construction site; batch plant stocking of coarse aggregate, fine aggregate and cement; soil disposal trucking; miscellaneous deliveries; base course haul; and employee transport (by bus) from the parking area to the staging area.

The first step in calculating total on-road off-site vehicle emissions was to determine total vehicle miles traveled (VMT) by each type of vehicle. VMT for on-road off-site vehicle trips was calculated by multiplying total miles per vehicle roundtrip (for each type of vehicle) by the number of

[14] The EMFAC2002 model was used to be consistent with the methodology described in Section 4.6.2.3 of the LAX Master Plan Final EIR.

[15] Break wear and tire wear are not sources of $PM_{2.5}$ emissions.

roundtrips per day. EMFAC2002 was used to calculate emission factors (all six criteria pollutants including $PM_{2.5}$) for on-road off-site vehicles.

Total emissions per year for each vehicle trip type were calculated using the same methodology assumed for on-road on-site vehicles. In general, an emission factor, obtained from EMFAC2002 was multiplied by the total VMT for each vehicle type to obtain emissions in pounds per day. Daily emissions estimates were then multiplied by the number of days each vehicle type would be operating during the year and a conversion factor to obtain total annual emissions for each pollutant. Data for on-road off-site vehicle emissions, including vehicle substitutions, VMT and emission factors, are presented in Appendix K.

To obtain monthly emissions for on-road off-site vehicles, total annual emissions were distributed across the twelve months using the construction schedule and the following assumptions:

- Contractor personnel/employee emissions were distributed based on the percentage of total operational hours per month.
- LAWA/Construction Management (CM)/Inspectors emissions were distributed based on the percentage of total LAWA/CM staff per month.
- Batch plant stocking emissions were distributed based on the percentage of total batch plant hours occurring in the three months with batching operations. Separate estimates were developed for each haul trip type (coarse aggregate, fine aggregate and cement).
- Soil disposal trucking emissions were assigned to the two months with the highest tri-axle dump truck hours based on the percentage of hours occurring in each month.
- Miscellaneous deliveries emissions were distributed based on the percentage of total hours per month.
- Base coarse haul emissions were assigned to the four months with the highest number of paving hours based on the percentage of hours occurring in each month.
- Bus transportation emissions were distributed based on the percentage of total hours per month.

Quarterly emissions estimates were derived from the monthly emissions estimates.

Peak day on-road off-site emissions were calculated by dividing emissions for the peak month of each quarter (as previously determined) by 25 working days per month, resulting in average emissions per day for that month. Average daily emissions were multiplied by a peaking factor which was developed using the construction equipment utilization data.

4.3.2.3.4 Fugitive Dust

An additional source of PM_{10} and $PM_{2.5}$ emissions associated with off-road and on-road construction activity is fugitive dust. Fugitive dust includes entrained road dust from both off- and on-road vehicles, as well as particulates resulting from grading, loading and unloading activities. Fugitive dust emissions (PM_{10} and $PM_{2.5}$) were calculated using EPA's Compilation of Air Pollutant Emission Factors, Volume 1, AP-42[16], (herein referred to as AP-42), the CEQA Air Quality Handbook, and the

[16] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1: Stationary Point and Area Sources, March 2003, http://www.epa.gov/ttn/chief/ap42.

CEIDARS database. Monthly fugitive dust emissions were calculated for each piece of construction equipment, from which annual, quarterly and peak day fugitive dust emissions were derived.

Fugitive dust emissions for vehicles traveling on unpaved roads were calculated using an empirical formula from AP-42, Section 13.2.2. All empirical constants used in the formula were obtained from AP-42, Section 13.2.2, Table 13.2.2-2 consistent with the approach used in the LAX Master Plan Final EIR. A moisture content of 15 percent was assumed, based on Table 9-9-G-1 of the SCAQMD CEQA Handbook. Soil weight was assumed to be 2,700 pounds per cubic yard, assuming loose, wet excavated earth, as determined from the Caterpillar Performance Handbook.[17]

Fugitive dust emissions for vehicles traveling on paved roads were calculated using an empirical formula from AP-42, Section 13.2.1. All haul trucks, flatbed trucks and automobiles were assumed to travel on paved roads.

Fugitive dust resulting from material handling/drop operations were calculated using an empirical formula from AP-42, Section 13.2.4. Performance data for excavators and loaders were based on the Caterpillar Performance Handbook and professional judgment. Cycle times were calculated based on construction experience and estimated hourly excavation rates.

Fugitive dust emissions for scrapers were based on an empirical formula from AP-42, Section 13.2.3, Table 13.2.3-1. For scrapers removing topsoil, a fugitive dust emission factor was obtained from Table 11.9-4. The percentage of total suspended particulates (TSP) that would be PM_{10} (PM_{10} fraction) was derived using a particle size multiplier of 0.35, based on AP-42, Section 13.2.4-3. Scraper cycle time of 20 minutes was calculated based on a load time of 5 minutes plus a maneuver and dump time of 5 minutes, plus a travel time of 10 minutes, according to MARRS Services (July 30, 2002).

Fugitive dust emissions from grading operations were calculated from AP-42, Section 11.9, Table 11.9-1. Fugitive dust emissions from compactor operations were derived from AP-42 Section 13.2.3, Table 13.2.3-1.

Fugitive dust emissions resulting from wind erosion of storage piles was also quantified. Calculations were based on EPA's Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures (September 1992), Appendix F, Equation F-4, and Table A9-9-E of the SCAQMD CEQA Handbook.

It was assumed that 10.4 acres of stockpiled material would be generated in the first month of the project (April 2005) and that the stockpile could be reduced over the course of the project as the material is used. Near the end of the project (March 2006) it was assumed that zero acres of stockpiled material would remain. In addition, it was assumed that the grading crew would generate a stockpile of approximately 15 acres during each month of grading operations.

Fugitive dust emissions associated with the operation of a rock crusher and a concrete batch plant at the staging area were quantified as part of the air quality analysis. Based on the expected operating hours for the rock crusher, as well as the amount of concrete and asphalt pavement to be crushed, fugitive dust emissions from operation of an on-site rock crusher were calculated using emission factors from AP-42 Section 11.19.2, Table 11.19.2-2. An overall emission factor was derived by

[17] Caterpillar, Caterpillar Performance Handbook, 30th Edition, October 1999.

summing emission factors for the following crushing activities: tertiary crushing, fines crushing, screening, fines screening, and conveyer transfer point. Fugitive dust emissions from the on-site concrete batch plant were calculated based on the methodology described in Section 11.12 (Concrete Batching) of AP-42. Emission factors were obtained from Table 11.12-4. Concrete requirements were estimated and the batch plant was assumed to operate using a central mix method.

4.3.2.3.5 Construction Materials

Construction materials that can be sources of VOC emissions include hot-mix asphalt paving and runway/taxiway striping. VOC emissions from asphalt paving operations result from the evaporation of the petroleum distillate solvent, or diluent, used to liquefy asphalt cement. Asphalt paving emissions associated with the SAIP were calculated using the SCAQMD recommended approach included in ARB's URBEMIS2002 model and based on the expected SAIP asphalt paving activity. The URBEMIS2002 model is recommended by SCAQMD for estimation of construction and operation emissions from land use development projects.[18] Architectural coating (i.e., striping paint and metal surface primer and topcoat paint) operations are also a source of VOC emissions. VOC emissions result from the evaporation loss during application of architectural coatings. Emissions from architectural coatings were calculated using a mass balance approach by determining the percent of VOC per gallon of coating applied and the expected level of architectural coating activity.

4.3.2.4 Airport Emission Inventories

In cooperation with the USEPA, the Federal Aviation Administration (FAA) developed the EDMS for the application of assessing air emissions from aircraft operations and airport facilities. This model is also designated by the USEPA as a "Preferred Model" and identified by the FAA as the "required" model for aviation-related air quality assessments. EDMS is based on extensive FAA research and ongoing coordination with the USEPA to help ensure the proper characterization of airport-related sources of air emissions, which can be modified by the user to help simulate the unique operational and design elements of individual airports.

The primary applications of the model are: (1) generating an inventory of emissions caused by sources on and around an airport, and (2) calculating pollutant concentrations in the surrounding environment. However, EDMS does not currently include PM_{10} emission factors for aircraft. While emission inventories prepared for the LAX Master Plan Final EIR and the Draft and Final General Conformity Determination were developed with EDMS Version 4.11, the SAIP project team used the current version of the model (EDMS Version 4.21) released in May 2005.

The airport-related emissions inventory was developed using emission factors from the following sources:

- U.S. FAA/USAF, Air Quality Procedures for Civilian Airports and Air Force Bases, 1997
- U.S. FAA/USAF, Emissions and Dispersion Modeling System (EDMS) Version 4.21, 2005
- U.S. EPA, Compilation of Air Pollutant Emission Factors (AP-42), 1999
- CARB, EMFAC2002 On-Road Emissions Inventory Estimation Model (EMFAC2002), 2004
- SCAQMD, CEQA Air Quality Handbook, 1993

[18] California Air Resources Board, URBEMIS2002 for Windows with Enhanced Construction Module Version 8.7 (Emissions Estimation for Land Use Development Projects), April 2005.

Airport-related emission sources included in the emissions inventory for this assessment include aircraft, ground support equipment (GSE), ground access vehicles, and stationary sources.

4.3.2.4.1 Aircraft

Annual aircraft emissions are a function of the number of annual aircraft operations expressed as landing and takeoff (LTO) cycles, the aircraft fleet mix (types of aircraft used), and the length of time aircraft spend taxiing and idling on the ground. The EDMS database contains an expansive list of aircraft types (airframes) and engine types for use in air quality analyses. Emissions associated with individual aircraft operations are a function of the aircraft operating mode (i.e., taxi/idle, takeoff, climb-out), and are estimated using emission factors associated with particular engine types and operating modes. Key assumptions used for estimating aircraft-related emissions follow.

Aircraft LTO Cycle

Tables 4.3-1 and **4.3-2** summarize annual LTO cycles by EDMS aircraft type for 2003 Baseline and Project (2005) conditions, respectively.

Aircraft Time-in-Mode

Time-in-mode (TIM) is the time an aircraft spends in each of the four modes of aircraft operation: takeoff, climb out, approach, and idle.[19] Takeoff, climb out, approach, and the landing roll portion of the idle TIMs are aircraft-specific to EDMS. They are generated using flight profile data that are based on the airframe, engine, takeoff weight, and approach angle to be flown. Time-in-mode data selected for this assessment were based on information contained in EDMS data files developed for the Final General Conformity Determination. An average mixing height of 625 meters approximately 2,050 feet) was used to calculate the adjustments to approach and climbout TIMs in the SAIP[20]. The taxi and queue components of the idle mode are the most variable. Taxi and queue times for 2003 were developed by interpolating between 2000 and 2005 aircraft operations and then adjusting aircraft taxi/idle times provided in Appendix F-B, Attachment 2, of the LAX Master Plan Final EIR. Under Project (2005) conditions, only three runways would be operational because, of the temporary closure of Runway 7R-25L for construction. As a result, under the Project (2005) condition aircraft would experience higher delays than in a four-runway scenario. Airport simulation modeling (SIMMOD) results for Alternative D documented in Appendix F, Table F-1, of the LAX Master Plan were reviewed and SIMMOD files were revisited during the preparation of the SAIP EIR to determine taxi and queue time for the three runway configuration. TIM data for each aircraft category and operational mode are provided in **Appendix K** of this EIR. EDMS 4.21 does not contain aircraft emission factors/indices for PM_{10} or $PM_{2.5}$. The PM_{10} emission indices used in this analysis are consistent with the emission indices developed for the LAX Master Plan Final EIR and the Final General Conformity Evaluation. As particulate combustion emissions from aircraft are primarily less than 2.5 microns, $PM_{2.5}$ emissions from aircraft were conservatively assumed to be the same as PM_{10} emissions.

---

[19] Reverse thrust emissions are not explicitly calculated by EDMS 4.21; however emissions calculated for the takeoff and climbout mode are extremely conservative since they are calculated assuming the maximum takeoff weight. As a result the model implicitly accounts for reverse thrust emissions by conservatively overstating emissions for the takeoff and climbout modes.

[20] A mixing height of 625 meters deviates from the mixing height used in the LAX Master Plan Final EIR analysis; however, it is consistent with the mixing height used for the Final General Conformity Determination.

Table 4.3-1

2003 Aircraft Fleet Mix and Annual LTO Cycles

INM Identifier	EDMS Type	Engine Type	Annual LTO Cycles [1/, 2/]
CL600, CL601	**Canadair RJ50	CF34-3A1	25,377
CNA172	**GAJ	JT15D-1	7,243
CNA206	**GenAvProp Cargo	PT6A-67B	43
A300	A300B	CF6-80C2A5	782
A30062	A300-C4-200	CF6-50A	261
A310	A310	CF6-80A3	276
A310	A310-200F	CF6-80A3	92
A319	A319	CFM56-5B6/P	10,702
A32023, A32123	A320	V2527-A5	23,774
A330	A330	PW4168A	258
A340	A340-200	CFM56-5B6/2P	1,672
A7D	A-7 CORSAIR II	TF41-A-2	384
DHC8	ATR42	PW120	17
727EM1/EM2	B727-200	JT8D-15	1,229
737N17/N9	B737-200F	JT8D-17A	479
737300	B737-300	CFM56-3-B1	39,571
737400	B737-400	CFM56-3B-2	9,038
737500/700	B737-500	CFM56-3C-1	20,503
747200	B747-200	JT9D-7Q	1,808
74710Q/20B	B747-200F	CF6-50E2	487
747400	B747-400	PW4056	9,492
7472G2/3G2	B747-400F	CF6-80C2B1F	3,160
747SP	B747-SP	JT9D-7A	1
757300	B757-200	PW2037	27,625
757PW/757RR	B757-200F	RB211-535E4	9,195
767JT9	B767-200	CF6-80A2	1,637
767CF6	B767-200ER	CF6-80A2	545
767300/400	B767-300	CF6-80A2	21,505
777200/300	B777-200	PW4077	4,593
BAE146	BAE146-300	ALF502R-5	110
DHC6	BH-1900	PT6A-67D	764
CNA206	BH-1900C	PT6A-65B	254
C130/CVR580	Dash 7	PT6A-50	774
DC1030/40	DC10-30	CF6-50C2	2,551
DC1010	DC10-30F	CF6-50C2	825
707QN	DC8-70	CFM56-2C5	589
DC93LW	DC9-50	JT8D-17	2,246
EMB120	EMB-120	PW118	38,088
F28MK2	F-28-4000	RR SPEY-MK555	4
BAC111	Fokker 70	TAY620-15	4
L1011	L-1011-500	RB211-524B4	137
MD11PW	MD-11	PW4460	2,466
MD11GE	MD-11-11F	CF6-80C2D1F	821
MD81	MD-80	JT8D-217A	11,931
MD82/83	MD-80-87	JT8D-217	5,984
MD9028	MD-95	BR700-710A1-10	497
BEC58P	Navajo	TIO-540-J2B2	267
SF340/DC3	SF-340-A	CT7-5	20,490
CNA441	Swearingen Metro 2	TPE331-3	602
Total Annual LTO Cycles			311,153

Notes:

1/ LTO = Landing and takeoff. One LTO cycle equals two operations: a landing and a takeoff.

2/ LTO subtotals may not equal the sum of individual aircraft LTOs due to rounding.

** User defined aircraft in EDMS 4.21

Source: Ricondo & Associates, Inc. based on FAA tower counts and LAWA's 4th Quarter 2003 INM noise contour files.

Prepared by: Ricondo & Associates, Inc.

Table 4.3-2

Project (2005) Aircraft Fleet Mix and Annual LTO Cycles

EDMS Type	Engine Type	Annual LTO Cycles [1/, 2/]
**Canadair RJ50	CF34-3A1	3,771
**CNA	PT6A-67B	11,704
**GAJ	JT15D-1	2,742
**GenAvProp Cargo	PT6A-67B	2,178
**Jetstream 31	TPE-331-3	10,660
**SAAB2000	AE3007A	3,085
A300B	CF6-80C2A5	9,940
A300-C4-200	CF6-50A	857
A310	CF6-80A3	1,371
A310-200F	CF6-80A3	2,057
A319	CFM56-5B6/P	857
A320	V2527-A5	10,111
A330	PW4168A	2,742
A340-200 [3/]	CFM56-5B6/2P	3,427
ATR42	PW120	514
ATR72-200	PW124-B	2,913
B727-200	JT8D-15	2,914
B737-200F	JT8D-17A	5,191
B737-300	CFM56-3-B1	47,129
B737-400	CFM56-3B-2	3,427
B737-500	CFM56-3C-1	13,881
B747-200	JT9D-7Q	5,948
B747-400	PW4056	15,766
B747-400F	CF6-80C2B1F	2,057
B747-SP	JT9D-7A	2,057
B757-200	PW2037	54,322
B757-200F	RB211-535E4	1,375
B767-200	CF6-80A2	13,219
B767-200ER	CF6-80A2	2,034
B767-300	CF6-80A2	6,341
B777-200	PW4077	7,369
BH-1900	PT6A-67D	4,427
BH-1900C	PT6A-65B	885
Dash 7	PT6A-50	2,742
DC10-30	CF6-50C2	10,082
DC10-30F	CF6-50C2	2,086
DC9-50	JT8D-17	0
EMB-110KQ1	PT6A-27	1,148
EMB-120	PW118	10,454
Fokker 100	TAY650-15	1,371
Fokker 50	PW125-B	514
Fokker 70	TAY620-15	1,885
Il-96-300	PS-90A	343
L-1011-500	RB211-524B4	3,256
MD-11	PW4460	10,967
MD-11-11F	CF6-80C2D1F	1,714
MD-80	JT8D-217A	23,479
MD-80-87	JT8D-217	1,371
MD-90-10	V2525-D5	7,883
MD-95	BR700-710A1-10	3,942
SF-340-A	CT7-5	19,023
Shorts 360	PT6A-65AR	2,742
Swearingen Metro 2	TPE331-3	10,283
Total Annual LTO Cycles		372,556

Notes:

1/ LTO = Landing and takeoff. One LTO cycle equals two operations: a landing and a takeoff.

2/ LTO subtotals may not equal the sum of individual aircraft LTOs due to rounding.
** User defined aircraft in EDMS 4.21

3/ The Airbus A380 is not expected to enter service until 2007.

Source: LAX Master Plan, Appendix F (Aircraft Operations and Passenger Activity Profiles), Table F-1, April 2004.
Prepared by: Ricondo & Associates, Inc.

4.3.2.4.2 Ground Support Equipment and Auxiliary Power Units

The EDMS database includes default GSE assignments for each aircraft type expressed in terms of total operating times by specific type of GSE per LTO cycle. Emission factors taken from the CARB OFFROAD model were used to supplement default GSE information included in the EDMS. 2005 GSE usage rates and emission factors provided in Appendix F-B, Attachment 3, of the LAX Master Plan Final EIR were assumed for the Project (2005) condition. Emissions from GSE for the 2003 Baseline condition were interpolated from the 1996 and 2005 conditions described in the LAX Master Plan Final EIR according to the predicted penetration of alternative fuels. EDMS 4.21 is capable of estimating PM_{10} and $PM_{2.5}$ emissions for GSE.

GSE assignments for specific aircraft used in the analysis are provided in Appendix K of this EIR.

4.3.2.4.3 Ground Access Vehicles

Emissions from ground access vehicles on airport roadways were calculated using EDMS 4.21. Vehicle emissions were estimated using emission factors (i.e., TOG, CO, NO_x, SO_2, PM_{10} and $PM_{2.5}$) from CARB's motor vehicle emission factor model, EMFAC2002. Motor vehicle volumes in 2003 were interpolated using information contained in the LAX Master Plan Final EIR and supplemented with site-specific data. Vehicle volumes in 2005 were the same as those presented in the 2005 No Action/No Project Alternative studied in the LAX Master Plan Final EIR. Vehicle trip distances, idle times, average travel speeds, and hot versus cold starts were calculated in a manner consistent with the methodology outlined in the LAX Master Plan Final EIR.

4.3.2.4.4 Stationary Sources

Stationary source emissions in 2003 were interpolated using 1996 and 2005 information contained in the LAX Master Plan Final EIR and supplemented with site-specific data where available. Stationary source emissions in 2005 were the same as those presented in the 2005 No Action/No Project Alternative studied in the LAX Master Plan Final EIR. EDMS 4.21 is capable of estimating PM_{10} and $PM_{2.5}$ emissions for stationary sources. $PM_{2.5}$ emissions are automatically calculated by EDMS 4.21 using the PM_{10} emission factors supplied by the modeler, in this case PM_{10} emission factors developed for the LAX Master Plan Final EIR for this source category.

4.3.2.5 Dispersion Modeling

Air dispersion modeling was used to predict pollutant concentrations in the vicinity of the airport from emission sources discussed above. Pollutant concentrations were calculated for PM_{10}, $PM_{2.5}$, NO_2, CO, and SO_2 for the purposes of comparison to the ambient air quality standards. The dispersion modeling analysis is generally based on the methodology used in the LAX Master Plan Final EIR. Details of the modeling approach are included in the Air Quality Modeling Protocol for Criteria Pollutants (see Technical Report 4) of the LAX Master Plan Final EIR.

4.3.2.5.1 Dispersion Models

EDMS 4.21 generates input files for use with EPA's AERMOD dispersion model and its meteorological preprocessor, AERMET. AERMOD is a steady-state plume model that assumes a Gaussian concentration distribution in both the horizontal and vertical directions in the stable boundary layer. Detailed information about AERMOD is available from user guides and additional information contained on the USEPA's Internet website.[21] Dispersion modeling for this assessment was conducted using EDMS 4.21. However, consistent with the LAX Master Plan Final EIR air

[21] AERMOD Modeling System, 2005, at <http://www.epa.gov/scram001/tt26.htm#aermod>.

quality analysis, USEPA's Ozone-Limited-Method (OLM)[22] was used to estimate NO_2 ambient concentrations. USEPA's ISC-OLM model (version 96113) was updated with current Industrial Source Complex-Short Term (ISCST3) (version 02035) model algorithms.

The OLM involves an initial comparison of the estimated maximum NO_x concentration and the ambient ozone concentration to determine which of the pollutants is the limiting factor to NO_x formation. If the ozone concentration is greater than maximum NO_x, total conversion is assumed. If the maximum NO_x is greater than the ozone concentration the formation of NO_2 is limited by the ambient ozone concentration. A detailed discussion of the OLM methodology employed in this analysis is presented in Technical Report S-4, Attachment P, of the LAX Master Plan Final EIR.

Dispersion modeling using EDMS is significantly more complex in scope and in data input requirements than emissions inventory modeling. Requirements include: (1) specifying coordinates for sources of emissions, (2) assigning aircraft to runways, runway queues, taxiways, and gate areas, (3) developing appropriate operational profiles for mobile sources, (4) developing representative hourly meteorological conditions, and (5) defining other source-specific parameters for each emissions source included in the dispersion analysis. The user is also required to define individual receptors or grids of receptors for pollutant concentration estimation. In preparing for the dispersion analyses, airport operations and physical planning data were assembled and documented for Project (2005) conditions. These data files are consistent with EDMS input files developed for the LAX Master Plan Final EIR.

4.3.2.5.2 Meteorological Data

Airport-specific meteorological data were used in the dispersion analysis conducted for the SAIP. AERMET, the meteorological preprocessing program for AERMOD was used to develop the appropriate meteorological dataset. Consistent with the air quality analyses conducted for the LAX Master Plan Final EIR and the Final General Conformity Determination, a weather dataset for calendar year 1996 was used in the SAIP air quality analysis. As discussed in the LAX Master Plan Final EIR, hourly surface observation data were collected by the SCAQMD at the airport and missing surface data were supplemented with data obtained from the National Weather Service (NWS) for the period between March 1, 1996 and February 28, 1997. The location of the NWS station is depicted on **Exhibit 4.3-1.** Twice-daily upper air sounding data used in the AERMOD analysis were obtained from the San Diego Miramar Weather Service Contract Meteorological Observatory (WSCMO), which is the closest WSCMO to the airport with available upper air soundings data.

4.3.2.5.3 Source and Receptor Locations

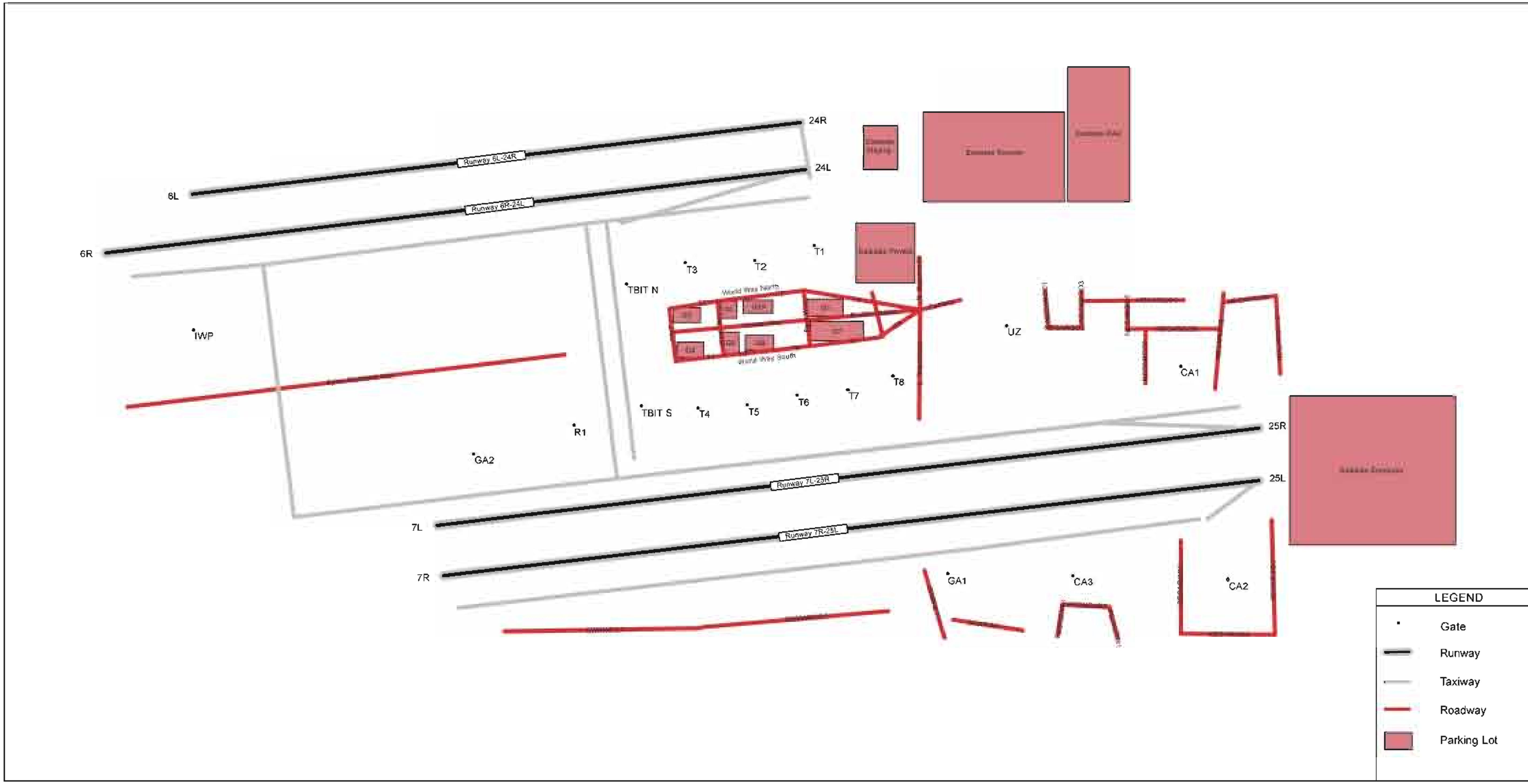
As discussed in Section 4.6.2.4 of the LAX Master Plan Final EIR, locations for airport-related mobile and stationary emissions sources were determined from a review of airport layouts and LAX Master Plan documents. Sources of airport emissions are depicted on **Exhibit 4.3-2.** Locations for sources of construction-related emissions were developed using construction diagrams. As shown on **Exhibit 4.3-3,** construction emissions would originate within the project area, the staging area, and the construction employee parking area.

[22] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, ISC-OLM.

Source. LAX Master Plan EIS/EIR, 2004
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.3-1

Location of Meteorological Station and Air Quality Monitoring Station

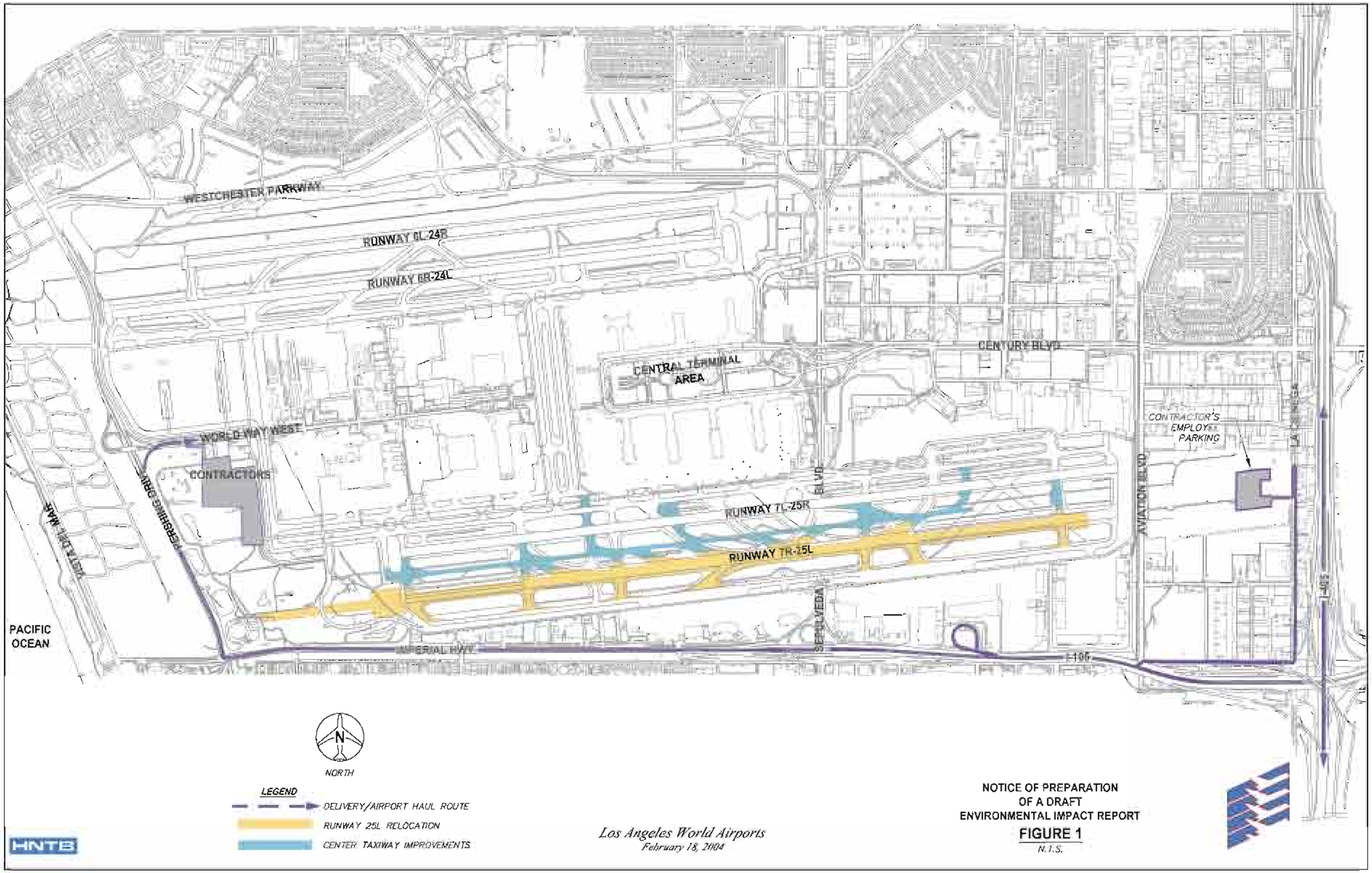


Source: Camp Dresser & McKee, Inc., 2004
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.3-2

north

Sources of Airport Emissions Modeled in EDMS 4.11



Source: HNTB, 2004
Prepared by: Ricondo & Associates, Inc

Exhibit 4.3-3

Construction and Staging Areas Included in Dispersion Analysis
2005 South Airfield Project

Receptor points represent the geographic locations where AERMOD calculates air pollutant concentrations. The height of all receptors was set to 1.8 meters above ground level (EDMS default), the approximate breathing height of adults standing on the ground. The grid of receptors used in the Project (2005) dispersion analyses is depicted on **Exhibit 4.3-4** and includes locations along the southern boundary of the airport (generally along the airport property line) and publicly accessible areas on and off airport property. The receptor grid and discrete sensitive receptors in close proximity to the airport were defined to be consistent with the Alternative D analysis conducted for the LAX Master Plan Final EIR.

4.3.2.6 Background Concentrations at Time of Project Implementation

The modeling conducted for the SAIP accounts for project (2005) concentrations of pollutants due to airport-related activities and proposed construction projects. Other pollutant sources in the area that contribute to total pollutant concentration levels were also estimated. Background concentrations were calculated using historical ambient air quality measurement data (described below) to reflect future emissions from nearby and distant off-airport sources. The future background concentrations, summarized in **Table 4.3-3,** were added to the airport modeling results to reflect the total pollutant concentrations at a specific receptor location.

Consistent with the approach taken in the LAX Master Plan Final EIR and the Final General Conformity Determination, background concentrations of CO, NO_2, and SO_2 were estimated using the linear rollback method identified in the *1997 Air Quality Management Plan*[23] (AQMP). The linear rollback method assumes that changes in emissions inventories would change the ambient concentrations proportionally. The background concentration of PM_{10} at the airport was estimated by multiplying year 2000 PM_{10} concentrations at the airport by the ratio of 2005 concentrations to year 2000 concentrations for downtown Los Angeles (the nearest station for which future PM_{10} concentrations have been estimated).

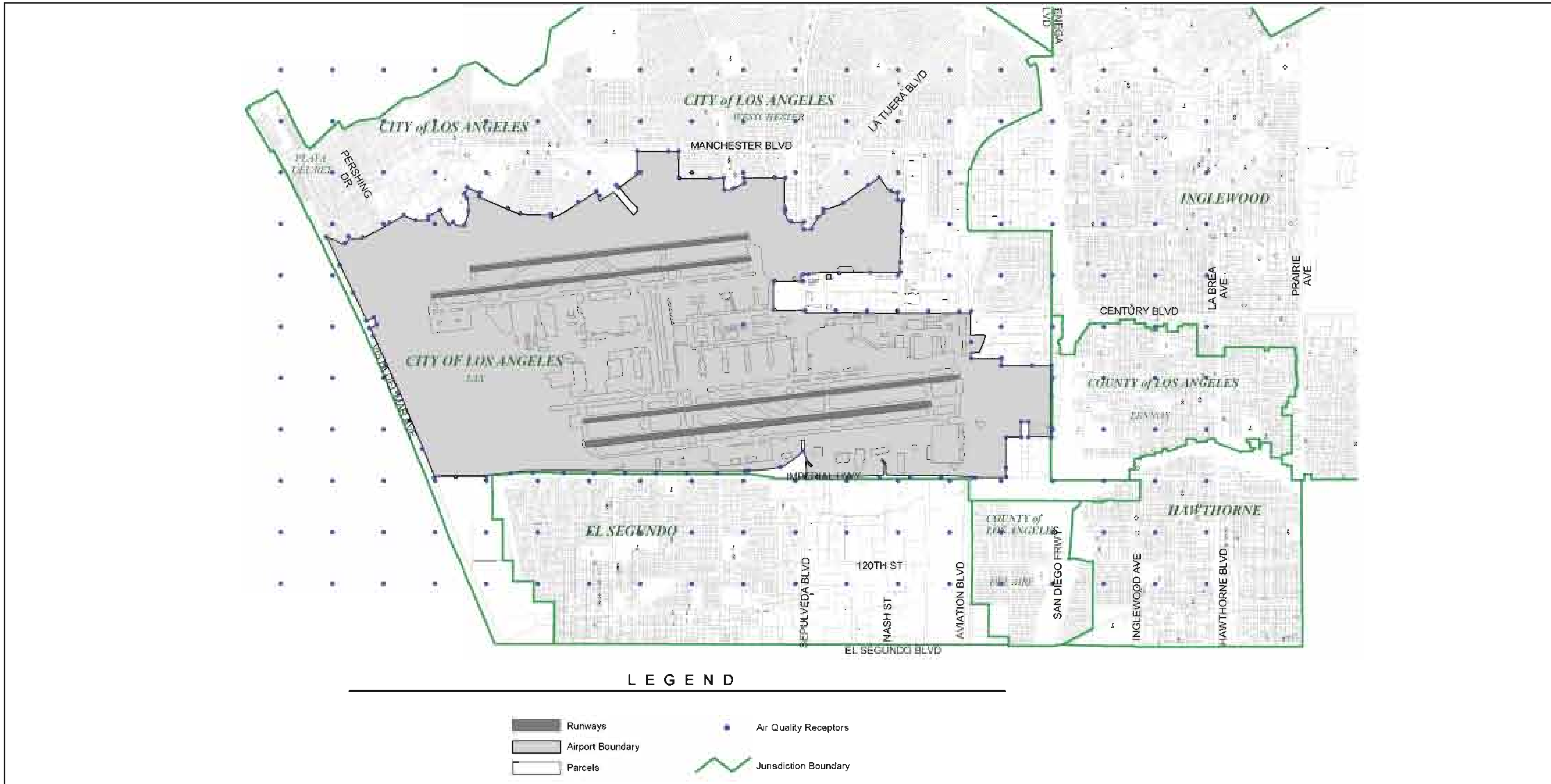
The Southwest Coastal LA County ambient air quality monitoring station does not collect sampling data for $PM_{2.5}$, therefore data from ambient air quality monitoring stations that collect information regarding $PM_{2.5}$ concentrations were used to establish the background concentration of $PM_{2.5}$. The two monitoring stations for which ambient air quality data were reviewed included the Central LA station and the South Coastal LA County station. PM_{10} and $PM_{2.5}$ concentration data collected at the Central LA and South Coastal LA County stations in 2003 were evaluated to determine a ratio of PM_{10} to $PM_{2.5}$ concentrations. This ratio was applied to the assumed background concentration for PM_{10} presented in Table 4.3-3 to determine the background concentration of $PM_{2.5}$ (annual arithmetic mean only). The 24-hour $PM_{2.5}$ background concentration is based on ambient air quality data recorded at the Central LA air quality monitoring station in 2003.[24]

Background concentrations were estimated using ambient air quality measurement data and therefore include the current contribution of emissions from airport-related sources. The methodologies described above, therefore, are conservative, because airport sources are implicitly included in the calculated future background concentrations.

---

[23] South Coast Air Quality Management District. *1997 Air Quality Management Plan*. November 1996.

[24] Due to differences in the ambient air quality datasets available for PM_{10} and $PM_{2.5}$ for calendar year 2003, the 24-hour $PM_{2.5}$ background concentration in 2005 was not calculated using a ratio of PM_{10} to $PM_{2.5}$ concentrations. The 24-hour $PM_{2.5}$ background concentration (2005) is based on ambient air quality data for 2003 as recorded at the Central LA air quality monitoring station.



Source: Camp Dresser & McKee, Inc., 2004
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.3-4

north 0 4000 Feet

Location of Receptors Used in Air Quality Dispersion Analysis

Table 4.3-3

Future Background Concentrations

Pollutant[1/]	Averaging Period	Future Background Concentration (2005)
O_3 (ppm)	1-Hour	$\leq$0.09[2/]
CO (ppm)	8-Hour	4.9
	1-Hour	6.2
NO_2 (ppm)	AAM	0.0196
	1-Hour	0.0998
SO_2 (ppm)	AAM	0.0023
	24-Hour	0.0065
	3-Hour	0.016
	1-Hour	0.019
PM_{10} (µg/m^3)	AAM	28
	24-Hour	61
$PM_{2.5}$ (µg/m^3)	AAM	16
	24-Hour	83.7 [3/]

Notes:

1/ Lead and sulfate concentrations currently meet the NAAQS and CAAQS limits. No significant sources of these pollutants exist or are proposed at the airport.

2/ Ozone concentrations with or without the proposed LAX Master Plan are listed in Appendix V of the 1997 Air Quality Management Plan.

3/ The 24-Hour $PM_{2.5}$ background concentration is based on ambient air quality data for 2003 as recorded at the Central LA air quality monitoring station.

ppm= parts per million (by volume)
AAM = Annual Arithmetic Mean
(µg/m^3= micrograms per cubic meter
AGM = Annual Geometric Mean.

Source: CDM, 2003
Prepared by: Ricondo & Associates, Inc.

4.3.3 Baseline Conditions

Baseline conditions discussed herein refer to calendar year 2003, the last full calendar year for which airport operations data was available when the air quality analysis was prepared. The airport is located within the South Coast Air Basin of California, a 6,600 square-mile area encompassing all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties.

4.3.3.1 Climatological Conditions

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.[25]

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 of 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.[26]

The annual minimum mean, maximum mean, and overall mean temperatures at the airport are 55°F, 70°F, and 63°F, respectively. The prevailing wind direction at the airport is from the west-southwest with an average wind speed of roughly 8 knots (9.2 miles per hour or 4.1 miles per second). 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 knots (5.8 mph or 2.6 m/s) in December to 9 knots (10 mph or 4.6 m/s) during the spring, March through June.

4.3.3.2 Federal and State Regulatory Framework

Air quality is regulated by federal, State, and local laws. In addition to rules and standards contained in the federal Clean Air Act and the California Clean Air Act, air quality in the Los Angeles region is subject to the rules and requirements established by the California Air Resources Board and the South Coast Air Quality Management District with oversight provided by USEPA Region IX.

4.3.3.2.1 Federal Clean Air Act and California Clean Air Act

On November 15, 1990, the most recent amendments to the federal Clean Air Act[27] were signed into law. The federal Clean Air Act Amendments (CAAA) of 1990[28] require all air quality planning regions in the country to be designated according to the National Ambient Air Quality Standards (NAAQS) for criteria air pollutants, i.e. pollutants causing human health impacts due to their release from numerous sources**.** If air pollutant concentrations in these regions do not exceed the NAAQS, they are designated attainment areas. If such concentrations do exceed the NAAQS they are designated nonattainment areas. The following criteria pollutants have been identified: ozone, particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}), fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). The CAAA also mandates that states submit and implement State Implementation Plans (SIPs) for regions not meeting these standards. The SIP must include a pollution control plan, which demonstrates how and when the standards will be met. The California Clean Air Act (CCAA)[29], 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. California ambient air quality standards are similar to the NAAQS, with a few notable differences as shown in **Table 4.3-4**.

---

[25] Gale Research, *Climates of the States, Volume 1: Alabama-New Mexico*, 1985.
[26] Ibid.
[27] U.S. Congress. *Clean Air Act of 1970*. Public Law 91-604. December 31, 1970.
[28] U.S. Congress. *Clean Air Act Amendments of 1990*. Public Law 101-49. November 15, 1990.
[29] State of California. *California Clean Air Act 1988*. September 1988.

Local air quality management districts regulate air pollution from commercial and industrial facilities. As in the federal CAAA, air pollution control districts in California have been formally designated as attainment or nonattainment. Nonattainment designations are further categorized into four levels of severity: (1) moderate, (2) serious, (3) severe, and (4) extreme.

The South Coast Air Basin, within which the proposed project site is located, is currently designated by the federal government and the State of California as an "extreme" nonattainment area for 1-hour ozone (O_3) standard, a "serious" nonattainment area for carbon monoxide (CO), and a "serious" nonattainment area for PM_{10}. Air quality management plans that include specified emission reduction strategies intended to meet clean air goals must be prepared for "severe" and "extreme" nonattainment areas.

The CAAA identifies specific emission reduction goals for regions not meeting the NAAQS, and requires both a demonstration of reasonable further progress toward attainment and the incorporation of additional sanctions into the SIP for failure to attain or to meet interim milestones. The CAAAs set certain deadlines for meeting the NAAQS for criteria pollutants within the South Coast Air Basin are: (1) 1-hour ozone by the year 2010; (2) PM_{10} by the year 2006; and (3) CO by the year 2000. The CO attainment demonstration developed for the South Coast Air Basin in 1997 has lapsed. A revised CO attainment demonstration prepared for the South Coast Air Basin indicates that the standard was attained in 2002 and will be maintained into the future; however, the South Coast Air Basin is still designated as a nonattainment area for CO.

4.3.3.2.2 8-Hour Ozone Standard and $PM_{2.5}$

In July 1997, the USEPA promulgated a new 8-hour ozone standard and a new 24-hour and annual $PM_{2.5}$ standard. These standards were the subject of legal challenges but are being implemented by the USEPA. USEPA designated nonattainment boundaries for the 8-hour ozone standard in April 2004 and designated $PM_{2.5}$ nonattainment boundaries in December 2004. The 8-hour ozone nonattainment designations took effect in June 2004 and the $PM_{2.5}$ designations took effect in March 2005. The federal government has designated the South Coast Air Basin a severe nonattainment area for the 8-hour ozone standard and has established an attainment date of June 2021. While the South Coast Air Basin has been designated a nonattainment area for $PM_{2.5}$, the exact attainment date has not been established.[30]

As discussed previously, ozone is a regional pollutant and ambient concentrations can only be adequately predicted with a regional photochemical model. Consistent with standard industry practice, emissions of ozone precursors, VOC and NO_x, were used as surrogates to assess ozone for emission impacts. It is beyond the scope of the environmental studies for the LAX Master Plan and its project components to address ambient ozone concentrations or the attainment of either the 1-hour or 8-hour ozone ambient air quality standards; however, these issues are addressed, or will be addressed, in the Air Quality Management Plan prepared for the South Coast Air Basin. Final guidance on the implementation of the $PM_{2.5}$ ambient air quality standards has not been issued. In addition, SCAQMD has not defined significant emission thresholds for $PM_{2.5}$. As discussed in Section 4.3.4, ambient air quality standards for $PM_{2.5}$ were used as thresholds of significance in the SAIP EIR.

[30] The USEPA has specified April 2010 as the deadline for attainment of the $PM_{2.5}$ NAAQS; however, extensions to 2015 are possible. http://www.epa.gov/pmdesignations/documents/120/timeline.htm.

Table 4.3-4

National and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS	NAAQS	
			Primary	Secondary
Ozone (O_3)	1-Hour	0.09 ppm (180 μg/m^3)	0.12 ppm (235 μg/m^3)	Same as Primary
	8-Hour	0.07 ppm	0.08 ppm (157 μg/m^3)	Same as Primary
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	N/A	0.053 ppm (100 μg/m^3)	Same as Primary
	1-Hour	0.25 ppm (470 μg/m^3)	N/A	N/A
Sulfur Dioxide (SO_2)	Annual	N/A	0.03 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)	N/A	N/A
Particulate Matter (PM_{10})	AAM	20 μg/m^3	50 μg/m^3	Same as Primary
	24-Hour	50 μg/m^3	150 μg/m^3	Same as Primary
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	N/A	65 μg/m^3	Same as Primary
	AAM	12 μg/m^3	15 μg/m^3	Same as Primary
Lead (Pb)	Quarterly	N/A	1.5 μg/m^3	Same as Primary
	Monthly	1.5 μg/m^3	N/A	N/A
Sulfates	24-Hour	25 μg/m^3	N/A	N/A

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

Source: California Air Resources Board, Ambient Air Quality Standards (California and Federal), July 2003.
Prepared by: Ricondo & Associates, Inc.

4.3.3.2.3 California Air Resources Board

The California Air Resources Board (CARB) was established in 1967 as a division of the California Environmental Protection Agency. The mission of the CARB is to promote and protect public health, welfare and ecological resources through the effective and efficient reduction of air pollutants, while recognizing and considering the effects on the State's economy. The CARB also oversees the activities of 35 local and regional air pollution control districts. These districts regulate industrial pollution sources. They also issue permits, develop local plans to attain healthy air quality and ensure that the industries in their area adhere to air quality mandates.

4.3.3.2.4 South Coast Air Quality Management District

A California state statute established the South Coast Air Quality Management District (SCAQMD) as the local air pollution control agency for the South Coast Air Basin, which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernadino Counties.

4.3.3.2.5 Southern California Association of Governments

The Southern California Associations of Governments (SCAG) is the metropolitan planning organization 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 Clean Air Act for determining conformity of transportation projects, plans, and programs with applicable air quality plans.

4.3.3.2.6 Rules and Regulations

As discussed in Section 4.6.3.2 of the LAX Master Plan Final EIR, numerous rules and regulations have been implemented (and are enforceable) by federal, State, regional, and local agencies to protect or enhance air quality in the South Coast Air Basin. Examples of rules and regulations that are applicable to the airport and with which LAWA complies are identified below:

- CARB Rule 13 CCR 1956.8, California Exhaust Emission Standards and Test Procedures for 1995 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles: requires significant reductions in emissions of NO_x, particulate matter, and non-methane compounds using treatment on heavy-duty diesel engines.
- SCAQMD Rule 403, Fugitive Dust: identifies the minimum particulate controls for construction-related fugitive dust. Rule 403 requires watering of all active grading or construction sites twice per day. Hauling trucks leaving construction areas on the airport must be covered. Wheel washers must be used to clean off trucks before they enter public roadways.
- SCAQMD Rule 431.2, Sulfur Content of Liquid Fuels: requires that only low sulfur diesel fuel (containing 15 parts per millions [ppm] by weight of sulfur) will be permitted for sale after January 1, 2005.
- SCAQMD Rule 1134, Emissions of Oxides of Nitrogen from Stationary Gas Turbines: places stringent limits on emissions of NO_x

- SCAQMD Rule 1146, Emissions of Oxides of Nitrogen from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters: places stringent limits on emissions of NO_x
- SCAQMD Rule 1146.1, Emissions of Oxides of Nitrogen from Small Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters: places stringent limits on emissions of NO_x
- SCAQMD Rule 1146.2, Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers: places stringent limits on emissions of NO_x
- SCAQMD Rule 1157, PM_{10} Emission Reductions from Aggregate and Related Operations: requires dust control methods on crushers, cement batch plants, and other facilities that involve the handling of sand, gravel, cement, crushed stone, or quarried rocks.

The air quality analysis conducted for the SAIP incorporates the assumption that LAWA substantially complies with these requirements and will continue to do so regardless of whether the SAIP is constructed.

In the South Coast Air 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. 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 low-sulfur diesel fuel. CARB recently 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. To be consistent with the air quality analyses conducted for the LAX Master Plan Final EIR and the Final General Conformity Determination, recent plans and policies addressing ground access vehicle emissions have not been incorporated into the air quality impact analysis described below. The emissions reductions that would be associated with implementation of SCAQMD's clean fuel rules are not incorporated into the SAIP air quality analysis; therefore, the estimate of ground access vehicle emissions is considered conservative.

4.3.3.3 Air Quality Plans and Policies

The purpose of a regional Air Quality Management Plan (AQMP) is to demonstrate attainment with the CAAQS and NAAQS. The SCAQMD is required to prepare and submit an AQMP to CARB and the USEPA every three years. The development of the AQMP is supported by SCAG, which is responsible for providing transportation and growth projections to the SCAQMD. The 2001 Regional Transportation Plan (RTP) prepared by SCAG received federal approval in June 2001 and the 2004 RTP was completed in June 2004.

As of 2004, CARB and the USEPA have approved sections of the 1997 AQMP addressing NO_2 and CO and have approved portions of the 1999 Amendments to the 1997 AQMP addressing O_3. The USEPA has approved sections of the 1997 AQMP addressing PM_{10}. The SCAQMD has completed the 2003 AQMP and CARB submitted the final AQMP to the USEPA for approval on January 9, 2004. The 2003 AQMP[31] contains the CO attainment and maintenance demonstration for 2002 and beyond.

[31] South Coast Air Quality Management District. *2003 Final Air Quality Management Plan*. August 2003.

In the development of the emissions inventories for the 1997 AQMP and the 2003 AQMP, the SCAQMD assumed that the USEPA would adopt new regulations to control emissions from aircraft engines below existing limits. The Clean Air Act grants sole authority for setting aircraft engine emission standards to the USEPA.[32] The USEPA never adopted such regulations, and since commercially available aircraft engine technologies are not capable of meeting the emission reductions assumed by SCAQMD, the 1997 and 2003 AQMP emissions inventories underestimate actual baseline (2003) emissions and underestimate future airport emissions with or without the SAIP.

Since 1998, LAWA has participated in a national effort to reduce airport and aircraft emissions. Stakeholders involved in the emission reduction effort include representatives from the FAA, USEPA, state and local environmental groups, airlines, and airports. The focus of the discussions has centered around reducing NO_x emissions; however, consideration is also being given to limiting other pollutants generated by aviation activities including VOC, CO_2, PM_{10}, and air toxics. As part of its approval of the 1994 AQMP for the South Coast Air Basin, the USEPA established a working process between USEPA, CARB, SCAQMD, airlines, and airports to discuss voluntary conversion of GSE to clean fuels. A memorandum of understanding between CARB and ten airlines setting forth goals for reducing emissions from GSE was signed in December 2002. The memorandum of understanding specifies that GSE-related NO_x plus hydrocarbons (HC) emissions will be reduced by 80 percent by 2010.

4.3.3.4 Historical and Existing Ambient Air Quality

The SCAQMD maintains a network of air quality monitoring stations located throughout the South Coast Air Basin. The closest monitoring station, and most representative of existing air quality conditions in the project area, is the Southwest Coastal Los Angeles Monitoring Station located at 5234 West 120th Street in Hawthorne, California, or about 2 miles southeast of the Theme Building. This station monitors ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, and PM_{10}. Data available from this monitoring station were collected for the five-year period of 1999 to 2003. The data, summarized in **Table 4.3-5**, show the following pollutant trends.

4.3.3.4.1 Ozone

The maximum ozone concentration recorded during the five-year period was 0.15 parts per million (ppm), which was recorded in 1999. On average, during the five-year period, the State standard of 0.09 ppm was exceeded between 1 and 2 times annually, with the exception of 2002 when no exceedances were recorded. The national standard of 0.12 ppm/1-hour and 0.08 ppm/8-hour was exceeded 1 time during the five-year period.

4.3.3.4.2 Carbon Monoxide

The maximum recorded 1-hour concentration during the five-year period was 10 ppm, which was recorded in 1999. During this time period, no exceedances of the State or national 1-hour carbon monoxide standards were recorded. The maximum recorded 8-hour carbon monoxide concentration was 8.4 ppm, which was recorded in 1999. The State and national 8-hour carbon monoxide standards were not exceeded during the five-year period.

[32] 42 USC 7571.

Table 4.3-5

Southwest Coastal Los Angeles Monitoring Station Ambient Air Quality Data

	1999	2000	2001	2002	2003
Ozone (O_3)					
Maximum Concentration 1-hr period (ppm)	0.15	0.10	0.098	0.088	0.110
Maximum Concentration 8-hr period (ppm)	0.084	0.075	0.079	0.072	0.078
Number of Days California Standard Exceeded	1	1	1	0	2
Number of Days National Standard Exceeded	1	0	0	0	0
Carbon Monoxide (CO)					
Maximum Concentration 1-hr period (ppm)	10	9	7	7	7
Maximum Concentration 8-hr period (ppm)	8.4	7.0	5.14	6.1	5.04
Number of Days California 1-hr Standard Exceeded	0	0	0	0	0
Number of Days National 1-hr Standard Exceeded	0	0	0	0	0
Number of Days California 8-hr Standard Exceeded	0	0	0	0	0
Number of Days National 8-hr Standard Exceeded	0	0	0	0	0
Nitrogen Dioxide (NO_2)					
Maximum Concentration 1-hr period (ppm)	0.13	0.13	0.11	0.10	0.12
Annual Arithmetic Mean (AAM)	0.0295	0.0275	0.0250	0.0244	0.023
Number of Days California Standard Exceeded	0	0	0	0	0
Percent National Standard Exceeded	0	0	0	0	0
Sulfur Dioxide (SO_2)					
Maximum Concentration 1-hr period (ppm)	0.09	0.17	0.04	0.07	0.03
Annual Arithmetic Mean (AAM)	0.0040	0.0017	n.a.	n.a.	n.a.
Maximum Concentration 24-hr period (ppm)	0.019	0.016	0.009	0.007	0.006
Number of Days California Standard Exceeded	0	0	0	0	0
Number of Days National Standard Exceeded	0	0	0	0	0
Suspended Particulates (PM_{10})					
Maximum Concentration 24-hr period ($\mu g/m^3$)	69	74	75	121	58
Percent Samples Exceeding California Standard	10.0	16.0	14.0	19.7	4.9
Percent Samples Exceeding National Standard	0	0	0	0	0

Notes:

ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter
n.a. = not applicable/not available

Source: South Coast Air Quality Management District, Air Quality Data 1999-2003.
Prepared by: Ricondo & Associates, Inc.

4.3.3.4.3 Nitrogen Dioxide

The CAAQS and NAAQS for nitrogen dioxide, which are 0.25 ppm (1-hour average) and 0.053 ppm (annual average) respectively, were not exceeded during the 1999-2003 time period. A maximum 1-hour concentration of 0.13 ppm was recorded in 1999 and 2000.

4.3.3.4.4 Sulfur Dioxide

No violations of the CAAQS for sulfur dioxide, which are 0.04 ppm (24-hour average) and 0.25 ppm (1-hour average), or the NAAQS for sulfur dioxide, which are 0.03 ppm (annual average) and 0.14 ppm (24-hour average) were recorded during the 1999-2003 time period. The maximum 1-hour concentration, 0.17 ppm, was recorded in 2000.

4.3.3.4.5 Particulate Matter (PM_{10})

The highest recorded 24-hour average PM_{10} concentration during the five-year period was 121 micrograms per cubic meter of air ($\mu g/m^3$), which was recorded in 2002. Between 1999 and 2003, the State PM_{10} standard was exceeded between 4.9 and 19.7 percent of the time annually, with the highest percentage of exceedances recorded in 2002 and the lowest percentage of exceedances recorded in 2003. PM_{10} is monitored every six days thus the percentage of PM_{10} exceedances in a particular year is tied to the number of days that sampling actually occurred. The less stringent national standard was not exceeded.

4.3.3.4.6 Particulate Matter ($PM_{2.5}$)

The Southwest Coastal Los Angeles Monitoring Station does not collect data regarding ambient concentrations of $PM_{2.5}$. As discussed in Section 4.3.2.6, ambient air quality data for calendar year 2003 for the Central LA and South Coastal LA County monitoring stations was reviewed and used to estimate the background concentration of $PM_{2.5}$ used in the dispersion modeling conducted for the SAIP (See Section 4.3.6.1.4). In 2003, the highest recorded 24-hour average $PM_{2.5}$ concentration at the Central LA monitoring station was 83.7 $\mu g/m^3$ and the highest recorded 24-hour average $PM_{2.5}$ concentration at the South Coastal LA County monitoring station was 115.2 $\mu g/m^3$. In 2003 the national 24-hour PM2.5 standard was exceeded 1.5 percent of the time at the Central LA monitoring station and 0.9 percent of the time at the South Coastal LA County monitoring station.

4.3.3.5 2003 Airport Emissions Inventory

The airport emissions inventory for 2003 is provided in **Table 4.3-6**. Emissions estimates for calendar year 2003 provided below are less than calendar year 2000 emissions estimates presented in the LAX Master Plan Final EIR. The lower levels of emissions reflect the difference between LAX Master Plan forecasted activity levels and actual aircraft activity levels in 2003 (i.e., number of aircraft operations and fleet mix).

Table 4.3-6

2003 Emissions Inventory for On-Airport Sources

Source Category	CO lbs/day	CO tpy	VOC lbs/day	VOC tpy	NO_x lbs/day	NO_x tpy	SO_2 lbs/day	SO_2 tpy	PM_{10} lbs/day	PM_{10} tpy	$PM_{2.5}$ lbs/day	$PM_{2.5}$ tpy
Aircraft[1/]	19,939	3,639	2,346	428	16,562	3,023	1,429	261	224	41	224	41
GSE/APU	12,221	2,230	876	160	5,878	1,073	81	15	190	35	184	34
Stationary[1/]	614	112	428	78	1,085	198	31	6	188	34	188	34
Motor Vehicles[2/]	17,293	3,156	2,090	382	2,038	372	8	1	233	42	222	40
Total	50,066	9,137	5,741	1,048	25,562	4,665	1,550	283	835	152	818	149

Notes:
1/ Aircraft engine testing included in stationary total.
2/ Includes only on-Airport motor vehicle emissions.
Lbs/day = pounds per day
Tpy = tons per year

Source: PCR Services Corporation, 2005.
Prepared by: Ricondo & Associates, Inc.

4.3.4 Thresholds of Significance

The SCAQMD has developed operational and construction-related thresholds of significance for air quality impacts of projects proposed in the South Coast Air Basin[33]. These thresholds, which are included in the *SCAQMD CEQA Handbook*, are utilized for purposes of CEQA, and are summarized in **Table 4.3-7**. In accordance with the *SCAQMD CEQA Handbook*, a significant air quality impact would occur if implementation of the project would potentially result in one or more of the conditions listed below.

- Estimated incremental, or net increase in, nonconstruction-related emissions attributable to the project that are greater than the operations emission thresholds presented in Table 4.3-7.
- Estimated incremental, or net increase in, construction-related emissions attributable to the project that would be greater than the daily or quarterly construction emission thresholds presented in Table 4.3-7.
- Project concentrations from stationary sources that would be greater than the concentration thresholds presented in Table 4.3-7.
- Maximum predicted combined operation and construction-related concentrations attributable to the project combined with calculated future background concentrations for NO_2 and SO_2 that would exceed ambient air quality standards presented in Table 4.3-4.
- Maximum predicted concentrations for the project combined with calculated future background concentrations for CO, PM_{10}, and $PM_{2.5}$ that would exceed the ambient air quality standards presented in Table 4.3-4 after the attainment date for each pollutant

[33] The SCAQMD has not promulgated a mass emission rate significance threshold for $PM_{2.5}$ and, therefore, $PM_{2.5}$ emissions from both construction and operation sources were dispersed and then combined with background $PM_{2.5}$ concentrations to determine if an exceedance of the NAAQS or CAAQS would occur.

(December 31, 2000 for CO, December 31, 2006 for PM_{10}, and April 2010 for $PM_{2.5}$).[34] Prior to the attainment date, concentrations associated with the project are considered significant if they are higher than both the NAAQS/CAAQS and the Baseline concentration.

- Maximum estimated concentrations from the project, considered together with the maximum concentrations from past, present, and probable future projects in the impact areas that would be greater than the NAAQS/CAAQS for NO_2 or SO_2 presented in Table 4.3-4.
- Maximum estimated concentrations from the project, considered together with maximum impacts from past, present, and probable future projects in the impact area that would be greater than the CO, PM_{10}, or $PM_{2.5}$ ambient air quality standards presented in Table 4.3-4 after the attainment date for each pollutant. Prior to the attainment date, concentrations associated with the project are considered significant if they are higher than both the NAAQS/CAAQS and the Baseline concentration.

Table 4.3-7

CEQA Thresholds of Significance for Air Pollutants in the South Coast Air Basin

Pollutant	Stationary Source Concentration Thresholds[1] (Averaging Period)	Operations Emission Thresholds (lbs/day)	Construction Emission Thresholds[2] (lbs/day)	Construction Emission Thresholds[2] (tons/quarter)
Sulfates	1 μg/m^3	n.a.	n.a.	n.a.
CO	500 μg/m^3 (8-Hour)	550	550	24.75
	1100 μg/m^3 (1-Hour)			
	2000 μg/m^3 (1-Hour) Federal Standard			
NO_2	1 μg/m^3 (Annual)	n.a.	n.a.	n.a.
	20 μg/m^3 (1-Hour)			
Total NO_x	n.a.	55	100	2.5
VOC[3]	n.a.	55	75	2.5
SO_x	n.a.	150	150	6.75
PM_{10}	1 μg/m^3 (Annual)	150	150	6.75
	2.5 μg/m^3 (24-Hour)			
	5.0 μg/m^3 (24-Hour) Federal Standard			

Notes:
n.a. = Not applicable
ppm = parts per million (by volume)
μg/m^3 = micrograms per cubic meter

1/ South Coast Air Quality Management District, Regulation XIII – New Source Review, Rule 1303, Appendix A, May 10, 1996
2/ South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993.
3/ VOC assumed to be the same as HC, ROC, and ROG.

Source: South Coast Air Quality Management District, Regulation XIII – New Source Review, Rule 1303, Appendix A, December 6, 2002; South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993.
Prepared by: Ricondo & Associates, Inc.

[34] The USEPA has specified April 2010 as the deadline for attainment of the $PM_{2.5}$ NAAQS; however, extensions to 2015 are possible. http://www.epa.gov/pmdesignations/documents/120/timeline.htm.

4.3.5 LAX Master Plan Commitments and Mitigation Measures

LAX Master Plan commitments and mitigation measures for LAX Master Plan Alternative D are described in the September 2004 document, *Alternative D Mitigation Monitoring & Reporting Program* (MMRP)[35]. Of the three commitments and four mitigation measures that were designed to address air quality impacts related to implementation of the LAX Master Plan, four are applicable to the SAIP and hence were considered in the air quality analysis as part of the project.

- **MM-AQ-1. LAX Master Plan – Mitigation Plan for Air Quality.** This mitigation measure specifies that LAWA will expand and revise existing air quality mitigation programs at the airport through the development of an LAX Master Plan-Mitigation Plan for Air Quality (LAX MP-MPAQ). The goal of the LAX MP-MPAQ is to reduce air pollutant emissions associated with implementation of the LAX Master Plan to levels equal to, or less than, the thresholds of significance identified in the LAX Master Plan Final EIR. The LAX MP-MPAQ process has commenced and LAWA is working with its consultants to define the framework for the overall air quality mitigation program and to define specific measures to be implemented in three categories of emission – construction, transportation, and operations.[36]
- **MM-AQ-2. Construction-Related Measure.** This mitigation measure describes numerous specific actions to reduce fugitive dust emissions and exhaust emissions from on-road and off-road mobile and stationary sources. As discussed in the MMRP and Section 4.6.8 of the LAX Master Plan Final EIR, the LAX Master Plan consultants did not quantify potential emission reductions associated with all of the mitigation measures that fall under MM-AQ-2. Emission reduction measures that were quantified and included in the mitigated emissions inventory presented in Section 4.6.8.5 of the LAX Master Plan Final EIR are described in **Table 4.3-8**. For the SAIP air quality analysis, it was assumed that these mitigation measures would be in place in 2005. Some components of MM-AQ-2 are not readily quantifiable, but will be implemented as part of the SAIP. These mitigation strategies, presented in **Table 4.3-9**, are expected to further reduce construction-related emissions associated with the SAIP. Other feasible mitigation measures may be defined in the final LAX MP-MPAQ, which will be complete prior to implementation of the SAIP.
- **MM-AQ-3. Transportation-Related Measure.** The primary feature of this mitigation measure is the development and construction of at least eight (8) additional sites with FlyAway service similar to the service provided by the Van Nuys FlyAway operated by LAWA. The intent of the FlyAway sites is to reduce the quantity of traffic going to and from LAX by providing regional locations where LAX employees and passengers can access clean-fueled buses bound to and from the airport. Because the FlyAway sites will be constructed after 2005, it was assumed that emission reductions associated with the new FlyAway sites would occur after the construction of the SAIP. The emission reductions associated with construction of the new FlyAway sites were not factored into the SAIP air quality analysis.

[35] Los Angeles World Airports. *Taking Flight for a Better Future, Alternative D Mitigation Monitoring & Reporting Program*. September 2004.
[36] Potential mitigation measures that have been studied are documented in the December 2004 report "Inventory of Air Quality Mitigation Measures Considered in Conjunction with the LAX Master Plan" prepared by CDM.

- **MM-AQ-4. Operations-Related Measure.** This mitigation measure consists of one primary airside component, the conversion of GSE to extremely low emission technology. According to the MMRP, the GSE conversion program will be a phased program and would be completed at the build out of the LAX Master Plan in 2015. For the purposes of the SAIP air quality analysis, it was assumed that the GSE conversion program was underway. The percentage of clean vehicle GSE assumed in the 2003 and 2005 emissions analysis was determined using information contained in the LAX Master Plan Final EIR and information provided by LAWA, and includes the anticipated effects of the 2002 MOU between CARB and airlines operating at the airport regarding reductions in GSE emissions.

LAX Master Plan Commitments *AQ-1 Air Quality Apportionment Study*, *AQ-2 School Air Filters*, and *AQ-3 Mobile Health Research Lab* were not evaluated as part of the air quality analysis conducted for the SAIP because they are not applicable to the project.

Table 4.3-8

Construction Related Mitigation Measures Incorporated into the Project (2005) Construction Emissions Inventory

Mitigation Measure	Potential Emissions Reduction by Equipment
Heavy Duty Diesel (Offroad)	24% NO_x, 85% PM_{10}, and 85% $PM_{2.5}$
Clean burning diesel fuel (e.g., Lubrisol)	
Particulate Traps	
Injection Timing Retarding	
Diesel Generators	33% CO, 33% VOC, 46% NO_x, 33% SO_2, 83% $PM_{10,}$ and 83% $PM_{2.5}$
Replace with electric generators -33.4%	
Clean burning diesel fuel (e.g. Lubrisol) – 33.3%	
Particulate traps and clean diesel – 33.3%	
Fugitive dust caused on and off-site vehicle trips	63% PM_{10} and 63% $PM_{2.5}$
Chemical Stabilizers	
Watering (per SCAQMD Rule 403)	

Source: CDM, September 2004.
Prepared by: Ricondo & Associates, Inc.

4.3.6 Impact Analysis

4.3.6.1 Project Analysis 2005

4.3.6.1.1 Construction Emissions

Peak daily, quarterly and annual construction emissions inventories are presented in **Table 4.3-10**. As shown in Table 4.3-10, the peak daily and quarterly emissions of SO_2 for the SAIP would not exceed the SCAQMD construction emission thresholds presented in Table 4.3-7. Peak daily and peak quarterly emissions of CO, VOC, NO_x and PM_{10} associated with the SAIP would exceed the SCAQMD construction emissions thresholds. The SCAQMD has not established daily or quarterly construction emission thresholds for $PM_{2.5}$.[37] A detailed annual, quarterly, and peak day quarterly emissions summary is presented in Appendix K.

[37] A detailed literature review revealed no information on emission thresholds for $PM_{2.5}$.

Table 4.3-9

Construction-related Air Quality Mitigation Measures

Measure	Type of Measure
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
Prior to final occupancy, the applicant demonstrates that all ground surfaces are covered or treated sufficiently to minimize fugitive dust emissions.	Fugitive Dust
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
Pave all construction access roads at least 100 feet on to the site from the main road.	Fugitive Dust
To the extent feasible, have construction employees work/commute during off-peak hours.	On-Road Mobile
Make available on-site lunch trucks during construction to minimize off-site worker vehicle trips.	On-Road Mobile
Prohibit staging and parking of construction vehicles (including workers' vehicles) on streets adjacent to sensitive receptors such as schools, daycare centers, and hospitals.	Nonroad Mobile
Prohibit construction vehicle idling in excess of ten minutes.	Nonroad Mobile
Utilize on-site rock crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck haul trips.	Nonroad Mobile
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
Suspend use of all construction equipment during a second-stage smog alert in the immediate vicinity of LAX.	Mobile and Stationary
Utilize construction equipment having the minimum practical engine size (i.e., lowest appropriate horsepower rating for intended job).	Mobile and Stationary
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
Prohibit tampering with construction equipment to increase horsepower or to defeat emission control devices.	Mobile and Stationary
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

Source: CDM, December 2004.
Prepared by: Ricondo & Associates, Inc.

Table 4.3-10

Construction Emissions – Peak Daily, Quarterly and Annual 2005

	CO	VOC	NO_x	SO_2	PM_{10}	$PM_{2.5}$
Peak Daily Emissions (lbs/day)						
Quarter 1	973.46	133.76	1,546.41	11.57	194.32	73.48
Quarter 2	1,436.01	3,877.16	2,325.05	10.16	458.88	132.14
Quarter 3	**1,599.31**	**3891.75**	**2,775.16**	**18.05**	**508.47**	**156.01**
Quarter 4	434.82	3710.67	621.93	3.06	43.69	21.51
Quarterly Emissions (tons/quarter)						
Quarter 1	17.83	2.43	28.04	0.15	2.69	1.10
Quarter 2	36.78	19.52	61.33	0.30	10.60	3.30
Quarter 3	**43.17**	**20.06**	**74.98**	**0.49**	**14.55**	**4.50**
Quarter 4	12.73	14.94	17.78	0.06	0.87	0.42
Annual Emissions (tons/year)	110.51	56.95	182.14	1.00	28.72	9.32

Notes: Daily and quarterly construction emissions would be the highest in the 3rd Quarter (shown in bold).

Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc.

4.3.6.1.2 Airport Emissions

Airport emissions inventories for Project (2005) conditions are provided in **Table 4.3-11**. The estimated emissions reflect the shift in aircraft operations from Runway 7R-25L to other runways. Although temporary, a slight reduction in aircraft activity is expected to occur in 2005 as a result of construction activities at the airport. Nevertheless, several factors contribute to a marginal increase in emissions under Project (2005) conditions compared to the 2005 Alternative D scenario presented in the LAX Master Plan Final EIR (Appendix F-B, Table 4-2, Attachment 4).

- SIMMOD modeling conducted for the SAIP reflects a slight variation in the fleet mix;
- The shift in aircraft operations from Runway 7R-25L to other runways results in additional aircraft taxi and queue time; and
- Consistent with the Final General Conformity Determination, a constant mixing height of 2,050 feet was used instead of 1,800 feet which was used in the LAX Master Plan Final EIR. This increase in mixing height results in an increase of climbout time for departing aircraft and an increase in associated pollutant emissions.

The significance results for on-airport emissions are summarized in **Table 4.3-12**. Emissions of CO, VOC, NO_x, SO_2, PM_{10}, and $PM_{2.5}$ are estimated to be greater than those under the 2003 Baseline conditions. The difference between Project (2005) and 2003 Baseline emissions would exceed the SCAQMD's daily emissions significance thresholds that have been established for operations (See Table 4.3-7). This assessment is conservative, as the increase in aviation activity between 2003 and 2005 is accounted for in the emissions estimates.

Table 4.3-11

Project (2005) Inventory for On-Airport Sources

Source Category	CO lbs/day	CO tpy	VOC lbs/day	VOC tpy	NO_x lbs/day	NO_x tpy	SO_2 lbs/day	SO_2 tpy	PM_{10} lbs/day	PM_{10} tpy	$PM_{2.5}$ lbs/day	$PM_{2.5}$ tpy
Aircraft[1/]	33,597	6,131	5,560	1,015	27,777	5,069	2,278	416	345	63	345	63
GSE/APU	15,033	2,744	1,004	183	7,080	1,292	103	19	221	40	214	39
Stationary[1/]	614	112	428	78	1,085	198	31	6	188	34	188	34
Motor Vehicles[2/]	17,101	3,121	2,182	398	2,226	406	11	2	297	54	283	52
Total	66,344	12,108	9,175	1,674	38,168	6,966	2,424	442	1,051	192	1,030	188

Notes:
1/ Aircraft engine testing included in stationary total.
2/ Includes only on-Airport motor vehicle emissions.
lbs/day = pounds per day
tpy = tons per year

Source: PCR Services Corporation, 2005.
Prepared by: Ricondo & Associates, Inc.

Table 4.3-12

Significance of Air Quality Impacts (On-Airport Operations)

Analysis Condition	CO lbs/day	VOC lbs/day	NO_x Lbs/day	SO_2 lbs/day	PM_{10} lbs/day	$PM_{2.5}$ lbs/day [1/]
Project (2005)	66,344	9,175	38,168	2,424	1,051	1,030
2003 Baseline	50,066	5,741	25,562	1,550	835	818
Increment	16,278	3,434	12,606	874	216	212
SCAQMD Significance Threshold	550	55	55	150	150	n.a.
Project Emissions less SCAQMD Significance Threshold Over (Under)	15,728	3,379	12,551	724	66	n.a.
Conclusion	Potentially Significant	Potentially Significant	Potentially Significant	Potentially Significant	Potentially Significant	n.a.

Notes:
1/ The SCAQMD has not established daily and quarterly emission thresholds for $PM_{2.5}$.

Source: PCR Services Corporation, 2005.
Prepared by: Ricondo & Associates, Inc.

4.3.6.1.3 Combined Construction and Airport Emissions

Table 4.3-13 summarizes the total of airport and construction-related emissions for Project (2005) conditions.

Table 4.3-13

Combined Emissions Inventory

	CO (tons/year)	VOC (tons/year)	NO_x (tons/year)	SO_2 (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Airport Emissions	12,108	1,674	6,966	442	192	188
Construction Emissions	111	57	182	1	26	9
Total	12,219	1,731	7,148	443	218	197

Sources: Airport emissions: PCR Services Corporation, 2005. Construction emissions: Ricondo & Associates, Inc., 2005.
Prepared by: Ricondo & Associates, Inc.

4.3.6.1.4 Dispersion Analysis

The combined, peak concentrations of CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ for construction and operation sources when added to the 2005 future background concentrations are presented in **Table 4.3-14**. The maximum predicted concentrations including background concentrations were compared to the CAAQS and NAAQS. As shown in the table, pollutant concentrations under Project (2005) conditions are predicted to meet the applicable NAAQS and CAAQS for all pollutants except PM_{10} and $PM_{2.5}$. PM_{10} concentrations are predicted to exceed the PM_{10} CAAQS under Project (2005) conditions, consistent with the findings in the LAX Master Plan Final EIR. The LAX Master Plan Final EIR did not analyze $PM_{2.5}$ concentrations and instead followed SCAQMD direction to use PM_{10} as a surrogate for potential $PM_{2.5}$ impacts. However, SCAQMD has requested that subsequent LAX projects include an evaluation of potential $PM_{2.5}$ impacts. Thus, while the SAIP does result in a localized $PM_{2.5}$ impact, the finding is consistent with the LAX Master Plan Final EIR since PM_{10} impacts were concluded to be significant.

Table 4.3-14

Combined Airport Activity and Construction Air Pollutant Concentrations (Including Background)

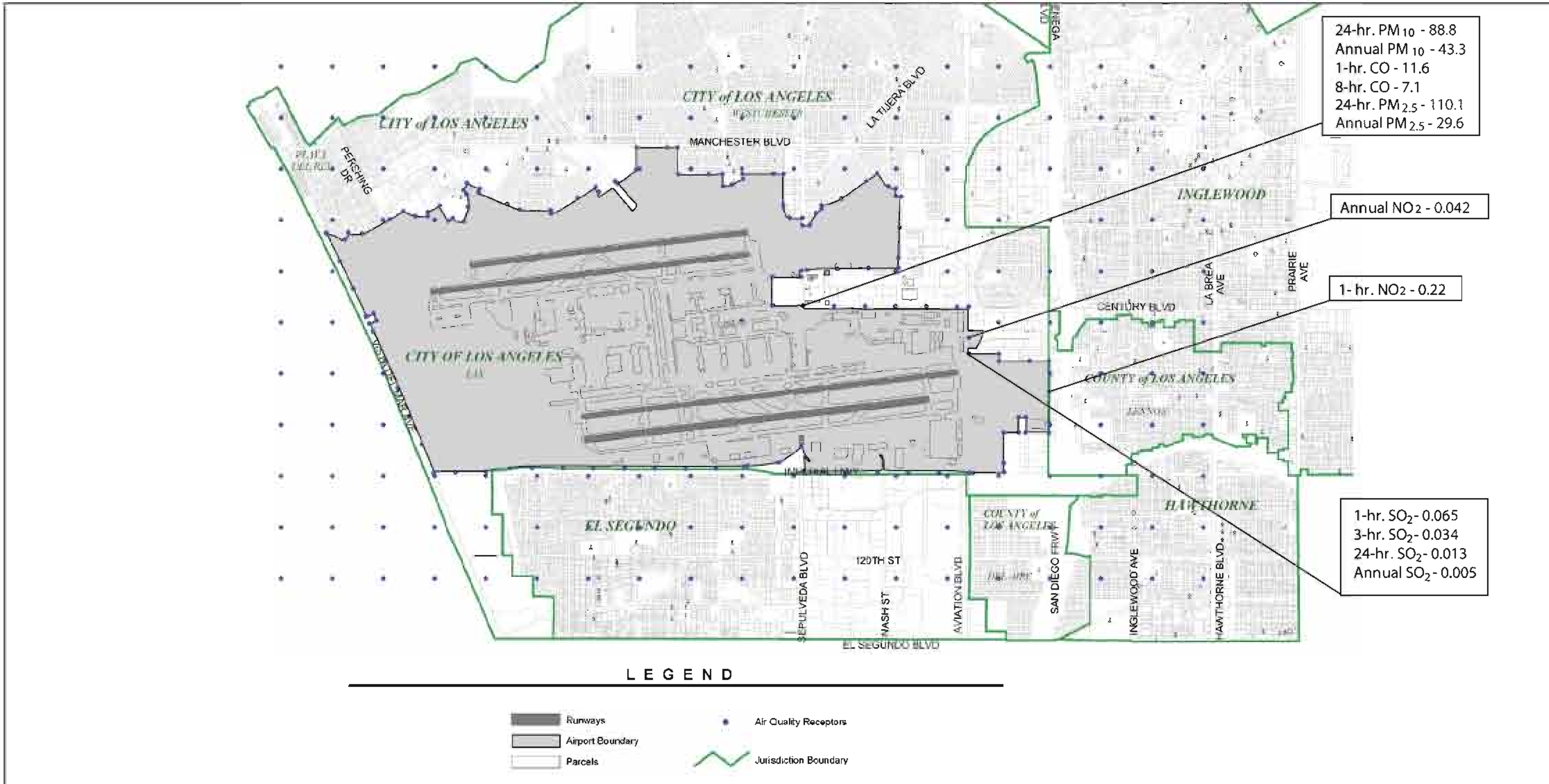
Pollutant (Conc. Units)	Averaging Period	NAAQS/ CAAQS	Project	Exceed AAQS?
CO (ppm)	8-hr	9 / 9.0	7.1	No
	1-hr	35 / 20	11.6	No
NO_2 (ppm)	Annual	0.053 / n.a	0.042	No
	1-hr	n.a / 0.25	0.22	No
SO_2 (ppm)	Annual	0.030 / n.a	0.005	No
	24-hr	0.14 / 0.04	0.013	No
	3-hr	0.5 / n.a	0.034	No
	1-hr	n.a / 0.25	0.065	No
PM_{10} (μg/m^3)	AAM	50 / n.a	43.3	No
	AGM	n.a / 20	38.2	CAAQS only
	24-hr	150 / 50	88.8	CAAQS only
$PM_{2.5}$ (μg/m^3)	AAM	15/12	29.6	NAAQS and CAAQS
	24-hr	65/n.a	110.1	NAAQS and CAAQS

Source: PCR Services Corporation, 2005.
Prepared by: Ricondo & Associates, Inc.

As shown on **Exhibit 4.3-5**, the highest NO_2 (annual) and SO_2 concentrations under Project (2005) conditions would be at the edge of the airport boundary near the intersection of Century Boulevard and Aviation Boulevard. The highest 1-hour NO_2 concentration under Project (2005) conditions would be farther to the east near Interstate 405. Maximum PM_{10}, $PM_{2.5}$ and CO concentrations would be near the intersection of Sepulveda Boulevard and Century Boulevard.

4.3.6.2 Project Analysis 2008

A qualitative assessment of post-construction (2008) airfield operating characteristics was prepared as part of this EIR. Based on the statistics provided in Appendix M, Subsection M.1.7, it was concluded that post-construction conditions are expected to be very similar to 2003 Baseline conditions in terms of airport operational procedures and runway use. The SAIP is not expected to alter airspace traffic, runway utilization, or the practical capacity of the airport. Any increase in aircraft operations would occur independently of the SAIP and is adequately addressed in the LAX Master Plan Final EIR.



Source: Psomas, April 2000; Landrum & Brown, December 2002; LAWA, 1994; PCR Services Corportation
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.3-5

north 0 4000 Feet

Highest Pollutant Concentrations - Project (2005)

4.3.7 Cumulative Impacts

Cumulative air quality impacts resulting from construction of the LAX Master Plan were evaluated in the LAX Master Plan Final EIR. This project is "tiered" from, and incorporates by reference, the analysis performed for the LAX Master Plan. In addition to the reasonably foreseeable future projects identified in LAX Master Plan Final EIR, it is anticipated that three other LAX projects would be under construction at the same time as the SAIP: the Tom Bradley International Terminal (TBIT) Improvements and Baggage Screening Facilities, the Terminals 1-8 In-Line Baggage System, and the Southside Airfield Improvement Program Remote Boarding Facilities Modifications project.[38] These projects are not components of the LAX Master Plan and have independent objectives and utility. Nevertheless, under CEQA it is appropriate to document the cumulative impact on air quality of these projects when added together, because they are anticipated to occur in the same time and space. As shown in the **Table 4.3-15**, pollutant concentrations under the cumulative impact scenario (Project and Related Projects) are predicted to meet the applicable NAAQS and CAAQS for all pollutants except PM_{10} and $PM_{2.5}$. PM_{10} concentrations are predicted to exceed the PM_{10} CAAQS and $PM_{2.5}$ concentrations are predicted to exceed the $PM_{2.5}$ CAAQS and NAAQS. Accordingly, the project will have significant impacts with respect to both PM_{10} and $PM_{2.5}$ concentrations.

Table 4.3-15

Air Pollutant Concentrations for the Project (2005) and 2005 Related Projects (Including Background)

Pollutant (Conc. Units)	Averaging Period	NAAQS/ CAAQS	Project and Related Projects	Exceed AAQS?
CO (ppm)	8-hr	9 / 9.0	7.1	No
	1-hr	35 / 20	11.6	No
NO_2 (ppm)	Annual	0.053 / n.a	0.042	No
	1-hr	n.a / 0.25	0.22	No
SO_2 (ppm)	Annual	0.030 / n.a	0.005	No
	24-hr	0.14 / 0.04	0.013	No
	3-hr	0.5 / n.a	0.034	No
	1-hr	n.a / 0.25	0.065	No
PM_{10} (µg/m^3)	AAM	50 / n.a	42.2	No
	AGM	n.a / 20	38.2	CAAQS only
	24-hr	150 / 50	88.8	CAAQS only
$PM_{2.5}$ (µg/m^3)	AAM	15/12	29.6	NAAQS and CAAQS
	24-hr	65/n.a	110.1	NAAQS and CAAQS

Source: PCR Services Corporation, 2005.
Prepared by: Ricondo & Associates, Inc.

[38] As discussed in Section 4.2, construction of the Airfield Intersections Improvement project would not overlap with the peak construction period for the SAIP.

4.3.8 Mitigation Measures

LAWA is committed to mitigating temporary airport related and construction related emissions to the extent possible. The specific means for implementing the mitigation measures described in Section 4.3.5 are in the process of being formulated and will be approved prior to project implementation. Because these mitigation measures establish a commitment and process for incorporating all feasible air quality mitigation measures into each component of the LAX Master Plan, no additional project specific mitigation measures are recommended in connection with the SAIP.[39]

4.3.9 Level of Significance after Mitigation

The airport emissions inventory and construction emissions inventory developed for the SAIP are based on the assumption that certain air quality mitigation measures identified in the MMRP would be in place at the time of construction (2005) of the SAIP. The airport emissions inventory and construction emissions inventory thereby represent "mitigated" conditions. As discussed in Section 4.3.5, certain components of the LAX Master Plan-Mitigation Plan for Air Quality (LAX MP-MPAQ) are not readily quantifiable, but are expected to further reduce construction-related emissions associated with the SAIP. Although the mitigation measures listed in Table 4.3-9, and other feasible mitigation measures developed as components of the LAX MP-MPAQ, could potentially reduce air quality impacts, it is not anticipated that these measures would reduce the air quality impacts associated with the SAIP to a less than significant level. As a result, the following impacts would remain potentially significant and unavoidable.

- Airport-related emissions (e.g., aircraft, GSE, ground access vehicles, and stationary sources) exceed the significance thresholds for CO, VOC, NO_x, SO_2, and PM_{10}.
- Construction emissions exceed the significance thresholds for CO, VOC, NO_x, and PM_{10}.
- Concentrations from on-airport and construction-related sources combined would exceed the CAAQS for PM_{10} and NAAQS and CAAQS for $PM_{2.5}$.
- Concentrations from on-airport and construction-related sources combined with concentrations from other reasonably foreseeable future projects would exceed the CAAQS for PM_{10} and NAAQS and CAAQS for $PM_{2.5}$.

These significance conclusions are consistent with those in the LAX Master Plan Final EIR. Additionally, airport-related emissions should decrease over time as elements of the LAX MP-MPAQ are implemented, including the proposed FlyAway terminals.

[39] The December 2004 report "Inventory of Air Quality Mitigation Measures Considered in Conjunction with the LAX Master Plan" includes an exhaustive list of air quality mitigation measures that have been suggested and studied in the context of the LAX Master Plan Final EIR. Mitigation measures determined to be the most feasible and potentially effective for reducing emissions associated with the overall LAX Master Plan have been incorporated into the MMRP for the LAX Master Plan. Other potentially feasible mitigation measures identified in the December 2004 report will be incorporated into the mitigation plan developed pursuant to MM-AQ-1 prior to construction of the SAIP, to the extent that such measures are feasible and would effectively reduce emissions associated with the SAIP.

4.4 Human Health Risk Assessment

4.4.1 Introduction

This Human Health Risk Assessment (HHRA) addresses potential impacts to human health associated with releases of toxic air contaminants (TACs) that are anticipated to occur during the construction period for the SAIP.[1] Like other facilities that accommodate vehicles that consume fuel, LAX may release TACs to the air in the vicinity of the airport. These TACs may come from aircraft, ground service equipment (GSE), construction activities and other sources. 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 airport.

The LAX Master Plan Final EIR[2] previously examined the incremental health risk impacts due to inhalation of toxic air contaminants (TACs) from operational sources associated with four build alternatives and the No Action/No Project Alternative. The incremental impacts were those impacts above the 1996 environmental baseline conditions used in that EIR. Because project level details were not available regarding construction phasing, the program-level LAX Master Plan Final EIR did not address health risk associated with construction activities of any of the individual Master Plan components, including the SAIP, nor did it consider specific impacts associated with changes in operations during construction, such as those that would occur as a result of the closure of Runway 7R-25L during construction of the SAIP. In addition, the SAIP Draft EIR uses a different baseline (2003) than the LAX Master Plan Final EIR. Therefore, this EIR presents human health risks associated with SAIP construction activities as well as changes in airport operations occurring during construction of the SAIP in the context of more recent (i.e., 2003) baseline conditions.

Possible impacts to human health were assessed through an HHRA, as required under State of California statutes and regulations.[3] The HHRA was conducted in four steps as defined in California Environmental Protection Agency (CalEPA) and U.S. Environmental Protection Agency (USEPA) guidance,[4,5] consisting of:

---

[1] In the LAX Master Plan Final EIR, these were referred to as toxic air pollutants (TAPs). In this EIR, the term "toxic air contaminants," or TACs, is used to reflect California regulatory terminology.

[2] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport Proposed Master Plan Improvements, State Clearinghouse No. 1997061047, April 2004.

[3] Air Toxics Hot Spots Information and Assessment Act of 1987. Health and Safety Code Section 44300 et seq.; California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, October 3, 2003.

[4] 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; California Environmental Protection Agency, 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; California Environmental Protection Agency, 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; California Environmental Protection Agency, 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, December 2002, updated August 2003; California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots

- Identification of chemicals (in this case, 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 chemicals (TACs) (Exposure Assessment)
- Evaluation of the toxicity of chemicals (TACs) that may present public health risks (Toxicity Assessment)
- Characterization of the magnitude and location of potential health risks for the exposed community (Risk Characterization)

Specifically, this HHRA addressed the following issues:

- Assessment of potential chronic human health impacts due to release of TACs associated with the SAIP operations and construction activities, assuming that the exposure concentrations of TACs were constant over a 70-year period for residential receptors. Since the SAIP is expected to be completed in approximately two years, chronic health impacts are conservative and will substantially overestimate actual risk and hazards associated with the project.
- Evaluation of possible acute non-cancer hazards due to release of acrolein during airport operations and construction. Acute hazards are assessed only for the period of construction associated with the SAIP.

As indicated in the LAX Master Plan Final EIR, risk assessment is an evolving and highly uncertain process. Important uncertainties exist in the estimation of emissions of TACs from airport mobile sources (particularly emissions of acrolein from aircraft), the dispersion of such TACs in the air, actual human exposure to such TACs, and the 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, such as acrolein and criteria pollutants. These uncertainties were discussed in detail in LAX Master Plan Final EIR Technical Report 14a and Technical Report S-9a. 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 Report also apply to this health risk assessment, as further described below.

Given these uncertainties, conservative methods were used to estimate human health risks and hazards. That is, methods were used that are much more likely to overestimate than underestimate 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 are 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 emissions from, LAX during and after implementation of the SAIP. By protecting

Program Risk Assessment Guidelines. The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003.

[5] 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.

hypothetical individuals that receive the highest exposures, the risk assessment will also be protective for actual members of the population near LAX that are not as highly exposed. Additional technical details of the analysis are provided in Appendix L.

4.4.2 Methodology

The objective of this HHRA is to determine the increased incremental health risk, if any, associated with implementation of the SAIP for people working at the airport, and for people living, working, or attending school in communities near the airport. The methodologies used in this analysis are summarized below. Details of the methodologies are provided in Appendix K and Appendix L.

4.4.2.1 Methods for Estimating Possible Project Impacts to Human Health

As with the LAX Master Plan analysis, this HHRA consisted of two components: (1) estimation of emissions of TACs associated with the project, and subsequent dispersion of those emissions to downwind receptor locations; and (2) determination of incremental health risks associated with those emissions. Specifically, this HHRA estimated possible future emissions associated with SAIP compared to the established baseline by either increasing or decreasing emission rate estimates from specific sources, based on projected changes in airport operations and activity at LAX during construction of the SAIP improvements (i.e., 2005) as well as from construction activities themselves.[6] The baseline year for this analysis was 2003. Projected future emission rates from LAX sources were then used as inputs, along with meterological and geographic information, to an air dispersion model. The model predicted possible future concentrations of TACs within the study area around the airport.

Subsequently, incremental human health risks that might be associated with inhalation of TACs, at locations where TAC concentrations were predicted, were estimated by first subtracting estimates of baseline concentrations of TACs at each location, then estimating possible human health risks of the resulting incremental concentrations using standard methods developed by CalEPA and USEPA. Health impacts were estimated for both potential cancer risks and non-cancer health hazards.

Results of the analysis were interpreted by comparing incremental cancer risks and non-cancer hazards to regulatory thresholds. These comparisons were made for maximally exposed individuals (MEI) at locations where maximum concentrations of TACs were predicted by the air dispersion modeling, and for all modeled locations within the defined study area. An impact was considered significant[7] if incremental risks or hazards to MEI exceeded regulatory thresholds.

Methods for estimating cumulative impacts followed the approach used for the LAX Master Plan Final EIR, including using data collected for and analyzed in the Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-II) completed by the South Coast Air Quality Management District (SCAQMD) to evaluate cumulative cancer risks, and data presented in USEPA's National Air Toxics Assessment to evaluate cumulative chronic, non-cancer health hazards. For cumulative, acute risks, conservative (likely to overestimate) approximations of short-term concentrations were

[6] This Draft EIR analyzes potential environmental impacts assuming a peak construction period in 2005. Sensitivity analyses have shown that the impacts associated with air quality emissions, including emissions of TACs, would be substantially the same if the peak construction period occurred in 2006. Refer to Appendix D for more information. Therefore, the results for 2005 are reliable for predicting significant impacts if the peak construction period were in 2006.

[7] The term "significant" is used as defined under CEQA regulations and does not imply an independent judgment of the acceptability of risks or hazards.

made using generic conversion factors and the annual average estimates of acrolein in air from USEPA. These estimates can be used to provide a semi-quantitative evaluation of the possible range of cumulative impacts.

4.4.2.2 Estimating Future Emissions of Toxic Air Contaminants

Both organic and particulate-bound TACs are analyzed in this HHRA. The primary TACs are constituents of either volatile organic compounds (VOC) or particulate matter less than 10 microns in diameter (PM_{10}). The emissions of organic TACs were developed from the VOC emission inventories for the same sources analyzed in Section 4.3, Air Quality, and emissions of particulate-bound TACs were developed from the PM_{10} emission inventories included in Section 4.3. Speciation profiles[8] for VOC and PM_{10} emissions from individual source types, primarily developed by the California Air Resources Board (CARB), were used to calculate TAC emissions.[9] The TAC emissions from both construction activities and operational sources were included.

4.4.2.2.1 Construction Emissions

Construction-related sources of TAC emissions associated with the SAIP include off-road heavy duty construction equipment,[10] on-road equipment and vehicles, generators, and construction material (e.g., VOCs from striping and asphalt paving). In order to estimate construction emissions, resource requirements and construction schedules were developed. Busy day and monthly estimates of equipment usage (in hours) were also developed for specific construction activities and crews (e.g., demolition, earthwork, pavement). A month-by-month construction schedule detailing the crews, equipment, and busy day and monthly estimates of equipment usage is presented in Appendix K. The construction schedule, combined with the VOC and PM_{10} pollutant emissions inventory prepared for the SAIP were used as the basis for development of the TAC emissions inventory.[11] Detailed calculations for the SAIP construction VOC and PM_{10} pollutant emissions inventory are provided in Appendices K and L. Long-term exposure was evaluated using the average annual daily emissions and short-term exposure was evaluated using the peak daily emissions over the construction period. The emissions inventory was calculated for the peak 12-month period of construction. Assumptions associated with each of the construction sources are described below.

Off-Road Construction Equipment Emissions

Off-road diesel construction equipment includes dozers, loaders, sweepers and other heavy-duty construction equipment that do not travel on roadways. Off-road construction equipment data are presented in Appendix K. Combustion emission factors for diesel-powered engines were developed

---

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

[9] California Air Resources Board, Draft California Emission Inventory Development and Reporting System (CEIDARS) – ARB Organic Gas Speciation Profiles, 2003, http://www.arb.ca.gov/ei/speciate/ORGPROF_03_19_03.xls; California Air Resources Board, California Emission Inventory and Reporting System (CEIDARS) - Particulate Matter (PM) Speciation Profiles, 2002, http://www.arb.ca.gov/ei/speciate/PMPROF_09_27_02.xls.

[10] Examples of off-road heavy duty construction equipment include scapers, graders, backhoes, and rock crushers..

[11] The TAC emissions inventory is a subset of the criteria pollutant emissions inventory used in Section 4.3. The TAC emissions inventory includes all on-airport sources whereas the criteria pollutant emissions inventory includes both on-airport and off-airport (i.e., vehicle) sources.

using CARB's OFFROAD Model.[12] Brake horsepower and fuel consumption estimates were based on data contained in the SCAQMD's Air Quality Handbook[13] and information obtained from manufacturers of the construction equipment. Details regarding the methods used to account for constituents of diesel exhaust that may result in acute air toxic impacts are provided in Appendix L, Section L.3.1.1.1.

On-Road Construction Equipment Emissions
Exhaust emissions from on-road construction equipment sources, including haul trucks, delivery trucks, etc., were calculated using emission factors developed with the CARB Emission Factor 2002 Model (EMFAC2002).[14] This model reflects CARB's current understanding of how vehicles travel and how much they pollute. The EMFAC model calculates emission factors for all vehicles, from passenger cars to heavy-duty trucks, based on vehicle class, vehicle fleet mix, and vehicle population for geographic areas. EMFAC2002 was used to generate emission factors for each vehicle class in grams per unit (e.g., hour, mile or trip) for PM_{10} and VOC. The emission factors, vehicle substitutions, average assumed speeds and other data used to estimate emissions for on-road construction-related vehicles are presented in Appendix K. Details regarding the methods used to account for constituents of gasoline exhaust that may result in acute, chronic, and carcinogenic TAC impacts are identified in Appendix L, Section L.3.1.1.2.

Generators
As with off-road construction equipment, emissions from diesel-powered generators were calculated using the CARB OFFROAD Model. Brake horsepower and fuel consumption estimates were based on data contained in SCAQMD's Air Quality Handbook and information obtained from manufacturers of the construction equipment.[15] Details regarding the methods used to account for constituents of diesel exhaust that may result in acute air toxic impacts are provided in Appendix L, Section L.3.1.1.3.

Construction Materials
Asphalt paving and architectural coating (i.e., striping paint and metal surface primer and topcoat paint) operations can be a source of VOC emissions. Asphalt paving emissions associated with the SAIP were calculated using the SCAQMD recommended CARB URBEMIS2002 model[16] and based on the expected SAIP asphalt paving activity. Information regarding maximum daily acreage and total acreage of asphalt paving were used to calculate maximum daily and annual VOC emissions, respectively.

Architectural coating emissions were calculated using a mass balance approach by determining the percent of VOC per gallon of coating applied. Information regarding maximum daily gallons of coatings and total amount of coating required for the SAIP were used to calculate maximum daily and annual VOC emissions, respectively.

---

[12] California Air Resources Board, Research Division, Emission Inventory of Off-Road Large Compression-Ignited Engines (>25 HP) Using the New Offroad Emission Model (Mailout MSC #99-32), March 2003, http://www.arb.ca.gov.msei/msei.htm.
[13] South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993.
[14] California Air Resources Board, EMFAC2002 On-Road Emissions Inventory Estimation Model, Version 2.2, 2003.
[15] South Coast Air Quality Management District, CEQA Air Quality Handbook, Table A9-8C, 1993.
[16] California Air Resources Board, URBEMIS2002 for Windows with Enhanced Construction Module Version 8.7 (Emissions Estimation for Land Use Development Projects), April 2005.

Details regarding the methods used to account for constituents from these operations that may result in health impacts are provided in Appendix L, Section L.3.1.1.4.

4.4.2.2.2 Airport Emissions

The criteria pollutant emissions inventory prepared for the SAIP was used as the basis for development of the TAC emissions inventory. Detailed calculations for the SAIP operational criteria pollutant emissions inventory are provided in Appendix K of this Draft EIR.

On-site operational sources of TAC emissions include: aircraft, ground support equipment (GSE), ground access vehicles (GAV) on airport roadways and in airport parking lots, and stationary sources (e.g., power plants, fuel tanks, maintenance and surface coating facilities and other miscellaneous sources).

Aircraft

The aircraft hydrocarbon (HC) emissions calculated by EDMS in the criteria pollutant emissions inventory form the basis for the organic TAC emissions from aircraft engines. Details regarding the methods used to convert HC emissions to TAC emissions and to calculate metal TAC emissions from aircraft are provided in Appendix L, Section L.3.1.2.1.

Ground Support Equipment

The GSE VOC emissions calculated from the CARB OFFROAD model and included in the criteria pollutant inventory form the basis for organic TAC emissions from GSE engines. In addition, diesel engine exhaust was characterized by diesel particulate matter (DPM, calculated as PM_{10} from diesel GSE) to determine long-term exposure impacts. Details regarding the methods used to develop the TAC emissions from GSE are provided in Appendix L, Section L.3.1.2.2.

Ground Access Vehicles (Roadways and Parking Lots)

The motor vehicle VOC emissions from on-airport roadways and parking lots calculated using the CARB EMFAC2002 model and included in the criteria pollutant inventory form the basis for organic TAC emissions from cars and trucks. Details regarding the methods used to develop the TAC emissions from motor vehicles are provided in Appendix L, Section L.3.1.2.3

Stationary Sources

Emissions from stationary sources, primarily the central utility plant (CUP) and fuel farm, are assumed to be the same for 2003 and 2005. The project would not change any of the stationary sources facilities. The CUP operated at its maximum capacity in 2003 and thus would not generate any additional emissions in 2005. Further, jet kerosene vapor does not contain any listed TACs.

4.4.2.3 Exposure Concentrations (Dispersion)

Dispersion modeling analysis of TACs was conducted for both construction and operational sources. The USEPA AERMOD dispersion model, which is incorporated in the FAA EDMS model, was used to conduct this analysis, consistent with the criteria pollutant concentration analysis conducted for the SAIP. For the TAC analysis, VOC and PM were modeled, then the resulting concentrations were speciated into individual organic or particulate TAC concentrations. Receptors[17] included in the modeling analysis were located at or near the airport fenceline and in the Central Terminal Area

[17] Receptors represent locations in the vicinity of the airport where people could potentially be exposed to the TACs by breathing the air.

(CTA). Since the fenceline and CTA are the closest locations with unrestricted access to airport emission sources, the AERMOD-modeled concentrations at these locations will be higher than concentrations modeled further out from the airport. Each receptor was identified as being either a residential or occupational receptor type, depending on the nearest land use designation.

Separate model runs were conducted for construction only to determine the impact that this general source group would have individually. The final analysis combined construction and operational sources into a single model run to determine total project contributions to incremental risks. The methodologies used to conduct dispersion modeling for both construction and operational sources are described in Appendix L.

4.4.2.4 Overview of Risk Assessment

4.4.2.4.1 Selection of TACs of Concern

Not all of the chemicals possibly released during airport operations or construction of SAIP improvements would pose a threat to workers and users of the airport, or to people living, working, recreating, or attending school in communities surrounding LAX. The list of TACs of concern used in this HHRA was selected using regulatory lists, emissions estimates, human toxicity information for TACs released from LAX, results of the LAX Master Plan HHRA, and a review of health risk assessments included in the Oakland International Airport – Airport Development Program (ADP) Draft Supplemental EIR[18], and Orange County Civilian Reuse of MCAS El Toro Draft Supplemental EIR.[19] The selection was based initially on the TACs of concern for LAX operations identified during preparation of the HHRA for the LAX Master Plan Final EIR, as described in Technical Report 14a of that EIR. Some of the pollutants of concern that had been identified for the LAX Master Plan HHRA were then eliminated, based on the review of the LAX Master Plan programmatic analysis, which demonstrated that they would not contribute significantly to potential health impacts, as well as results presented in the Oakland and El Toro EIRs and communication with CARB.[20] The resulting list of TACs of concern for the SAIP HHRA is identified in **Table 4.4-1.**

4.4.2.4.2 Exposure Assessment

The exposure assessment examines inhalation exposures to TACs of concern for four populations, consisting of on-site workers, resident children, school children, and resident adults. For the acute analysis, impacts to off-site workers were also evaluated. In addition, the exposure assessment includes analyses of cancer risks and non-cancer hazards, both chronic and acute.

An exposure duration of 70 years (a lifetime) was used for consistency with SCAQMD guidelines and to provide an upper bound estimate on possible cancer risks. Actual exposures associated with the SAIP would only continue for the period of construction. As reported previously, the exposure assessment for the SAIP EIR evaluates incremental risks as compared to 2003 baseline conditions. Modeled concentrations were then used to estimate incremental risks and hazards for the SAIP in 2005. Incremental risks serve as the basis of the significance determinations.

[18] Port of Oakland, Draft Oakland International Airport – Airport Development Program (ADP) Supplemental Environmental Impact Report, State Clearinghouse No. 1994113039, September, 2003.
[19] County of Orange, Draft Environmental Impact Report No. 573 for the Civilian Reuse of MCAS El Toro and the Airport System Master Plan for John Wayne Airport and Proposed Orange County International Airport, Draft Supplemental Analysis, State Clearinghouse No. 98101053, April 2001.
[20] California Air Resources Board, Personal Communication from G. Honcoop (CARB) to J. Pehrson (CDM), June 23, 2005.

Table 4.4-1

Toxic Air Contaminants of Concern for SAIP

Toxic Air Contaminant	Contaminant Type
Acetaldehyde	Volatile organic
Acrolein	Volatile organic
Arsenic	Metalloid
Benzene	Volatile organic
Beryllium	Metal
1,3-Butadiene	Volatile organic
Cadmium	Metal
Chromium (total) (evaluated as Cr(VI))	Metal
Copper	Metal
Diesel Particulates	Respirable Particles
Formaldehyde	Volatile organic
Manganese	Metal
Naphthalene	PAH
Nickel	Metal
Toluene	Volatile organic
Xylene	Volatile organic
Zinc	Metal

Source: CDM, Inc.., 2000, 2005.
Prepared by: CDM, Inc.

4.4.2.4.2 Toxicity Assessment

Risks from exposure to TACs are calculated by combining estimates of potential exposure with toxicity criteria specific to each chemical. A toxicity assessment for TACs of concern was conducted for the LAX Master Plan Final EIR, as described in Technical Report 14a of that EIR. The conclusions of that assessment have not changed materially. As both the CalEPA Office of Environmental Health Hazard Assessment (OEHHA) and USEPA are continually updating toxicity values as new studies are completed, all toxicity information provided in Technical Report 14a was reviewed and updated as appropriate. OEHHA and USEPA toxicity values were used for chronic risk and hazard calculations. The acute reference exposure level (REL) developed by the State of California for acrolein was used in characterization of potential acute hazards associated with the SAIP.

4.4.2.4.3 Risk Characterization

Methodology for Evaluating Cancer Risks and Non-Cancer Health Hazards

Cancer risks were estimated by multiplying exposure estimates for carcinogenic chemicals by corresponding cancer slope factors. The result is a risk estimate expressed as the odds of developing cancer. Incremental cancer risks were based on a 70-year exposure duration. Non-cancer risk estimates were calculated by dividing exposure estimates by reference doses. Reference doses are estimates of highest exposure levels that would not cause adverse health effects even if exposures continue over a lifetime.

Risks for Maximally Exposed Individuals (MEI)

For the SAIP, approximately 100 grid points were analyzed primarily along the airport fence-line. Commercial or residential land uses for each grid point were designated through inspection of aerial photos. Residential land use was assumed for grid points along the fence-line that are adjacent to residential areas. Likewise, commercial land use was considered for grid points adjacent to commercial areas. The assessment assumed that schools could be located, in theory, in either commercial or residential areas and therefore all grid points were assumed to be potential school sites. For the acute impact analysis, off-site workers were assumed at receptor locations along the fence-line that are adjacent to commercial land uses. Fence-line concentrations of TACs are likely to represent the highest concentrations and potential impacts for residents, workers and school children. Thus, risks and hazards estimated for the LAX fence-line are likely to overestimate risks and hazards that may occur in actual residential or commercial areas.

Acute Impacts

Acrolein is a TAC of concern and is responsible for essentially all predicted chronic non-cancer health hazards associated with LAX operations. Acrolein is also the only TAC of concern in emissions from LAX that might be present at concentrations approaching a threshold for acute effects. (For a detailed discussion of uncertainties regarding the presence of acrolein in aircraft emissions, see Section 7.3 of Technical Report S-9a of the LAX Master Plan Final EIR.) OEHHA has developed an acute REL for acrolein. Other TACs of concern associated with LAX operations, for which there are acute RELs, are unlikely to be present in concentrations that would represent an acute health threat.

Short-term concentrations for acrolein from airport sources were estimated using the same air dispersion model (AERMOD) used to estimate annual average concentrations, but with the model option for 1-hour maximum concentrations selected. Project-related incremental acrolein concentrations in AERMOD output were calculated by subtracting 2003 Baseline concentrations at each of the selected grid nodes. These concentrations represent the increment above baseline impacts that might be associated with the SAIP. Acute hazards were then estimated at each grid point by comparison with the acute REL for acrolein.

Evaluation of Health Effects for On-Site Workers

Potential impacts to workers were evaluated by comparing estimated annual air concentrations of TACs for the SAIP to eight-hour standards referred to as Time-Weighted Average Permissible Exposure Levels (PEL-TWAs), established by the California Occupational Safety and Health Administration (CalOSHA).[21] For pollutants with no PELs, Threshold Limit Values (TLVs) established by the American Conference of Governmental Industrial Hygienists (ACGIH)[22] were used.

4.4.3 Baseline Conditions

4.4.3.1 Cancer Risk

As reported in the LAX Master Plan Final EIR, potential cancer risks due to exposure to TACs in the South Coast Air Basin, where LAX is located, have been studied by SCAQMD (MATES-II Study). The results of this study indicate that the average carcinogenic risk associated with poor air quality in the basin is about 1,400 per million, i.e., an additional 1,400 cancer cases, over and above those associated with other causes, might be expected for each million persons living in the basin. The greatest estimated risks were in the central and east central portions of Los Angeles County. Overall, however, the range of risk estimates from different parts of the county varied by less than a factor of two from location to location. The greatest contributor to risks in the basin was on-road mobile sources, and exposure to small particles from diesel exhaust was responsible for about 70 percent of

[21] California Occupational Safety and Health Administration, Permissible Exposure Limits for Chemical Contaminants, Table AC-1, 2000. http://www.dire.ca.gov/title8/5155a./htm.

[22] American Conference of Governmental Industrial Hygienists, Documentation of the Threshold Limit Values and Biological Exposure Indices, 8th ed., 1998.

these risks. Approximately 20 percent of the risk was attributable to other mobile sources, including ships, airplanes, and off-road (e.g., construction) vehicles.

A follow-up study in the areas near LAX was subsequently conducted, although the study did not separate LAX impacts on air quality from those associated with other sources. The study concluded that key toxic contaminants in air are benzene, butadiene and elemental carbon (from diesel exhaust). Major arterials (Aviation Boulevard and I-405) are likely major sources of toxics in some areas. Overall impacts in areas east of the airport appeared to be about the same as network averages from MATES-II. The study reported that, "Due to the limited number of samples taken, risk assessments of toxic air contaminants are not appropriate because an estimate of true exposures requires, at minimum, a year long study." LAWA initiated a study of air quality in the area around LAX, independent of the Master Plan, which would have gathered air quality data through a 12-month monitoring program and source apportionment analysis. The study was interrupted by the events of September 11, 2001. As part of the LAX Master Plan Final EIR (Master Plan Commitment AQ-1) and the LAX Master Plan Community Benefits Agreement,[23] LAWA will reinitiate this study to evaluate toxic air contaminant (as well as criteria air pollutant) emissions from jet engine exhaust and other emission sources. Also as part of the LAX Master Plan Final EIR (Master Plan Commitment AQ-3) and the Community Benefits Agreement, LAWA will conduct a study to measure and investigate upper respiratory system impacts of LAX operations due to the LAX Master Plan Program.[24]

LAX is situated in west central Los Angeles County. Risks in this area were not estimated directly because no permanent monitoring station for TACs was located at or near LAX as part of the MATES-II Study. Furthermore, insufficient data were collected by SCAQMD to derive the direct contribution of LAX operations to cancer risks in surrounding communities.

4.4.3.2 Non-Cancer Hazards

Existing non-cancer chronic and acute health effects can be ascertained using data from USEPA. USEPA examined TACs in the South Coast Air Basin independently. This work was not based on empirical measurements of air quality. Instead, USEPA used its Toxic Release Inventory and other sources of emissions information. Emissions estimates, on a census tract basis, were then used in large-scale air dispersion modeling. Results of this modeling can be used on a regional (e.g., by county) basis as a general indication of air quality. USEPA included in its estimates many TACs, including acrolein, that were not evaluated in MATES-II. Since acrolein is, by far, the greatest contributor to potential non-cancer health hazards associated with LAX operations, the USEPA estimates may be the best available for estimating possible non-cancer impacts under current conditions. For Los Angeles County, hazard indices might fall in the range of 3 to 10 for chronic exposure to acrolein. Uncertainties are associated with these chronic hazard estimates due to exposure to acrolein. It is possible that acrolein emissions estimates may be overestimated due to limited data. A hazard index equal to or greater than one is the threshold of significance for acute non-cancer health effects. USEPA did not make any predictions of possible acute hazards due to

[23] Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, Attachment A, Community Benefits Agreement, February 16, 2005.

[24] Expenditure of funds for community benefits and impact mitigations under the Community Benefits Agreement is limited to those expenditures that are determined by the Federal Aviation Administration to not be in violation of 49 U.S.C. § 47133, or that statute's implementing regulations.

TACs in air. Thus, no USEPA data exist to directly assess potential for acute hazards in the South Coast Air Basin.

4.4.3.3 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.

4.4.3.4 Baseline TAC Emissions

Baseline TAC emissions were modeled using the methodology outlined in Section 4.4.2. Dispersion modeling was then conducted, the results of which defined exposure concentrations used in the health risk assessment. The results of the baseline TAC emissions analysis are provided in Appendix L, Section L.3.1.

4.4.3.5 Exposed Populations

Screening-level air dispersion modeling conducted for the LAX Master Plan Final 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 sensitive receptors such as schools, hospitals, and nursing homes.

4.4.4 Thresholds of Significance

A significant[25] impact relative to human health risk would occur if the direct and indirect changes in the environment that may be caused by the SAIP when compared to 2003 baseline conditions would potentially result in one or more of the following future conditions listed below.

- An increased incremental cancer risk[26] greater than, or equal to, 10 in one million (10×10^{-6}) for potentially exposed residents or school children.
- A total incremental chronic hazard index[27] greater than, or equal to, 1 for any target organ system[28] at any receptor location.
- A total incremental acute hazard index greater than, or equal to, 1 for any target organ system at any receptor location.

---

[25] The term "significant" is used as defined in CEQA regulations and does not imply an independent judgment of the acceptability of risk or hazard.

[26] Incremental cancer risk is defined as the difference in potential cancer risks between SAIP impacts and baseline conditions (2003).

[27] For purposes of this analysis, a health hazard is any non-cancer adverse impact on health. (Cancer-related risks are addressed separately in this analysis.) A chronic health hazard is a hazard caused by repeated exposure to small amounts of a TAC. An acute health hazard is a hazard caused by a single or a few exposures to relatively large amounts of a chemical. A hazard index is the sum of ratios of estimated exposures to TACs and recognized safe exposures developed by regulatory agencies.

[28] A target organ or organ system is an organ or tissue in the human body (e.g., liver, skin, lungs) that is harmed by exposure to a chemical at the lowest levels of exposure (chronic exposure), or is the first to be harmed by high levels of exposure (acute exposure).

- Exceedance of Permissible Exposure Limits - Time Weighted Average or Threshold Limit Values for workers.

The above thresholds are utilized for this HHRA based on recent SCAQMD guidance, namely SCAQMD's Air Quality Analysis Guidance Handbook[29] that is currently in development. Although not yet fully published, SCAQMD has made certain sections of the Handbook available, including their air quality significance thresholds, which provide thresholds for TACs. The threshold for workers is based on standards developed by the California Occupational Safety and Health Administration (CalOSHA), or, in the absence of CalOSHA standards for specific pollutants, standards developed by the American Conference of Governmental Industrial Hygienists.[30]

4.4.5 LAX Master Plan Commitments and Mitigation Measures

LAX Master Plan mitigation measures and commitments that are applicable to the SAIP are discussed below. LAX Master Plan mitigation measures that address air quality impacts are summarized in Section 4.3 of this EIR. As indicated in that section, four LAX Master Plan mitigation measures would directly relate to the SAIP and were accounted for in the TAC emissions and dispersion analysis. These measures, which are described in Section 4.3, include:

- MM-AQ-1. LAX Master Plan - Mitigation Plan for Air Quality.
- MM-AQ-2. Construction-Related Measure.
- MM-AQ-3. Transportation-Related Measure.
- MM-AQ-4. Operations-Related Measure.

These measures will reduce emissions of TACs during construction and operation of the LAX Master Plan primarily by reducing emissions from construction equipment and mobile sources, and reducing traffic congestion near the airport. The calculation of TAC emissions and dispersion for the SAIP EIR assumed the implementation of these measures.

In addition to these mitigation measures, the following Master Plan commitments are relevant to the SAIP:

- **AQ-1. Air Quality Source Apportionment Study.** Under this commitment, LAWA will conduct an air quality source apportionment study to evaluate the contribution of on-airport aircraft emissions to off-airport air pollutant concentrations. This study will address several criteria and toxic air pollutants.
- **AQ-2. School Air Filters.** LAWA will provide funding for air filtration at qualifying public schools with air conditioning systems in place.
- **AQ-3. Mobile Health Research Lab.** LAWA will explore the ability to fund/co-fund, to the extent feasible and permissible by federal and local regulations, or seek funding sources to support the goal of a Mobile Health Research Lab. A goal of the Mobile Health Research

[29] South Coast Air Quality Management District, Air Quality Analysis Guidance Handbook, http://www.aqmd.gov/ceqa/hdbk.html, updated June 24, 2005.
[30] California Occupational Safety and Health Administration, Permissible Exposure Limits for Chemical Contaminants, Table AC-1, http://www.dir.ca.gov/title8/5155a.htm and American Conference of Governmental Industrial Hygienists, Documentation of the Threshold Limit Values and Biological Exposure Indices, 8th ed., 1998.

Lab will be to research and study, not diagnose or treat, upper respiratory that may be directly related to the operation of LAX.

4.4.6 Impact Analysis

This section describes potential environmental impacts of the SAIP as they relate to human health. Environmental consequences considered are: incremental cancer risks, incremental non-cancer chronic (long-term) health hazards and incremental non-cancer acute (short-term) health hazards. Possible human health effects are discussed as they relate to releases of TACs during airport operations and to associated risks and hazards for off-airport residents, school children and, for acute risks, off-site occupational workers as well. Possible effects on on-site occupational workers are also considered.

The discussion of TACs and associated health impacts addresses potential cancer risks and non-cancer hazards associated with maximally exposed individuals (MEI). For this analysis, MEI was conservatively assumed to reside, or attend school, at the LAX fenceline.[31] Thus, all estimates of risk and hazard will overestimate any health risk that may actually accrue as a result of the SAIP. Risks and hazards from chronic (long-term) exposure as well as hazards from acute (short-term) exposure are assessed. Further, all risks and hazard estimates are incremental. That is, they represent any additional risk or hazard, above the 2003 baseline, that may be associated with the SAIP.

Incremental MEI cancer risks and non-cancer health hazards were calculated for adult residents, resident children ages 0 to 6 years, and for elementary-aged school children at fenceline locations where maximum air concentrations for TACs were predicted. The discussion of human health risk emphasizes the results for MEI adult residents for cancer risks and for MEI child residents for chronic non-cancer health hazards because these populations are expected to incur the greatest exposures to LAX-related emissions and will hence be subject to the greatest potential risks and hazards.[32] For the acute impact analysis, off-site workers were assumed at grid points along the fenceline that are adjacent to commercial land uses. As noted above, this approach overestimates actual project-related risks.

Methods used in the HHRA are conservative. That is, methods are used that are more likely to overestimate than underestimate possible health risks. For example, as noted above, risks are calculated for individuals that live or go to school along the LAX fenceline where TAC concentrations are predicted to be highest. Further, individuals are assumed to be exposed for almost all days of the year and for many years (e.g., 70 years for adult residents) 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 emissions from, LAX during and after implementation of the SAIP. By protecting hypothetical

[31] MEIs are conservatively assumed to live or go to school along the LAX fenceline where concentrations, and thus exposures, to TACs would be highest. Specifically, residential land use was assumed for grid points along the fenceline that are adjacent to residential areas. The assessment assumed that schools could be located, in theory, in either commercial or residential areas and therefore all grid points were assumed to be potential school sites.

[32] Estimated cancer risks are higher for adult residents than for children, because the exposure duration for adults is longer; estimated chronic non-cancer health hazards are higher for children than adults, because they are normalized to body weight, which is lower for children. Toxicity criteria for acute health hazards do not distinguish between adults and children, but are established at levels that are considered protective of sensitive populations.

individuals that receive the highest exposures, the risk assessment will also be protective for actual members of the population near LAX that are not as highly exposed.

Calculations supporting the results presented in the following sections are provided in **Appendix L,** Attachment 3. Risk estimates for construction sources only are presented in **Appendix L**, Attachment 4, and indicate that construction impacts to health risk are below the risk thresholds. Therefore, the risk estimates for combined sources that exceed the thresholds are primarily driven by operational sources.

As discussed above in Section 4.4.2, there is a paucity of data on acrolein emissions from jet aircraft engines. As such, estimates of non-cancer hazards associated with acrolein are very uncertain. Therefore, the discussion in the subsections below of non-cancer hazards associated with the SAIP is not intended to represent absolute estimates of potential health impacts. Rather, these hazards are intended to disclose potential impacts, recognizing that the uncertainties related to acrolein emissions apply to the results reported.

4.4.6.1 Incremental Cancer Risks

Project-related incremental cancer risks for the MEI are summarized in **Table 4.4-2.** As indicated in the table, implementation of the SAIP would result in an incremental MEI cancer risk for adult residents of 19 in one million at locations with the highest predicted TAC concentrations. This means that, in 2005, if the maximally exposed adult resident were exposed to TAC concentrations associated with SAIP construction and operations for a period of 70 years, there could be a risk of 19 additional cancer cases per million people exposed compared to 2003 baseline conditions. Total incremental cancer risks for child residents are estimated to be six in one million. Estimated cancer risks are lower for children than for adults, because the exposure duration for children is shorter. Total estimated incremental cancer risks for a young child through adulthood (adult + child) with maximum predicted TAC concentrations is estimated to be twenty in one million.

Table 4.4-2

Incremental Cancer Risks and Chronic Non-Cancer Human Health Hazards for Maximally Exposed Individuals for 2005 SAIP Compared to 2003 Baseline

Receptor Type	Incremental Cancer Risks[1/] (per million people)
Child Resident	6
School Child	2
Adult + Child Resident[2/]	**20**
Adult Resident	**19**
	Incremental Non-Cancer Chronic Hazards[3/]
Child Resident	**5**
School Child	**2**
Adult Resident	**1**

Notes:

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

2/ Includes exposure to TACs released from LAX from childhood (ages 0-6) through adulthood (ages 7-70).

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

Values in **BOLD** exceed thresholds of significance.

Source: CDM, 2005.
Prepared by: CDM

Cancer risks for adults and children under the SAIP are mostly due to predicted exposure to diesel particulate matter, 1,3-butadiene, formaldehyde, and benzene. For the adult resident, adult + child, and child resident, diesel particulate matter and 1,3-butadiene contributed roughly evenly to the estimated cancer risks with diesel particulate matter contributing 37 percent and 1,3-butadiene contributing 42 percent. Formaldehyde and benzene contributed 10 percent and 9 percent, respectively.

Incremental cancer risks for children attending schools within the study area are estimated to be 2 in one million. For the school child, diesel particulate matter was not as great a contributor to the estimated cancer risks; diesel particulate matter contributed 6 percent while 1,3-butadiene contributed 62 percent. Formaldehyde and benzene contributed 15 percent and 12 percent, respectively.

Project-related incremental cancer risks for adults and for a young child through adulthood are predicted to exceed the threshold of significance. Incremental cancer risks for child residents and school children would be less than significant.

4.4.6.2 Incremental Non-Cancer Chronic Health Hazards

Project-related incremental non-cancer chronic hazard indices associated with the SAIP are provided in Table 4.4-2. Hazard indices for adult residents and child residents living at locations with maximum TAC concentrations are estimated to be 1 and 5, respectively. The hazard index for school children is estimated to be 2. Hazard index estimates are higher for children than adults, because they are normalized to body weight, which is lower for children than for adults. Acrolein contributes 97 percent or more to the total hazard index for all receptor types. The source of acrolein is mainly jet engine exhaust, and concentrations would increase with higher volumes of aircraft traffic associated with the SAIP.

Project-related incremental chronic non-cancer health hazards for all receptor types would exceed the threshold of significance.

4.4.6.3 Incremental Acute Hazards

Incremental hazards due to acute exposure to acrolein are estimated to range from 1 to 19, with an average of 5, for selected grid nodes within the study area, as shown in **Table 4.4-3**. Acute hazards are evaluated for all residents. Toxicity criteria for acute health hazards do not distinguish between adults and children, but are established at levels that are considered protective of sensitive populations. A hazard index equal to or greater than 1, the threshold of significance for acute effects, indicates that, for some weather conditions and for some locations near the airport, the concentration of acrolein could increase by 0.19 $\mu g/m^3$ or more for short periods of time. A hazard index equal to or greater than 1 indicates some potential for acute adverse health effects. For acrolein, if such effects occurred, they would typically include mild irritation of eyes and mucous membranes.[33]

Project-related incremental acute cancer health hazards for all receptor types would exceed the threshold of significance.

[33] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, OEHHA Toxicity Criteria Database, September 24, 2004, http://www.oehha.ca.gov/risk/ChemicalDB/index.asp.

Table 4.4-3

Incremental Acute Hazard Indices for the 2005 SAIP Compared to the 2003 Baseline

Summary of Hazard Indices	2005 SAIP Increment
Residential	
Maximum HI	**10**
Minimum HI	1
Average HI	**4**
Off-Site Worker	
Maximum HI	**19**
Minimum HI	1
Average HI	**5**

Notes:
HI = Hazard Index
Values in **BOLD** exceed thresholds of significance.

Source: CDM 2005.
Prepared by: CDM

4.4.6.4 Health Effects for On-Site Workers

Estimated on-airport air concentrations and PEL-TWAs for TACs of concern for LAX are presented in **Table 4.4-4**. Estimated maximum 8-hour air concentrations of TACs of concern at on-airport locations under the SAIP are well below the CalOSHA PEL-TWAs or the TLVs for all TACs. This result suggests that air concentrations from airport emissions with or without implementation of the SAIP would not exceed levels considered acceptable by CalOSHA.

4.4.6.5 Discussion of Impacts

Consistent with the results for the LAX Master Plan Final EIR, modeling results for the SAIP indicate that that emissions of 1,3-butadiene, acrolein, benzene, and formaldehyde, from aircraft, and of diesel particulates from trucks and construction equipment, are responsible for nearly all potential health risks posed by airport operations (see Appendix L, Table L-13). Specifically, 1,3-butadiene and diesel particulates account for nearly 80 percent of the total incremental cancer risk and acrolein accounts for 97 percent of the non-cancer health hazard.

There are several factors that contribute to the incremental cancer risks and non-cancer health hazards associated with the SAIP. The closure of Runway 7R-25L during the SAIP construction period would cause taxi/idle times to increase compared to conditions if the SAIP were not implemented, thereby increasing emissions associated with this aircraft operating mode. However, with the runway closure, the total number of aircraft operations would be lower than what would otherwise be expected to occur, thereby decreasing emissions associated with total daily takeoffs and landings. It is not known to what extent these two conditions would offset one another.

Notwithstanding this uncertainty, the single greatest factor contributing to the incremental human health impacts associated with the SAIP is the differential in the number of aircraft operations between the SAIP and the 2003 Baseline condition. **Table 4.4-5** presents total aircraft operations forecasted in 2005 for the SAIP (three runways open) and for the LAX Master Plan (four runways open), as well as the actual 1996 and 2003 operations. As indicated in the table, the number of aircraft operations at LAX in 2003 was 622,378. The projected number of operations at LAX in 2005 with implementation of the SAIP is projected to be 745,112, an increase of nearly 20 percent.

Table 4.4-4

Comparison of CalOSHA Permissible Exposures Limits to Maximum Estimated 8-Hour On-Airport Air Concentrations

Toxic Air Contaminant[1/]	2005 SAIP (mg/m^3)[2]	CAL OSHA PEL-TWA (mg/m^3)[3/]
Acetaldehyde	0.00014	45
Acrolein	0.0000712	0.25
Benzene	0.00126	0.32[4/]
1,3-Butadiene	0.00027	2.2
Formaldehyde	0.00085	0.37[4/]
Toluene	0.0026	188
Xylene (total)	0.0020	435
Naphthalene	0.000030	50
Diesel PM	0.00016	NA
Arsenic	0	0.01
Beryllium	0	0.002
Cadmium	0	0.005
Chromium (VI)	0.0000000013	0.05
Copper	0.00000016	1.
Manganese	0.00000012	0.2
Nickel	0.000000069	1.
Zinc	0	NA

NA – Not Available

1/ All TACs for which PEL-TWAs are available are listed. PEL-TWAs are not available for diesel exhaust or zinc.

2/ Concentrations at on-airport location (0, 20) – Central Terminal Area.

3/ California Occupational Safety and Health Administration. Permissible Exposure Limits for Chemical Contaminants, Table AC-1, 2000. http:// www.dir.ca.gov/title8/5155.html.

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

Source: CDM, 2005.
Prepared by: CDM

Table 4.4-5

2005 Operations for SAIP and LAX Master Plan, and Corresponding Baseline Operations

	SAIP Operations		LAX Master Plan Operations	
	2003 Baseline	2005 SAIP	1996 Baseline	2005 NA/NP
Total Aircraft Operations	622,378	745,112	763,866	779,352
Increment Above Baseline	NA	122,734	NA	15,486

NA/NP = No Action/No Project Alternative
NA = Not applicable.

Sources: Federal Aviation Administration and City of Los Angeles, LAX Master Plan Draft EIS/EIR, Vol. 1, Table 3-1, January 2001. http://www.lawa.org/lax/tenYrSummary.cfm (accessed June 29, 2005)
Prepared by: CDM

In contrast, the number of operations in 1996, the baseline used in the LAX Master Plan Final EIR, was 763,866. At the time the LAX Master Plan Final EIR was prepared, LAWA forecast that the number of operations at LAX would grow to 779,352 in 2005 without any LAX Master Plan improvements (i.e., the No Action/No Project Alternative), an increase of only two percent compared to the 1996 Baseline. Therefore, even though the SAIP would result in a reduced number of operations in 2005 due to the closure of Runway 7R-25L (745,112 versus 779,352 originally projected for the No Action/No Project Alternative), the incremental change over the baseline condition used for the SAIP analysis is greater than the change analyzed in the LAX Master Plan Final EIR.

It is anticipated that the relative contribution of individual TACs to total incremental risks and hazards for the SAIP would have been essentially the same as previously reported in the LAX Master Plan Final EIR if the baseline was retained at 1996 or even the updated Year 2000 condition evaluated in the LAX Master Plan Final EIR. However, due primarily to the change in the environmental baseline to 2003, SAIP impacts are greater than previously reported for Alternative D.

4.4.7 Cumulative Impacts

Unlike air quality, for which standards have been established that determine acceptable levels of pollutant concentrations in the air, no standards exist that establish acceptable levels of human health risks or that identify a threshold of significance for cumulative health risk impacts. Therefore, the discussion below addresses cumulative impacts, and the project-related contribution to those impacts, but does not make a determination regarding the significance of cumulative impacts.

4.4.7.1 Cumulative Cancer Risks

As indicated in Section 4.4.2, in November 1999, the SCAQMD conducted an urban air toxics monitoring and evaluation study for the South Coast Air Basin called MATES-II. MATES-II provides a general evaluation of cancer risks associated with TACs from all sources within the South Coast Air Basin. According to the study, cancer risks in the Basin range from 1,120 in a million to 1,740 in a million, with an average of 1,400 in a million. These cancer risk estimates are high and indicate that current impacts associated with sources of TACs from past and present projects in the region are significant. The MATES-II study is an appropriate estimate of present cumulative impacts of TAC emissions in the South Coast Air Basin. It does not, however, have sufficient resolution to determine the fractional contribution of current LAX operations to TACs in the airshed. Only possible incremental contributions to cumulative impacts can be assessed.

The LAX Master Plan Final EIR used the results of the MATES-II study to address cumulative cancer risks associated with the build alternatives and the No Action/No Project Alternative. Overall, the analyses indicated that:

- LAX operations would have a small impact on cumulative human cancer risks associated with living in the South Coast Air Basin.
- Mitigation would reduce cancer risks below those predicted for pre-mitigation conditions. That is, mitigation would result in a decrease in cumulative risks for many people living closest to the airport.

Although project-specific operational activities during construction of the SAIP were not analyzed in the LAX Master Plan Final EIR, total estimated cancer risks for the SAIP are in the same range as those estimated for the No Action/No Project Alternative in 2005 in the LAX Master Plan Final EIR.[34] Therefore, cumulative impacts for the SAIP in 2005 may be similar to those identified for the No Action/No Project Alternative in 2005. Based on this assumption, the SAIP can be expected to result in a small increase in cumulative human cancer risks. Because the incremental contribution

[34] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport Proposed Master Plan Improvements, State Clearinghouse No. 1997061047, April 2004.

would be relatively small (i.e., less than 2 percent), it would probably not be measurable against urban background conditions in the South Coast Air Basin.

With regard to probable future projects, continued growth and development in the region, as well as other construction projects at LAX, would result in additional sources of TACs. Because future sources and releases of TACs are highly speculative, meaningful quantification of future cumulative health risk exposure in the Basin is not possible. Moreover, the threshold of significance used in this analysis is based on the incremental cancer risk increase of individual projects; this threshold is not appropriately applied to conclusions regarding the cumulative cancer risk in the Basin. However, based on the relatively high cancer risk level associated with past and present projects, as represented by the environmental baseline (i.e., an additional 1,400 cancer cases per million), the SAIP would add incrementally to the already high cumulative impacts in the Los Angeles Basin near LAX.

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

4.4.7.2 Cumulative Non-Cancer Chronic Hazards

Recently, USEPA conducted an independent study of possible annual average air concentrations within the South Coast Air Basin associated with a variety of TACs, including acrolein. These estimates provide a means for assessing cumulative non-cancer impacts of airport operations in much the same manner as cumulative cancer risks were assessed using the MATES-II results.

Within the study area of the HHRA, USEPA predictions for annual average acrolein concentrations yield a range of hazard indices from 35 to 221, with an average of 59. Because of the large uncertainties associated with the USEPA estimates, the cumulative analysis for non-cancer health impacts is semi-quantitative and based on a range of possible contributions. This cumulative analysis does not address the issue of potential interactions among acrolein and criteria pollutants. Such interactions cannot, at this time, be addressed in a quantitative fashion. A qualitative discussion of the issue is presented in the LAX Master Plan Final EIR Technical Report S-9a, Section 7.

Maximum incremental hazard indices for the SAIP were estimated to be about 5 compared to the 2003 Baseline. This increment represents between 2 and 14 percent of the estimates based on USEPA modeling. Hence, the SAIP could add to total average acrolein concentrations in the Basin and, hence, to possible chronic human health hazards associated with exposure to acrolein.

As discussed in the LAX Master Plan Final EIR (subsection 4.24.1.2), there are limited data available describing acrolein emissions from jet aircraft engines. Therefore, estimates of non-cancer hazards are very uncertain. Non-cancer hazards associated with the SAIP should only be used to provide a relative comparison to baseline conditions, recognizing that the uncertainties associated with acrolein emissions apply to all scenarios. These hazards should not be viewed as absolute estimates of potential health impacts. Moreover, USEPA's estimates are based on data that are now several years old. Emissions from some important sources may have been reduced as a result of continuing efforts by SCAQMD and other agencies to improve air quality in the South Coast Air Basin. Finally, the estimates do not consider degradation of TACs in the atmosphere. Degradation may be very important for relatively reactive chemicals such as acrolein.

4.4.7.3 Cumulative Acute Hazards

Generally, predicted concentrations of TACs released from LAX suggest that acute health hazards would not be expected. The exception might be levels of acrolein in LAX emissions. Acrolein contributes almost all of the non-cancer risk that might be associated with the SAIP. The REL for this TAC for evaluation of chronic exposure (0.06 $\mu g/m^3$) and the REL for the evaluation of acute (short term) exposure (0.19 $\mu g/m^3$) are not greatly different. Since some estimates of non-cancer hazard following chronic (long-term) exposure are fairly high, the possibility that short-term concentrations might exceed 0.19 $\mu g/m^3$ was evaluated. Methods used to evaluate cumulative acute hazards and results of the analysis are discussed in the LAX Master Plan Final EIR Technical Report S-9a.

When USEPA annual average estimates are converted to possible 1-hour maximum concentrations, acute hazard indices associated with total acrolein concentrations are estimated to range from 14 to 87, with an average of 23, for locations within the study area. Predicted incremental acute hazards for the SAIP are 10 and 19 for fenceline locations adjacent to residential and commercial land uses, respectively. Thus, the SAIP could contribute between 11 and 71 percent above current levels at residential locations and between 22 and 136 percent above current levels at off-airport locations.

4.4.8 Mitigation Measures

LAWA is committed to mitigating emissions from both construction activities and temporary changes in operations associated with the SAIP, as well as from long-term activities at LAX, to the extent possible. A comprehensive mitigation program was developed as part of the LAX Master Plan Final EIR and means for implementing this program are in the process of being formulated and will be approved prior to implementation of the SAIP. Although developed to address air quality impacts, this program will also reduce impacts to human health associated with exposure to TACs. Because this mitigation program establishes a commitment and process for incorporating all feasible air quality mitigation measures into each component of the LAX Master Plan, no additional project-specific mitigation measures are recommended in connection with the SAIP.

4.4.9 Level of Significance After Mitigation

The TAC emissions inventory developed for the SAIP, which formed the basis for the health risk characterization, is based on the assumption that certain air quality mitigation measures identified in the LAX Master Plan Final EIR and Mitigation Monitoring and Reporting Program would be in place at the time of construction (2005) of the SAIP. Specifically, as indicated in Section 4.3.5, construction-related mitigation measures associated with LAX Master Plan mitigation measure MM-AQ-2 were assumed to be in place during SAIP construction (see Table 4.3-9). In addition, it was assumed that the GSE conversion program would be underway as part of LAX Master Plan mitigation measure MM-AQ-4. Emission reductions associated with construction of new FlyAway sites, part of LAX Master Plan mitigation measure MM-AQ-3, were not factored into the SAIP analysis as these sites will be implemented after 2005. The TAC emissions inventory thereby represents "mitigated" conditions. Although the Master Plan mitigation measures could potentially reduce emissions of TACs associated with the SAIP, it is not anticipated that these measures would reduce emissions sufficiently such that the related health risks would be less than significant. As a result, the following impacts would remain significant and unavoidable:

- Project-related incremental cancer risks, compared to 2003 Baseline conditions, would exceed the thresholds of significance for adult residents and for a young child through adulthood (adult + child)
- Project-related incremental non-cancer chronic health hazards, compared to 2003 Baseline conditions, would exceed the thresholds of significance for all receptor types (i.e., child resident, school child, and adult resident)
- Project-related incremental acute health hazards would exceed the threshold of significance for most fenceline locations

These significance conclusions are different from those in the LAX Master Plan Final EIR, for reasons identified in subsection 4.4.6.5 above. As noted in that discussion, the reason that incremental impacts in the SAIP EIR differ from those identified in the LAX Master Plan Final EIR is due to the substantial decrease in operations in the baseline conditions for the SAIP EIR compared to the LAX Master Plan Final EIR (i.e., 2003 Baseline for SAIP compared to 1996 Baseline for the LAX Master Plan). Because of this decrease in baseline operations, the incremental impacts of the SAIP appear higher than the increment for Alternative D as analyzed in the LAX Master Plan Final EIR.

4.5 Noise

4.5.1 Introduction

The LAX Master Plan Final EIR analyzed future noise levels associated with construction and operation of the LAX Master Plan and proposed mitigation measures to address potentially significant noise impacts. The purpose of this noise analysis is to describe, at a greater level of detail, the construction-related impacts of the SAIP based on new project-level planning and design information. This analysis is also intended to provide more detailed information related to the temporary change in the aircraft noise exposure pattern during the SAIP construction period.

This analysis considers activities associated with relocating Runway 7R-25L that could cause potentially significant noise impacts. The three types of activities identified are construction equipment activity during demolition and construction, construction-related off-airport traffic, and aircraft noise caused by temporary shifts in runway use patterns to accommodate Runway 7R-25L closure during construction. Off-airport ground access vehicle traffic not directly associated with the construction activity was not evaluated as part of this analysis, because the SAIP is expected to have a negligible effect on non-construction, airport-related vehicle trips. The post-construction noise effects of operations on the relocated Runway 7R-25L are evaluated in the LAX Master Plan Final EIR[1]. The noise analysis addresses noise levels from aircraft and construction traffic and equipment in the communities surrounding LAX under Baseline year (2003) conditions and Project (2005) conditions[2]. The 2003 conditions are used as the most recent full calendar year for which aircraft data were available before the date of the July 2004 Notice of Preparation (NOP). The effect of noise is presented in terms of the total area, population, homes, and other noise-sensitive receptors such as schools and churches within various noise contours,[3] and specific noise levels at selected other locations in the airport environs. In addition to analyzing average day (cumulative) noise impacts, the noise analysis provides a comprehensive evaluation of the effects of single-event aircraft noise relative to the potential for nighttime awakenings in homes and speech interference at schools. For CEQA purposes, the noise analysis compares Project (2005) conditions with 2003 Baseline conditions to determine significant impacts.

The aircraft and construction noise analyses were conducted using the standard industry models, and State of California and locally approved methodologies. Results of the noise analyses were compared with State and local noise level threshold standards. Noise mitigation measures that reduce noise effects on noise-sensitive land uses are presented in Subsection 4.5.5. Project level impacts are summarized in Subsection 4.5.6.4, and levels of significance after mitigation are summarized in Section 4.5.9.

The analysis concludes that construction equipment and traffic noise are not expected to result in significant impacts, assuming LAX Master Plan MMRP commitments and mitigation measures are in place. However, short-term potentially significant and unavoidable impacts from aircraft noise

[1] Los Angeles World Airports. Appendix S-C1: Supplemental Aircraft Noise Technical Report. Section 3.1.5, June 2003.

[2] This Draft EIR analyzes potential environmental impacts assuming peak construction period in 2005. Sensitivity analyses have shown that the impacts associated with this analysis would be substantially the same if the peak construction period occurred in 2006. (Refer to Appendix D for more information.) Therefore, the results for 2005 are reliable for predicting significant impacts if the peak construction period was to occur in 2006.

[3] "Contours" are lines connecting points of equal noise exposure values.

would be expected during the construction period. Significance conclusions presented in this Draft EIR are consistent with information presented in the LAX Master Plan Final EIR. The technical data and statistical reports used to develop the aircraft noise exposure patterns and conclusions about the effect of noise on the surrounding area are provided in **Appendix M**.

4.5.1.1 LAX Master Plan Final EIR

The LAX Master Plan Final EIR noise analysis addressed noise levels and potential impacts from aircraft, off-airport surface transportation, off-airport construction traffic, and construction equipment.

4.5.1.1.1 Aircraft Noise

Aircraft noise was assessed using noise exposure contours and grid points for all areas surrounding the airport and location specific analysis was conducted at noise-sensitive uses. The focus of this analysis was to identify air traffic patterns changes related to implementation of the LAX Master Plan and the associated noise impacts. The LAX Master Plan Final EIR fully addressed aircraft noise impacts regarding the operation of the south airfield component of the LAX Master Plan (Alternative D).[4] The south airfield component would shift Runway 7R-25L approximately 55 feet south of the present alignment, which would generally shift the contours along the south side of the airport and under the approaches to the south runways by 55 feet to the south. Referring to Figure F4.2-28 in the LAX Master Plan Final EIR, only a narrow sliver of land along the north side of the approach to the south runway would be added to the area exposed to aircraft noise of 65 CNEL or greater in 2015 under Alternative D, compared with 1996 baseline conditions. No areas exposed to 65 CNEL and higher would experience a change in aircraft noise of 1.5 CNEL[5] or more under Alternative D in 2015, compared with 1996 baseline conditions. Similar results were found comparing 2015 conditions under Alternative D with 2000 existing conditions, as shown on Figure S10 of Technical Report S-1 of the LAX Master Plan Final EIR. Although the post-project noise exposure patterns were fully addressed in the LAX Master Plan Final EIR, a qualitative evaluation of expected post-construction aircraft noise exposure patterns in included in this Draft EIR to confirm that future conditions with the project would be consistent with the noise exposure patterns evaluated in the LAX Master Plan Final EIR.

The LAX Master Plan Final EIR disclosed that during 2005, various construction projects would result in temporary modifications to the aircraft noise exposure patterns. Section 3.1.5 of Appendix S-C1 of the LAX Master Plan Final EIR provided an overview of the expected changes in aircraft noise exposure that might be expected during construction. The one component of the LAX Master Plan that was projected to result in notable changes to aircraft noise exposure patterns during its construction was the SAIP. Figure S5 depicted noise exposure that might be expected during the SAIP construction period, compared to 2015 conditions, but did not provide details related to significant effects compared to baseline conditions. The analysis for this EIR provides a quantitative analysis of aircraft noise impacts expected during the SAIP construction period.

[4] Los Angeles World Airports, *Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*, April 2004, Section 4.1.

[5] The 1.5 CNEL threshold of significance is derived from FAA Order 5050.4A, *Airport Environmental Handbook* and FAA Order 1050.1E, *Environmental Impact Policies and Procedures* and is accepted by the City of Los Angeles as a CEQA threshold of significance to describe significant increases in noise exposure. Refer to *Draft L.A. CEQA Thresholds Guide*, May 14, 1998.

4.5.1.1.2 Off-Airport Surface Transportation Noise

Roadway operational noise was also adequately addressed in the LAX Master Plan Final EIR through analyses reflecting conditions anticipated in 2008 and 2015. The study included defining the project impact criteria and identifying existing land uses which may be affected by road traffic noise, the determination of existing and future noise levels, the identification of potentially significant noise impacts and the examination of alternative noise abatement measures for reducing or eliminating the noise impacts. The Year 2008 was selected as an interim year for traffic and construction-trip operational noise analyses based on the projection that 2008 would be the peak construction year for the LAX Master Plan Alternative D. Alternative D contains project components planned to occur in 2008 that involve substantially more construction activities and associated traffic at and near the existing CTA and local surface transportation system compared to others such as the SAIP component. The planned construction activities in 2008 pose a notable potential for changes in local traffic patterns, and attendant changes in road traffic noise. Examination of the peak hour noise levels indicated no significant increases in traffic noise in 2008 or 2015, compared with baseline conditions (Section 4.1.6, Subsection 4.1.6.2 of the LAX Master Plan Final EIR). For this Draft EIR, off-airport ground access vehicle traffic not directly associated with the construction activity was not evaluated as part of this analysis. The SAIP is expected to have a negligible effect on non-construction, airport-related vehicle trips and patterns.

4.5.1.1.3 Construction Traffic (Off-Airport)

Construction traffic noise analysis for the LAX Master Plan Final EIR was evaluated by comparing the number of construction vehicles expected to use the various haul routes with the amount of noise energy that would be required to reach the thresholds that define significance. Both trucks and employee vehicles would generate construction traffic noise. As part of the Master Plan, mitigation commitments were made and assumed in the input to the analysis. Employee trips and shift changes would take place during off-peak traffic hours, employee parking would be remote and shuttle trips would be conducted from remote parking to the construction site to minimize employee car trips. Additionally, construction-related truck trips would be restricted to designated routes ensuring that these vehicles use the nearby freeways and major arterials to the maximum extent and minimize use of local roadways.

Traffic noise gets progressively quieter based on reduced engine operation levels, reduced drive-train and tire rotations, and reduced wind shear. Under LOS A or B levels, traffic volume would have to increase at more than a three-fold rate to reach the CEQA threshold of significance of a 5 dBA increase (refer to Section 4.2.3.3.5, Table 4.2-5 for LOS definitions). The major freeways and arterials assumed to be the primary haul routes in the LAX Master Plan Final EIR analysis are high volume routes that are already at Level of Service (LOS) C or worse. Lower levels of service involve lower traffic speeds due to increased traffic volume. Therefore, given the traffic speeds on the freeways and arterials and the relatively small contribution of the construction traffic to the overall volumes of traffic on those roads, the LAX Master Plan Final EIR analysis concluded that construction traffic would not exceed the CEQA construction traffic noise threshold.[6]

Additional information analyzed in this EIR regarding specific haul routes, employee parking and off-peak trips for the SAIP is considered to ensure that the prior conclusions remain valid. This Draft EIR provides a qualitative evaluation of roadway noise patterns associated with construction of the

[6] Los Angeles World Airports, *Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*, April 2004, Section 4.1.6.3.

SAIP to confirm that they are consistent with the noise exposure patterns identified in the LAX Master Plan Final EIR.

4.5.1.1.4 Construction Equipment Noise

The LAX Master Plan Final EIR also included an evaluation of potential construction equipment noise impacts on nearby noise-sensitive land uses. The LAX Master Plan Final EIR concluded that, even with noise mitigation measures, noise-sensitive uses within close proximity to certain construction activities would be significantly impacted. Construction projects associated with Master Plan Alternative D that were closest to noise-sensitive uses were evaluated in the LAX Master Plan Final EIR. The SAIP component associated with Alternative D was not considered to be a construction project near noise-sensitive uses. Therefore, it was not considered to be a construction element that may cause significant construction equipment noise impacts.[7] Because new information related to the construction site boundaries, staging areas, construction scheduling, and construction equipment activity associated with SAIP was available for this EIR, project-level noise analysis was conducted to confirm the LAX Master Plan Final EIR determination, and is included herein.

4.5.1.2 Analytical Framework

The analysis of aircraft and construction noise impacts resulting from the relocation and reconstruction of Runway 7R-25L and center taxiway proposed as part of the SAIP required the following:

- Development of a methodology for analyzing noise exposure and impacts that may be generated by both aircraft operations and construction activities.
- Development of a baseline (existing) noise impact condition against which projected impacts were compared.
- Projection of the anticipated noise exposure condition, and evaluation of any impacts that may result during project construction.
- Identification of significant changes in noise exposure by comparing the baseline to the projected conditions.
- Assessment of mitigation measures to address any significant increases in noise exposure.

For CEQA purposes, the baseline noise exposure condition is the foundation for determining significant impacts that may result from the proposed SAIP. The methodology used to develop the 2003 Baseline conditions is the same as that used in the LAX Master Plan EIR 1996 baseline noise analyses.

To project anticipated aircraft noise exposure for Project (2005) conditions, the noise analysis used aircraft noise modeling input developed for the LAX Master Plan Final EIR. Appendix S-C1 of the LAX Master Plan Final EIR included an analysis of projected aircraft noise exposure and impacts for 2005 when peak construction related to the SAIP was at that time expected to occur. The Project (2005) conditions were compared with 2003 Baseline conditions to determine what significant changes would be expected during the project construction period. Proposed LAX Master Plan EIR commitments and mitigation measures that may reduce expected significant impacts were also reviewed and applied if feasible. One aircraft noise mitigation commitment was considered as a component of SAIP, and was included as input to the noise analysis. Several other aircraft noise related measures were found to be applicable as soon as construction was completed.

---

[7] Los Angeles World Airports, *Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*, April 2004, Section 4.1.6.4.3.

The second largest component of the SAIP is the construction of the center taxiway between Runway 7L-25R and relocated Runway 7R-25L. This taxiway was scheduled for construction through 2006 as soon as Runway 7R-25L was re-commissioned. Based on a review of detailed construction plans, the center taxiway construction would require only periodic closures of Runway 7L-25R between 12:00 a.m. and 6:00 a.m. Because of the limited frequency and time during which runways are expected to be closed during taxiway construction, significant changes in runway use patterns and cumulative noise exposure would not be expected to occur and a detailed noise analysis is not needed. To confirm whether current noise abatement procedures, as described in Section 4.1.5 of the LAX Master Plan Final EIR Master Plan Commitment N-1, would be maintained during construction of the center taxiway, the project team met with FAA Airport Traffic Control Tower (ATCT) management to discuss alternative nighttime runway use during periods when Runway 25R, which is the primary over-ocean departure runway, would be closed.[8] FAA personnel stated that in order to maintain over-ocean procedures during periods when Runway 7L-25R is closed, departures may be required on Runway 25L during peak arrival periods when arrivals are assigned to Runway 6R. When arrival traffic is low, controllers may be able to direct departures to Runway 24L. Again, because of the limited frequency and duration during which Runway 7L-25R may need to be closed between 12 a.m. and 6 a.m. for construction of the center taxiway, average annual noise levels are not expected to change significantly.

As mentioned in Section 4.5.1.1, the LAX Master Plan Final EIR concluded that relocation of Runway 7R-25L would shift the arrival aircraft noise contour to the south approximately 55 feet. Because these operational effects were fully addressed in the LAX Master Plan Final EIR, post-project aircraft noise analysis was not necessary for this EIR. Nevertheless, in preparing the SAIP EIR, a qualitative evaluation of post-project conditions related to predicted runway use patterns was conducted to confirm that future conditions would be consistent with the noise exposure patterns reported in the LAX Master Plan Final EIR. LAWA consulted further with FAA on the specific concern raised by the City of El Segundo in its comments on the Notice of Preparation (NOP) regarding runway use after the opening of the SAIP.[9] Based on a written response to LAWA, the FAA does not anticipate any change to existing procedures, nor will there be a preference to the north or south airfield during the interim period following completion of the proposed SAIP improvements and prior to the start of the proposed north airfield improvements.[10] Because annual runway use patterns are expected to be largely unchanged in post-project years, significant aircraft noise exposure changes related to runway use patterns are not expected.

Each of the following elements are documented in this EIR: (1) general noise analysis methodology, (2) the 2003 baseline condition, (3) thresholds of significance, (4) applicable LAX Master Plan

[8] "Over-ocean" is a term used for the LAX nighttime noise abatement procedure designed to keep aircraft operations over the ocean between midnight and 6:30 a.m., weather permitting, such that aircraft arrive from the west and depart to the west, thereby avoiding overflight of land areas.

[9] In response to the NOP for the LAX South Airfield EIR, the City of El Segundo requested analysis of aircraft operations for the time period between the completion of the south airfield improvements and completion of the north airfield improvements. *See* Comment Letters in Chapter VI. The City of El Segundo expressed the concern that the proposed improvements to the LAX south airfield would cause a higher proportion of the total aircraft operations to utilize the south airfield than has been the case historically. The City of El Segundo suggests that this shift may occur because individual pilots and the FAA would choose the improved south airfield facilities over the existing north airfield facilities.

[10] FAA Written Response to LAWA, Mr. John Clancy, Area Director-Western Terminal Operations. February 08, 2005.

mitigation measures and commitments, (5) impact analysis comparing 2003 Baseline and Project (2005) conditions, (6) cumulative impacts, (7) additional potential mitigation measures, and (8) level of significance after mitigation.

4.5.2 Methodology

Aircraft and construction noise was assessed using standard measures of noise. Specifics related to standard measures of noise, determination of thresholds of significance, and analytic methodologies are provided in Appendix M.

4.5.2.1 Aircraft Noise

Aircraft noise was assessed using noise exposure contours and grid point analyses for areas surrounding the airport, and location-specific analyses for specific noise-sensitive uses.

4.5.2.1.1 Noise Exposure Contours

Aircraft noise was presented graphically as contour lines connecting points of equal noise exposure. Noise levels are higher within each contour interval moving toward the center of the noise source. The noise exposure contours were overlaid on maps of noise-sensitive land uses surrounding the airport to determine the areas and land uses exposed to significant noise.

The noise measure used in this analysis to describe annual average day noise levels was CNEL (Community Noise Equivalent Level), which is mandated by California law and accepted by the FAA for the evaluation of airport noise levels within the State of California.[11] CNEL, an average sound level expressed in terms of average day A-weighted decibels (dBA)[12] such as "65 dBA CNEL," or simply "65 CNEL," considers both the loudness and duration of the noise exposure. Noise exposure contours connecting points of equal noise exposure were used to locate the 65, 70, and 75 CNEL contours for annual average day conditions.

The CNEL metric applies mathematical penalties to evening and nighttime operations, inflating the actual amount of noise energy present in the airport environs to account for the greater sensitivity of underlying land uses in the quieter hours between 7 p.m. and 7 a.m.[13] The calculation of CNEL includes an additional 4.77 dBA weighting to noise events occurring during the evening hours (7:00 p.m. to 9:59 p.m.) and an additional 10 dBA weighting during the nighttime hours (10:00 p.m. to 6:59 a.m.) to account for the increased annoyance of noise during those times. The measure is similar to the Day Night Average Sound Level (DNL) metric used in all other states, except that DNL does not include a penalty for evening hours. Consequently, CNEL measurements at airports with evening flights would be higher than the DNL measurements.

CNEL noise contours and other noise computations (including single events) were developed for the 2003 Baseline and Project (2005) conditions using the Integrated Noise Model (INM), Version 6.1,

---

[11] See FAA Order 5050.4A, Page 30, paragraph "g" for FAA's acceptance of the CNEL metric as a suitable substitute for the Day Night Average Sound Level (DNL).

[12] The dBA metric incorporates a weighting methodology used to account for changes in human hearing sensitivity as a function of frequency. The A-weighting network de-emphasizes the high (6.3-KHz and above) and low (below 1-KHz) frequencies, and emphasizes the frequencies between 1-KHz and 6.3-KHz, in an effort to simulate the relative response of human hearing.

[13] For additional information regarding the penalties applied to the CNEL metric to reflect the heightened annoyance of noise during evening and night hours, see the 2002 California Airport Land Use Planning Handbook, published by the California Department of Transportation, Division of Aeronautics, January 2002, 6-22, 7-18 and 7-28.

the latest computer model for assessing aircraft noise developed by the FAA. Specifics related to INM and noise modeling are provided in Appendix M. The projected acreage, number of residences, noise-sensitive uses, and population within each noise contour were calculated by overlaying the noise contours into a Geographic Information System (GIS) land use database of the environs. The GIS database is the same database used by LAWA for developing its quarterly noise reports to Caltrans and also the same as used for the LAX Master Plan Final EIR noise and land use analysis.

The INM requires the compilation of extensive information about how the airport operates (for baseline conditions) or is expected to operate (for future conditions). The model requires the integration of an assortment of data relating to airfield geometry, weather conditions, number and type of aircraft operations, time of day of aircraft operations, aircraft fleet mix, runway use patterns, flight tracks, and other data and assumptions. Information regarding the inputs to the INM for 2003 baseline and Project (2005) conditions is provided in Appendix M.

4.5.2.1.2 Grid Point Analysis

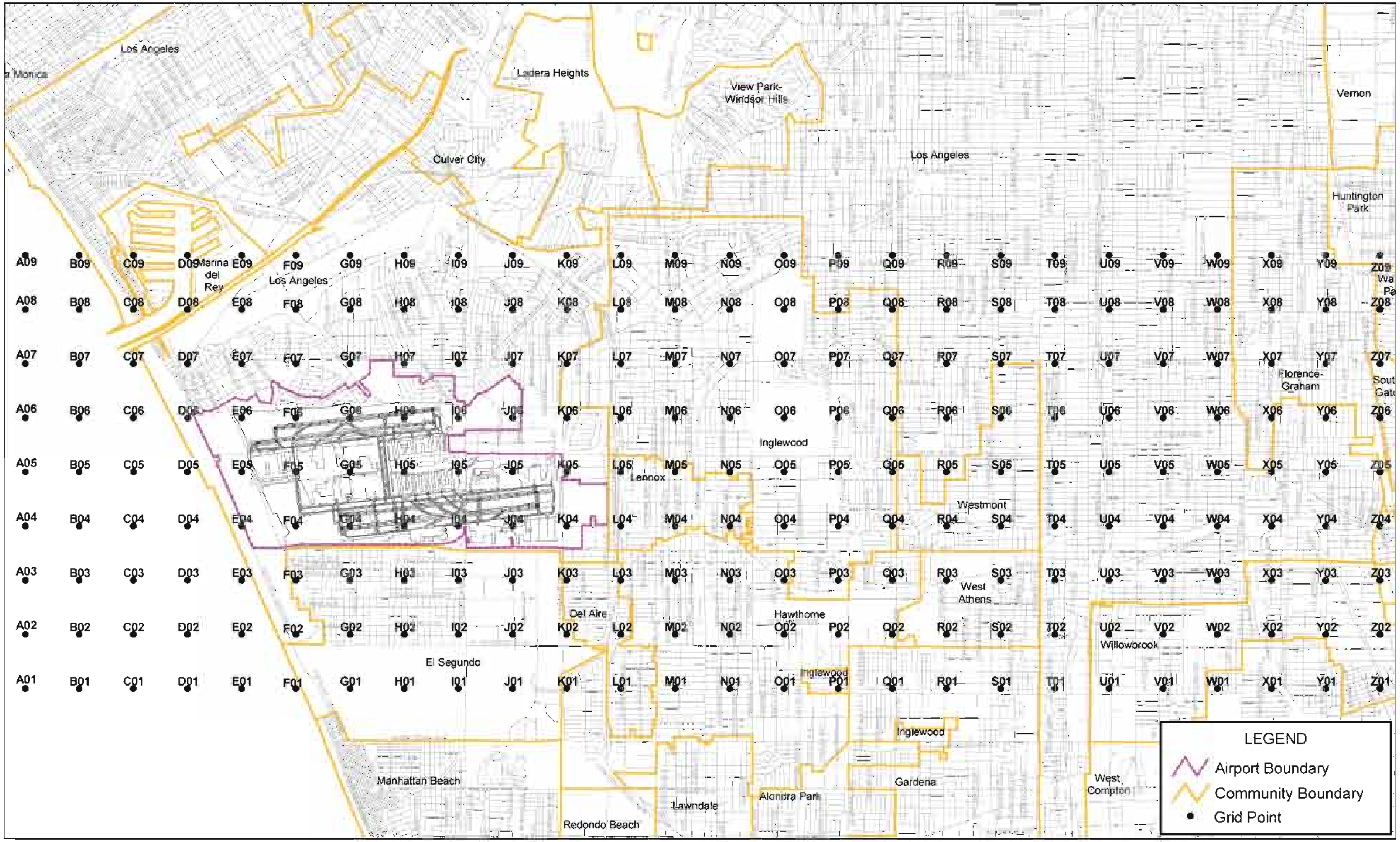
The INM also has the capability to generate aircraft noise levels at regularly spaced or individually defined grid points. Such information supplements the analysis provided by contours. The LAX Master Plan Final EIR provided a comprehensive list of grid points, including a set of regularly spaced points throughout the study area, and the locations of identified noise-sensitive receptors, such as schools, religious facilities, nursing homes, parks, and other facilities. **Table M-11** in Appendix M lists the grid point types and locations. The locations, by type, are also illustrated on **Exhibit 4.5-1** through **Exhibit 4.5-4**.

Supplemental noise metrics were calculated for 180 points (over land and off airport only) distributed on a regularly spaced grid with an interval of 3,000 feet (Exhibit 4.5-1), and at 412 individual locations of noise-sensitive uses (Exhibit 4.5-2 through Exhibit 4.5-4). Because roadway noise was adequately addressed in the LAX Master Plan Final EIR, roadway intersection grid points were not needed for this analysis.

4.5.2.2 Single Event Aircraft Noise Exposure

In August 2001, the California Court of Appeal found that, for purposes of CEQA, an evaluation of the effects of single event aircraft noise would be required of the Oakland Board of Port Commissioners in its EIR for the development of a nighttime air cargo facility at Oakland International Airport.[14] In that case, referred to as "Berkeley Jets" throughout this section, the Court of Appeal ruled that, to provide a more accurate and complete picture of the noise impacts of a project and to provide more comprehensive mitigation, a single event noise analysis must supplement an EIR's analysis of time-averaged noise levels, including use of appropriate thresholds of significance and mitigation of significant events.

[14] *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners*, (2001) 91 Cal.App.4th 1344.



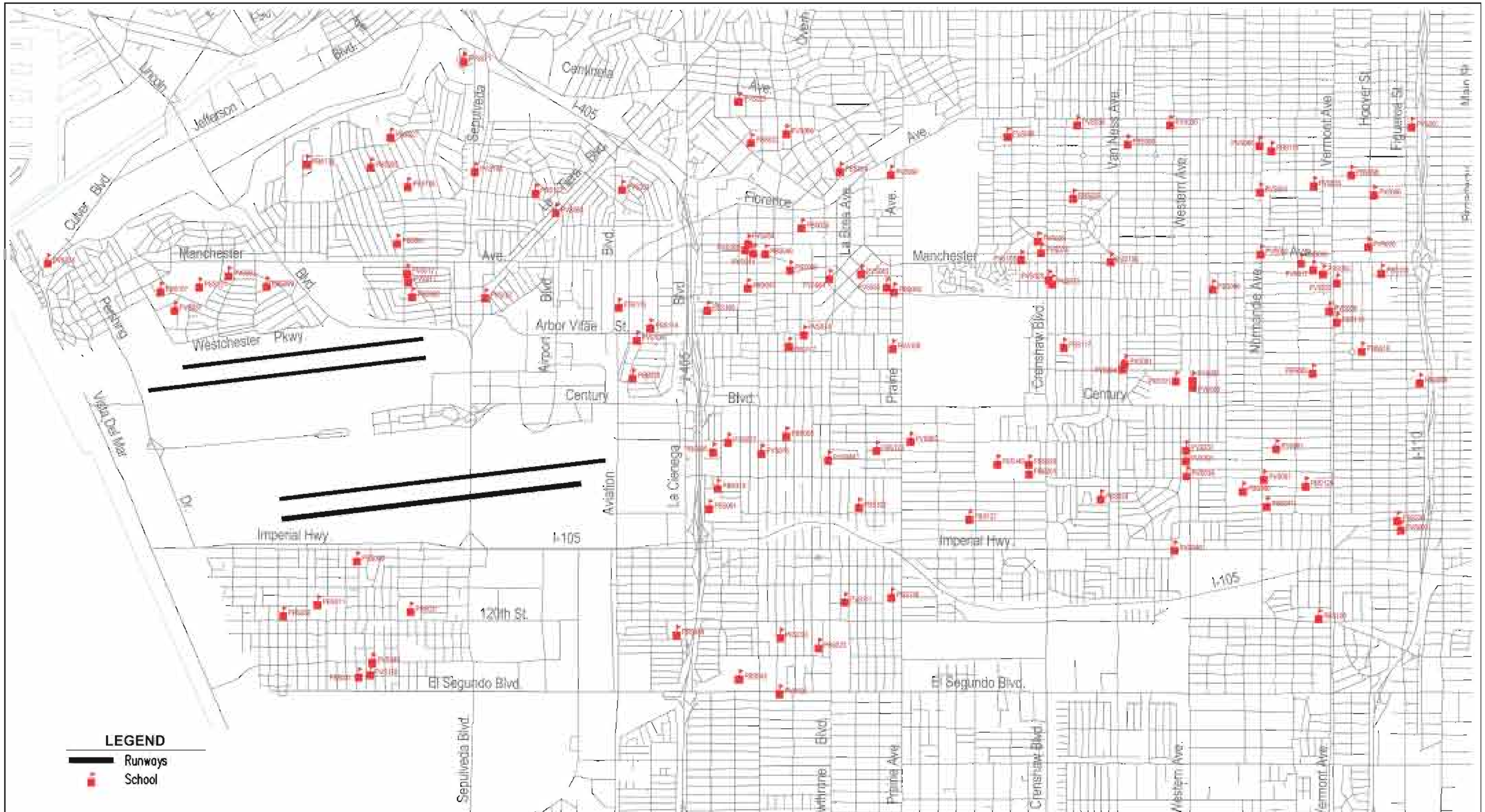
Source: LAX Master Plan EIS/EIR 2004, Landrum & Brown, October 2000
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-1

north

Not to Scale

Regularly Spaced Grid Locations



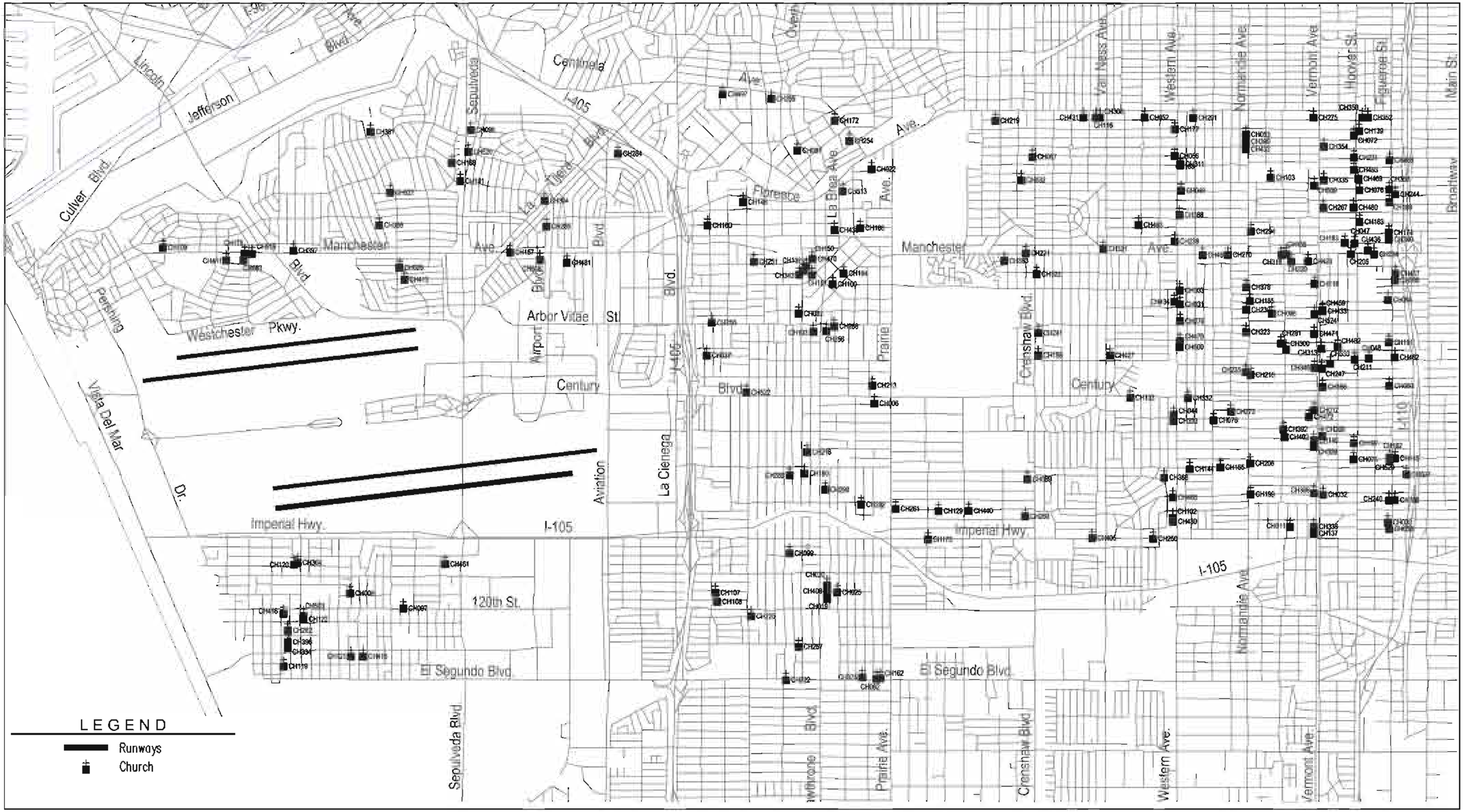
Source: LAX Master Plan EIS/EIR 2004, Landrum & Brown, October 2000
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-2

north

Not to Scale

Noise Sensitive Schools

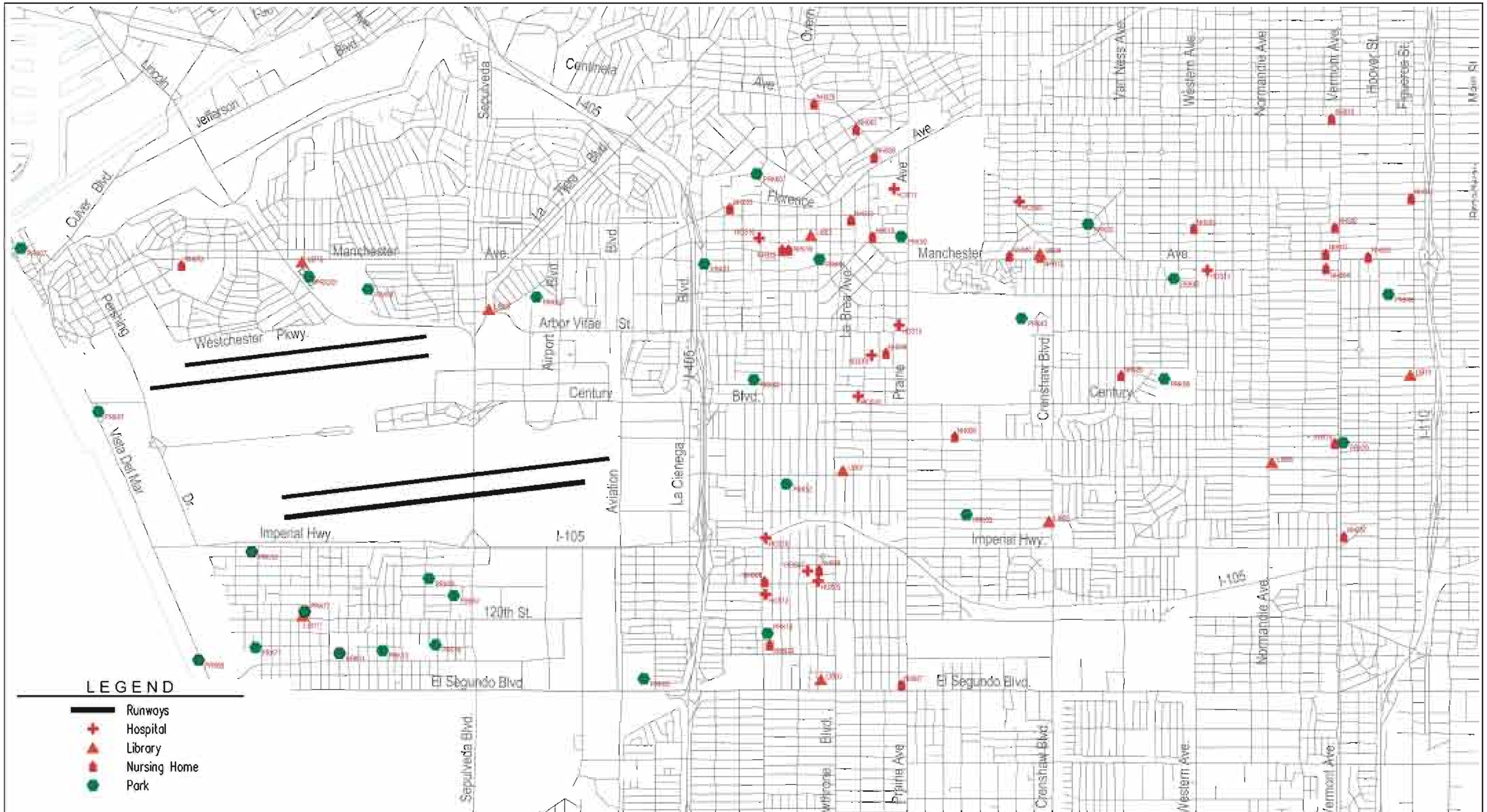


Source: LAX Master Plan EIS/EIR 2004, Landrum & Brown, October 2000
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-3

north Not to Scale

Noise Sensitive Churches



Source: LAX Master Plan EIS/EIR 2004, Landrum & Brown, October 2000
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-4

north Not to Scale

Miscellaneous Noise Sensitive Sites

Although the LAX Master Plan Draft EIS/EIR provided single event noise levels at many locations throughout the airport environs for 1996 baseline and future conditions, no attempt was made at that time to assess the significance of those levels or to determine mitigation for their effects. Comments received during the public review period for the Draft EIS/EIR included concerns regarding the potential for increased aircraft activity (i.e., number of arriving or departing flights) occurring at night to result in increased nighttime awakenings. Concerns were also expressed regarding potential disruption of classrooms and the educational process from overflights of additional aircraft during school hours. The Supplement to the Draft EIS/EIR added a comprehensive analysis of single event noise to address such concerns, in a manner consistent with, and responsive to, the Berkeley Jets ruling. This analysis is included in the LAX Master Plan Final EIR and is incorporated by this reference herein.[15]

Although the *Berkeley Jets* ruling directed that the significance of single event noise effects be addressed in an EIR, there was no established basis for defining or assessing the significance of single event aircraft noise, and the Court of Appeal did not set forth any standards of significance in the evaluation of such events. Furthermore, although the California Airport Land Use Planning Handbook generally discusses the relevance of single event noise to land use planning in the airport environs, it does not suggest thresholds of significance for application to the single event evaluations.[16] As a result, LAWA has developed appropriate thresholds of significance regarding single event noise effects, based on a comprehensive review of existing studies and research literature pertaining to the issue. It should be noted that the thresholds of significance developed by LAWA are intended solely for use in the CEQA evaluation of the LAX Master Plan and its project components.

Refer to Section 4.1 and Appendix S-C1 of the LAX Master Plan Final EIR for details regarding how LAWA arrived at their thresholds of significance for single event aircraft noise exposure. The thresholds were applied in this analysis to quantify the temporary modifications to aircraft noise exposure patterns during the SAIP construction period.

4.5.2.2.1 Awakenings

The Sound Exposure Level (SEL) metric was used to evaluate single event noise levels for nighttime awakening impacts. The single event SEL metric mathematically compresses the noise energy produced by a single operation into a single second, resulting in a level that is normally several decibels greater than the maximum noise level recorded during the event. Furthermore, it was determined that the SEL threshold for awakenings should be set at a SEL value that represents 10 percent of the population being awakened at least once in ten days (i.e., the threshold is geared toward a relatively small subset of the general population that may be particularly sensitive to single event noise as a cause of nighttime awakening). Based on a study conducted by Finegold and Fidell (published in the Federal Interagency Committee on Aircraft Noise (FICAN) 1997 report) that relates the proportion of persons awakened by noise events at differing SEL levels, 10 percent of the population may be awakened by an aircraft single event that equates to 81 dBA SEL indoors.[17] To determine the exterior noise level at which interior noise levels of 81 dBA SEL are achieved,

[15] Los Angeles World Airports, *Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*, April 2004, Section 4.1.2.1.3.

[16] California Department of Transportation, Division of Aeronautics, *2002 California Airport Land Use Planning Handbook*, January 2002, 7-30 to 7-34.

[17] The FICAN 1997 report on the "Effects of Aviation Noise on Awakenings from Sleep" may be found on the internet at http://www.fican.org/pages/sleepdst.html.

information on the attenuation provided by typical residential construction was provided by LAWA's Noise Management Division in support of the LAX Master Plan Final EIR noise analysis. The Noise Management Division conducted noise measurements prior to its acoustic treatment of dwellings that indicated, on average, that residential construction in the airport environs provides an exterior-to-interior attenuation of 27.5 dBA with windows closed. This means that for 10 percent of the residents of the area surrounding LAX to be awakened, the SEL would have to be 109 dBA or more if their windows are closed at all times.

Given the climate of the airport environs, it is unlikely that windows would remain closed at all times. Therefore, an exterior threshold level that would produce levels at or above 81 dBA SEL inside a residence with windows opened was calculated. This involves an attenuation factor that is expected to be lower than 27.5 dBA (windows closed). Because the attenuation factor is lower, exterior noise levels required to exceed 81 dBA SEL will also be lower. Noise measurements provided by the Noise Management Division did not involve interior noise levels with windows opened. Instead, supplemental information provided by the Society of Automotive Engineers (SAE) was used. Aerospace Information report 1081 by SAE provides information about the difference between exterior-to-interior noise attenuation rates with windows open and windows closed.[18] Based on the information in the SAE document, the exterior-interior attenuation rate difference between windows open and closed would average 14.3 dBA in the airport area. Because windows open attenuation is less than windows closed, the SAE attenuation rate difference of 14.3 dBA is subtracted from the windows closed attenuation mentioned in the previous paragraph above (27.5 dBA). Therefore, the windows open housing attenuation equals about 13 dBA (27.5 dBA – 14.3 dBA = 13.2 dBA).

In order to determine what exterior level would be required for the 81 dBA SEL interior with windows opened threshold to be exceeded, the window open attenuation factor (13 dBA) described above is added to 81 dBA SEL (interior awakenings threshold level). The associated exterior threshold for awakenings with windows open is 94 dBA SEL (81 dBA+13 dBA = 94 dBA). The INM was used to compute a contour representing the 94 dBA SEL threshold level. The threshold is further discussed in Subsection 4.5.4.

4.5.2.2.2 Classroom Disruption

Based upon literary research conducted for the LAX Master Plan Final EIR, it was determined that two thresholds of significance should be based on the 1992 Federal Interagency Committee on Noise (FICON) study detailing the degree of speech understanding at various noise levels (in decibels) and the amount of time during the school day that these threshold levels were exceeded. The American National Standards Institute published standards for classroom noise in 2002 that provided additional information, but again did not provide a relationship between aircraft noise and classroom disruption. Therefore, a third threshold was established for interior noise levels for the peak hour of operation during the school day. The Maximum Noise Level (L_{max}), Equivalent or Average Noise Level (L_{eq}), and Time Above (TA) decibel levels were used to evaluate the noise impacts at school facilities. The metrics describe the peak noise level heard during a period of time (typically an individual noise event); the unpenalized average noise level present during a period of time; and the amount of time the noise level at a given location exceeds a specific decibel level, respectively. As described in the subsequent paragraphs on thresholds of significance (Subsection 4.5.4), schools that were exposed to interior single event maximum noise levels of 55 dBA and 65 dBA, as well as to hourly average

[18] "House Noise-Reduction Measurements for Use in Studies of Aircraft Flyover Noise," Aerospace Information Report AIR1081, Society of Automotive Engineers, October 1971.

noise levels of 35 dBA $L_{eq(h)}$[19] or more during typical school hours (8 a.m. and 4 p.m.) were identified. Details related to the rationale for, and determination of the thresholds are provided in Appendix M. The noise levels at schools were computed by the grid analysis option of the INM to estimate the noise levels above or below the established thresholds of significance at the school locations during school hours (i.e., between 8 a.m. and 4 p.m.). The thresholds are further discussed in Subsection 4.5.4.

4.5.2.3 Construction Traffic Noise

Construction traffic noise was evaluated by comparing the number of construction vehicles anticipated to use the SAIP haul routes and the amount of noise energy produced by those vehicles with the amount of noise energy that would be required to reach the significance thresholds. Acoustic energy is additive in nature. For example the energy of two identical trucks is twice as great as that for one truck, and so on. However, the relationship for sound pressure level (SPL) is logarithmic, not arithmetic. For example, when the energy is doubled, the SPL increases by three decibels. Therefore, while the energy is doubled when the second truck appears, the SPL would increase from, 50 to 53 dBA.[20] Continuing with this relationship, because the scale is logarithmic, adding another truck and tripling the energy would not result in another 3 dBA increase, but would result in a lesser increase. Accordingly, it would take greater than a 3-fold increase in sound energy to result in a 5 dBA increase; which is the CEQA threshold of significance (refer to Section 4.5.4 for further details related to the traffic noise CEQA thresholds of significance)

It was assumed that, during construction of the SAIP, all employee trips and shift changes would occur during off-peak commuter hours, and employees would be required to use remote parking, consistent with LAX Master Plan Commitments ST-14 and ST-21 of the LAX Master Plan Mitigation Monitoring and Reporting Program (LAX Master Plan MMRP)[21]. In addition, LAX Master Plan Commitments ST-16 and ST-21 require trucks hauling construction-related raw materials in and out of the construction site to use freeways (I-405 and I-105) and major arterials close to the freeway that offer quick access to the construction site. As a result of minimizing the use of local roads and streets, potential noise impacts within residential communities would be minimized.

4.5.2.4 Construction Equipment Noise

As specified in the *Draft L.A. CEQA Thresholds Guide,* May 1998*:*

> Construction of facilities and structures requires the use of equipment that may generate high noise levels and adversely affect noise sensitive land uses. In assessing the impact of construction noise upon the environment, the nature and level of activities that generate the noise, the pathway through which the noise travels, the sensitivity of the receptor, and the period of exposure are all considered[22].

Construction equipment noise was evaluated by determining the noise levels generated by typical outdoor construction activity and calculating the potential for exposure to noise-sensitive uses. A representative ambient noise level (non-construction noise) at the noise-sensitive uses were

[19] $L_{eq(h)}$): hourly average sound level.
[20] Section M.1.1, *Noise Basics and Metrics,* of Appendix M, *Supplemental Noise Analysis Information,* provides additional explanation of the principle of noise energy doubling.
[21] Los Angeles World Airports, Alternative D Mitigation Monitoring and Reporting Program, September 2004.
[22] City of Los Angeles, *Draft L.A.CEQA Thresholds Guide*. May 14, 1998. page I.1-1.

determined from modeled aircraft noise levels and measurements from the LAWA remote noise monitoring station ES2 (located south of the airport within El Segundo). Construction noise levels were based on typical levels contained in the *Draft L.A. CEQA Thresholds Guide,*[23] as derived from U.S. Environmental Protection Agency (USEPA) documents. Distances between the noise-sensitive uses and the construction sites were measured and construction noise levels at the sensitive uses were calculated based on standard noise-versus-distance relationships. Impacts were then identified on the basis of exceeding the CEQA thresholds compared to ambient noise levels. Based on the fact that sound (under average atmospheric conditions over an open grassy field) dissipates at the rate of 4.5 dBA for each doubling of distance, calculations were made to determine if the noise from the construction equipment would exceed ambient noise levels by 5 dBA at the locations of noise-sensitive uses. This rate of reduction of distance is consistent with what was used for the LAX Master Plan Final EIR construction noise evaluation.

Potential on-airport construction noise impacts were addressed based on the SAIP-specific construction site location, proposed construction equipment, type of activity and construction schedule data provided by LAWA. Because the proposed SAIP construction schedule was to extend over eight months, six days a week and approximately 20 hours a day (including noise-sensitive hours), a 5 dBA increase over ambient (non-construction) noise levels due to construction was identified as the threshold of significance. The threshold is discussed further in Subsection 4.5.4.

4.5.3 Baseline Condition

4.5.3.1 Aircraft Noise

The purpose of the 2003 Baseline aircraft noise analysis was to serve as a basis for comparison with the Project (2005) noise exposure. To facilitate this comparison and the determination of potential significant impact from the SAIP, a full noise analysis was prepared for 2003, including CNEL contours, location point analysis, and supplemental noise analyses to examine the potential for sleep disturbance and impacts on learning in the classroom. The technical data and statistical reports used to estimate aircraft noise exposure and conclusions about the effects of noise on the surrounding area are provided in Appendix M. The methodology used to develop the 2003 Baseline is identical to the one used to develop the 1996 baseline and 2000 existing conditions noise exposure analyses for the LAX Master Plan Final EIR (refer to LAX Master Plan Final EIR, Appendix D and Appendix S-C1).

Baseline noise exposure conditions were characterized using a variety of metrics and indicators, following the methodology established in Section 4.1 of the LAX Master Plan Final EIR. Overlaying the CNEL exposure areas on a GIS base map allowed the determination of the number of people and dwellings within the 65, 70, and 75 CNEL 2003 Baseline exposure areas. Inclusion of land use in the GIS overlay allows for the identification of where land use types are considered compatible or incompatible (based on criteria described in Appendix M, Subsection M.1.4) under baseline conditions. To provide supplemental baseline noise exposure conditions at specific locations, aircraft CNEL, L_{eq}, L_{max}, and Time-Above (65, 75, 85, and 95) levels were computed at 592 supplemental grid locations.

In addition, two supplemental aircraft noise exposure assessments were conducted. One to assess the potential impacts for sleep disturbance, and one to assess the potential impacts on classroom learning. For a complete discussion related to the derivation of these supplemental impact indicators, refer to Section 4.1 and Appendix S-C1 of the LAX Master Plan Final EIR.

[23] City of Los Angeles, *Draft L.A. CEQA Thresholds Guide*, May 14, 1998.

4.5.3.1.1 CNEL Aircraft Noise Exposure

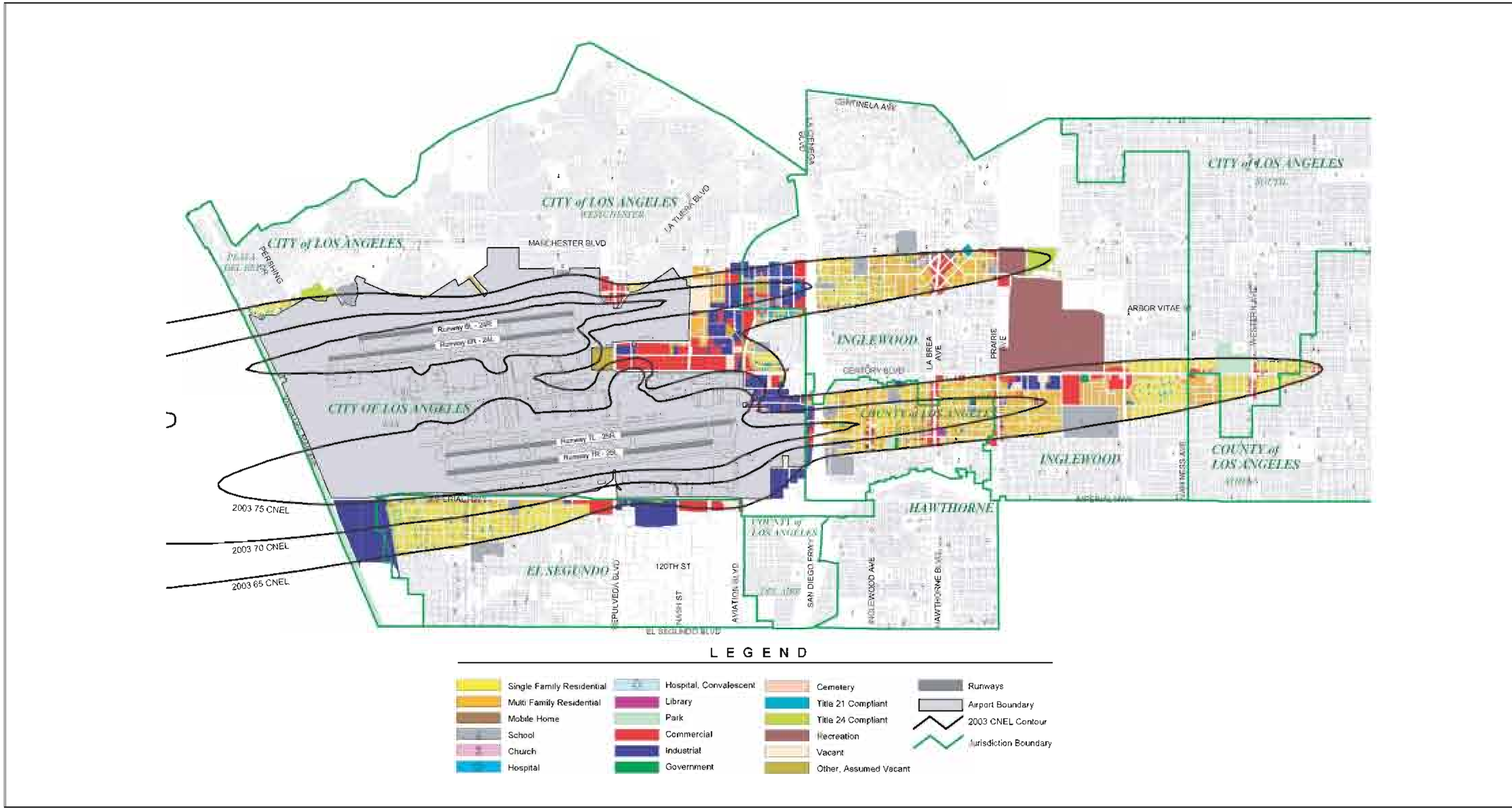
This Subsection presents the CNEL contours for 2003 Baseline conditions and summarizes the impacts.

Contour Area

The noise exposure contours for 2003 Baseline conditions are depicted on **Exhibit 4.5-5**. As summarized in **Table 4.5-1**, about 2,742 acres of the total 12,196 acres, or 22 percent of the total area exposed to 65 CNEL and higher, are located on land and off airport. The remaining area exposed to 65 CNEL and higher is over airport property or the ocean, both of which are considered compatible with aircraft noise. The shape of the 2003 Baseline condition contours is primarily influenced by the predominance of west flow operations that occur between 95 percent and 98 percent of the year. Departing aircraft, typically take off to the west and perform most of the initial climb phases over the ocean prior to turning back to the east. During late night hours (12 a.m. to 6:30 a.m.), over-ocean procedures are typically in effect. Under the over-ocean procedure, both departures and arrivals are directed over the ocean. With most departures – typically the loudest type of operations – conducted to the west, cumulative noise levels are higher west of the airport that east of the airport where incompatible land-use is located.

As illustrated on Exhibit 4.5-5, the 65 CNEL noise exposure area includes land directly to the north, south, and east of the airport. The north and south portions of the noise exposure area were primarily attributed to initial departure noise from aircraft departing to the west as well as reverse thrust noise caused by landing aircraft. The southern portion of the noise exposure area covered a larger area compared to the north side primarily because of three factors: (1) higher percentage use of Runway 25R compared with Runway 24L for westerly departures during the nighttime hours, (2) higher use of Runway 25L than Runway 24R for arrivals during all time periods (day, evening, and night), and (3) higher heavy widebody jet use of the south airfield (Runways 25L and 25R) compared with the north complex (Runways 24L and 24R). As shown in **Table 4.5-2**, over 56 percent of all nighttime departures occurred on Runway 25R and almost 70 percent occurred on both Runways 25R and 25L. For an average annual day, almost 47 percent of all arrivals occurred on Runway 25L. During nighttime hours, almost 41 percent of all nighttime arrivals occurred on Runway 25L compared with about 27 percent on Runway 24R. For the most part, medium to light jets and propeller aircraft used the north and south airfields evenly, but about 76 percent of all heavy jet operations used the south airfield, as shown in **Table 4.5-3**. Heavy aircraft are typically the noisiest aircraft due to their weight and engine thrust.

The two prominent contour extensions to the east, which account for most of the coverage over land, are due primarily to arrivals on the two outboard runways (Runways 25L and 24R) from the east. The northern arrival contour for the north airfield (Runway 24L and 24R) does not extend as far to the east as the south airfield (Runways 25L and 25R) arrival contour due to the more westerly location of the north airfield runways compared with the south airfield runways.



Source: Psomas, April 2000 - land use data; PCR Inc., 2002 - GIS datasets and mapping; LAWA, 2003 - 2003 INM input; Ricondo & Associates, Inc., 2004 - 2003 INM contour
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-5

2003 Baseline CNEL Aircraft Noise Exposure Area

Table 4.5-1

Summary Noise Exposure Effects: 2003 Baseline Conditions[1/]

Noise Level Range	Total Acreage[2/]	Total Acreage over Land[2/]	Off-Airport Area (Acres)[2/]	Total Dwellings[3/]	Estimated Population[3/]	Non-Residential Noise-Sensitive Parcels
2003 Baseline						
65 to 70 CNEL	6,721	2,597	2,073	10,135	31,338	37
70 to 75 CNEL	3,460	1,807	602	2,876	10,648	15
75 CNEL and higher	2,015	1,867	67	80	322	1
Total 65 CNEL and higher	12,196	6,271	2,742	13,091	42,308	53

Notes:
1/ Values determined via noise contour overlay on GIS parcel data.
2/ Acreage totals may not add due to rounding.
3/ Population and dwelling unit information for 2003 conditions is reported using year 2000 Census database.

Source: Ricondo and Associates Inc., 2004. Based on LAWA NMD 4th Quarter 2003 INM input and PCR, Inc. GIS analysis, April 2004 – *LAX Master Plan Final EIR*.
Prepared by: Ricondo and Associates Inc., 2004

Table 4.5-2

Annual Runway Use: 2003 Baseline Conditions

	Arrivals				**Departures**			
Runway	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**
6L	1.0%	0.6%	1.9%	1.0%	--	--	--	--
6R	0.1%	0.1%	10.6%	1.3%	0.7%	0.5%	0.5%	0.7%
7L	0.1%	0.1%	11.3%	1.3%	0.9%	0.4%	1.2%	0.9%
7R	1.0%	0.4%	3.7%	1.2%	0.4%	0.3%	0.5%	0.4%
24L	2.8%	3.7%	1.8%	2.9%	44.2%	50.4%	25.8%	41.8%
24R	43.2%	41.6%	26.8%	41.0%	4.2%	3.3%	2.1%	3.8%
25L	48.1%	45.8%	40.7%	46.9%	6.6%	12.1%	13.3%	8.3%
25R	3.7%	7.8%	3.2%	4.4%	42.9%	33.0%	56.6%	44.1%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Notes: Day: 7:00 a.m. to 6:59 p.m., Evening: 7:00 p.m. to 9:59 p.m., Night: 10:00 p.m. to 6:59 a.m.
Totals may not add to 100 percent due to rounding.
Cell values of "--" indicate runway use of less than 0.05 percent.
Refer to Exhibit M-4 LAX Runway Layout for 2003 Baseline and 2005 South Airfield Improvement Project in Appendix M.

Source: Ricondo & Associates, Inc.,2004. Based on LAWA 4th Quarter 2003 INM Input files.
Prepared by: Ricondo & Associates, Inc., 2004

Table 4.5-3

North and South Airfield Use by Aircraft Category: 2003 Baseline Conditions

Heavy Jets[1/,2/]		Light Jets[1/]		Propeller Aircraft[1/]	
South Airfield	North Airfield	South Airfield	North Airfield	South Airfield	North Airfield
76.12%	23.88%	46.55%	53.45%	56.90%	43.10%

Notes:

1/ The north airfield includes Runways 6R-24L and 6L-24R. The south airfield includes Runways 7R-25L and 7L-25R.

2/ Heavy jets include 74710Q, 747200, 74720A, 74720B, 747400, 747SP, 767300, 767400, 767CF6, 767JT9, 777200, 777300, A300, A30062, A310 A330, A340, DC1010, DC1030, DC1040, DC870, DC8QN, L1011, MD11GE, MD11PW.

Source: Ricondo & Associates, Inc., 2004. Based on LAWA 4th Quarter 2003 INM Input files.

Prepared by: Ricondo & Associates, Inc., 2004

Population and Dwelling Unit Counts

The number of people and homes exposed to aircraft noise of 65 CNEL and higher was determined for the 2003 Baseline condition by overlaying the 2003 CNEL exposure contours over the GIS base map and year 2000 Census data used for the LAX Master Plan Final EIR.[24] Table 4.5-1 summarizes residential and non-residential noise-sensitive uses and persons exposed to 65 CNEL and higher. Approximately 41,986 residents (99 percent of all the population exposed to 65 CNEL and higher) are located in areas exposed to aircraft noise between 65 and 75 CNEL. The remaining 1 percent (322 residents) are located within the area exposed to 75 CNEL and higher. The distribution of residential dwellings in areas exposed to 65 to 75 CNEL is about the same as the population distribution for the various aircraft noise exposure areas.

Land Use Compatibility

Various categories of land use within the 2003 Baseline condition noise exposure map were identified and mapped using the GIS. Exhibit 4.5-5 shows the types of land use located within the area exposed to 65 CNEL and higher. **Table 4.5-4** includes the number of both residential and non-residential noise-sensitive parcels exposed to ranges of CNEL level by jurisdiction. Land use exposure is summarized as follows:

- 65 to 70 CNEL: 1,106 noise-sensitive acres (77 percent of all noise-sensitive acres exposed to CNEL 65 and higher)
- 70 to 75 CNEL: 273 noise-sensitive acres
- 75 and higher CNEL: 68 noise-sensitive acres (5 percent of total noise-sensitive acres exposed to 65 CNEL or more)

[24] PCR, Inc., 2002.

Table 4.5-4 (1 of 3)

2003 Baseline Conditions: Residential and Noise-Sensitive Properties by Jurisdiction[1/2/3/]

	LA City	LA County	El Segundo	Inglewood	Total
65 to 70 CNEL					
Residential					
Single-Family					
Units	546	359	834	1,404	3,143
Acres	79.4	52.3	124.3	200.4	456.4
Population	1,444	1,497	1,668	4,937	9,546
Multi-Family					
Units	1,261	1,204	303	4,224	6,992
Acres	44.7	75.7	14.7	198.7	333.8
Population	2,984	4,498	729	13,581	21,792
Total Residential					
Units	1,807	1,563	1,137	5,628	10,135
Acres	124.1	128.0	139.0	399.1	790.2
Population	4,428	5,995	2,397	18,518	31,338
Non-Residential Noise-Sensitive Uses					
Schools					
Number	4	2	1	10	17
Acres	21.5	24.4	19.9	106.2	172.0
Churches					
Number	4	2	2	7	15
Acres	1.5	1.2	0.6	4.1	7.4
Hospitals					
Number	0	0	0	0	0
Acres	0	0	0	0	0
Hospitals/Convalescent					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Parks					
Number	3	1	0	0	4
Acres	132.6	3.7	0.0	0.0	136.3
Libraries					
Number	1	0	0	0	1
Acres	0.2	0.0	0.0	0.0	0.2
Total Noise-Sensitive Facilities					
Number	12	5	3	17	37
Acres	155.8	29.3	20.5	110.3	315.9
Total Noise-Sensitive Area (Acres)	279.9	157.3	159.5	509.4	1,106.1

Table 4.5-4 (2 of 3)

2003 Baseline Conditions: Residential and Noise-Sensitive Properties by Jurisdiction[1/2/3/]

	LA City	LA County	El Segundo	Inglewood	Total
70 to 75 CNEL					
Residential					
Single-Family					
Units	0	434	279	53	766
Acres	0.0	63.9	42.1	8.4	114.4
Population	0	2,140	558	224	2,922
Multi-Family					
Units	245	921	484	460	2,110
Acres	8.9	67.6	15.4	19.0	110.9
Population	561	4,187	1,139	1,839	7,726
Total Residential					
Units	245	1,355	763	513	2,876
Acres	8.9	131.5	57.5	27.4	225.3
Population	561	6,327	1,697	2,063	10,648
Non-Residential Noise-Sensitive Uses					
Schools					
Number	0	6	1	3	10
Acres	0.0	24.0	5.7	13.0	42.7
Churches					
Number	0	1	0	0	1
Acres	0.0	0.3	0.0	0.0	0.3
Hospitals					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Hospitals/Convalescent					
Number	0	0	0	1	1
Acres	0.0	0.0	0.0	0.6	0.6
Parks					
Number	1	0	1	0	2
Acres	1.3	0.0	0.9	0.0	2.2
Libraries					
Number	0	1	0	0	1
Acres	0.0	2.4	0.0	0.0	2.4
Total Noise-Sensitive Facilities					
Number	1	8	2	4	15
Acres	1.3	26.7	6.6	13.6	48.2
Total Noise-Sensitive Area (Acres)	10.2	158.2	64.1	41.0	273.5

Table 4.4-4 (3 of 3)

2003 Baseline Conditions: Residential and Noise-Sensitive Properties by Jurisdiction[1/2/3/]

	LA City	LA County	El Segundo	Inglewood	Total
75 CNEL and Higher					
Residential					
Single-Family					
Units	0	16	0	0	16
Acres	0.0	4.6	0.0	0.0	4.6
Population	0	80	0	0	80
Multi-Family					
Units	0	41	23	0	64
Acres	0.0	5.6	0.4	0.0	6.0
Population	0	189	53	0	242
Total Residential					
Units	0	57	23	0	80
Acres	0.0	10.2	0.4	0.0	10.6
Population	0	269	53	0	322
Non-Residential Noise-Sensitive Uses					
Schools					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Churches					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Hospitals					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Hospitals/Convalescent					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Parks					
Number	1	0	0	0	1
Acres	57.5	0.0	0.0	0.0	57.5
Libraries					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Total Noise-Sensitive Facilities					
Number	1	0	0	0	1
Acres	57.5	0.0	0.0	0.0	57.5
Total Noise-Sensitive Area (Acres)	57.5	10.2	0.4	0.0	68.1

Notes:

1/ Values determined via noise contour overlay on GIS parcel data.
2/ Acreage totals may not add due to rounding.
3/ Population contains 2000 Census data

Source: Ricondo & Associates, Inc., 2004. Based on LAWA NMD 4th Quarter 2003 INM input; and PCR Inc., GIS data, April 2004 – LAX Master Plan Final EIR

Prepared by: Ricondo & Associates, Inc., 2004

The total acres of noise-sensitive uses exposed to 65 CNEL and higher by jurisdiction are summarized as follows:

- The City of Los Angeles: 348 noise-sensitive acres
- Unincorporated County of Los Angeles: 326 noise-sensitive acres
- City of El Segundo: 224 noise-sensitive acres
- City of Inglewood: 550 acres

The population and dwelling units exposed to 65 CNEL and higher by jurisdiction are:

- The City of Los Angeles: 4,989 persons and 2,052 residential units
- Unincorporated County of Los Angeles: 12,591 persons and 2,975 residential units
- City of El Segundo: 4,147 persons and 1,923 residential units
- City of Inglewood: 20,581 persons and 6,141 residential units

Comparison to 1992 Aircraft Noise Mitigation Program (ANMP) Boundary

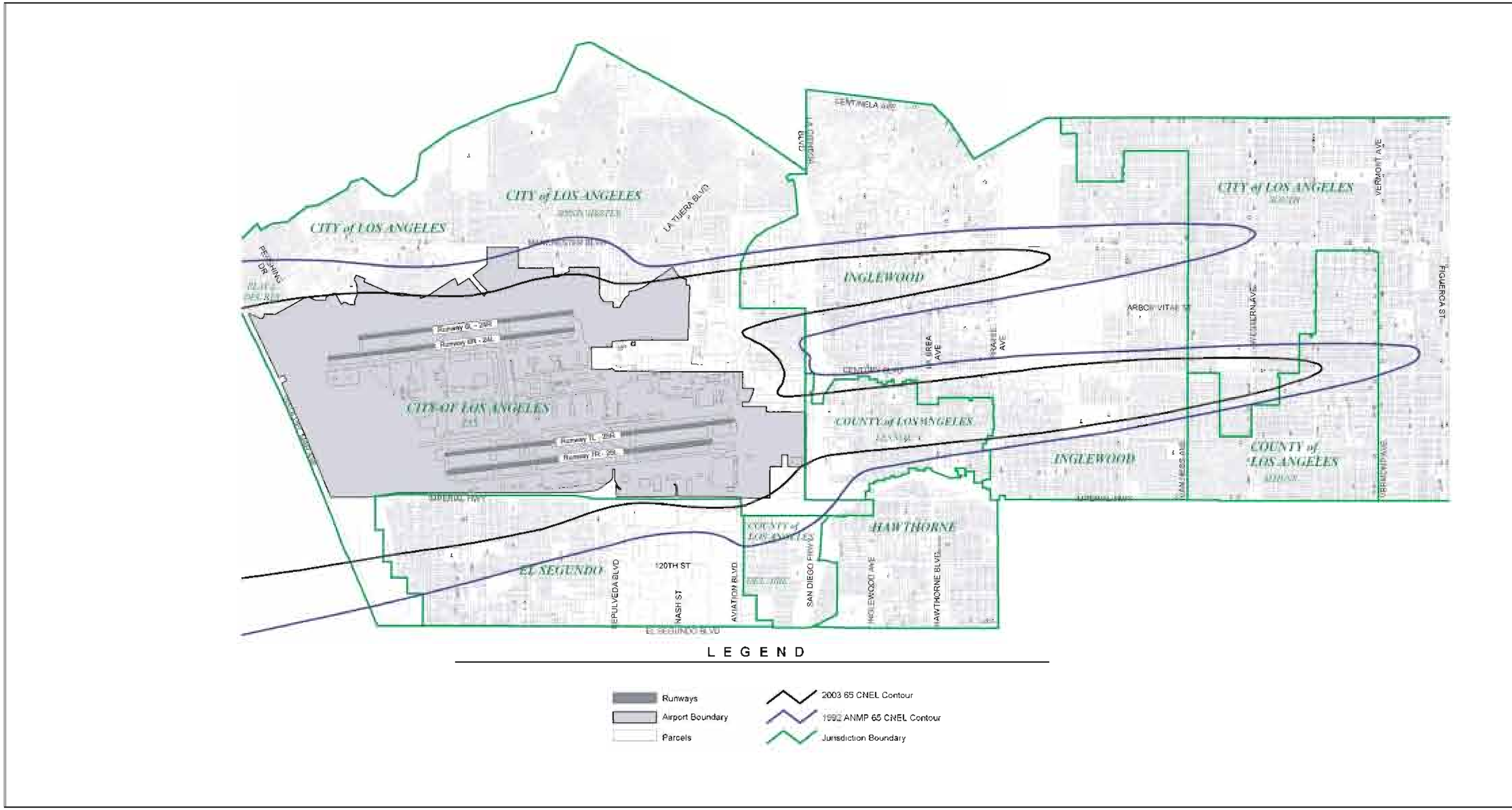
Pursuant to the land use compatibility requirements of the California Airport Noise Standards (California Code of Regulations, Title 21, subchapter 6), the City of Los Angeles has the responsibility to mitigate noise impacts or to eliminate incompatible land use within the communities surrounding the airport. The airport is currently operating under a variance, which became effective on March 21, 2001.

The variance can be extended as long as LAWA shows that every effort is being made to implement programs that are reducing noise impacts to an acceptable level during a reasonable time period. As required by the variance, LAWA requests that each local jurisdiction affected by noise prepare its own ANMP for its own affected area. LAWA is also responsible for creating a composite ANMP for the entire airport noise impact area. The composite ANMP serves as a basis for setting reasonable funding levels for each local jurisdiction. Jurisdictions included in the composite ANMP include unincorporated Los Angeles County, the City of Los Angeles, the City of Inglewood, and the City of El Segundo. According to the 2001 ANMP released October 2003, all incompatible land-uses encompassed by the 4th Quarter 1992 65 CNEL contour are eligible to participate in the ANMP. The 1992 65 CNEL contour is considered to be the ANMP boundary.

Exhibit 4.5-6 depicts the comparison between the 1992 ANMP boundary and the 65 CNEL contour for 2003 baseline conditions. As described in Appendix M, Subsection M.1.4.6, the 1992 ANMP boundary was used by LAWA to determine sound insulation or property acquisition eligibility. As shown in the exhibit, the 65 CNEL contour for 2003 baseline conditions does not extend beyond the ANMP boundary.

4.5.3.1.2 Grid Point Analysis

Table M-12 in Appendix M lists the calculated 2003 Baseline condition CNEL values for each grid point. Additional supplemental metrics were calculated for the grid points. The supplemental metric values served primarily as additional information and do not address regulatory criteria for decision making on projects pursuant to CEQA. The additional metrics are provided in **Tables M-13** through **M-18** in Appendix M.



Source: PCR Inc., 2002 - GIS dataset and mapping; LAWA, 2003 - 2003 INM input and 1992 ANMP contour; Ricondo & Associates Inc., 2004 - 2003 INM contour
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-6

north 0 0.5 1 Miles

CNEL Aircraft Noise Exposure Area: LAWA 1992 ANMP Boundary Compared to 2003 Baseline Condition

4.5.3.1.3 Single Event Aircraft Noise Exposure

Night Awakenings

Aircraft SEL values were computed for every flight occurring during the 2003 Baseline conditions nighttime period. The SEL values were calculated to determine the locations where at least one nighttime event that exceeded the sleep disturbance criteria (94 dBA SEL) occurred. The locations where the threshold for nighttime noise was reached were connected by a contour line indicating the area exposed to levels of noise that would be expected result in sleep disturbance for 10 percent of the population approximately once every week and a half (10 nights). The area exposed to such noise for 2003 baseline conditions is depicted on **Exhibit 4.5-7**.

Table 4.5-5 reports the population, dwelling units, and residential acres within the 94 dBA SEL contour for 2003 Baseline conditions. Based on the figures presented in Table 4.5-5, 17,417 residential units and 58,758 people may be exposed to aircraft noise levels that present the potential for nighttime awakenings for 10 percent of the population. An estimated 3,796, 18,464, 4,571, 31,897, and 30 residents are within the City of Los Angeles, County of Los Angeles, the City of El Segundo, the City of Inglewood, and City of Hawthorne, respectively. The type of operations that may cause awakenings in these areas are most likely arrivals during west traffic flow conditions during that portion of the nighttime periods (10 p.m. to 7 a.m.) during which the “over-ocean” procedure is not in effect.

School Disruption

School activities are disrupted by both single overflights, which can disrupt speech, and by the general intrusiveness of noise that establishes an elevated ambient noise level that can disrupt learning during an average school day (8 a.m. to 4 p.m.). As described in Subsection 4.5.4, schools were identified that were exposed to interior single event maximum noise levels of 55 dBA and 65 dBA, as well as an hourly average noise level of 35 dBA $L_{eq(h)}$ or more under 2003 Baseline conditions. Based on information provided by LAWA’s Noise Management Division, it was assumed that the average difference between outside and inside measured noise levels with windows closed at schools prior to being acoustically treated was approximately 29 dBA. The analysis was conducted for each school in the list of noise sensitive receptors in Table M-1 of Appendix M.

Table 4.5-6 lists the computed values for the range of hourly $L_{eq(h)}$ values at each school during an average school day. Shaded rows indicate schools that were calculated to have sustained $L_{eq(h)}$ levels above 35 dBA, indicating the potential for classroom teaching interruption. Nine public and nine private schools were identified as potential sites where aircraft noise may exceed 35 dBA $L_{eq(h)}$ levels. One school is located in the City of Los Angeles, six are located in the County of Los Angeles, 10 are located in the City of Inglewood, and one is located in the City of El Segundo. The hourly $L_{eq(h)}$ levels inside the 18 affected schools ranged from 35.3 dBA to a maximum projected level of 41.9 dBA.

Source: Psomas, April 2000 - land use data; PCR Inc., 2002 - GIS datasets and mapping; LAWA, 2003 - 2003 INM input; Wyle Labratories, 2004 - 2003 94 SEL contour
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-7

north 0 0.5 1 Miles

92 dBA Nighttime SEL Noise Exposure Area: 2003 Baseline Conditions

Table 4.5-5

Dwelling units and Population Within 94 dBA SEL Nighttime Noise Exposure Area: 2003 Baseline Conditions[1/]

Impact Category	LA City	LA County	El Segundo	Inglewood	Hawthorne	Total
Exposure ≥ 94 dBA SEL						
Number of Dwellings[2/]	1,592	4,372	2,123	9,322	8	17,417
Estimated Population[2/]	3,796	18,464	4,571	31,897	30	58,758

Note:
1/ Values determined via noise contour overlay on GIS parcel data.
2/ Impacts data for comparisons of the total population and dwellings exposed to the year 2003 conditions were developed using year 2000 Census data.

Sources: Ricondo and Associates with Wyle Laboratories, 2004. Based on LAWA NMD 4th Quarter 2003 INM input and PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.
Prepared by: Ricondo and Associates, Inc.

Table 4.5-6 (1 of 3)

Average Hourly L_{eq} at Study Area Schools: 2003 Baseline Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet)[2/]	Y Dist. (feet)[1/]	ANSI 35 $L_{eq(h)}$[3/]
	Public Schools				
PBS006	74th Street Elementary School	LA City	27281	10743	20.3
PBS009	95th Street Preparatory School	LA County	34094	2313	32.4
PBS011	Arena High School	El Segundo	-2515	-6204	31.7
PBS017	Boulah Payne Elementary School	Inglewood	14818	3297	30.6
PBS018	Bret Harte Junior High School	LA City	35904	3121	30.6
PBS019	Buford Elementary School	LA County	12212	-1924	39.2
PBS021	Center Street Elementary School	El Segundo	911	-6459	28.8
PBS022	Centinela Elementary School	Inglewood	13419	10800	18.7
PBS023	Centinela Valley Union High School Dist	Hawthorne	15909	-7797	19.1
PBS024	Century park Elementary School	Inglewood	26296	-2314	26.1
PBS026	Clyde Woodworth Elementary School	Inglewood	23650	-1034	34.4
PBS027	Cowan Avenue Elementary School	LA City	172	11002	20.5
PBS028	Crozier Middle School	Inglewood	15282	7661	25.8
PBS029	Daniel Freeman Elementary School	Inglewood	25282	8750	26.5
PBS031	El Segundo Jr. High School	El Segundo	-1003	-8864	24.4
PBS032	El Segundo Middle School	El Segundo	-3780	-6609	30.9
PBS033	Eucalyptus School	Hawthorne	14499	-7413	20.7
PBS035	Felton Elementary School	LA County	12046	-585	39.9
PBS036	Figueroa Street Elementary School	LA City	37216	-3113	19.6
PBS040	George Washington High School and Magnet Center	LA County	31524	-2029	25.0
PBS041	Grace Church of the Nazarene	LA County	32406	-2584	22.7
PBS042	Hawthorne High School	Hawthorne	12992	-8938	20.2
PBS047	Hillcrest Continuation School	Inglewood	13295	5451	37.1
PBS048	Hudnall Elementary School	Inglewood	13951	6710	29.8
PBS049	Imperial Avenue School Special Education Facility	El Segundo	-1068	-4601	37.5
PBS050	Inglewood High School	Inglewood	14856	6115	34.1
PBS054	Inglewood Unified School Dist	Inglewood	16704	9736	20.6
PBS055	Jefferson Elementary School	LA County	14713	3	37.2
PBS058	Juan de Anza Elementary School	LA County	10708	-7313	24.1
PBS059	Kelso Elementary School	Inglewood	18679	5302	36.4
PBS061	Kentwood Elementary School	LA City	419	7093	27.6
PBS062	LA Unified School Dist	LA City	968	5128	34.7
PBS086	LA Unified School Dist	LA City	38040	1964	32.4
PBS090	La Salle Avenue Elementary School	LA City	30414	5411	29.6
PBS091	Lennox Middle School	LA County	11903	-2672	32.3
PBS098	Loren Miller Elementary School	LA City	35517	9615	26.3
PBS099	Loyola Village Elementary School	LA City	-4391	5512	29.0
PBS100	Manchester Avenue Elementary School	LA City	36630	5989	28.2
PBS101	Manhattan Place Elementary School	LA City	29058	2028	32.9
PBS102	Moffet Elementary School	LA County	17390	-2628	28.8
PBS105	Oak Street Elementary School	Inglewood	11840	4627	39.9
PBS106	Orville Wright Junior High School	LA City	808	9178	23.5
PBS107	Paseo del Rey Magnet School	LA City	-8294	5322	30.9
PBS111	Raymond Avenue Elementary School	LA City	32576	10502	23.0
PBS113	Sung & Keum School	LA City	34981	4193	28.4
PBS117	Warren Lane Elementary School	Inglewood	24929	3265	27.8
PBS120	Westchester High School and Magnet Center	LA City	-6877	5485	30.3
PBS121	Westchester High School and Magnet Center	LA City	-6871	5484	30.3
PBS122	Westpoint Heights Elementary School	LA City	5515	8945	22.7

Table 4.5-6 (2 of 3)

Average Hourly L_{eq} at Study Area Schools: 2003 Baseline Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	ANSI 35 $L_{eq(h)}$ [3/]
PBS123	Whelan Elementary School	LA County	18043	-527	40.9
PBS125	Woodcrest Elementary School	LA County	33837	-1843	24.8
PBS127	Worthington Elementary School	Inglewood	21457	-3062	24.8
PBS128	York School	Hawthorne	18588	-5939	19.0
PBS140	Morningside High School	Inglewood	22487	-1032	35.3
PBS201	Monroe Middle School	Inglewood	23648	-1395	32.9
	Private Schools				
PVS001	Los Angeles Urban League	LA City	37733	11384	22.2
PVS002	Archdiocese of Los Angeles Educ	LA City	37336	-3455	18.8
PVS003	Archdiocese of LA Educ	LA County	34483	5967	28.9
PVS004	Archdiocese of LA Educ	LA City	27097	2468	31.0
PVS007	Archdiocese of LA Educ & Welfare Corp	LA City	-7778	4626	33.5
PVS011	Archdiocese of LA Educ & Welfare Corp	LA City	833	5679	32.0
PVS012	Archdiocese of LA Educ & Welfare Corp	LA City	771	5989	30.9
PVS017	Archdiocese of LA Educ & Welfare Corp	LA City	34119	6123	29.4
PVS025	Australia Johnson	Inglewood	12977	12319	17.0
PVS026	Bethany Apostolic Church	LA City	36140	6964	29.7
PVS028	Brady & Margaret Johnson	Inglewood	24379	5761	33.6
PVS029	Brady & Margaret Johnson Jr.	Inglewood	23982	7178	31.9
PVS030	Carolyn & Stacey Carol Jenkins	LA City	28850	11455	19.0
PVS031	Chabad of the Marina	LA City	-12447	6370	26.7
PVS033	Community Build Inc	LA City	34984	5635	28.2
PVS034	Constance Tucker	LA City	29461	-1469	28.7
PVS035	Crenshaw Christian Center Church	LA City	34140	9211	27.2
PVS036	Dorothy Moore	LA City	25423	11457	18.4
PVS037	Edgar Palmer	LA City	29435	-516	32.4
PVS044	Gary & Linda Dunn	Inglewood	13506	6729	29.4
PVS046	Glen & Marjorie McKnight	LA County	29009	-4204	19.2
PVS048	Hilltop Christian School	El Segundo	-501	-8326	25.3
PVS049	Iglesia Cristiana Juan 3:16	LA City	34967	2020	32.9
PVS051	Inglewood Christian School	Inglewood	16298	5790	36.2
PVS054	James McGregory	LA City	32159	8982	27.5
PVS055	Jeff D & Baasha K Johnson Jr.	Inglewood	18415	5475	36.6
PVS056	Jessie Jackson	LA County	34709	4608	27.8
PVS060	Keith & Maria Crisp	LA City	6258	8224	23.5
PVS062	LA Southside Christian Church	Inglewood	19294	-197	39.9
PVS064	Lindgren Ptnrshp 1	Inglewood	13310	7076	27.4
PVS065	San Pedro Academy	LA City	33672	6369	30.0
PVS066	Lucian & Desirine Bingham	Inglewood	14716	11128	18.3
PVS067	Manor Hale-Morris-Lewis	LA County	32753	-466	30.6
PVS069	Michael & Sherry Baker	Inglewood	13205	6854	28.4
PVS070	Michael Hale	Inglewood	15369	3722	32.8
PVS071	Milton Raymond	LA City	2864	13792	17.0
PVS073	Morningside United Church of Christ	Inglewood	24503	5600	33.2
PVS074	Musical Hart Evangelistic Assn Inc	Inglewood	24091	6749	33.1
PVS077	Paul & Willa Devan	LA County	12602	-226	37.1
PVS081	Providence Missionary Baptist	LA City	29676	2047	32.9
PVS082	R Marie Fegan	LA City	32177	6695	31.0
PVS083	Raymond & Carolyn Wilder	Inglewood	17478	5970	35.6
PVS084	Raymond Vanyek	LA County	16261	-881	41.9
PVS085	Riley & Faye Washington	LA City	32138	10688	22.2

Table 4.5-6 (3 of 3)

Average Hourly L_{eq} at Study Area Schools: 2003 Baseline Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	ANSI 35 $L_{eq(h)}$ [3/]
PVS086	Ruth Cooper	LA City	36351	8881	28.2
PVS087	Samuel Amerson	LA County	32298	-1596	26.5
PVS091	St Eugene's Catholic School	LA City	27180	2649	30.1
PVS092	St Marys Academy of LA	Inglewood	18568	9623	21.2
PVS093	St. Anastasia School	LA City	-5793	5899	28.5
PVS099	Twyla Lang	LA City	22860	11024	18.9
PVS101	Verna Nelson	LA City	29432	-911	31.0
PVS103	Westchester Lutheran Church	LA City	3278	9736	22.2
PVS104	Westchester Neighborhood School	LA City	9240	3525	37.2
PVS105	Acacia Baptist School	Hawthorne	14468	-9493	18.6
PVS106	Calvary Christian School	Inglewood	26663	6419	32.9
PVS107	Escuela de Montessori	LA City	3658	5088	32.2
PVS108	Faith Lutheran Church School	Inglewood	23359	6499	33.8
PVS109	K-Anthony's Middle School	Inglewood	18639	3216	28.5
PVS110	Saint Anthony's Catholic School	El Segundo	-573	-8780	24.4
PVS111	St Joseph's Catholic Church School	Hawthorne	16874	-6105	20.0
PVS138	Loyola Marymount University	LA City	-2901	10004	20.5
PBS114	University of West Los Angeles	Inglewood	9739	3976	39.4
PBS116	University of West Los Angeles	Inglewood	8575	4739	40.0

Notes:

1/ Shaded rows indicate schools that were calculated to have sustained $L_{eq(h)}$ levels above 35 dBA, indicating the potential for classroom teaching interruption.

2/ The sites are located by X and Y coordinates in feet. Each X and Y value is a distance measured in feet from the airport reference point on the airport (near the Tom Bradley International Terminal). This type of coordinate system is called the Cartesian or rectangular coordinate system. This system is commonly defined by two axes at right angles (two lines that form a 90-degree angle to each other and are perpendicular) forming a plane (xy plane). The horizontal (moving left or right along the plane) axis is called the x-axis. The opposite is called the vertical (moving up or down along the plane) axis, which is called the y-axis. The point of intersection (where both the x and y axes meet) is called the origin point (depicted as 0,0 point). A unit of length is used to mark along the x and y axes, which forms a grid. To specify a particular point on a two dimensional coordinate system, you indicate the x unit first, followed by the y unit in the form (x,y), an ordered pair. The intersection of the two x-y axes creates four quadrants-northeast, southeast, southwest and northwest. In the northeast quadrant, values are (x,y), and southeast:(-x,y), southwest:(-x,-y) and northwest:(x,-y).

3/ Noise levels are computed by converting 24-hour exterior L_{eq} data to 8-hour exterior L_{eq} data by adding 4.8 L_{eq} to the computed 24-hour level, then subtracting 28.8 decibels for exterior to interior attenuation produced by average construction techniques at area schools (as measured by LAWA), resulting in interior hourly L_{eq} values.

Source: Ricondo and Associates, 2004. Based on LAWA NMD 4th Quarter 2003 INM input; PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.

Prepared by: Ricondo and Associates, Inc.

Tables 4.5-7 and **4.5-8** provide the total number of minutes during school hours that the 84 dBA L_{max} (outdoor maximum level corresponding to 55 dBA indoor, with 29 dBA noise attenuation) and 94 dBA L_{max} (outdoor maximum level corresponding to 65 dBA indoor, with 29 dBA noise attenuation) levels were exceeded, the average number of events that exceeded the threshold, and the average duration of each event in seconds. The data in Table 4.5-7 indicate that, at all the schools exposed to events registering Time Above 84 L_{max}, the total time during the school day when it is exceeded remained below five minutes. The time above the threshold values were the result of as many as 103 daily disruptions. Eight public and 10 private schools were exposed to noise events in excess of the 84 dBA L_{max}. As indicated by Table 4.5-8, no schools had calculated exposure levels above 94 dBA L_{max}.

Table 4.5-9 summarizes the number of public and private schools within the airport environs that are exposed to the significant interior single-event noise levels for the 2003 Baseline condition.

4.5.3.2 Construction Traffic and Equipment Noise

A 2003 Baseline ambient (non-construction) CNEL value was estimated for the areas south of the airport containing noise-sensitive land uses that are within close proximity to the Runway 7R-25L construction site. The representative ambient level was used to determine if project-related construction noise from the site could cause significant noise impacts in noise-sensitive areas. For this analysis, ambient noise levels included sounds from all sources except construction. As illustrated on **Exhibit 4.5-8**, LAWA permanent noise monitoring site ES2 was chosen to provide a conservative representation of an ambient noise level based on (1) the availability of long-term measurement data, (2) aircraft correlated CNELs, and (3) location of noise-sensitive areas closest to the SAIP construction site. Measured noise levels provided by noise monitoring site ES2 were considered conservative due to the site's proximity to the south airfield compared to the closest noise-sensitive sites located along Imperial Highway. Noise-sensitive sites near Imperial Highway would experience higher ambient noise levels than sites near ES2, because of Imperial Highway traffic and aircraft noise, which create an acoustical environment that would likely make construction noise undetectable by the human ear. Using a lower ambient level provides a higher level of sensitivity.

For this analysis, the ambient (non-construction) noise level is the combination of community and aircraft noise (total CNEL) measured at site ES2. The total CNEL for 2003 measured by the LAWA Noise Management Division at site ES2, and therefore the assumed 2003 Baseline noise level at that site for the purposes of this EIR was 70.4 CNEL.

The area of El Segundo around site ES2 is contained within the area exposed to aircraft noise of 65 CNEL and higher (depicted on Exhibit 4.5-5 above). For comparison purposes, single-event aircraft noise levels in these areas can be expected to have peak noise levels above 85 dBA. Other noise sources such as vehicles and gardening equipment typical to urban areas are also found in these areas.

Table 4.5-7 (1 of 3)

84 dBA L_{max} Exterior (55 dBA Interior) Threshold for Teaching Large Groups: 2003 Baseline Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet)[2/]	Y Dist. (feet)[2/]	84 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
	Public Schools						
PBS006	74th Street Elementary School	LA City	27281	10743	0.0	N/A	N/A
PBS009	95th Street Preparatory School	LA County	34094	2313	0.0	N/A	N/A
PBS011	Arena High School	El Segundo	-2515	-6204	0.0	N/A	N/A
PBS017	Boulah Payne Elementary School	Inglewood	14818	3297	0.0	N/A	N/A
PBS018	Bret Harte Junior High School	LA City	35904	3121	0.0	N/A	N/A
PBS019	Buford Elementary School	LA County	12212	-1924	1.5	41.8	2.2
PBS021	Center Street Elementary School	El Segundo	911	-6459	0.0	N/A	N/A
PBS022	Centinela Elementary School	Inglewood	13419	10800	0.0	N/A	N/A
PBS023	Centinela Valley Union High School Dist	Hawthorne	15909	-7797	0.0	N/A	N/A
PBS024	Century park Elementary School	Inglewood	26296	-2314	0.0	N/A	N/A
PBS026	Clyde Woodworth Elementary	Inglewood	23650	-1034	0.0	N/A	N/A
PBS027	Cowan Avenue Elementary School	LA City	172	11002	0.0	N/A	N/A
PBS028	Crozier Middle School	Inglewood	15282	7661	0.0	N/A	N/A
PBS029	Daniel Freeman Elementary School	Inglewood	25282	8750	0.0	N/A	N/A
PBS031	El Segundo Jr. High School	El Segundo	-1003	-8864	0.0	N/A	N/A
PBS032	El Segundo Middle School	El Segundo	-3780	-6609	0.0	N/A	N/A
PBS033	Eucalyptus School	Hawthorne	14499	-7413	0.0	N/A	N/A
PBS035	Felton Elementary School	LA County	12046	-585	1.4	45.3	1.9
PBS036	Figueroa Street Elementary School	LA City	37216	-3113	0.0	N/A	N/A
PBS040	George Washington High School and Magnet Center	LA County	31524	-2029	0.0	N/A	N/A
PBS041	Grace Church of the Nazarene	LA County	32406	-2584	0.0	N/A	N/A
PBS042	Hawthorne High School	Hawthorne	12992	-8938	0.0	N/A	N/A
PBS047	Hillcrest Continuation School	Inglewood	13295	5451	0.7	11.5	3.7
PBS048	Hudnall Elementary School	Inglewood	13951	6710	0.0	N/A	N/A
PBS049	Imperial Avenue School Special Education Facility	El Segundo	-1068	-4601	0.4	4.4	5.4
PBS050	Inglewood High School	Inglewood	14856	6115	0.0	N/A	N/A
PBS054	Inglewood Unified School Dist	Inglewood	16704	9736	0.0	N/A	N/A
PBS055	Jefferson Elementary School	LA County	14713	3	0.5	16.7	1.8
PBS058	Juan de Anza Elementary School	LA County	10708	-7313	0.0	N/A	N/A
PBS059	Kelso Elementary School	Inglewood	18679	5302	0.6	11.3	3.2
PBS061	Kentwood Elementary School	LA City	419	7093	0.0	N/A	N/A
PBS062	LA Unified School Dist	LA City	968	5128	0.0	N/A	N/A
PBS086	LA Unified School Dist	LA City	38040	1964	0.0	N/A	N/A
PBS090	La Salle Avenue Elementary School	LA City	30414	5411	0.0	N/A	N/A
PBS091	Lennox Middle School	LA County	11903	-2672	0.0	N/A	N/A
PBS098	Loren Miller Elementary School	LA City	35517	9615	0.0	N/A	N/A
PBS099	Loyola Village Elementary School	LA City	-4391	5512	0.0	N/A	N/A
PBS100	Manchester Avenue Elementary School	LA City	36630	5989	0.0	N/A	N/A
PBS101	Manhattan Place Elementary School	LA City	29058	2028	0.0	N/A	N/A
PBS102	Moffet Elementary School	LA County	17390	-2628	0.0	N/A	N/A
PBS105	Oak Street Elementary School	Inglewood	11840	4627	1.7	36.7	2.8
PBS106	Orville Wright Junior High School	LA City	808	9178	0.0	N/A	N/A
PBS107	Paseo del Rey Magnet School	LA City	-8294	5322	0.0	N/A	N/A
PBS111	Raymond Avenue Elementary School	LA City	32576	10502	0.0	N/A	N/A
PBS113	Sung & Keum Kim	LA City	34981	4193	0.0	N/A	N/A
PBS117	Warren Lane Elementary School	Inglewood	24929	3265	0.0	N/A	N/A
PBS120	Westchester High School and Magnet Center	LA City	-6877	5485	0.0	N/A	N/A
PBS121	Westchester High School and Magnet Center	LA City	-6871	5484	0.0	N/A	N/A

Table 4.5-7 (2 of 3)

84 dBA L_{max} Exterior (55 dBA Interior) Threshold for Teaching Large Groups: 2003 Baseline Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	84 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
PBS122	Westpoint Heights Elementary School	LA City	5515	8945	0.0	N/A	N/A
PBS123	Whelan Elementary School	LA County	18043	-527	2.9	70.8	2.5
PBS125	Woodcrest Elementary School	LA County	33837	-1843	0.0	N/A	N/A
PBS127	Worthington Elementary School	Inglewood	21457	-3062	0.0	N/A	N/A
PBS128	York School	Hawthorne	18588	-5939	0.0	N/A	N/A
PBS140	Morningside High School	Inglewood	22487	-1032	0.0	N/A	N/A
PBS201	Monroe Middle School	Inglewood	23648	-1395	0.0	N/A	N/A
	Private Schools						
PVS001	Los Angeles Urban League	LA City	37733	11384	0.0	N/A	N/A
PVS002	Archdiocese of Los Angeles Educ	LA City	37336	-3455	0.0	N/A	N/A
PVS003	Archdiocese of LA Educ	LA County	34483	5967	0.0	N/A	N/A
PVS004	Archdiocese of LA Educ	LA City	27097	2468	0.0	N/A	N/A
PVS007	Archdiocese of LA Educ & Welfare Corp	LA City	-7778	4626	0.0	N/A	N/A
PVS011	Archdiocese of LA Educ & Welfare Corp	LA City	833	5679	0.0	N/A	N/A
PVS012	Archdiocese of LA Educ & Welfare Corp	LA City	771	5989	0.0	N/A	N/A
PVS017	Archdiocese of LA Educ & Welfare Corp	LA City	34119	6123	0.0	N/A	N/A
PVS025	Australia Johnson	Inglewood	12977	12319	0.0	N/A	N/A
PVS026	Bethany Apostolic Church	LA City	36140	6964	0.0	N/A	N/A
PVS028	Brady & Margaret Johnson	Inglewood	24379	5761	0.0	N/A	N/A
PVS029	Brady & Margaret Johnson Jr.	Inglewood	23982	7178	0.0	N/A	N/A
PVS030	Carolyn & Stacey Carol Jenkins	LA City	28850	11455	0.0	N/A	N/A
PVS031	Chabad of the Marina	LA City	-12447	6370	0.0	N/A	N/A
PVS033	Community Build Inc	LA City	34984	5635	0.0	N/A	N/A
PVS034	Constance Tucker	LA City	29461	-1469	0.0	N/A	N/A
PVS035	Crenshaw Christian Center Church	LA City	34140	9211	0.0	N/A	N/A
PVS036	Dorothy Moore	LA City	25423	11457	0.0	N/A	N/A
PVS037	Edgar Palmer	LA City	29435	-516	0.0	N/A	N/A
PVS044	Gary & Linda Dunn	Inglewood	13506	6729	0.0	N/A	N/A
PVS046	Glen & Marjorie McKnight	LA County	29009	-4204	0.0	N/A	N/A
PVS048	Hilltop Christian School	El Segundo	-501	-8326	0.0	N/A	N/A
PVS049	Iglesia Cristiana Juan 3:16	LA City	34967	2020	0.0	N/A	N/A
PVS051	Inglewood Christian School	Inglewood	16298	5790	0.6	10.5	3.4
PVS054	James McGregory	LA City	32159	8982	0.0	N/A	N/A
PVS055	Jeff D & Baasha K Johnson Jr.	Inglewood	18415	5475	0.6	12.1	3.0
PVS056	Jessie Jackson	LA County	34709	4608	0.0	N/A	N/A
PVS060	Keith & Maria Crisp	LA City	6258	8224	0.0	N/A	N/A
PVS062	LA Southside Christian Church	Inglewood	19294	-197	2.0	43.7	2.7
PVS064	Lindgren Ptnrshp 1	Inglewood	13310	7076	0.0	N/A	N/A
PVS065	San Pedro Academy	LA City	33672	6369	0.0	N/A	N/A
PVS066	Lucian & Desirine Bingham	Inglewood	14716	11128	0.0	N/A	N/A
PVS067	Manor Hale-Morris-Lewis	LA County	32753	-466	0.0	N/A	N/A
PVS069	Michael & Sherry Baker	Inglewood	13205	6854	0.0	N/A	N/A
PVS070	Michael Hale	Inglewood	15369	3722	0.1	1.0	5.8
PVS071	Milton Raymond	LA City	2864	13792	0.0	N/A	N/A
PVS073	Morningside United Church of Christ	Inglewood	24503	5600	0.0	N/A	N/A
PVS074	Musical Hart Evangelistic Assn Inc	Inglewood	24091	6749	0.0	N/A	N/A
PVS077	Paul & Willa Devan	LA County	12602	-226	0.4	18.6	1.3
PVS081	Providence Missionary Baptist	LA City	29676	2047	0.0	N/A	N/A
PVS082	R Marie Fegan	LA City	32177	6695	0.0	N/A	N/A
PVS083	Raymond & Carolyn Wilder	Inglewood	17478	5970	0.5	10.0	3.0
PVS084	Raymond Vanyek	LA County	16261	-881	4.7	103.0	2.7
PVS085	Riley & Faye Washington	LA City	32138	10688	0.0	N/A	N/A

Table 4.5-7 (3 of 3)

84 dBA L_{max} Exterior (55 dBA Interior) Threshold for Teaching Large Groups: 2003 Baseline Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	84 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
PVS086	Ruth Cooper	LA City	36351	8881	0.0	N/A	N/A
PVS087	Samuel Amerson	LA County	32298	-1596	0.0	N/A	N/A
PVS091	St Eugene's Catholic School	LA City	27180	2649	0.0	N/A	N/A
PVS092	St Marys Academy of LA	Inglewood	18568	9623	0.0	N/A	N/A
PVS093	St. Anastasia School	LA City	-5793	5899	0.0	N/A	N/A
PVS099	Twyla Lang	LA City	22860	11024	0.0	N/A	N/A
PVS101	Verna Nelson	LA City	29432	-911	0.0	N/A	N/A
PVS103	Westchester Lutheran Church	LA City	3278	9736	0.0	N/A	N/A
PVS104	Westchester Neighborhood School	LA City	9240	3525	0.8	16.6	2.9
PVS105	Acacia Baptist School	Hawthorne	14468	-9493	0.0	N/A	N/A
PVS106	Calvary Christian School	Inglewood	26663	6419	0.0	N/A	N/A
PVS107	Escuela de Montessori	LA City	3658	5088	0.0	N/A	N/A
PVS108	Faith Lutheran Church School	Inglewood	23359	6499	0.0	N/A	N/A
PVS109	K-Anthony's Middle School	Inglewood	18639	3216	0.0	N/A	N/A
PVS110	Saint Anthony's Catholic School	El Segundo	-573	-8780	0.0	N/A	N/A
PVS111	St Joseph's Catholic Church School	Hawthorne	16874	-6105	0.0	N/A	N/A
PVS138	Loyola Marymount University	LA City	-2901	10004	0.0	N/A	N/A
PBS114	University of West Los Angeles	Inglewood	9739	3976	1.3	24.9	3.1
PBS116	University of West Los Angeles	Inglewood	8575	4739	1.9	36.7	3.1

Notes:

1/ Shaded rows indicate schools that were calculated to have L_{max} levels above 84 dBA, indicating the potential for classroom teaching interruption.

2/ The sites are located by X and Y coordinates in feet. Each X and Y value is a distance measured in feet from the airport reference point on the airport (near the Tom Bradley International Terminal.) This type of coordinate system is called the Cartesian or rectangular coordinate system. This system is commonly defined by two axes at right angles (two lines that form a 90-degree angle to each other and are perpendicular) forming a plane (xy plane). The horizontal (moving left or right along the plane) axis is called the x-axis. The opposite is called the vertical (moving up or down along the plane) axis, which is called the y-axis. The point of intersection (where both the x and y axes meet) is called the origin point (depicted as 0,0 point). A unit of length is used to mark along the x and y axes, which forms a grid. To specify a particular point on a two dimensional coordinate system, you indicate the x unit first, followed by the y unit in the form (x,y), an ordered pair. The intersection of the two x-y axes creates four quadrants-northeast, southeast, southwest and northwest. In the northeast quadrant, values are (x,y), and southeast:(-x,y), southwest:(-x,-y) and northwest:(x,-y).

3/ N/A = Not applicable.
TA = Total number of minutes per school day that aircraft noise exceeds exterior 84 dBA L_{max}.
NA = Number of events that exceed exterior 84 dBA L_{max} during an average school day.
Avg. D = Average duration in seconds of each event that exceeds exterior 84 dBA L_{max} during the average school day.

Source: Ricondo and Associates, 2004. Based on LAWA NMD 4th Quarter 2003 INM input; PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.

Prepared by: Ricondo and Associates, Inc.

Table 4.5-8 (1 of 3)

94 dBA L_{max} Exterior (65 dBA Interior) Threshold for Teaching Small Groups: 2003 Baseline Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	94 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
	Public Schools						
PBS006	74th Street Elementary School	LA City	27281	10743	0.0	N/A	N/A
PBS009	95th Street Preparatory School	LA County	34094	2313	0.0	N/A	N/A
PBS011	Arena High School	El Segundo	-2515	-6204	0.0	N/A	N/A
PBS017	Boulah Payne Elementary School	Inglewood	14818	3297	0.0	N/A	N/A
PBS018	Bret Harte Junior High School	LA City	35904	3121	0.0	N/A	N/A
PBS019	Buford Elementary School	LA County	12212	-1924	0.0	N/A	N/A
PBS021	Center Street Elementary School	El Segundo	911	-6459	0.0	N/A	N/A
PBS022	Centinela Elementary School	Inglewood	13419	10800	0.0	N/A	N/A
PBS023	Centinela Valley Union High School Dist	Hawthorne	15909	-7797	0.0	N/A	N/A
PBS024	Century park Elementary School	Inglewood	26296	-2314	0.0	N/A	N/A
PBS026	Clyde Woodworth Elementary	Inglewood	23650	-1034	0.0	N/A	N/A
PBS027	Cowan Avenue Elementary School	LA City	172	11002	0.0	N/A	N/A
PBS028	Crozier Middle School	Inglewood	15282	7661	0.0	N/A	N/A
PBS029	Daniel Freeman Elementary School	Inglewood	25282	8750	0.0	N/A	N/A
PBS031	El Segundo Jr. High School	El Segundo	-1003	-8864	0.0	N/A	N/A
PBS032	El Segundo Middle School	El Segundo	-3780	-6609	0.0	N/A	N/A
PBS033	Eucalyptus School	Hawthorne	14499	-7413	0.0	N/A	N/A
PBS035	Felton Elementary School	LA County	12046	-585	0.0	N/A	N/A
PBS036	Figueroa Street Elementary School	LA City	37216	-3113	0.0	N/A	N/A
PBS040	George Washington High School and Magnet Center	LA County	31524	-2029	0.0	N/A	N/A
PBS041	Grace Church of the Nazarene	LA County	32406	-2584	0.0	N/A	N/A
PBS042	Hawthorne High School	Hawthorne	12992	-8938	0.0	N/A	N/A
PBS047	Hillcrest Continuation School	Inglewood	13295	5451	0.0	N/A	N/A
PBS048	Hudnall Elementary School	Inglewood	13951	6710	0.0	N/A	N/A
PBS049	Imperial Avenue School Special Education Facility	El Segundo	-1068	-4601	0.0	N/A	N/A
PBS050	Inglewood High School	Inglewood	14856	6115	0.0	N/A	N/A
PBS054	Inglewood Unified School Dist	Inglewood	16704	9736	0.0	N/A	N/A
PBS055	Jefferson Elementary School	LA County	14713	3	0.0	N/A	N/A
PBS058	Juan de Anza Elementary School	LA County	10708	-7313	0.0	N/A	N/A
PBS059	Kelso Elementary School	Inglewood	18679	5302	0.0	N/A	N/A
PBS061	Kentwood Elementary School	LA City	419	7093	0.0	N/A	N/A
PBS062	LA Unified School Dist	LA City	968	5128	0.0	N/A	N/A
PBS086	LA Unified School Dist	LA City	38040	1964	0.0	N/A	N/A
PBS090	La Salle Avenue Elementary School	LA City	30414	5411	0.0	N/A	N/A
PBS091	Lennox Middle School	LA County	11903	-2672	0.0	N/A	N/A
PBS098	Loren Miller Elementary School	LA City	35517	9615	0.0	N/A	N/A
PBS099	Loyola Village Elementary School	LA City	-4391	5512	0.0	N/A	N/A
PBS100	Manchester Avenue Elementary School	LA City	36630	5989	0.0	N/A	N/A
PBS101	Manhattan Place Elementary School	LA City	29058	2028	0.0	N/A	N/A
PBS102	Moffet Elementary School	LA County	17390	-2628	0.0	N/A	N/A
PBS105	Oak Street Elementary School	Inglewood	11840	4627	0.0	N/A	N/A
PBS106	Orville Wright Junior High School	LA City	808	9178	0.0	N/A	N/A
PBS107	Paseo del Rey Magnet School	LA City	-8294	5322	0.0	N/A	N/A
PBS111	Raymond Avenue Elementary School	LA City	32576	10502	0.0	N/A	N/A
PBS113	Sung & Keum Kim	LA City	34981	4193	0.0	N/A	N/A
PBS117	Warren Lane Elementary School	Inglewood	24929	3265	0.0	N/A	N/A
PBS120	Westchester High School and Magnet Center	LA City	-6877	5485	0.0	N/A	N/A
PBS121	Westchester High School and Magnet Center	LA City	-6871	5484	0.0	N/A	N/A

Table 4.5-8 (2 of 3)

94 dBA L_{max} Exterior (65 dBA Interior) Threshold for Teaching Small Groups: 2003 Baseline Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	94 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
PBS122	Westpoint Heights Elementary School	LA City	5515	8945	0.0	N/A	N/A
PBS123	Whelan Elementary School	LA County	18043	-527	0.0	N/A	N/A
PBS125	Woodcrest Elementary School	LA County	33837	-1843	0.0	N/A	N/A
PBS127	Worthington Elementary School	Inglewood	21457	-3062	0.0	N/A	N/A
PBS128	York School	Hawthorne	18588	-5939	0.0	N/A	N/A
PBS140	Morningside High School	Inglewood	22487	-1032	0.0	N/A	N/A
PBS201	Monroe Middle School	Inglewood	23648	-1395	0.0	N/A	N/A
	Private Schools						
PVS001	Los Angeles Urban League	LA City	37733	11384	0.0	N/A	N/A
PVS002	Archdiocese of Los Angeles Educ	LA City	37336	-3455	0.0	N/A	N/A
PVS003	Archdiocese of LA Educ	LA County	34483	5967	0.0	N/A	N/A
PVS004	Archdiocese of LA Educ	LA City	27097	2468	0.0	N/A	N/A
PVS007	Archdiocese of LA Educ & Welfare Corp	LA City	-7778	4626	0.0	N/A	N/A
PVS011	Archdiocese of LA Educ & Welfare Corp	LA City	833	5679	0.0	N/A	N/A
PVS012	Archdiocese of LA Educ & Welfare Corp	LA City	771	5989	0.0	N/A	N/A
PVS017	Archdiocese of LA Educ & Welfare Corp	LA City	34119	6123	0.0	N/A	N/A
PVS025	Australia Johnson	Inglewood	12977	12319	0.0	N/A	N/A
PVS026	Bethany Apostolic Church	LA City	36140	6964	0.0	N/A	N/A
PVS028	Brady & Margaret Johnson	Inglewood	24379	5761	0.0	N/A	N/A
PVS029	Brady & Margaret Johnson Jr.	Inglewood	23982	7178	0.0	N/A	N/A
PVS030	Carolyn & Stacey Carol Jenkins	LA City	28850	11455	0.0	N/A	N/A
PVS031	Chabad of the Marina	LA City	-12447	6370	0.0	N/A	N/A
PVS033	Community Build Inc	LA City	34984	5635	0.0	N/A	N/A
PVS034	Constance Tucker	LA City	29461	-1469	0.0	N/A	N/A
PVS035	Crenshaw Christian Center Church	LA City	34140	9211	0.0	N/A	N/A
PVS036	Dorothy Moore	LA City	25423	11457	0.0	N/A	N/A
PVS037	Edgar Palmer	LA City	29435	-516	0.0	N/A	N/A
PVS044	Gary & Linda Dunn	Inglewood	13506	6729	0.0	N/A	N/A
PVS046	Glen & Marjorie McKnight	LA County	29009	-4204	0.0	N/A	N/A
PVS048	Hilltop Christian School	El Segundo	-501	-8326	0.0	N/A	N/A
PVS049	Iglesia Cristiana Juan 3:16	LA City	34967	2020	0.0	N/A	N/A
PVS051	Inglewood Christian School	Inglewood	16298	5790	0.0	N/A	N/A
PVS054	James McGregory	LA City	32159	8982	0.0	N/A	N/A
PVS055	Jeff D & Baasha K Johnson Jr.	Inglewood	18415	5475	0.0	N/A	N/A
PVS056	Jessie Jackson	LA County	34709	4608	0.0	N/A	N/A
PVS060	Keith & Maria Crisp	LA City	6258	8224	0.0	N/A	N/A
PVS062	LA Southside Christian Church	Inglewood	19294	-197	0.0	N/A	N/A
PVS064	Lindgren Ptnrshp 1	Inglewood	13310	7076	0.0	N/A	N/A
PVS065	San Pedro Academy	LA City	33672	6369	0.0	N/A	N/A
PVS066	Lucian & Desirine Bingham	Inglewood	14716	11128	0.0	N/A	N/A
PVS067	Manor Hale-Morris-Lewis	LA County	32753	-466	0.0	N/A	N/A
PVS069	Michael & Sherry Baker	Inglewood	13205	6854	0.0	N/A	N/A
PVS070	Michael Hale	Inglewood	15369	3722	0.0	N/A	N/A
PVS071	Milton Raymond	LA City	2864	13792	0.0	N/A	N/A
PVS073	Morningside United Church of Christ	Inglewood	24503	5600	0.0	N/A	N/A
PVS074	Musical Hart Evangelistic Assn Inc	Inglewood	24091	6749	0.0	N/A	N/A
PVS077	Paul & Willa Devan	LA County	12602	-226	0.0	N/A	N/A
PVS081	Providence Missionary Baptist School?	LA City	29676	2047	0.0	N/A	N/A
PVS082	R Marie Fegan	LA City	32177	6695	0.0	N/A	N/A
PVS083	Raymond & Carolyn Wilder	Inglewood	17478	5970	0.0	N/A	N/A
PVS084	Raymond Vanyek	LA County	16261	-881	0.0	N/A	N/A
PVS085	Riley & Faye Washington	LA City	32138	10688	0.0	N/A	N/A

Table 4.5-8 (3 of 3)

94 dBA L_{max} Exterior (65 dBA Interior) Threshold for Teaching Small Groups: 2003 Baseline Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	94 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
PVS086	Ruth Cooper	LA City	36351	8881	0.0	N/A	N/A
PVS087	Samuel Amerson	LA County	32298	-1596	0.0	N/A	N/A
PVS091	St Eugene's Catholic School	LA City	27180	2649	0.0	N/A	N/A
PVS092	St Marys Academy of LA	Inglewood	18568	9623	0.0	N/A	N/A
PVS093	St. Anastasia School	LA City	-5793	5899	0.0	N/A	N/A
PVS099	Twyla Lang	LA City	22860	11024	0.0	N/A	N/A
PVS101	Verna Nelson	LA City	29432	-911	0.0	N/A	N/A
PVS103	Westchester Lutheran Church	LA City	3278	9736	0.0	N/A	N/A
PVS104	Westchester Neighborhood School	LA City	9240	3525	0.0	N/A	N/A
PVS105	Acacia Baptist School	Hawthorne	14468	-9493	0.0	N/A	N/A
PVS106	Calvary Christian School	Inglewood	26663	6419	0.0	N/A	N/A
PVS107	Escuela de Montessori	LA City	3658	5088	0.0	N/A	N/A
PVS108	Faith Lutheran Church School	Inglewood	23359	6499	0.0	N/A	N/A
PVS109	K-Anthony's Middle School	Inglewood	18639	3216	0.0	N/A	N/A
PVS110	Saint Anthony's Catholic School	El Segundo	-573	-8780	0.0	N/A	N/A
PVS111	St Joseph's Catholic Church School	Hawthorne	16874	-6105	0.0	N/A	N/A
PVS138	Loyola Marymount University	LA City	-2901	10004	0.0	N/A	N/A
PBS114	University of West Los Angeles	Inglewood	9739	3976	0.0	N/A	N/A
PBS116	University of West Los Angeles	Inglewood	8575	4739	0.0	N/A	N/A

Notes:

1/ Shaded rows indicate schools that were calculated to have L_{max} levels above 94 dBA, indicating the potential for classroom teaching interruption.

2/ The sites are located by X and Y coordinates in feet. Each X and Y value is a distance measured in feet from the airport reference point on the airport (near the Tom Bradley International Terminal.) This type of coordinate system is called the Cartesian or rectangular coordinate system. This system is commonly defined by two axes at right angles (two lines that form a 90-degree angle to each other and are perpendicular) forming a plane (xy plane). The horizontal (moving left or right along the plane) axis is called the x-axis. The opposite is called the vertical (moving up or down along the plane) axis, which is called the y-axis. The point of intersection (where both the x and y axes meet) is called the origin point (depicted as 0,0 point). A unit of length is used to mark along the x and y axes, which forms a grid. To specify a particular point on a two dimensional coordinate system, you indicate the x unit first, followed by the y unit in the form (x,y), an ordered pair. The intersection of the two x-y axes creates four quadrants-northeast, southeast, southwest and northwest. In the northeast quadrant, values are (x,y), and southeast:(-x,y), southwest:(-x,-y) and northwest:(x,-y).

3/ N/A = Not applicable.
TA = Total number of minutes per school day that aircraft noise exceeds exterior 94 dBA L_{max}.
NA = Number of events that exceed exterior 94 dBA L_{max} during an average school day.
Avg. D = Average duration in seconds of each event that exceeds exterior 94 dBA L_{max} during the average school day.

Source: Ricondo and Associates, 2004. Based on LAWA NMD 4th Quarter 2003 INM input; PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.
Prepared by: Ricondo and Associates, Inc.

Table 4.5-9

Schools Exposed to Significant Interior Single Event Noise Levels: 2003 Baseline Conditions

Impact Category	2003 Baseline
Exposure ≥ 55 dBA (L_{max})	
Number of Public Schools	8
Number of Private Schools	10
Average Number of Events/School	28.6
Average Seconds/Event	3.0
Exposure ≥ 65 dBA (L_{max})	
Number of Public Schools	0
Number of Private Schools	0
Exposure ≥ 35 dBA ($L_{eq(h)}$)	
Number of Public Schools	9
Number of Private Schools	9

Source: Ricondo and Associates, 2004. Based on LAWA NMD 4th Quarter 2003 INM input; PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.

Prepared by: Ricondo and Associates, Inc.

Source: Psomas, April 2000 - land use data; PCR Inc , 2002 - GIS datasets and mapping; HNTB 2004 - staging area and construction site boundries; Ricondo & Associates, Inc., 2004 - 500 ft buffer
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-8

South Airfield Improvememt Project Construction Noise Impact Area

4.5.4 Thresholds of Significance

Aircraft and construction impact noise was analyzed by comparing the Project (2005) condition to the 2003 Baseline condition. The measures of significance are consistent with those found in the *Draft L.A. CEQA Thresholds Guide* and are the same as those presented in Section 4.1, Section 4.2, and Appendix S-C1 of the LAX Master Plan Final EIR.

4.5.4.1 Aircraft Noise

A significant aircraft noise impact would occur as a result of the SAIP if the direct and indirect changes in the environment that may be caused by the particular project alternative would potentially result in one or more of the following future conditions:

- Noise-sensitive areas are newly exposed to 65 CNEL and higher, compared with the 2003 baseline condition.
- Residential areas having habitable exterior areas including balconies, patios and yards are newly exposed to 75 CNEL and higher.
- Noise-sensitive areas within the area exposed to aircraft noise 65 CNEL and higher experience an increase of 1.5 CNEL or greater compared with 2003 baseline conditions.

The first two thresholds are derived from the California Airports Noise Standards (Title 21). The third threshold is derived from FAA Order 5050.4A and FAA Order 1050.1E and is accepted here as a CEQA threshold of significance to describe significant increases in noise exposure.

The City of Los Angeles has adopted federal guidance set forth by FICON criteria to require the presentation of noise-sensitive uses exposed to 60 to 65 CNEL experiencing an increase of 3 CNEL when there are 1.5 CNEL increases within the area exposed to 65 CNEL and higher. Additionally, increases of 5 CNEL in areas exposed to less than 60 CNEL are to be considered for CEQA analyses.[25] This supplemental information regarding changes in exposure in areas exposed to aircraft noise less than 65 CNEL does not imply that there is a significant impact, but is provided to the public and decision-makers for informational purposes.

For reasons documented above in Subsection 4.5.2.2, LAWA, as the lead CEQA agency for the LAX Master Plan EIS/EIR, developed appropriate thresholds of significance regarding single event noise effects, based on a comprehensive review of existing studies and research literature pertaining to the issue. It should be noted that the thresholds of significance developed by LAWA are intended solely for use in the CEQA evaluation of the LAX Master Plan and related projects such as this project.

Thresholds of significance for single event aircraft noise effects were established for two forms of potential activity interference: sleep disturbance and learning in the classroom.[26] The threshold of significance for sleep disturbance is that a significant impact is considered to occur when:

[25] City of Los Angeles, *Draft L.A. CEQA Thresholds Guide*, May 14, 1998.
[26] The California Airport Land Use Planning Handbook discusses the relevance of single event noise to land use planning evaluations in the environs of airports in California at pages 7-30 through 7-34, and concludes that no definitive, widely-recognized, single-event noise level guidelines currently exist relative to land use compatibility planning.

- Dwellings are newly exposed to exterior nighttime SEL[27] levels sufficient to awaken at least 10 percent (*i.e.*, the threshold conservatively considers a relatively small subset of the general population that may be particularly sensitive to single event noise as a cause of nighttime awakening) of the area population being awakened at least once in 10 days, assuming windows remain open. At LAX, the SEL threshold of significance for sleep disturbance is exterior nighttime noise of 94 dBA SEL.

The thresholds of significance for classroom disruption are that a significant impact is considered to occur when:

- Schools are newly exposed to interior noise levels of 55 dBA L_{max}[28] or higher for at least a three second duration during school hours. This threshold level was determined as an indicator for potential momentary disruption of speech intelligibility in large group teaching situations (assumed to be at 20 feet). Considering average school structure attenuation of 29 dBA, the corresponding exterior level is 84 dBA.
- Schools are newly exposed to interior noise levels of 65 dBA L_{max} or higher for at least a three second duration during school hours. This level may cause momentarily disruption of speech intelligibility in small group and one-on-one teaching situations (assumed to be at 6 feet). Considering average school structure attenuation of 29 dBA, the corresponding exterior level is 94 dBA.
- Schools are newly exposed to interior average hourly noise levels in excess of 35 $L_{eq(h)}$[29]. LAX considers this level to be sufficient to result in sustained potential interruption of classroom teaching. At LAX, the threshold of significance equates to an exterior hourly average noise level during school hours of 64 dBA $L_{eq(h)}$.

The evolution of specific thresholds of significance for single event noise levels at the airport is disclosed in Section 4.1 and Appendix S-C1 of the LAX Master Plan Final EIR. The thresholds of significance for single event aircraft noise were developed and tailored for the airport because: (1) there are no "standard" thresholds of significance, and (2) CEQA Guidelines allow the lead agency to establish suitable thresholds and the Berkeley Jets decision emphasized that responsibility. The established thresholds are applicable only to the specific conditions at the airport and should not be generally applied to single event evaluations at other locations.

4.5.4.2 Construction Traffic Noise (Off-Airport)

For CEQA purposes, the *Draft L.A. CEQA Thresholds Guide* states that a significant road traffic noise impact would occur if the direct and indirect changes in the environment that may be caused by the particular project alternative would potentially result in one or more of the following future conditions:

- The project results in a noise sensitive receptor newly experiencing an increase of 5 dBA $Leq_{(h)}$ in peak hour noise levels compared with baseline conditions.

[27] The single event SEL metric mathematically considers all the noise energy produced by a single operation and compresses that energy to a single second, resulting in a level that is normally several decibels (dB) greater than the maximum noise level recorded during the event

[28] L_{max}: maximum level of a noise event.

[29] $L_{eq(h)}$: hourly equivalent noise level or hourly average noise level.

- For new highway facilities, the project results in a noise sensitive receptor experiencing an hourly L_{eq} of 67 dBA or greater compared with baseline conditions.

These thresholds were adopted because they address the physical impacts of the environment and because they are contained in the *Draft L.A. CEQA Thresholds Guide* and in the Traffic Noise Analysis Protocol, respectively (October 1998, California Department of Transportation). The second threshold does not apply to this analysis, because the SAIP does not have a new highway component. The threshold is consistent with that used for the LAX Master Plan Final EIR.[30]

4.5.4.3 Construction Equipment Noise (On-Airport)

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 on 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.
- Construction activities would exceed the ambient exterior noise levels 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 anytime on Sunday.

The thresholds were adopted for this EIR, because they address physical impacts on the environment and are included in the *Draft L.A. CEQA Thresholds Guide*. Because construction is scheduled to occur for more than 10 days with work hours spanning into nighttime hours, the second and third thresholds above were applied to the SAIP construction equipment noise analysis.

4.5.5 LAX Master Plan Commitments and Mitigation Measures

4.5.5.1 Aircraft Noise

LAWA has a long history of addressing aircraft noise. Many of the noise exposure problems were dealt with in the adopted 1985 FAR Part 150 Noise Compatibility Program for the airport. The program included a number of commitments to abate aircraft noise (reducing it at the source) and mitigate the adverse impacts that remain after abatement measures have been implemented. Of the 28 measures approved by the FAA, 7 are directly related to noise abatement and 21 include measures such as flight monitoring, sound insulation of residences and other noise sensitive facilities, land use measures to improve compatibility, and funding mechanisms.

Aircraft operational measures designed to abate noise included:

- Preferred use of inboard runways for departures and arrivals and interior parallel taxiways for operations between 10 p.m. and 7 a.m. This measure is intended to move nighttime noise closer to the center of the airfield and away from nearby homes.
- Use "over ocean" procedures between midnight and 6:30 a.m., weather permitting, such that aircraft arrive from the west and depart to the west, thereby avoiding overflight of land areas.

[30] Los Angeles World Airports, *Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*, April 2004, Section 4.1.4.2.1.

- Depart to the west along the runway heading until reaching the coastline, rather than turning sooner over populated areas.
- Ban the use of SuperSonic Transport (SST) aircraft at LAX.
- Restrict engine run-up activity (for maintenance engine-testing purposes) between 11 p.m. and 6 a.m. unless specific approval is granted by airport management.
- Allow the use of reduced thrust departures during west flow operations to reduce aircraft noise to the side of the departure path. Reduced thrust procedures involve using less than full engine power for the take-off roll and early climb phase of the departure.
- Discourage the use of reduced thrust procedures when aircraft depart to the east. A concern with of reduced thrust is that the aircraft does not gain altitude as rapidly, and creates noise on the ground for a longer period of time.
- Encourage the use of departure cut-back procedures in accordance with FAA Advisory Circular (AC) 91-53A, *Noise Abatement Departure Profiles*. This AC specifies two noise abatement departure procedures, one designed to reduce noise close-in, at the expense of a longer noise footprint on the ground, and the second designed to reduce noise at medium distances from an airport. The intent of the procedures is to reduce noise in the most severely affected off-airport area.
- Continue the use of tug-and-tow procedures whereby aircraft are towed with their engines off when in the Imperial Terminal area, close to adjacent neighborhoods. This measure would reduce aircraft ground noise impacts.
- Retain the acoustical barrier along the north side of the airfield adjacent to 88th Street in the Emerson Manor community.

All of these measures, as applicable, were incorporated into the 2003 Baseline conditions and would be continued during construction of and after the completion of the SAIP as stated in the LAX Master Plan Commitment N-1, *Maintenance of Applicable Elements of Existing Aircraft Noise Abatement Program* of the LAX Master Plan MMRP. Accordingly, these mitigation measures were incorporated into the analysis of Project (2005) conditions where feasible while Runway 7R-25L is closed. No other LAX Master Plan MMRP measures were incorporated as part of Project (2005) conditions because, as explained further in Section 4.5.8, those measures would not eliminate or reduce potential significant aircraft noise impacts caused by the temporary modifications in aircraft noise patterns during the SAIP construction period.

In addition to LAX Master Plan Commitment N-1, the following mitigation measures identified in the LAX Master Plan MMRP would apply to the normal operation of the SAIP after completion of project construction:

- **MM-N-4. Update the Aircraft Noise Abatement Program Elements as Applicable to Adapt to the Future Airfield Configuration** – This measure applies to runways that are relocated or reconstructed and that require aircraft noise abatement procedures to be modified and re-established to ensure continuation of the intent of the existing program. During construction, the existing runways would be utilized while Runway 7R-25L is closed. The operation of the SAIP after project construction would include updated procedures for the relocated Runway 7R-25L, which maintain current elements of the aircraft noise abatement program as evaluated in the LAX Master Plan Final EIR, Appendix S-C1, Section 3.1.6 for 2005 and 2015.

- **MM-N-5. Conduct FAR Part 161 Study to Make Over-Ocean Procedures Mandatory** – This measure does not directly apply to the SAIP, but has been initiated by LAWA to evaluate the potential to make over-ocean aircraft noise abatement procedures mandatory. It is not expected that the FAR Part 161 application process to the FAA will be completed until after construction of the SAIP. Because it is uncertain as to whether the requisite FAA approval or airline agreement will be obtained before completion of SAIP construction, this mitigation measure was not included in the analysis of construction-related aircraft noise impacts.
- **MM-LU-1. Implement Revised Aircraft Noise Mitigation Program** – The ANMP program is designed to achieve full compatibility of all land uses within the existing noise impact area through (1) sound insulation of structures and (2) the acquisition and conversion of incompatible land use to compatible land use. Although the ANMP will be accelerated during the term of the SAIP, it is not anticipated that the program will be completed during the construction period due to the lengthy implementation process for Mitigation Measure MM-LU-1 and the short-term and temporary nature of the construction aircraft noise impacts. Therefore, this measure is not applicable to reducing temporary and short-term aircraft noise impacts while Runway 7R-25L is closed. The ongoing ANMP will continue to offer sound insulation to eligible dwellings identified within the 1992 65 CNEL noise exposure area.
- **MM-LU-2. Incorporate Residential Dwelling Units Exposed to Single Event Awakenings Threshold into the Aircraft Noise Mitigation Program** – In addition to any restrictive measures that may be implemented resulting from completion of Mitigation Measure MM-N-5, the ANMP boundaries will be expanded to include residential uses newly exposed to single event exterior nighttime noise of 94 dBA SEL. Uses that are newly exposed will be identified based on average annual conditions as derived from the most current monitoring data.

  As documented in the LAX Master Plan Final EIR, Appendix S-C1:

  > Mitigation of the areas newly exposed to significant levels of nighttime single events will be sought through two techniques: The first will be the preparation of a 14 CFR Part 161 application to the FAA to limit the number of operations east of the airport during nighttime hours (midnight to 6:30 a.m.). The second will be that any area remaining within the newly exposed area of significant exposure subsequent to the implementation of operational restrictions, or should operational restrictions not be approved, would become eligible for sound insulation through expansion of the boundaries of the ANMP.[31]

  Based on the recommendation set forth in the *Supplemental Aircraft Noise Technical Report*, "Should the FAA not approve making over-ocean procedures mandatory, it is recommended, as the second mitigation technique, that these dwellings be added to the noise mitigation program now underway around LAX, and that their place of priority be after the sound insulation of dwellings that are located in the CNEL contour for the selected future alternative development plan.[32]"

[31] Los Angeles World Airports. Appendix S-C1: *Supplemental Aircraft Noise Technical Report*. June 2003. page 147.
[32] Los Angeles World Airports. Appendix S-C1: "*Supplemental Aircraft Noise Technical Report*". June 2003. page 148.

Based on the timing of the FAR Part 161 application process, the lengthy implementation process for Mitigation Measure MM-LU-2, and the short-term and temporary nature of the construction-related aircraft noise impacts, it is not expected that this measure would be implemented during the construction period for the SAIP.

- **MM-LU-3. Conduct Study of the Relationship Between Aircraft Noise Levels and the Ability of Children to Learn** – This comprehensive study is to be initiated by LAWA to determine what, if any, measurable relationship may exist between learning and the disruptions caused by aircraft noise at various levels. An element of this study shall be the setting of an acceptable replacement threshold of significance for classroom disruption by both specific and sustained aircraft noise events. This study is not expected to be completed prior to completion of the SAIP.
- **MM-LU-4. Provide Additional Sound Insulation for Schools Shown by MM-LU-3 to be Significantly Impacted by Aircraft Noise** – Prior to completion of the study required by Mitigation Measure MM-LU-3, and within six months of the commissioning of any relocated runway associated with implementation of the LAX Master Plan, LAWA shall conduct interior noise measurements at schools that could be newly exposed to noise levels that exceed the interim LAX interior noise thresholds as compared to the 1996 baseline conditions for classroom disruption of 55 dBA L_{max}, 65 dBA $L_{max,}$ or 35 $L_{eq(h)}$, as presented in Section 4.1 of the LAX Master Plan Final EIR. As required by this measure, LAWA would conduct interior measurements within six months of the re-commissioning of Runway 7R-25L. Those schools with measurements exceeding interim LAX interior noise thresholds would become eligible for soundproofing under the revised ANMP program per Mitigation Measure MM-LU-1.
- **MM-LU-5. Upgrade and Expand Airport Noise Monitoring Program** – LAWA shall upgrade and expand its existing noise monitoring program in surrounding communities through new system procurement, noise monitor siting, and equipment installation. LAWA has selected a system vendor and is currently in the contract negotiation stage. The elements of this measure including acceptance testing were expected to occur during the term of the SAIP. Therefore, an upgraded airport noise monitoring program was assumed to be unavailable during the construction period.

4.5.5.2 Construction Traffic and Equipment Noise

The following mitigation measures and commitments identified in the LAX Master Plan MMRP are applicable to the SAIP as a means to eliminate or reduce potential construction noise impacts:

- **MM-N-7: Construction Noise Control Plan** – A Construction Noise Control Plan will be prepared by the construction contractor to provide feasible measures to ensure that calculated on-airport construction noise exposure levels in this EIR are maintained throughout the construction period for the SAIP. The contractor may be required to subcontract with an acoustical engineer who would develop construction site-specific noise control and monitoring plans, baseline noise data measurements, a compliance measurement plan, and equipment requirements. The Noise Control Plan will be based on general construction noise guidelines provided by LAWA and will include specifics noise control techniques spelled out in mitigation measures MM-N-8, MM-N-9, and MM-N-10, and LAX Master Plan Commitments ST-16 and ST-22.

To ensure contractor conformance to the Construction Noise Control Plan, LAWA will provide individuals qualified in overseeing contractor compliance. Specific strategies to check compliance may include short-term and long-term noise compliance monitoring, nighttime construction site presence, review of construction noise plan updates, or issuance of reports on noncompliance with contract provisions. The designated LAWA department or office may also be responsible for presenting specific construction operation and noise mitigation strategies to the public via report updates, complaint response, and/or the internet.

- **MM-N-8: Construction Staging** – As a method of path control, staging area activities and construction operations will be located as far as possible from noise-sensitive land uses. For the SAIP, the designated contractor staging area is to be located on airport property west of Taxiway AA and just south of World Way West.
- **MM-N-9: Equipment Replacement** – As a method to mitigate potential noise impacts, source control is considered to be the most effective. Source control limits noise emissions by use of equipment that emits the least noise possible. Noisy equipment shall be replaced with quieter equipment when technically and economically feasible. Quieter equipment includes heavy diesel-powered machinery with mufflers installed.

  Because construction type and activity may vary throughout the term of the project, the following additional techniques under this measure may be identified in the Construction Noise Control Plan to ensure that calculated on-airport construction noise levels are maintained:

  - Maintain the equipment activity factor at or below those specified in Table 4.5-24. This factor represents the percent of time that activity levels emit 86 dBA L_{eq} 50 feet from the site of activity.
  - Based on potential criteria set in a LAWA construction noise guideline document, contract specifications may require that absolute noise criteria applied to generic classes of heavy equipment to limit noise emissions be met. Criteria should involve typical equipment-specific A-weighted L_{max} noise limits at a reference distance of 50 feet. Such limits should be achievable and feasible, but conservatively set as low as possible to ensure that equipment is well maintained, power-settings are efficiently used, and additional techniques to control source noise, such as the use of newer equipment, are required. Periodic compliance testing and surveying by LAWA staff may be conducted to confirm that equipment on site is well maintained and meets noise emission guidelines.
  - One of the greatest single sources of construction noise complaints as rated by 50 state Departments of Transportation was the use of loud backup alarms on construction vehicles operating at night[33]. To minimize the potential for such an impact, all project-related vehicles may be equipped with either manually adjustable or ambient-sensitive backup alarms. The alarms would emit a signal that is between 5 to 10 dBA above ambient levels.

- **MM-N-10: Construction Scheduling** – As a method of source control, noise emissions from heavy construction equipment would be limited during noise-sensitive hours. The timing and/or sequencing of the noisiest on-site construction activities shall avoid sensitive times of the day, as much as feasible (9 p.m. to 7 a.m. Monday – Friday; 8 p.m. to 6 a.m. Saturday;

[33] Schexnayder, Cliff, PhD., PE. *Effective Noise Control During Nighttime Construction*. May 10, 2002.

anytime on Sunday or holidays). The SAIP construction phasing minimizes activities during these sensitive times except when necessary for airfield operational safety. Activity is assumed to occur during noise-sensitive hours (except Sunday), but at lower levels compared to daytime noise levels. To ensure that calculated on-airport construction noise exposure levels in this Draft EIR are maintained, the following techniques may be applied specifically to the western end of the construction site:

- Limit noisiest activity to daytime periods within the west end of the construction site only, when feasible. Such activity includes excavation, grading, and finishing construction.
- Monitor activity factor of equipment during noise-sensitive hours to ensure that the assumed use factors presented in Table 4.5-24 are maintained.

- **ST-16: Designated Haul Routes** – Every effort will be made to ensure that haul routes are located away from sensitive noise receptors. Construction-related trucks hauling raw materials in and out of the south airfield construction site will be instructed to use freeways (I-405 and I-105) and major arterials that are close to the freeway and offer quick access to the construction site. The use of local roadways is to be minimized so as to diminish potential noise impacts within residential communities. Designated routes are illustrated in Section 4.2. The Construction Noise Control Plan may include a public outreach plan that provides such information to residents and provides a form of contact with the LAWA Construction Coordination Office (Master Plan Commitment C-1) to report haul route deviations and concerns.
- **ST-22. Designated Truck Routes –** For dirt and aggregate and all other materials and equipment, truck deliveries would be on designated routes only (freeways and non-residential streets). Designated routes are illustrated in Section 4.2.

4.5.6 Impact Analysis

As described in the Analytical Framework discussion, the basis for determining impacts under CEQA were noise exposure levels of a proposed project measured against the "environmental baseline," which is normally the physical conditions that existed at the time the NOP was published. As such, the CEQA analysis in this Draft EIR uses the 2003 Baseline conditions as the basis by which to measure and evaluate the impacts of the SAIP construction.

The analysis of noise impacts related to aircraft and construction activity anticipated during the peak construction year for the SAIP is presented in this section. The year used for the peak construction of the SAIP is 2005.[34] For informational purposes, a qualitative analysis was conducted to confirm that post-construction noise exposure patterns would be consistent with those shown in the LAX Master Plan Final EIR.[35] The SAIP project description and construction phases are discussed in Chapter II.

[34] This Draft EIR analyzes potential environmental impacts assuming peak construction period in 2005. Sensitivity analyses have shown that the impacts associated with this analysis would be substantially the same if the peak construction period occurred in 2006. (Refer to Appendix D for more information.) Therefore, the results for 2005 are reliable for predicting significant impacts if the peak construction period was to occur in 2006.

[35] Information is provided in response to the City of El Segundo's NOP comment requesting analysis of aircraft operations for the time period between the completion of the south airfield improvements and completion of the north airfield improvements.

4.5.6.1 Aircraft Noise

4.5.6.1.1 SAIP Operational Characteristics

The numbers of operations by aircraft in each category (heavy jet, light jet, and propeller aircraft) for the forecast Project (2005) conditions compared with the 2003 Baseline conditions, are shown in **Table 4.5-10.** The comparison shows that the projected number of heavy jets is assumed to be considerably higher for Project (2005) than in 2003. This projection was based on the 2005 forecast presented in Appendix D of the Final LAX Master Plan. It was assumed in the forecast that airlines would meet the forecast growth in passenger demand by increasing the number of seats per aircraft. Maintaining 2,041 operations for Project (2005) conditions presents a conservative estimate of noise exposure for the SAIP construction period.

Table 4.5-10

Daily Aircraft Operations by Aircraft Category

Condition	Aircraft Operations by Category 1/				Percent of Annual Operations		
	Heavy Jet 2/,3/	Light Jet 2/	Propeller 2/	Total	Heavy Jet 2/,3/	Light Jet 2/	Propeller 2/
2003 Baseline	295	1,067	343	1,705	17.28%	62.59%	20.13%
Project (2005)	570	1,058	414	2,041	27.92%	51.82%	20.26%

Notes:

1/ Data represent an average annual day of operation (annual traffic/365)

2/ Totals may not add to 100 percent due to rounding.

3/ Heavy jets include 74710Q, 747200, 74720A, 74720B, 747400, 747SP, 767300, 767400, 767CF6, 767JT9, 777200, 777300, A300, A30062, A310 A330, A340, DC1010, DC1030, DC1040, DC870, DC8QN, IL96, L1011, MD11GE, MD11PW.

Sources: 2003 operations data: Ricondo & Associates, Inc., based on LAWA 4th Quarter 2003 INM Input Files. 2005 operations data: Ricondo & Associates, Inc., based on Landrum & Brown INM analysis of 2005 scenario, *Supplement to the Draft EIS/EIR, Appendix S-C*

Prepared by: Ricondo & Associates, Inc.

Table 4.5-11 presents the difference between the runway use percentages for the 2003 Baseline compared with Project (2005) conditions. As shown in the table, a shift in aircraft from the south airfield to the north airfield is expected while Runway 7R-25L is closed, which is consistent with the assumptions documented in the LAX Master Plan Final EIR. Although over 50 percent of the heavy aircraft may still use the south airfield, it is anticipated that more heavy aircraft would operate to or from the north airfield while Runway 7R-25L is closed. This is consistent with the assumptions used in the LAX Master Plan Final EIR.

Table 4.5-11

Runway Complex Use by Aircraft Category: Project (2005) Compared to 2003 Baseline Conditions

	Heavy Jets[1/,2/]		Light Jets[1/]		Propeller Aircraft[1/]	
Condition	South Runway Complex	North Runway Complex	South Runway Complex	North Runway Complex	South Runway Complex	North Runway Complex
2003 Baseline	76.12%	23.88%	46.55%	53.45%	56.90%	43.10%
2005 SAIP	52.53%	47.47%	28.57%	71.43%	47.38%	52.62%

Notes:

1/ The north runway complex includes Runways 6R-24L and 6L-24R. The south runway complex includes Runways 7R-25L and 7L-25R.

2/ Heavy jets include the following INM types: 74710Q, 747200, 74720A, 74720B, 747400, 747SP, 767300, 767400, 767CF6, 767JT9, 777200, 777300, A300, A30062, A310 A330, A340, DC1010, DC1030, DC1040, DC870, DC8QN, IL96, L1011, MD11GE, MD11PW.

Sources: 2003 operations data: Ricondo & Associates, Inc., based on LAWA 4th Quarter 2003 INM Input Files. 2005 operations data: Ricondo & Associates, Inc., based on Landrum & Brown INM analysis of 2005 scenario, *Supplement to the Draft EIS/EIR App. SC-1.*.

Prepared by: Ricondo & Associates, Inc.

4.5.6.1.2 Project (2005) CNEL Aircraft Noise Exposure

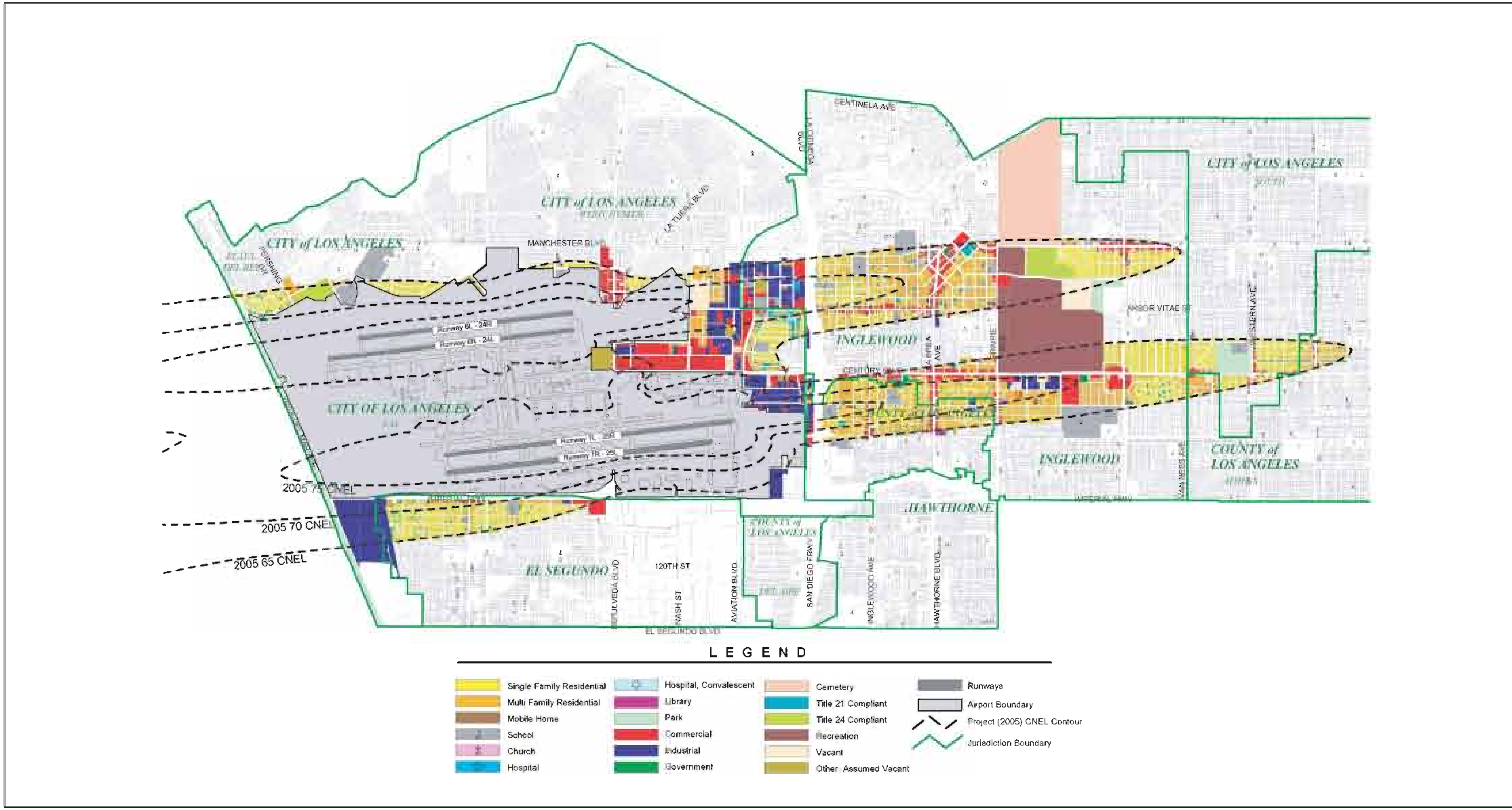
Runway 7R-25L would be closed for the duration of the construction period, which would be approximately 8 months (HNTB, 2004). Appendix S-C1 of the LAX Master Plan Final EIR documented a 2005 Alternative D noise exposure map used to assess potential aircraft noise impacts created by closing Runway 7R-25L for an extended period (approximately one year). The basis for the results were taken from detailed forecast activity and FAA's Airport and Airspace Simulation Model (SIMMOD) evaluations documented in Appendix D and Appendix E of the Final LAX Master Plan. This EIR uses the noise exposure map input data from the LAX Master Plan Final EIR and quantifies more specific impacts for noise-sensitive uses. In addition, single-event impacts associated with nighttime awakenings and classroom disruption are assessed.

The 2005 Alternative D activity and aircraft movement assumptions for the LAX Master Plan were reviewed. LAWA determined that the stated assumptions remain consistent for purposes of this EIR.[36] Therefore, the 2005 Alternative D forecast aircraft activity and associated noise exposure modeling input related to the relocation and reconstruction of Runway 7R-25L were used. Specifics related to the forecast activity levels and runway and flight track use are presented in Appendix M.

Contour Area

The CNEL noise exposure area for Project (2005) conditions reflecting the assumptions presented in Appendix M, is presented on **Exhibit 4.5-9**. Due to changes in the calculations of INM 6.1 compared with INM 6.0c, which was used in the LAX Master Plan Final EIR, slight differences exist between the noise contours presented herein for Project (2005) conditions and those presented for the Alternative D construction period illustrated in Figure S5, Appendix S-C1 of the LAX Master Plan Final EIR. These minor differences are expected considering the parameters of the two versions of

[36] Jim Ritchie, Deputy Executive Director, LAWA. Memorandum RE: LAX South Airfield Improvement Project – 2005 Alternative D Airfield Activity Forecast Assumptions. August 31, 2004.



Source: Psomas, April 2000 - land use data; PCR Inc., 2002 - GIS dataset and mapping; Landrum & Brown, Inc., 2002 - 2005 Alternativ D INM input; Ricondo & Associates, Inc., 2004 - Project (2005) INM contour
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-9

north 0 0.5 1 Miles

CNEL Noise Exposure Areas: Project (2005) Condition

the INM and do not represent a material change in the data.[37] **Table 4.5-12** shows the acreage over land within each CNEL contour. An estimated 98 percent of the off-airport acreage is within the 65 and 70 CNEL contours (3,327 out of 3,399 total acres). About 2 percent (73 acres) of the total area exposed to 65 CNEL and higher is within the 75 CNEL contour.

Table 4.5-12

Population and Dwelling Counts: Project (2005) Conditions[1/]

Noise Level Range	Total Acreage Over Land[1/]	Off-Airport Area (Acres)[2/]	Total Dwellings	Estimated Population	Non-Residential Noise-Sensitive Parcels
2005 SAIP					
65 to 70 CNEL	2,980.0	2,547.0	12,034	35,264	63
70 to 75 CNEL	2,046.0	779.7	3,981	14,426	12
75 CNEL and higher	1,926.0	72.7	176	756	4
65 CNEL and higher	6,952.0	3,399.4	16,191	50,446	79

Notes:
1/ Values determined via noise contour overlay on GIS parcel data.
2/ Acreage totals may not add due to rounding.

Source: Ricondo and Associates, 2004. Based on Landrum & Brown INM analysis of 2005 scenario and PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.
Prepared by: Ricondo and Associates, 2004

__Population and Dwelling Unit Counts__

Table 4.5-12 reports the population and number of dwelling units within the 65 to 70, 70 to 75, and 75 and higher CNEL noise exposure area for Project (2005) conditions. To maintain consistency with the LAX Master Plan Final EIR, residential units that were sound-insulated (Title 21 and Title 24 compliant) were not counted as impacted units. An estimated 16,015 dwelling units (99 percent of all affected dwelling units) were within the area exposed to between 65 and 75 CNEL. Approximately 35,264, 14,426, and 756 residents are within the area exposed to 65 to 70, 70 to 75, and 75 CNEL and higher, respectively.

__Land Use Compatibility__

Table 4.5-13 reports the number of residential and noise sensitive land uses within the noise exposure areas for each of the affected jurisdictions. An estimated 7,465, 12,468, 3,206, and 27,127 persons residing within the City of Los Angeles, County of Los Angeles, City of El Segundo, and City of Inglewood, respectively would be expected to be exposed to CNEL 65 and higher during the construction period of the SAIP. An estimated 3,194, 3,077, 1,480, and 8,440 residential units located within the City of Los Angeles, County of Los Angeles, City of El Segundo, and City of Inglewood, respectively, would be exposed to 65 CNEL and higher during the construction period.

Thirty-eight schools were located within the area expected to be exposed to aircraft noise of 65 CNEL and higher. Eleven of these schools are located in the City of Los Angeles and the 19 in the City of Inglewood. Seven of these schools are located in the County of Los Angeles and one is located within the City of El Segundo. Of the eight parks that would be exposed to 65 CNEL and higher, five are located within the City of Los Angeles.

[37] Version 6.1 of the Integrated Noise Model was released on March 4, 2003, subsequent to all the evaluations prepared for the LAX Master Plan Final EIR. INM 6.1, incorporates new algorithms that modify lateral attenuation equations for propeller aircraft and some jet aircraft. Also, military aircraft noise power distance relationships were redefined and five new civilian aircraft were added to the model. Version 6.1 of the INM does not materially change contours produced by INM 6.0c.

Table 4.5-13 (1 of 3)

Impacts on Residential and Non-Residential Noise-Sensitive Uses: Project (2005) Conditions[1/2/3/]

	LA City	LA County	El Segundo	Inglewood	Total
65 to 70 CNEL					
Residential					
Single-Family					
Units	1,313	421	715	1,736	4,185
Acres	184.8	57.7	105.8	290.2	638.5
Population	3,170	1,738	1,430	5,260	11,598
Multi-Family					
Units	1,133	1,299	411	5,006	7,849
Acres	45.9	73.9	17.1	218.9	355.8
Population	2,552	4,984	976	15,154	23,666
Total Residential					
Units	2,446	1,720	1,126	6,742	12,034
Acres	230.7	131.6	122.9	509.1	994.3
Population	5,722	6,722	2,406	20,414	35,264
Non-Residential Noise-Sensitive Uses					
Schools					
Number	10	2	0	15	27
Acres	34.4	6.2	0.0	97.3	137.9
Churches					
Number	3	3	2	15	23
Acres	1.9	0.8	0.6	8.9	12.2
Hospitals					
Number	0	0	0	2	2
Acres	0.0	0.0	0.0	1.2	1.2
Hospitals/Convalescent Facilities					
Number	0	0	0	4	4
Acres	0.0	0.0	0.0	2.4	2.4
Parks					
Number	2	0	0	2	4
Acres	42.7	0	0	20.1	62.8
Libraries					
Number	1	1	0	1	3
Acres	0.2	2.4	0.0	0.1	2.7
Total Noise-Sensitive Facilities					
Number	16	6	2	39	63
Acres	79.2	9.4	0.6	130.0	219.2
Total Noise-Sensitive Area (Acres)	309.9	141.0	123.5	639.1	1,213.5

Table 4.5-13 (2 of 3)

Impacts on Residential and Non-Residential Noise-Sensitive Uses: Project (2005) Conditions[1/2/3/]

	LA City	LA County	El Segundo	Inglewood	Total
70 to 75 CNEL					
Residential					
Single-Family					
Units	0	359	85	522	966
Acres	0.4	54.3	12.9	66.2	133.8
Population	0	1,698	170	2,177	4,045
Multi-Family					
Units	748	822	269	1,176	3,015
Acres	24.3	48.8	7.2	56.3	136.6
Population	1,743	3,472	630	4,536	10,381
Total Residential					
Units	748	1,181	354	1,698	3,981
Acres	24.7	103.1	20.1	122.5	270.4
Population	1,743	5,170	800	6,713	14,426
Non-Residential Noise-Sensitive Uses					
Schools					
Number	1	3	1	4	9
Acres	0.6	11.4	5.7	17.5	35.2
Churches					
Number	0	0	0	1	1
Acres	0.0	0.0	0.0	0.1	0.1
Hospitals					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Hospitals/Convalescent Facilities					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Parks					
Number	1	0	1	0	2
Acres	89.9	0.0	0.9	0.0	90.8
Libraries					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Total Noise-Sensitive Facilities					
Number	2	3	2	5	12
Acres	90.5	11.4	6.6	17.6	126.1
Total Noise-Sensitive Area (Acres)	115.2	114.5	26.7	140.1	396.5

Table 4.5-13 (3 of 3)

Impacts on Residential and Non-Residential Noise-Sensitive Uses: Project (2005) Conditions[1/2/3/]

	LA City	LA County	El Segundo	Inglewood	Total
75 CNEL and Higher					
Residential					
Single-Family					
Units	0	45	0	0	45
Acres	0.0	7.8	0.0	0.0	7.8
Population	0	212	0	0	212
Multi-Family					
Units	0	131	0	0	131
Acres	0.0	9.4	0.0	0.0	9.4
Population	0	544	0	0	544
Total Residential					
Units	0	176	0	0	176
Acres	0.0	17.2	0.0	0.0	17.2
Population	0	756	0	0	756
Non-Residential Noise-Sensitive Uses					
Schools					
Number	0	2	0	0	2
Acres	0.0	7.0	0.0	0.0	7.0
Churches					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Hospitals					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Hospitals/Convalescent Facilities					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Parks					
Number	2	0	0	0	2
Acres	58.8	0.0	0.0	0.0	58.8
Libraries					
Number	0	0	0	0	0
Acres	0.0	0.0	0.0	0.0	0.0
Total Noise-Sensitive Facilities					
Number	2	2	0	0	4
Acres	58.8	7.0	0.0	0.0	65.8
Total Noise-Sensitive Area (Acres)	58.8	24.2	0.0	0.0	83.0

Notes:

1/ Values determined via noise contour overlay on GIS parcel data.

2/ Acreage totals may not equal the sum of individual values due to rounding

3/ Population reflects 2000 Census data

Source: Ricondo & Associates, Inc., based on Landrum & Brown INM analysis of 2005 scenario and PCR Inc., GIS data, April 2004- *LAX Master Plan Final EIR*.

Prepared by: Ricondo & Associates, Inc.

Comparison to 1992 ANMP Boundary

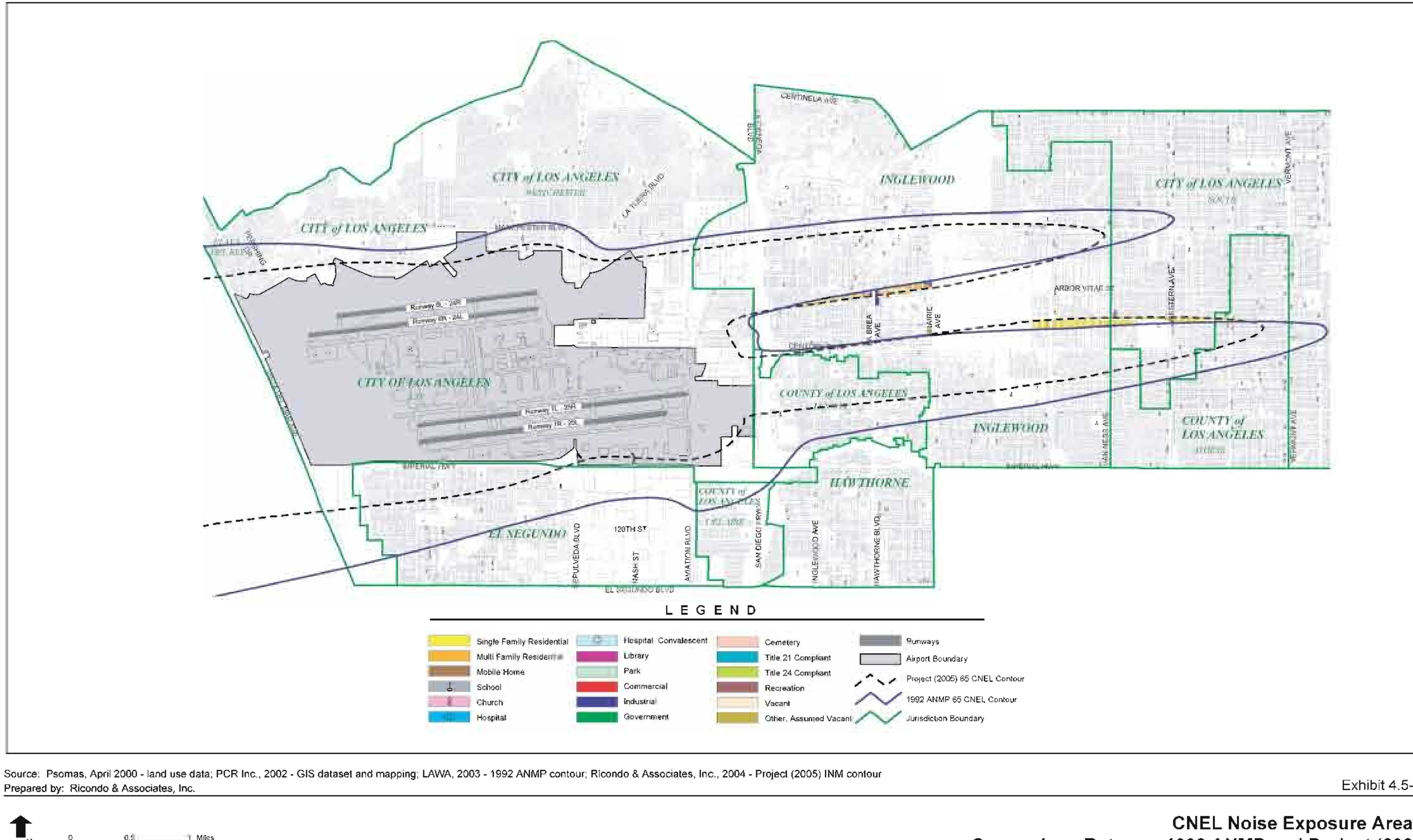
SAIP aircraft noise exposure was compared with the 1992 ANMP boundary for informational purposes and to assist decision-makers. Changes identified through this comparison do not indicate significant impacts. **Exhibit 4.5-10** depicts the 1992 ANMP boundary compared with the Project (2005) condition noise exposure area. As the exhibit indicates, the noise contour for the SAIP conditions extends outside the ANMP in two areas east of the airport. The areas outside the 1992 ANMP would be exposed to noise levels at or slightly above 65 CNEL for the SAIP construction period. **Table 4.5-14** shows the number of dwelling units and residents that may be newly exposed to aircraft noise of 65 CNEL and higher (i.e., outside the 1992 ANMP and exposed to 65 CNEL) under Project (2005) conditions compared with the 1992 ANMP boundary. Approximately 676 dwelling units, 2,085 residents, and four non-resident noise-sensitive uses may be newly exposed to 65 CNEL and higher during the construction period. A majority of the changes are within the City of Inglewood and the County of Los Angeles. The above values are not considered to be significant, but may serve as useful information to assist decision-makers.

Comparison of Project (2005) with the 2003 Baseline

Contour Area

Exhibit 4.5-11 provides a comparison of the 65 CNEL and higher noise exposure areas under the 2003 Baseline and Project (2005) conditions. The differences between the two noise exposure areas result from a combination of factors, including:

1. The temporary closure of Runway 7R-25L during the construction period resulting in a shift of (1) arrival traffic to Runway 7L-25R and (2) arrival and departure traffic to the north parallel runways to balance the available aviation demand as discussed earlier.
2. The difference in the number of aircraft operations performed in 2003 and forecast in the 2005 interim year forecast published in the Final LAX Master Plan.
3. The projected change in the aircraft fleet mix between 2003 and 2005.
4. The preference for maximizing the use of inboard runways between 10 p.m. and 6:59 a.m. assumed in LAX Master Plan SIMMOD simulation. As a result, the number of night arrivals on Runway 24L, as modeled, is higher than the actual number of night arrivals recorded in 2003. This shift is based on the assumptions used in the SIMMOD analysis conducted as part of the LAX Master Plan Final EIR (Section 4.1, Subsection 4.1.6.1.1). This assumption was carried over from the 2005 Alternative D simulation as documented in the Final LAX Master Plan, Appendix E.
5. Day/evening/night distribution percentages may change slightly between 2003 Baseline and Project (2005) conditions. The evening and nighttime operation levels are forecast to increase about 28 and 31 percent, respectively. Such growth has a direct effect on CNELs.



Source: Psomas, April 2000 - land use data; PCR Inc., 2002 - GIS dataset and mapping; LAWA, 2003 - 1992 ANMP contour; Ricondo & Associates, Inc., 2004 - Project (2005) INM contour
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-10

CNEL Noise Exposure Areas: Comparison Between 1992 ANMP and Project (2005)

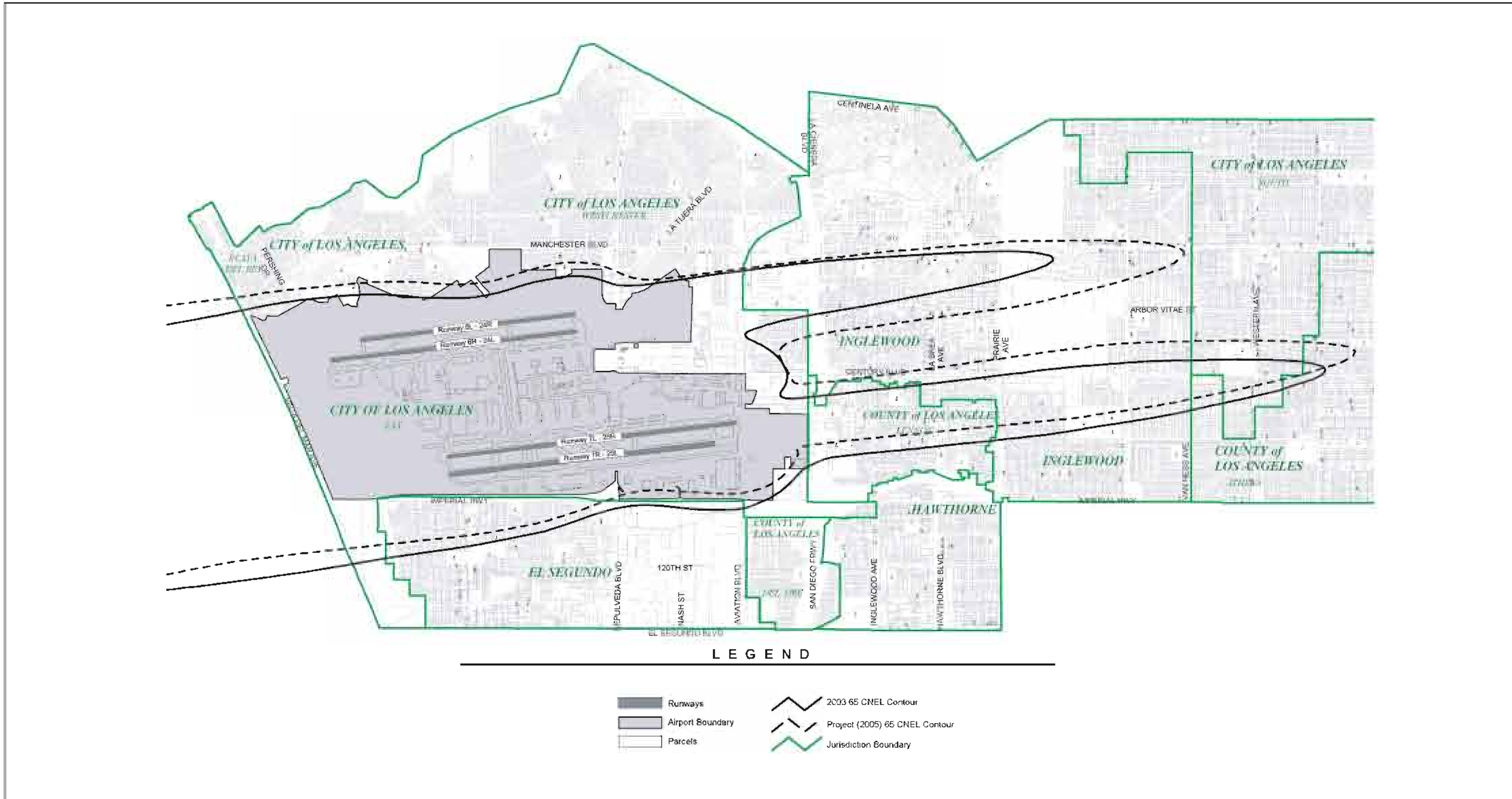
Table 4.5-14

Newly Exposed Residential and Non-Residential Noise-Sensitive Facilities: Project (2005) Compared with 1992 ANMP Boundary[1/]

Impact Category	LA City	LA County	El Segundo	Inglewood	Total
65 CNEL increase from 1992 (ANMP)					
Newly Exposed Units	149	19	0	508	676
Newly Exposed Population	441	57	0	1,587	2,085
Newly Exposed Noise-Sensitive Uses	1	0	0	3	4

Notes:
1/ Values determined via noise contour overlay on GIS parcel data.

Source: Ricondo & Associates, Inc., 2005. GIS data-Landrum & Brown and PCR Inc., 2002
Prepared by: Ricondo & Associates, Inc.



Source: PCR Inc., 2002 - GIS dataset and mapping; Ricondo & Associates, Inc., 2004 - 2003 and Project (2005) INM contours
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-11

north 0 0.5 1 Miles

CNEL Noise Exposure Areas: Comparison Between 2003 Baseline Conditions and Project (2005)

As a result of the factors discussed above, the Project (2005) noise exposure area located under the flight paths to and from the north parallel runways (Runways 6L-24R and 6R-24L) is larger than in the 2003 baseline noise exposure area. The noise footprint located under the flight paths to and from the south airfield shifted slightly to the north as a result of increased use of Runway 7L-25R while Runway 7R-25L is closed for construction. **Table 4.5-15** provides a comparison between SAIP and 2003 Baseline CNEL acreage over land. Over land, the area exposed to 65 CNEL and higher may increase by 11 percent during construction of the SAIP. The off-airport areas exposed to 65 CNEL and higher may increase by 24 percent. The majority of the off-airport area covered by the CNEL exposure area is between 65 and 70 CNEL.

<u>Population and Dwelling Impact</u>
Table 4.5-15 presents a comparison of the population and dwelling unit counts for the Project (2005) and 2003 Baseline conditions. The number of acres, dwelling units, population, and non-residential noise-sensitive facilities exposed to aircraft noise of 65 CNEL and higher are expected to increase by 657 acres, 3,100 residential units, 8,138 persons, and 26 additional non-residential noise-sensitive facilities under Project (2005) conditions compared with 2003 Baseline conditions. The values reported in this section indicate that Project (2005) conditions may cause an overall change in key aircraft noise impact indicators: change in the size of the overall off airport area, population, and dwelling units and noise-sensitive facilities exposed to 65 CNEL and higher. Thresholds of significance discussed in Section 4.5.4 were applied to determine if the overall increases would be considered significant.

<u>Threshold of Significance Analysis - CNEL</u>
When the 65 CNEL and higher aircraft noise exposure footprint shifts during construction of the SAIP, the compatibility between the airport and land uses in the airport vicinity would be affected. This analysis identifies adverse impacts on noise-sensitive land use and facilities that would be newly exposed to 65 CNEL and higher and identifies increases in aircraft noise of 1.5 CNEL or greater within noise-sensitive areas exposed to aircraft noise of 65 CNEL and higher.

<u>Newly Exposed Areas within 65 CNEL and Greater Aircraft Noise Exposure Area</u>
Exhibit 4.5-12 illustrates the location and **Table 4.5-16** presents a summary of newly affected residential and noise-sensitive land uses by jurisdiction for Project (2005) conditions compared 2003 Baseline conditions. As reported in the table, 4,714 dwelling units, 13,452 persons, and 34 non-residential noise-sensitive locations within the area exposed to 65 CNEL and higher may be newly affected during the SAIP construction period compared with 2003 Baseline conditions. This increase in newly affected noise-sensitive uses would represent a potentially significant impact while Runway 7R-25L remains closed. Investigation of feasible mitigation measures is provided in Section 4.5.8.1. Because Runway 7R-25L would be closed for construction, no newly affected residential areas would be expected within the area exposed to CNEL 65 and higher in the City of El Segundo.

Table 4.5-15

Population and Dwelling Counts: Project (2005) Compared with 2003 Baseline[1/]

Noise Level Range	Total Acreage Over Land[4/]	Off-Airport Area (Acres)[4/]	Total Dwellings	Estimated Population	Non-Residential Noise-Sensitive Parcels
Project (2005)					
65 to 70 CNEL	2,980.0	2,547.0	12,034	35,264	63
70 to 75 CNEL	2,046.0	779.7	3,981	14,426	12
75 CNEL and higher	1,926.0	72.7	176	756	4
Total 65 CNEL and higher	6,952.0	3,399.4	16,191	50,446	79
2003 Baseline [1/]					
65-70 CNEL	2,597.0	2,073.0	10,135	31,338	37
70-75 CNEL	1,807.0	602.0	2,876	10,648	15
75 ≥ CNEL	1,867.0	67.0	80	322	1
Total 65 CNEL and higher	6,271.0	2,742.0	13,091	42,308	53
Difference Between 2003 Baseline and SAIP [2/, 3/]					
65-70 CNEL	383.0	474.0	1,899	3,926	26
70-75 CNEL	239.0	177.7	1105	3,778	-3
75 ≥ CNEL	59.0	5.7	96	434	3
Total 65 CNEL and higher	681.0	657.4	3,100	8,138	26

Notes:

1/ Values determined via noise contour overlay on GIS parcel data.

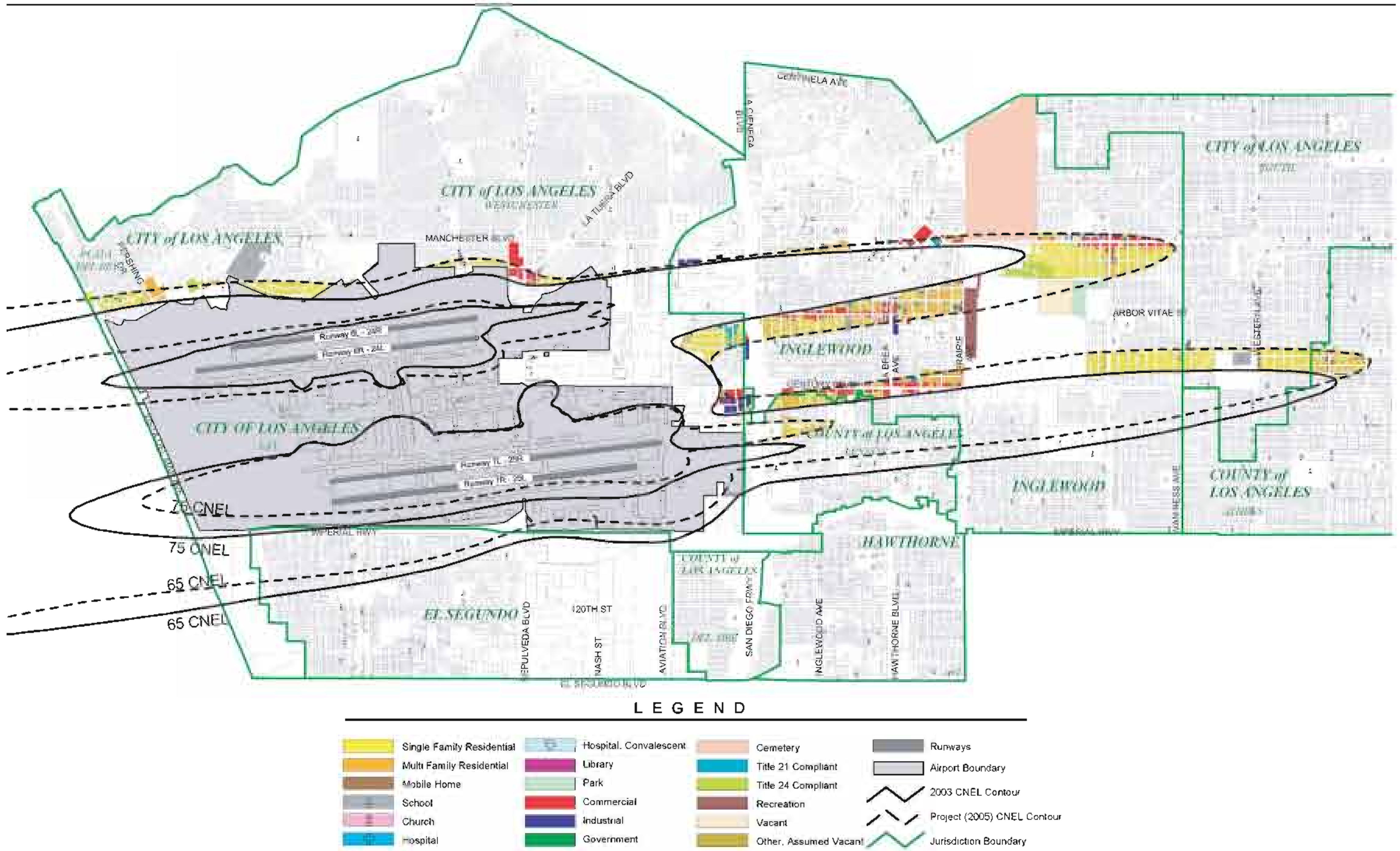
2/ A positive value indicates that the Project (2005) reflects an increase in the impacts compared with 2003 Baseline; a negative number indicates that Project (2005) reflects a decrease in impacts. The values reported in each cell above indicate a net difference. Some jurisdictions may experience increased noise levels while other areas may experience a decrease.

3/ Population and dwelling unit information for 2003 Baseline conditions is reported using a year 2000 Census data base.

4/ Acreage totals may not equal the sum of individual values.

Source: Ricondo & Associates, Inc., 2004. Based on Landrum & Brown INM analysis of 2005 scenario and PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.

Prepared by: Ricondo & Associates, Inc.



Source: Psomas, April 2000 - land use data; PCR Inc., 2002 - GIS dataset and mapping; Ricondo & Associates Inc., 2004 - 2003 and Project (2005) INM contours
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-12

north

0 0.5 1 Miles

CNEL Noise Exposure Contours: Location of Newly Impacted Land Use

Table 4.5-16 (1 of 2)

Newly Impacted Residential and Noise Sensitive Land Use Areas: Project (2005) Compared with 2003 Baseline Conditions[1/]

	LA City	LA County	El Segundo	Inglewood	Total
65 CNEL and higher					
Residential					
Single-Family					
Units	867	182	0	982	2,031
Acres	120.8	23.7	0.0	174.9	319.4
Population	2,026	605	0	2,878	5,509
Multi-Family					
Units	394	554	0	1,735	2,683
Acres	17.2	20.4	0.0	77.0	114.6
Population	803	1,967	0	5,173	7,943
Total Residential					
Units	1,261	736	0	2,717	4,714
Acres	138.0	44.1	0.0	251.9	434.0
Population	2,829	2,572	0	8,051	13,452
Noise-Sensitive Uses					
Schools					
Number	7	0	0	7	14
Acres	13.5	0.0	0.0	4.8	18.3
Churches					
Number	1	2	0	9	12
Acres	0.6	0.5	0.0	4.8	5.9
Hospitals					
Number	0	0	0	2	2
Acres	0.0	0.0	0.0	1.2	1.2
Hospitals/Convalescent Facilities					
Number	0	0	0	3	3
Acres	0.0	0.0	0.0	1.8	1.8
Parks					
Number	0	0	0	2	2
Acres	0.0	0.0	0.0	20.1	20.1
Libraries					
Number	0	0	0	1	1
Acres	0.0	0.0	0.0	0.1	0.1
Total Noise-Sensitive Facilities					
Number	8	2	0	24	34
Acres	14.1	0.5	0.0	32.8	47.4
Total Noise-Sensitive Area (Acres)	152.1	44.6	0.0	284.7	481.4

Table 4.5-16 (2 of 2)

Newly Impacted Residential and Noise Sensitive Land Use Areas: Project (2005) Compared with 2003 Baseline Conditions[1/]

	LA City	LA County	El Segundo	Inglewood	Total
75 CNEL and higher					
Residential					
Single-Family					
Units	0	45	0	0	45
Acres	0	7.8	0	0	7.8
Population	0	212	0	0	212
Multi-Family					
Units	0	131	0	0	131
Acres	0	9.4	0	0	9.4
Population	0	544	0	0	544
Total Residential					
Units	0	176	0	0	176
Acres	0	17.2	0	0	17.2
Population	0	756	0	0	756

Notes:
1/ Values determined via noise contour overlay on GIS parcel data.

Source: Ricondo & Associates, Inc., 2004. Based on Landrum & Brown INM analysis of 2005 scenario and PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR
Prepared by: Ricondo & Associates, Inc.

Newly Exposed Areas Within 75 CNEL and Greater Aircraft Noise Exposure Area

Exhibit 4.5-12 illustrates the locations and Table 4.5-16 shows a summary of all newly affected residential land uses within the area exposed to 75 CNEL and higher by jurisdiction during the SAIP construction period compared with 2003 Baseline conditions. Several of the units reported may not have habitable exterior areas. The values reported may be considered a maximum potential impact. As reported in the table, 176 dwelling units and 756 residents within the area exposed to 75 CNEL and greater may be newly affected during the SAIP construction period compared with 2003 Baseline conditions. This increase in newly affected noise-sensitive uses would represent a potentially significant impact while Runway 7R-25L remains closed. Investigation of feasible mitigation measures is provided in Section 4.5.8.1.

Increases of 1.5 CNEL or Greater with Areas Exposed to 65 CNEL and Higher

An increase of 1.5 CNEL or greater within noise-sensitive areas exposed to aircraft noise of 65 CNEL and higher in Project (2005) conditions compared with 2003 conditions is considered a significant impact. For this EIR, the primary method for identifying significant changes in CNEL was the use of the 1.5 CNEL difference contour and GIS parcel data. Those parcels that intersected the 1.5 CNEL difference contour were selected and reported as significantly impacted noise-sensitive uses. This method was consistent with that used for the LAX Master Plan Final EIR.[38] **Table 4.5-17** presents the number of dwelling units, population, and non-residential noise-sensitive parcels that may experience an increase of 1.5 CNEL or more during construction of the SAIP. As depicted, 9,278 dwelling units, 28,574 persons, and 50 non-resident noise-sensitive locations may experience significant increases in noise during the SAIP construction period. **Exhibit 4.5-13** illustrates the areas exposed to aircraft noise of 65 CNEL and higher under the SAIP conditions, as well as those within the area exposed to CNEL 65 and higher that would experience a 1.5 or greater increase in CNEL under the Project (2005) conditions compared with 2003 Baseline conditions. Most of the area exposed to an increase of 1.5 CNEL is south of the 2003 Baseline north airfield arrival CNEL

[38] Los Angeles World Airports, *Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements*, April 2004, Section 4.2.6.5.

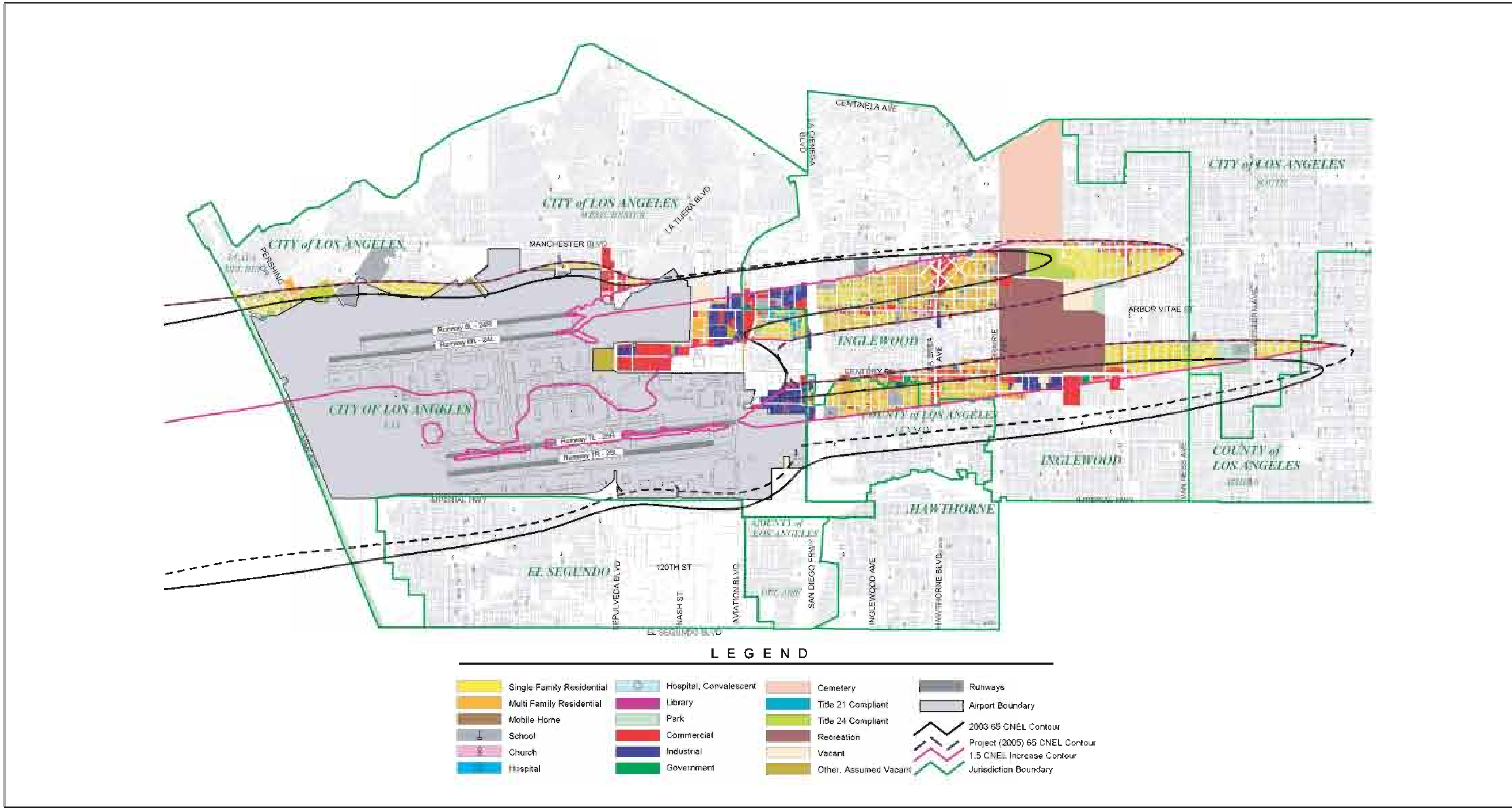
Table 4.5-17

Residential and Noise Sensitive Land Use Areas Exposed to 1.5 CNEL Increase: Project (2005) Compared with 2003 Baseline Conditions[1/]

	LA City	LA County	El Segundo	Inglewood	Hawthorne	Total
65 CNEL and Higher						
Residential						
Single-Family						
Units	963	322	0	1,725	0	3,010
Acres	133.3	46.3	0.0	278.0	0.0	457.6
Population	2,247	1,384	0	5,705	0	9,336
Multi-Family						
Units	1,190	971	0	4,107	0	6,268
Acres	41.0	43.0	0.0	178.6	0.0	262.6
Population	2,653	3,764	0	12,821	0	19,238
Total Residential						
Units	2,153	1,293	0	5,832	0	9,278
Acres	174.3	89.3	0.0	456.6	0.0	720.2
Population	4,900	5,148	0	18,526	0	28,574
Noise-Sensitive Uses						
Schools						
Number	9	3	0	12	0	24
Acres	29.4	15	0	30.8	0	75.2
Churches						
Number	1	1	0	13	0	15
Acres	0.6	0.3	0	8.3	0	9.2
Hospitals						
Number	0	0	0	2	0	2
Acres	0	0	0	1.2	0	1.2
Hospitals/Convalescent Facilities						
Number	0	0	0	3	0	3
Acres	0	0	0	1.8	0	1.8
Parks						
Number	4	0	0	1	0	5
Acres	183.3	0	0	19.8	0	203.1
Libraries						
Number	0	0	0	1	0	1
Acres	0	0	0	0.1	0	0.1
Total Noise-Sensitive Facilities						
Number	15	5	0	34	0	50
Acres	213.3	15.3	0	62	0	284.3
Total Noise-Sensitive Area (Acres)	387.6	104.6	0	518.6	0	1,004.5

Notes:
1/ Values determined via noise contour overlay on GIS parcel data.

Source: Ricondo & Associates, Inc., 2004. Based on Landrum & Brown INM analysis of 2005 scenario and PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.
Prepared by: Ricondo & Associates, Inc.



Source: Psomas, April 2000 - land use data; PCR Inc., 2002 - GIS datasets and mapping; Ricondo & Associates, Inc., 2004 - 2003 Baseline INM contour, Project (2005) INM contour and 1.5 CNEL Increase INM contour
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-13

north

0 0.5 1 Miles

1.5 CNEL or Greater Aircraft Noise Exposure Increase Area: Comparison Between 2003 Baseline and Project (2005) Conditions

footprint and north of the south airfield CNEL arrival footprint. The 1.5 CNEL increase area falls within the City of Los Angeles (388 noise-sensitive acres), the County of Los Angeles (105 noise-sensitive acres), and the City of Inglewood (519 noise-sensitive acres). This reported increase within noise-sensitive uses would represent a potentially significant impact while Runway 7R-25L remains closed. Investigation of feasible mitigation measures is provided in Section 4.5.8.1. The City of El Segundo is not expected to experience significant increases in aircraft noise while Runway 7R-25L is closed.

<u>Increase in Aircraft Noise Levels Below 65 CNEL</u>
Because 1.5 CNEL increases in aircraft noise within areas exposed to aircraft noise of 65 CNEL and higher were identified during construction of the SAIP, changes in noise of 3 CNEL or more in areas exposed to aircraft noise between 60 to 65 CNEL were evaluated. This procedure was recommended by the FICON and adopted by the City of Los Angeles in their Draft CEQA Thresholds Guide[39]. A 3 dBA increase, which represents a doubling of noise energy, within areas exposed to levels between 60 and 65 CNEL serves as an indication of a change that may be perceptible to people in areas outside of the 65 CNEL contour. The City of Los Angeles has adopted noise guidelines set forth by FICON criteria to require the disclosure of sensitive uses that would experience an increase of 3 CNEL when exposed to 60 to 65 CNEL. Additionally, increases of 5 CNEL in areas exposed to less than 60 CNEL are also to be considered for CEQA analyses[40]. This supplemental information regarding changes of exposure below 65 CNEL does not imply that there is a potential for significant impact under State definitions and thresholds of significance. Similar to the LAX Master Plan Final EIR, this general assessment is provided to the public and decision-makers for informational purposes.[41]

Similar to the 1.5 CNEL analyses, the primary method for identifying 3.0 CNEL changes were the use of the 3.0 CNEL difference contour and GIS parcel data. The 3.0 CNEL difference contour encompasses areas where INM detected 3.0 or greater increases between the 60 and 65 Project (2005) exposure area as compared to the 2003 Baseline. An estimated 7,347 dwelling units, 21,952 persons, and 31 non-resident noise-sensitive locations would be exposed to CNEL 60 to 65 and would be expected to experience an increase of 3 CNEL under Project (2005) conditions compared with 2003 Baseline conditions. About 2,724 dwelling units and 7,724 persons within the City of Los Angeles, 1,112 dwelling units and 3,336 people within the County of Los Angeles, and 3,511 dwelling units and 10,892 people within the City of Inglewood exposed to aircraft noise of between 60 and 65 CNEL under the SAIP conditions may be exposed to a 3 CNEL increase in aircraft noise. As conducted for the LAX Master Plan Final EIR, 5 CNEL increases for exposure levels less than 60 CNEL were evaluated. Using the same difference contour function in INM utilized for 1.5 and 3.0 CNEL change detection, a 5.0 CNEL change exposure area was calculated. This area reflects an increase of 5.0 CNEL or greater within the Project (2005) 60 CNEL or less area as compared to the 2003 Baseline. The potential for 5 CNEL increases in areas exposed to noise of less than 60 CNEL was not found within the study area**.**

4.5.6.1.3 Grid Point Analysis

The INM was used to compute CNEL values for Project (2005) conditions at the same grid points as used for the 2003 Baseline. Table M-12 in Appendix M lists the CNEL values at these grid points

[39] Federal Interagency Committee On Noise, Federal Agency Review of Selected Airport Noise Analysis Issues (August 1992).
[40] City of Los Angeles, *Draft L.A. CEQA Thresholds Guide*, May 14, 1998
[41] LAWA. *LAX Master Plan Final EIR*. Section 4.1.6. April 2004.

for Project (2005) conditions compared with 2003 Baseline conditions. Supplemental noise metrics were also calculated in the grid point analysis. These metrics provide additional single event and cumulative noise information as a means to better understand CNEL results. The supplemental metric data provided in Appendix M are consistent with those provided in the LAX Master Plan Final EIR, and are provided for informational purposes in Tables M-13 through M-18.

4.5.6.1.4 Project (2005) Single Event Aircraft Noise Exposure

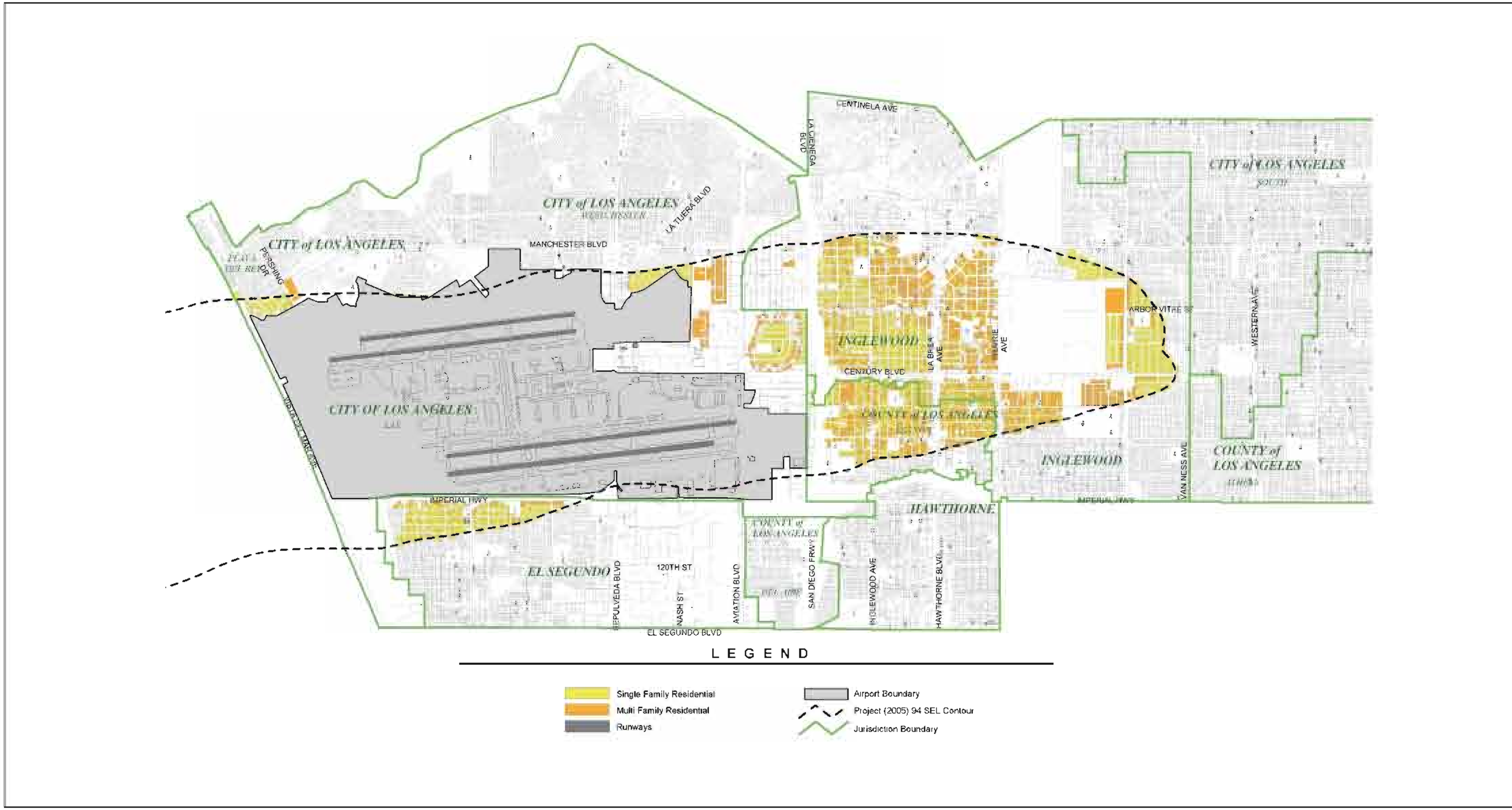
Night Awakenings

Results of the SEL grid point analysis for Project (2005) conditions were processed with a contour model to determine locations where nighttime noise levels would be expected to exceed exterior 94 dBA SEL (81 dBA SEL interior level) at least once every 10 nights. **Exhibit 4.5-14** displays the location of the 94 dBA nighttime SEL contour under Project (2005) conditions, and **Exhibit 4.5-15** presents a comparison of the SAIP 94 dBA SEL exposure contour with the 2003 Baseline 94 dBA SEL contour. **Table 4.5-18** shows the number of residents and dwelling units within the Project (2005) 94 dBA nighttime SEL exposure contour along with a comparison to 2003 Baseline conditions. Approximately 60,989 residents may potentially be exposed to 94 dBA SEL at least once every 10 nights under Project (2005) conditions. Compared with 2003 Baseline conditions, 2,231 more residents may be exposed to the 94 dBA SEL threshold and potential awakenings. Based on the nighttime awakenings analysis, it was expected that potential impacts would occur in the City of Inglewood and areas of the City of Los Angeles east of the airport and west of Van Ness Avenue.

Compared with 2003 Baseline conditions, as many as 1,886 residents in the City of Los Angeles and an additional 6,632 residents in the City of Inglewood may be temporarily exposed to nighttime noise levels that would result in nighttime awakenings. The County of Los Angeles and the City of El Segundo may expect a decrease in the number of people that are exposed to nighttime noise levels that could result in nighttime awakenings. The City of Hawthorne is not expected to have any people or residential units exposed to potential awakenings due to aircraft noise pattern changes during construction. Because there would be an increase in the number of residents exposed to nighttime noise levels resulting in potential awakenings, Project (2005) conditions would result in potentially significant impacts. Investigation of feasible mitigation measures is provided in Section 4.5.8.1.

School Disruption

The three threshold criteria for classroom speech interference discussed in Section 4.5.4 were used to assess the potential for classroom disruption during Project (2005) conditions. **Tables 4.5-19**, **4.5-20** and **4.5-21** show the calculation results**.** In Table 4.5-19, shaded rows indicate schools that were calculated to have sustained hourly $L_{eq(h)}$ levels (between the hours of 8 a.m. and 4 p.m.) above 35 L_{eq}, indicating the potential for classroom teaching interruption under Project (2005) conditions. Nine public and ten private schools were indicated as potential sites where aircraft noise may exceed 35 $L_{eq(h)}$ (hourly average sound level) under Project (2005) conditions. Four schools are located in the City of Los Angeles, five are located in the County of Los Angeles, nine are located in the City of Inglewood, and one is located in the City of El Segundo. The hourly L_{eq} values inside the 19 affected schools range from 35.5 dBA to a maximum projected level of 46.4 dBA.

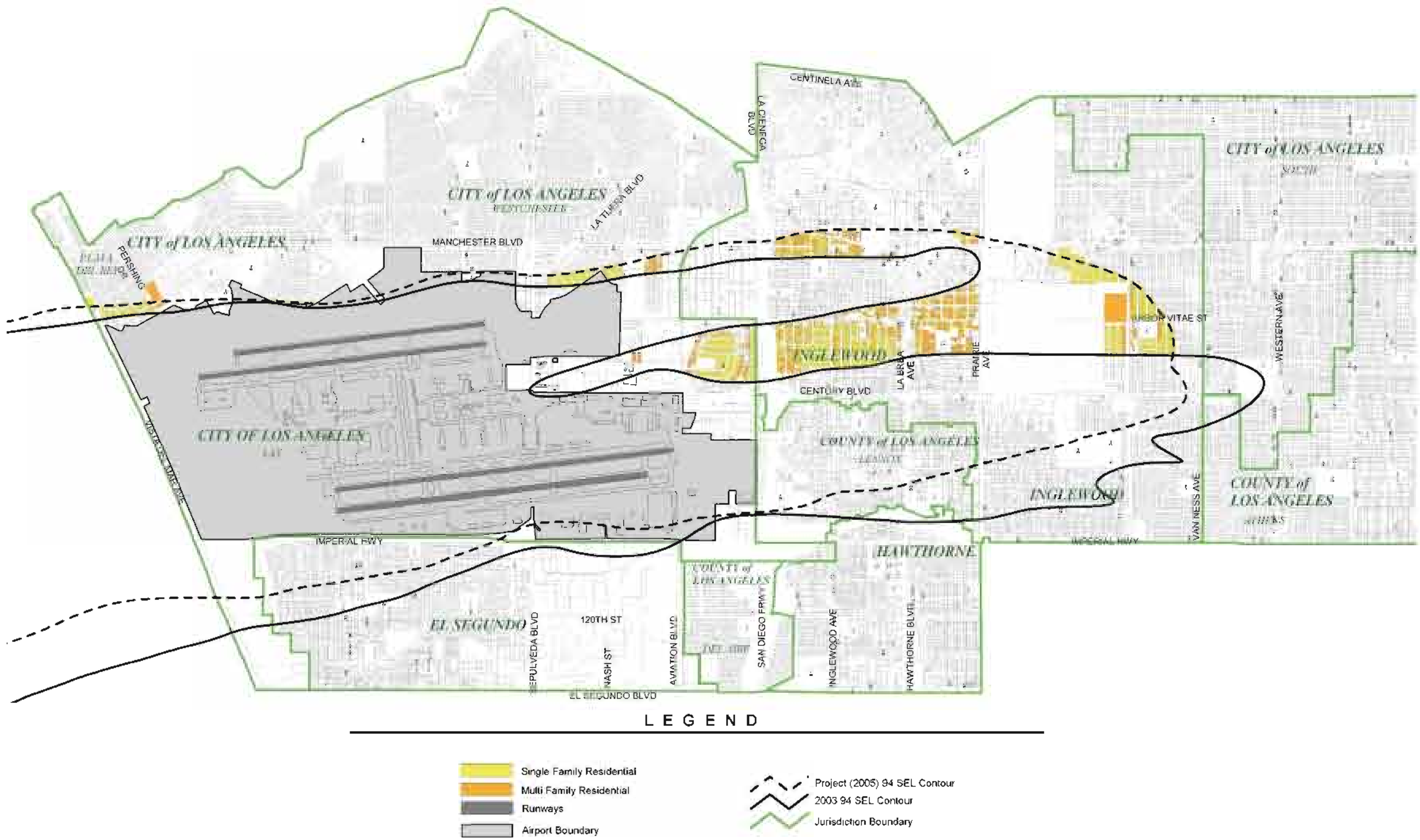


Source: Psomas, April 2000 - land use data; PCR Inc., 2002 - GIS datasets and mapping; Landrum & Brown, Inc., 2002 - 2005 Alternative D input; Wyle Laboratories, 2004 - Project (2005) 94 SEL contour
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-14

north 0 0.5 1 Miles

94 dBA Single Event Noise Effects on Awakenings: Project (2005) Conditions



Source: Psomas, April 2000 - land use data; PCR Inc., 2002 - GIS datasets and mapping; Wyle Labratories, 2004 - 2003 and Project (2005) 94 SEL contours
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-15

92 dBA Single Event Noise Effects on Awakenings: Project (2005) Conditions Compaired to 2003 Baseline Conditions

Table 4.5-18

94 dBA Single Event Noise Effects on Awakenings: 2005 Project (2005) Compared with 2003 Baseline Conditions[1/]

Impact Category	LA City	LA County	El Segundo	Inglewood	Hawthorne	Total
Project (2005)						
Exposure ≥ 94 dBA (SEL)						
Number of Dwellings[2/]	2,535	3,182	1,360	11,768	0	18,845
Estimated Population[2/]	5,682	13,819	2,959	38,529	0	60,989
2003 Baseline						
Exposure ≥ 94 dBA (SEL)						
Number of Dwellings[2/]	1,592	4,372	2,123	9,322	8	17,417
Estimated Population[2/]	3,796	18,464	4,571	31,897	30	58,758
Change between Project (2005) and Baseline 2003						
Number of Dwellings[2/]	943	-1,190	-763	2,446	-8	1,428
Estimated Population[2/]	1,886	-4,645	-1,612	6,632	-30	2,231

Notes:

The shift of the location of the Number of Events Above 94 dBA SEL contour for 2005 SAIP conditions results in several thousand dwellings (and associated population) no longer being within the NA 94 dBA SEL contour (compared to 2003 Baseline conditions). The majority of dwellings would be newly impacted. The majority of these dwellings lie between the approaches to the north and south runway complexes east of LAX.

1/ Values determined via noise contour overlay on GIS parcel data.

2/ Population and dwellings developed using year 2000 Census data.

Sources: Ricondo & Associates, Inc., 2004. Based on Landrum & Brown INM analysis of 2005 scenario and PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.

Prepared by: Ricondo and Associates, Inc.

Table 4.5-19 (1 of 3)

Average Hourly L_{eq} at Study Area Schools: Project (2005) Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet)[2/]	Y Dist. (feet)[2/]	ANSI 35 $L_{eq(h)}$[3/]
	Public Schools				
PBS006	74th Street Elementary School	LA City	27281	10743	21.1
PBS009	95th Street Preparatory School	LA County	34094	2313	34.1
PBS011	Arena High School	El Segundo	-2515	-6204	31.0
PBS017	Boulah Payne Elementary School	Inglewood	14818	3297	33.1
PBS018	Bret Harte Junior High School	LA City	35904	3121	32.8
PBS019	Buford Elementary School	LA County	12212	-1924	33.0
PBS021	Center Street Elementary School	El Segundo	911	-6459	28.2
PBS022	Centinela Elementary School	Inglewood	13419	10800	19.1
PBS023	Centinela Valley Union High School Dist	Hawthorne	15909	-7797	18.1
PBS024	Century park Elementary School	Inglewood	26296	-2314	24.4
PBS026	Clyde Woodworth Elementary School	Inglewood	23650	-1034	31.2
PBS027	Cowan Avenue Elementary School	LA City	172	11002	22.3
PBS028	Crozier Middle School	Inglewood	15282	7661	26.5
PBS029	Daniel Freeman Elementary School	Inglewood	25282	8750	27.0
PBS031	El Segundo Jr. High School	El Segundo	-1003	-8864	24.2
PBS032	El Segundo Middle School	El Segundo	-3780	-6609	30.2
PBS033	Eucalyptus School	Hawthorne	14499	-7413	19.6
PBS035	Felton Elementary School	LA County	12046	-585	46.4
PBS036	Figueroa Street Elementary School	LA City	37216	-3113	19.1
PBS040	George Washington High School and Magnet Center	LA County	31524	-2029	23.5
PBS041	Grace Church of the Nazarene	LA County	32406	-2584	21.7
PBS042	Hawthorne High School	Hawthorne	12992	-8938	19.1
PBS047	Hillcrest Continuation School	Inglewood	13295	5451	37.5
PBS048	Hudnall Elementary School	Inglewood	13951	6710	30.4
PBS049	Imperial Avenue School Special Education Facility	El Segundo	-1068	-4601	36.0
PBS050	Inglewood High School	Inglewood	14856	6115	34.6
PBS054	Inglewood Unified School Dist	Inglewood	16704	9736	21.1
PBS055	Jefferson Elementary School	LA County	14713	3	43.2
PBS058	Juan de Anza Elementary School	LA County	10708	-7313	22.8
PBS059	Kelso Elementary School	Inglewood	18679	5302	37.2
PBS061	Kentwood Elementary School	LA City	419	7093	29.6
PBS062	LA Unified School Dist	LA City	968	5128	36.8
PBS086	LA Unified School Dist	LA City	38040	1964	32.6
PBS090	La Salle Avenue Elementary School	LA City	30414	5411	30.8
PBS091	Lennox Middle School	LA County	11903	-2672	29.9
PBS098	Loren Miller Elementary School	LA City	35517	9615	26.8
PBS099	Loyola Village Elementary School	LA City	-4391	5512	31.0
PBS100	Manchester Avenue Elementary School	LA City	36630	5989	29.5
PBS101	Manhattan Place Elementary School	LA City	29058	2028	35.5
PBS102	Moffet Elementary School	LA County	17390	-2628	26.3
PBS105	Oak Street Elementary School	Inglewood	11840	4627	40.4
PBS106	Orville Wright Junior High School	LA City	808	9178	25.5
PBS107	Paseo del Rey Magnet School	LA City	-8294	5322	32.1
PBS111	Raymond Avenue Elementary School	LA City	32576	10502	23.6
PBS113	Sung & Keum Kim	LA City	34981	4193	30.7
PBS117	Warren Lane Elementary School	Inglewood	24929	3265	31.1
PBS120	Westchester High School and Magnet Center	LA City	-6877	5485	31.7
PBS121	Westchester High School and Magnet Center	LA City	-6871	5484	31.7
PBS122	Westpoint Heights Elementary School	LA City	5515	8945	24.4

Table 4.5-19 (2 of 3)

Average Hourly L_{eq} at Study Area Schools: Project (2005) Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	ANSI 35 $L_{eq(h)}$ [3/]
PBS123	Whelan Elementary School	LA County	18043	-527	38.5
PBS125	Woodcrest Elementary School	LA County	33837	-1843	23.3
PBS127	Worthington Elementary School	Inglewood	21457	-3062	23.4
PBS128	York School	Hawthorne	18588	-5939	18.5
PBS140	Morningside High School	Inglewood	22487	-1032	32.0
PBS201	Monroe Middle School	Inglewood	23648	-1395	29.1
	Private Schools				
PVS001	Los Angeles Urban League	LA City	37733	11384	23.1
PVS002	Archdiocese of Los Angeles Educ	LA City	37336	-3455	18.3
PVS003	Archdiocese of LA Educ	LA County	34483	5967	30.1
PVS004	Archdiocese of LA Educ	LA City	27097	2468	34.1
PVS007	Archdiocese of LA Educ & Welfare Corp	LA City	-7778	4626	34.9
PVS011	Archdiocese of LA Educ & Welfare Corp	LA City	833	5679	34.1
PVS012	Archdiocese of LA Educ & Welfare Corp	LA City	771	5989	32.9
PVS017	Archdiocese of LA Educ & Welfare Corp	LA City	34119	6123	30.4
PVS025	Australia Johnson	Inglewood	12977	12319	17.7
PVS026	Bethany Apostolic Church	LA City	36140	6964	30.5
PVS028	Brady & Margaret Johnson	Inglewood	24379	5761	34.4
PVS029	Brady & Margaret Johnson Jr.	Inglewood	23982	7178	32.3
PVS030	Carolyn & Stacey Carol Jenkins	LA City	28850	11455	19.8
PVS031	Chabad of the Marina	LA City	-12447	6370	28.0
PVS033	Community Build Inc	LA City	34984	5635	29.6
PVS034	Constance Tucker	LA City	29461	-1469	26.2
PVS035	Crenshaw Christian Center Church	LA City	34140	9211	27.6
PVS036	Dorothy Moore	LA City	25423	11457	19.0
PVS037	Edgar Palmer	LA City	29435	-516	30.7
PVS044	Gary & Linda Dunn	Inglewood	13506	6729	29.9
PVS046	Glen & Marjorie McKnight	LA County	29009	-4204	18.7
PVS048	Hilltop Christian School	El Segundo	-501	-8326	25.0
PVS049	Iglesia Cristiana Juan 3:16	LA City	34967	2020	33.9
PVS051	Inglewood Christian School	Inglewood	16298	5790	36.7
PVS054	James McGregory	LA City	32159	8982	27.9
PVS055	Jeff D & Baasha K Johnson Jr.	Inglewood	18415	5475	37.3
PVS056	Jessie Jackson	LA County	34709	4608	30.3
PVS060	Keith & Maria Crisp	LA City	6258	8224	25.2
PVS062	LA Southside Christian Church	Inglewood	19294	-197	39.1
PVS064	Lindgren Ptnrshp 1	Inglewood	13310	7076	28.0
PVS065	San Pedro Academy	LA City	33672	6369	30.9
PVS066	Lucian & Desirine Bingham	Inglewood	14716	11128	18.5
PVS067	Manor Hale-Morris-Lewis	LA County	32753	-466	29.1
PVS069	Michael & Sherry Baker	Inglewood	13205	6854	29.0
PVS070	Michael Hale	Inglewood	15369	3722	34.8
PVS071	Milton Raymond	LA City	2864	13792	18.7
PVS073	Morningside United Church of Christ	Inglewood	24503	5600	34.1
PVS074	Musical Hart Evangelistic Assn Inc	Inglewood	24091	6749	33.6
PVS077	Paul & Willa Devan	LA County	12602	-226	44.6
PVS081	Providence Missionary Baptist	LA City	29676	2047	35.4
PVS082	R Marie Fegan	LA City	32177	6695	31.7
PVS083	Raymond & Carolyn Wilder	Inglewood	17478	5970	36.1
PVS084	Raymond Vanyek	LA County	16261	-881	38.2
PVS085	Riley & Faye Washington	LA City	32138	10688	22.9

Table 4.5-19 (3 of 3)

Average Hourly L_{eq} at Study Area Schools: Project (2005) Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	ANSI 35 $L_{eq(h)}$ [3/]
PVS086	Ruth Cooper	LA City	36351	8881	28.6
PVS087	Samuel Amerson	LA County	32298	-1596	24.6
PVS091	St Eugene's Catholic School	LA City	27180	2649	33.6
PVS092	St Marys Academy of LA	Inglewood	18568	9623	22.0
PVS093	St. Anastasia School	LA City	-5793	5899	30.2
PVS099	Twyla Lang	LA City	22860	11024	19.6
PVS101	Verna Nelson	LA City	29432	-911	28.6
PVS103	Westchester Lutheran Church	LA City	3278	9736	24.1
PVS104	Westchester Neighborhood School	LA City	9240	3525	39.5
PVS105	Acacia Baptist School	Hawthorne	14468	-9493	17.5
PVS106	Calvary Christian School	Inglewood	26663	6419	33.6
PVS107	Escuela de Montessori	LA City	3658	5088	34.2
PVS108	Faith Lutheran Church School	Inglewood	23359	6499	34.3
PVS109	K-Anthony's Middle School	Inglewood	18639	3216	31.2
PVS110	Saint Anthony's Catholic School	El Segundo	-573	-8780	24.2
PVS111	St Joseph's Catholic Church School	Hawthorne	16874	-6105	19.3
PVS138	Loyola Marymount University	LA City	-2901	10004	22.2
PBS114	University of West Los Angeles	Inglewood	9739	3976	40.7
PBS116	University of West Los Angeles	Inglewood	8575	4739	40.3

Notes:

1/ Shaded rows indicate schools that were calculated to have sustained $L_{eq(h)}$ levels above 35 dBA, indicating the potential for classroom teaching interruption.

2/ The sites are located by X and Y coordinates in feet. Each X and Y value is a distance measured in feet from the airport reference point on the airport (near the Tom Bradley International Terminal.) This type of coordinate system is called the Cartesian or rectangular coordinate system. This system is commonly defined by two axes at right angles (two lines that form a 90-degree angle to each other and are perpendicular) forming a plane (xy plane). The horizontal (moving left or right along the plane) axis is called the x-axis. The opposite is called the vertical (moving up or down along the plane) axis, which is called the y-axis. The point of intersection (where both the x and y axes meet) is called the origin point (depicted as 0,0 point). A unit of length is used to mark along the x and y axes, which forms a grid. To specify a particular point on a two dimensional coordinate system, you indicate the x unit first, followed by the y unit in the form (x,y), an ordered pair. The intersection of the two x-y axes creates four quadrants-northeast, southeast, southwest and northwest. In the northeast quadrant, values are (x,y), and southeast:(-x,y), southwest:(-x,-y) and northwest:(x,-y).

3/ Noise levels are computed by converting 24-hour exterior L_{eq} data to 8-hour exterior L_{eq} data by adding 4.8 L_{eq} to the computed 24-hour level, then subtracting 28.8 decibels for exterior to interior attenuation produced by average construction techniques at area schools (as measured by LAWA), resulting in interior hourly L_{eq} values.

Source: Ricondo & Associates, Inc., 2004. Based on Landrum & Brown INM analysis of 2005 scenario and PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.

Prepared by: Ricondo and Associates, Inc.

Table 4.5-20 (1 of 3)

84 dBA L_{max} Exterior (55 dBA Interior)Threshold for Teaching Large Groups: Project (2005) Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	84 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
	Public Schools						
PBS006	74th Street Elementary School	LA City	27281	10743	0.0	N/A	N/A
PBS009	95th Street Preparatory School	LA County	34094	2313	0.0	N/A	N/A
PBS011	Arena High School	El Segundo	-2515	-6204	0.0	N/A	N/A
PBS017	Boulah Payne Elementary School	Inglewood	14818	3297	0.0	N/A	N/A
PBS018	Bret Harte Junior High School	LA City	35904	3121	0.0	N/A	N/A
PBS019	Buford Elementary School	LA County	12212	-1924	0.0	N/A	N/A
PBS021	Center Street Elementary School	El Segundo	911	-6459	0.0	N/A	N/A
PBS022	Centinela Elementary School	Inglewood	13419	10800	0.0	N/A	N/A
PBS023	Centinela Valley Union High School Dist	Hawthorne	15909	-7797	0.0	N/A	N/A
PBS024	Century park Elementary School	Inglewood	26296	-2314	0.0	N/A	N/A
PBS026	Clyde Woodworth Elementary School	Inglewood	23650	-1034	0.0	N/A	N/A
PBS027	Cowan Avenue Elementary School	LA City	172	11002	0.0	N/A	N/A
PBS028	Crozier Middle School	Inglewood	15282	7661	0.0	N/A	N/A
PBS029	Daniel Freeman Elementary School	Inglewood	25282	8750	0.0	N/A	N/A
PBS031	El Segundo Jr. High School	El Segundo	-1003	-8864	0.0	N/A	N/A
PBS032	El Segundo Middle School	El Segundo	-3780	-6609	0.0	N/A	N/A
PBS033	Eucalyptus School	Hawthorne	14499	-7413	0.0	N/A	N/A
PBS035	Felton Elementary School	LA County	12046	-585	8.5	131.1	3.9
PBS036	Figueroa Street Elementary School	LA City	37216	-3113	0.0	N/A	N/A
PBS040	George Washington High School and Magnet Center	LA County	31524	-2029	0.0	N/A	N/A
PBS041	Grace Church of the Nazarene	LA County	32406	-2584	0.0	N/A	N/A
PBS042	Hawthorne High School	Hawthorne	12992	-8938	0.0	N/A	N/A
PBS047	Hillcrest Continuation School	Inglewood	13295	5451	0.0	N/A	N/A
PBS048	Hudnall Elementary School	Inglewood	13951	6710	0.0	N/A	N/A
PBS049	Imperial Avenue School Special Education Facility	El Segundo	-1068	-4601	0.1	1.1	5.6
PBS050	Inglewood High School	Inglewood	14856	6115	0.0	N/A	N/A
PBS054	Inglewood Unified School Dist	Inglewood	16704	9736	0.0	N/A	N/A
PBS055	Jefferson Elementary School	LA County	14713	3	6.1	98.5	3.7
PBS058	Juan de Anza Elementary School	LA County	10708	-7313	0.0	N/A	N/A
PBS059	Kelso Elementary School	Inglewood	18679	5302	0.0	N/A	N/A
PBS061	Kentwood Elementary School	LA City	419	7093	0.0	N/A	N/A
PBS062	LA Unified School Dist	LA City	968	5128	0.0	N/A	N/A
PBS086	LA Unified School Dist	LA City	38040	1964	0.0	N/A	N/A
PBS090	La Salle Avenue Elementary School	LA City	30414	5411	0.0	N/A	N/A
PBS091	Lennox Middle School	LA County	11903	-2672	0.0	N/A	N/A
PBS098	Loren Miller Elementary School	LA City	35517	9615	0.0	N/A	N/A
PBS099	Loyola Village Elementary School	LA City	-4391	5512	0.0	N/A	N/A
PBS100	Manchester Avenue Elementary School	LA City	36630	5989	0.0	N/A	N/A
PBS101	Manhattan Place Elementary School	LA City	29058	2028	0.0	N/A	N/A
PBS102	Moffet Elementary School	LA County	17390	-2628	0.0	N/A	N/A
PBS105	Oak Street Elementary School	Inglewood	11840	4627	1.3	50.4	1.5
PBS106	Orville Wright Junior High School	LA City	808	9178	0.0	N/A	N/A
PBS107	Paseo del Rey Magnet School	LA City	-8294	5322	0.0	N/A	N/A
PBS111	Raymond Avenue Elementary School	LA City	32576	10502	0.0	N/A	N/A
PBS113	Sung & Keum Kim School??	LA City	34981	4193	0.0	N/A	N/A
PBS117	Warren Lane Elementary School	Inglewood	24929	3265	0.0	N/A	N/A
PBS120	Westchester High School and Magnet Center	LA City	-6877	5485	0.0	N/A	N/A

Table 4.5-20 (2 of 3)

84 dBA L_{max} Exterior (55 dBA Interior)Threshold for Teaching Large Groups: Project (2005) Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet)[2/]	Y Dist. (feet)[2/]	84 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
PBS121	Westchester High School and Magnet Center	LA City	-6871	5484	0.0	N/A	N/A
PBS122	Westpoint Heights Elementary School	LA City	5515	8945	0.0	N/A	N/A
PBS123	Whelan Elementary School	LA County	18043	-527	2.4	38.0	3.8
PBS125	Woodcrest Elementary School	LA County	33837	-1843	0.0	N/A	N/A
PBS127	Worthington Elementary School	Inglewood	21457	-3062	0.0	N/A	N/A
PBS128	York School	Hawthorne	18588	-5939	0.0	N/A	N/A
PBS140	Morningside High School	Inglewood	22487	-1032	0.0	N/A	N/A
PBS201	Monroe Middle School	Inglewood	23648	-1395	0.0	N/A	N/A
	Private Schools						
PVS001	Los Angeles Urban League	LA City	37733	11384	0.0	N/A	N/A
PVS002	Archdiocese of Los Angeles Educ	LA City	37336	-3455	0.0	N/A	N/A
PVS003	Archdiocese of LA Educ	LA County	34483	5967	0.0	N/A	N/A
PVS004	Archdiocese of LA Educ	LA City	27097	2468	0.0	N/A	N/A
PVS007	Archdiocese of LA Educ & Welfare Corp	LA City	-7778	4626	0.0	N/A	N/A
PVS011	Archdiocese of LA Educ & Welfare Corp	LA City	833	5679	0.0	N/A	N/A
PVS012	Archdiocese of LA Educ & Welfare Corp	LA City	771	5989	0.0	N/A	N/A
PVS017	Archdiocese of LA Educ & Welfare Corp	LA City	34119	6123	0.0	N/A	N/A
PVS025	Australia Johnson	Inglewood	12977	12319	0.0	N/A	N/A
PVS026	Bethany Apostolic Church	LA City	36140	6964	0.0	N/A	N/A
PVS028	Brady & Margaret Johnson	Inglewood	24379	5761	0.0	N/A	N/A
PVS029	Brady & Margaret Johnson Jr.	Inglewood	23982	7178	0.0	N/A	N/A
PVS030	Carolyn & Stacey Carol Jenkins	LA City	28850	11455	0.0	N/A	N/A
PVS031	Chabad of the Marina	LA City	-12447	6370	0.0	N/A	N/A
PVS033	Community Build Inc	LA City	34984	5635	0.0	N/A	N/A
PVS034	Constance Tucker	LA City	29461	-1469	0.0	N/A	N/A
PVS035	Crenshaw Christian Center Church	LA City	34140	9211	0.0	N/A	N/A
PVS036	Dorothy Moore	LA City	25423	11457	0.0	N/A	N/A
PVS037	Edgar Palmer	LA City	29435	-516	0.0	N/A	N/A
PVS044	Gary & Linda Dunn	Inglewood	13506	6729	0.0	N/A	N/A
PVS046	Glen & Marjorie McKnight	LA County	29009	-4204	0.0	N/A	N/A
PVS048	Hilltop Christian School	El Segundo	-501	-8326	0.0	N/A	N/A
PVS049	Iglesia Cristiana Juan 3:16	LA City	34967	2020	0.0	N/A	N/A
PVS051	Inglewood Christian School	Inglewood	16298	5790	0.0	N/A	N/A
PVS054	James McGregory	LA City	32159	8982	0.0	N/A	N/A
PVS055	Jeff D & Baasha K Johnson Jr.	Inglewood	18415	5475	0.0	N/A	N/A
PVS056	Jessie Jackson	LA County	34709	4608	0.0	N/A	N/A
PVS060	Keith & Maria Crisp	LA City	6258	8224	0.0	N/A	N/A
PVS062	LA Southside Christian Church	Inglewood	19294	-197	2.7	37.7	4.3
PVS064	Lindgren Ptnrshp 1	Inglewood	13310	7076	0.0	N/A	N/A
PVS065	San Pedro Academy	LA City	33672	6369	0.0	N/A	N/A
PVS066	Lucian & Desirine Bingham	Inglewood	14716	11128	0.0	N/A	N/A
PVS067	Manor Hale-Morris-Lewis	LA County	32753	-466	0.0	N/A	N/A
PVS069	Michael & Sherry Baker	Inglewood	13205	6854	0.0	N/A	N/A
PVS070	Michael Hale	Inglewood	15369	3722	0.1	2.6	2.3
PVS071	Milton Raymond	LA City	2864	13792	0.0	N/A	N/A
PVS073	Morningside United Church of Christ	Inglewood	24503	5600	0.0	N/A	N/A
PVS074	Musical Hart Evangelistic Assn Inc	Inglewood	24091	6749	0.0	N/A	N/A
PVS077	Paul & Willa Devan	LA County	12602	-226	7.3	117.7	3.7
PVS081	Providence Missionary Baptist	LA City	29676	2047	0.0	N/A	N/A
PVS082	R Marie Fegan	LA City	32177	6695	0.0	N/A	N/A
PVS083	Raymond & Carolyn Wilder	Inglewood	17478	5970	0.0	N/A	N/A

Table 4.5-20 (3 of 3)

84 dBA L_{max} Exterior (55 dBA Interior)Threshold for Teaching Large Groups: Project (2005) Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet)[2/]	Y Dist. (feet[2/])	84 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
PVS084	Raymond Vanyek	LA County	16261	-881	2.3	38.1	3.6
PVS085	Riley & Faye Washington	LA City	32138	10688	0.0	N/A	N/A
PVS086	Ruth Cooper	LA City	36351	8881	0.0	N/A	N/A
PVS087	Samuel Amerson	LA County	32298	-1596	0.0	N/A	N/A
PVS091	St Eugene's Catholic School	LA City	27180	2649	0.0	N/A	N/A
PVS092	St Marys Academy of LA	Inglewood	18568	9623	0.0	N/A	N/A
PVS093	St. Anastasia School	LA City	-5793	5899	0.0	N/A	N/A
PVS099	Twyla Lang	LA City	22860	11024	0.0	N/A	N/A
PVS101	Verna Nelson	LA City	29432	-911	0.0	N/A	N/A
PVS103	Westchester Lutheran Church	LA City	3278	9736	0.0	N/A	N/A
PVS104	Westchester Neighborhood School	LA City	9240	3525	1.6	30.4	3.2
PVS105	Acacia Baptist School	Hawthorne	14468	-9493	0.0	N/A	N/A
PVS106	Calvary Christian School	Inglewood	26663	6419	0.0	N/A	N/A
PVS107	Escuela de Montessori	LA City	3658	5088	0.0	N/A	N/A
PVS108	Faith Lutheran Church School	Inglewood	23359	6499	0.0	N/A	N/A
PVS109	K-Anthony's Middle School	Inglewood	18639	3216	0.0	N/A	N/A
PVS110	Saint Anthony's Catholic School	El Segundo	-573	-8780	0.0	N/A	N/A
PVS111	St Joseph's Catholic Church School	Hawthorne	16874	-6105	0.0	N/A	N/A
PVS138	Loyola Marymount University	LA City	-2901	10004	0.0	N/A	N/A
PBS114	University of West Los Angeles	Inglewood	9739	3976	2.1	55.0	2.3
PBS116	University of West Los Angeles	Inglewood	8575	4739	1.2	46.6	1.5

Notes:

1/ Shaded rows indicate schools that were calculated to have L_{max} levels above 84 dBA, indicating the potential for classroom teaching interruption.

2/ The sites are located by X and Y coordinates in feet. Each X and Y value is a distance measured in feet from the airport reference point on the airport (near the Tom Bradley International Terminal.) This type of coordinate system is called the Cartesian or rectangular coordinate system. This system is commonly defined by two axes at right angles (two lines that form a 90-degree angle to each other and are perpendicular) forming a plane (xy plane). The horizontal (moving left or right along the plane) axis is called the x-axis. The opposite is called the vertical (moving up or down along the plane) axis, which is called the y-axis. The point of intersection (where both the x and y axes meet) is called the origin point (depicted as 0,0 point). A unit of length is used to mark along the x and y axes, which forms a grid. To specify a particular point on a two dimensional coordinate system, you indicate the x unit first, followed by the y unit in the form (x,y), an ordered pair. The intersection of the two x-y axes creates four quadrants-northeast, southeast, southwest and northwest. In the northeast quadrant, values are (x,y), and southeast:(-x,y), southwest:(-x,-y) and northwest:(x,-y).

3/ N/A = Not applicable.
TA = Total number of minutes per school day that aircraft noise exceeds exterior 84 dBA L_{max}.
NA = Number of events that exceed exterior 84 dBA L_{max} during an average school day.
Avg. D = Average duration in seconds of each event that exceeds exterior 84 dBA L_{max} during the average school day.

Source: Ricondo & Associates, Inc., 2004. Based on Landrum & Brown INM analysis of 2005 scenario and PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.
Prepared by: Ricondo and Associates, Inc.

Table 4.5-21 (1 of 3)

94 dBA L_{max} Exterior (65 dBA Interior) Threshold for Teaching Small Groups: Project (2005) Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	94 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
	Public Schools						
PBS006	74th Street Elementary School	LA City	27281	10743	0.0	N/A	N/A
PBS009	95th Street Preparatory School	LA County	34094	2313	0.0	N/A	N/A
PBS011	Arena High School	El Segundo	-2515	-6204	0.0	N/A	N/A
PBS017	Boulah Payne Elementary School	Inglewood	14818	3297	0.0	N/A	N/A
PBS018	Bret Harte Junior High School	LA City	35904	3121	0.0	N/A	N/A
PBS019	Buford Elementary School	LA County	12212	-1924	0.0	N/A	N/A
PBS021	Center Street Elementary School	El Segundo	911	-6459	0.0	N/A	N/A
PBS022	Centinela Elementary School	Inglewood	13419	10800	0.0	N/A	N/A
PBS023	Centinela Valley Union High School Dist	Hawthorne	15909	-7797	0.0	N/A	N/A
PBS024	Century park Elementary School	Inglewood	26296	-2314	0.0	N/A	N/A
PBS026	Clyde Woodworth Elementary School	Inglewood	23650	-1034	0.0	N/A	N/A
PBS027	Cowan Avenue Elementary School	LA City	172	11002	0.0	N/A	N/A
PBS028	Crozier Middle School	Inglewood	15282	7661	0.0	N/A	N/A
PBS029	Daniel Freeman Elementary School	Inglewood	25282	8750	0.0	N/A	N/A
PBS031	El Segundo Jr. High School	El Segundo	-1003	-8864	0.0	N/A	N/A
PBS032	El Segundo Middle School	El Segundo	-3780	-6609	0.0	N/A	N/A
PBS033	Eucalyptus School	Hawthorne	14499	-7413	0.0	N/A	N/A
PBS035	Felton Elementary School	LA County	12046	-585	1.4	131.1	0.6
PBS036	Figueroa Street Elementary School	LA City	37216	-3113	0.0	N/A	N/A
PBS040	George Washington High School and Magnet Center	LA County	31524	-2029	0.0	N/A	N/A
PBS041	Grace Church of the Nazarene	LA County	32406	-2584	0.0	N/A	N/A
PBS042	Hawthorne High School	Hawthorne	12992	-8938	0.0	N/A	N/A
PBS047	Hillcrest Continuation School	Inglewood	13295	5451	0.0	N/A	N/A
PBS048	Hudnall Elementary School	Inglewood	13951	6710	0.0	N/A	N/A
PBS049	Imperial Avenue School Special Education Facility	El Segundo	-1068	-4601	0.0	N/A	N/A
PBS050	Inglewood High School	Inglewood	14856	6115	0.0	N/A	N/A
PBS054	Inglewood Unified School Dist	Inglewood	16704	9736	0.0	N/A	N/A
PBS055	Jefferson Elementary School	LA County	14713	3	0.1	98.5	0.1
PBS058	Juan de Anza Elementary School	LA County	10708	-7313	0.0	N/A	N/A
PBS059	Kelso Elementary School	Inglewood	18679	5302	0.0	N/A	N/A
PBS061	Kentwood Elementary School	LA City	419	7093	0.0	N/A	N/A
PBS062	LA Unified School Dist	LA City	968	5128	0.0	N/A	N/A
PBS086	LA Unified School Dist	LA City	38040	1964	0.0	N/A	N/A
PBS090	La Salle Avenue Elementary School	LA City	30414	5411	0.0	N/A	N/A
PBS091	Lennox Middle School	LA County	11903	-2672	0.0	N/A	N/A
PBS098	Loren Miller Elementary School	LA City	35517	9615	0.0	N/A	N/A
PBS099	Loyola Village Elementary School	LA City	-4391	5512	0.0	N/A	N/A
PBS100	Manchester Avenue Elementary School	LA City	36630	5989	0.0	N/A	N/A
PBS101	Manhattan Place Elementary School	LA City	29058	2028	0.0	N/A	N/A
PBS102	Moffet Elementary School	LA County	17390	-2628	0.0	N/A	N/A
PBS105	Oak Street Elementary School	Inglewood	11840	4627	0.0	N/A	N/A
PBS106	Orville Wright Junior High School	LA City	808	9178	0.0	N/A	N/A
PBS107	Paseo del Rey Magnet School	LA City	-8294	5322	0.0	N/A	N/A
PBS111	Raymond Avenue Elementary School	LA City	32576	10502	0.0	N/A	N/A
PBS113	Sung & Keum Kim School??	LA City	34981	4193	0.0	N/A	N/A
PBS117	Warren Lane Elementary School	Inglewood	24929	3265	0.0	N/A	N/A
PBS120	Westchester High School and Magnet Center	LA City	-6877	5485	0.0	N/A	N/A
PBS121	Westchester High School and Magnet Center	LA City	-6871	5484	0.0	N/A	N/A

Table 4.5-21 (2 of 3)

94 dBA L_{max} Exterior (65 dBA Interior) Threshold for Teaching Small Groups: Project (2005) Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	94 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
PBS122	Westpoint Heights Elementary School	LA City	5515	8945	0.0	N/A	N/A
PBS123	Whelan Elementary School	LA County	18043	-527	0.0	N/A	N/A
PBS125	Woodcrest Elementary School	LA County	33837	-1843	0.0	N/A	N/A
PBS127	Worthington Elementary School	Inglewood	21457	-3062	0.0	N/A	N/A
PBS128	York School	Hawthorne	18588	-5939	0.0	N/A	N/A
PBS140	Morningside High School	Inglewood	22487	-1032	0.0	N/A	N/A
PBS201	Monroe Middle School	Inglewood	23648	-1395	0.0	N/A	N/A
	Private Schools						
PVS001	Los Angeles Urban League	LA City	37733	11384	0.0	N/A	N/A
PVS002	Archdiocese of Los Angeles Educ	LA City	37336	-3455	0.0	N/A	N/A
PVS003	Archdiocese of LA Educ	LA County	34483	5967	0.0	N/A	N/A
PVS004	Archdiocese of LA Educ	LA City	27097	2468	0.0	N/A	N/A
PVS007	Archdiocese of LA Educ & Welfare Corp	LA City	-7778	4626	0.0	N/A	N/A
PVS011	Archdiocese of LA Educ & Welfare Corp	LA City	833	5679	0.0	N/A	N/A
PVS012	Archdiocese of LA Educ & Welfare Corp	LA City	771	5989	0.0	N/A	N/A
PVS017	Archdiocese of LA Educ & Welfare Corp	LA City	34119	6123	0.0	N/A	N/A
PVS025	Australia Johnson	Inglewood	12977	12319	0.0	N/A	N/A
PVS026	Bethany Apostolic Church	LA City	36140	6964	0.0	N/A	N/A
PVS028	Brady & Margaret Johnson	Inglewood	24379	5761	0.0	N/A	N/A
PVS029	Brady & Margaret Johnson Jr.	Inglewood	23982	7178	0.0	N/A	N/A
PVS030	Carolyn & Stacey Carol Jenkins	LA City	28850	11455	0.0	N/A	N/A
PVS031	Chabad of the Marina	LA City	-12447	6370	0.0	N/A	N/A
PVS033	Community Build Inc	LA City	34984	5635	0.0	N/A	N/A
PVS034	Constance Tucker	LA City	29461	-1469	0.0	N/A	N/A
PVS035	Crenshaw Christian Center Church	LA City	34140	9211	0.0	N/A	N/A
PVS036	Dorothy Moore	LA City	25423	11457	0.0	N/A	N/A
PVS037	Edgar Palmer	LA City	29435	-516	0.0	N/A	N/A
PVS044	Gary & Linda Dunn	Inglewood	13506	6729	0.0	N/A	N/A
PVS046	Glen & Marjorie McKnight	LA County	29009	-4204	0.0	N/A	N/A
PVS048	Hilltop Christian School	El Segundo	-501	-8326	0.0	N/A	N/A
PVS049	Iglesia Cristiana Juan 3:16	LA City	34967	2020	0.0	N/A	N/A
PVS051	Inglewood Christian School	Inglewood	16298	5790	0.0	N/A	N/A
PVS054	James McGregory	LA City	32159	8982	0.0	N/A	N/A
PVS055	Jeff D & Baasha K Johnson Jr.	Inglewood	18415	5475	0.0	N/A	N/A
PVS056	Jessie Jackson	LA County	34709	4608	0.0	N/A	N/A
PVS060	Keith & Maria Crisp	LA City	6258	8224	0.0	N/A	N/A
PVS062	LA Southside Christian Church	Inglewood	19294	-197	0.0	N/A	N/A
PVS064	Lindgren Ptnrshp 1	Inglewood	13310	7076	0.0	N/A	N/A
PVS065	San Pedro Academy	LA City	33672	6369	0.0	N/A	N/A
PVS066	Lucian & Desirine Bingham	Inglewood	14716	11128	0.0	N/A	N/A
PVS067	Manor Hale-Morris-Lewis	LA County	32753	-466	0.0	N/A	N/A
PVS069	Michael & Sherry Baker	Inglewood	13205	6854	0.0	N/A	N/A
PVS070	Michael Hale	Inglewood	15369	3722	0.0	N/A	N/A
PVS071	Milton Raymond	LA City	2864	13792	0.0	N/A	N/A
PVS073	Morningside United Church of Christ	Inglewood	24503	5600	0.0	N/A	N/A
PVS074	Musical Hart Evangelistic Assn Inc	Inglewood	24091	6749	0.0	N/A	N/A
PVS077	Paul & Willa Devan	LA County	12602	-226	1.1	117.7	0.6
PVS081	Providence Missionary Baptist	LA City	29676	2047	0.0	N/A	N/A
PVS082	R Marie Fegan	LA City	32177	6695	0.0	N/A	N/A
PVS083	Raymond & Carolyn Wilder	Inglewood	17478	5970	0.0	N/A	N/A

Table 4.5-21 (3 of 3)

94 dBA L_{max} Exterior (65 dBA Interior) Threshold for Teaching Small Groups: Project (2005) Conditions[1/]

Grid Cell ID	School Name	Jurisdiction	X Dist. (feet) [2/]	Y Dist. (feet) [2/]	94 dBA L_{max} TA[3/]	NA[3/]	Avg.D[3/]
PVS084	Raymond Vanyek	LA County	16261	-881	0.0	N/A	N/A
PVS085	Riley & Faye Washington	LA City	32138	10688	0.0	N/A	N/A
PVS086	Ruth Cooper	LA City	36351	8881	0.0	N/A	N/A
PVS087	Samuel Amerson	LA County	32298	-1596	0.0	N/A	N/A
PVS091	St Eugene's Catholic School	LA City	27180	2649	0.0	N/A	N/A
PVS092	St Marys Academy of LA	Inglewood	18568	9623	0.0	N/A	N/A
PVS093	St. Anastasia School	LA City	-5793	5899	0.0	N/A	N/A
PVS099	Twyla Lang	LA City	22860	11024	0.0	N/A	N/A
PVS101	Verna Nelson	LA City	29432	-911	0.0	N/A	N/A
PVS103	Westchester Lutheran Church	LA City	3278	9736	0.0	N/A	N/A
PVS104	Westchester Neighborhood School	LA City	9240	3525	0.0	N/A	N/A
PVS105	Acacia Baptist School	Hawthorne	14468	-9493	0.0	N/A	N/A
PVS106	Calvary Christian School	Inglewood	26663	6419	0.0	N/A	N/A
PVS107	Escuela de Montessori	LA City	3658	5088	0.0	N/A	N/A
PVS108	Faith Lutheran Church School	Inglewood	23359	6499	0.0	N/A	N/A
PVS109	K-Anthony's Middle School	Inglewood	18639	3216	0.0	N/A	N/A
PVS110	Saint Anthony's Catholic School	El Segundo	-573	-8780	0.0	N/A	N/A
PVS111	St Joseph's Catholic Church School	Hawthorne	16874	-6105	0.0	N/A	N/A
PVS138	Loyola Marymount University	LA City	-2901	10004	0.0	N/A	N/A
PBS114	University of West Los Angeles	Inglewood	9739	3976	0.0	N/A	N/A
PBS116	University of West Los Angeles	Inglewood	8575	4739	0.0	N/A	N/A

Notes:

1/ Shaded rows indicate schools that were calculated to have L_{max} levels above 94 dBA, indicating the potential for classroom teaching interruption.

2/ The sites are located by X and Y coordinates in feet. Each X and Y value is a distance measured in feet from the airport reference point on the airport (near the Tom Bradley International Terminal.) This type of coordinate system is called the Cartesian or rectangular coordinate system. This system is commonly defined by two axes at right angles (two lines that form a 90-degree angle to each other and are perpendicular) forming a plane (xy plane). The horizontal (moving left or right along the plane) axis is called the x-axis. The opposite is called the vertical (moving up or down along the plane) axis, which is called the y-axis. The point of intersection (where both the x and y axes meet) is called the origin point (depicted as 0,0 point). A unit of length is used to mark along the x and y axes, which forms a grid. To specify a particular point on a two dimensional coordinate system, you indicate the x unit first, followed by the y unit in the form (x,y), an ordered pair. The intersection of the two x-y axes creates four quadrants-northeast, southeast, southwest and northwest. In the northeast quadrant, values are (x,y), and southeast:(-x,y), southwest:(-x,-y) and northwest:(x,-y).

3/ N/A = Not applicable.
TA = Total number of minutes per school day that aircraft noise exceeds exterior 94 dBA L_{max}.
NA = Number of events that exceed exterior 94 dBA L_{max} during an average school day.
Avg. D = Average duration in seconds of each event that exceeds exterior 94 dBA L_{max} during the average school day.

Source: Ricondo & Associates, Inc., 2004. Based on Landrum & Brown INM analysis of 2005 scenario and PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.
Prepared by: Ricondo and Associates, Inc.

Table 4.5-20 shows the total number of minutes during the school day that the 84 dBA levels would be exceeded, the average number of events that would exceed the threshold, and the average duration (seconds) of each event. The data in Table 4.5-20 indicates that, at all the schools exposed to events registering Time Above 84 $L_{max,}$ the total time during the school day when 55 dBA is exceeded inside the classroom remained below nine minutes, but is higher than 2003 Baseline conditions (lower than five minute time above durations) for some schools. The times above the threshold were the result of as many as 131 daily disruptions compared to 103 in 2003. Five public and seven private schools would be exposed to noise events in excess of the 55 dBA interior threshold.

As indicated by Table 4.5-21, three schools (two public and one private) would have calculated noise exposure levels above 94 dBA L_{max} under Project (2005) conditions. The total time during the school day when 65 dBA is exceeded inside the classroom remained below two minutes, but the occurrences may be as many as 131 events with L_{max} levels above 94 dBA. There were no schools with calculated time-above levels over 94 dBA L_{max} under 2003 Baseline conditions.

The SAIP results for newly affected schools under Project (2005) conditions compared with 2003 Baseline conditions are summarized in **Table 4.5-22**. There would be no newly exposed schools with calculated events above 55 dBA L_{max} inside the classroom. Based on 65 dBA L_{max} criteria, three schools would be newly affected under Project (2005) conditions compared with 2003 Baseline conditions. Based on the steady-state 35 $L_{eq(h)}$ threshold, two schools identified as affected in 2003 would no longer be affected under Project (2005) conditions, but three other schools would be newly affected.

Table 4.5-23 provides a summary of the newly affected schools based on the Project (2005) 65 CNEL contour, 1.5 CNEL increase within areas exposed to CNEL 65 and higher, and/or one of the three classroom disruption thresholds. Of the six schools listed as significantly affected by the classroom disruption thresholds, three are located in the County of Los Angeles and three within the City of Los Angeles. Based on this information, Project (2005) conditions would result in potentially significant impacts associated with classroom disruption. Investigation of feasible mitigation measures is provided in Section 4.5.8.1.

4.5.6.1.5 Qualitative Aircraft Noise Screening Analysis for Post-Project Construction Conditions

A qualitative evaluation related to expected aircraft noise exposure patterns after construction of the SAIP was conducted and is presented herein. For purposes of this qualitative analysis, 2008 was considered to be a representative year of post-project construction conditions.

The purpose of the qualitative analysis was to screen for potential changes in south complex and north complex runway use after Runway 7R-25L is relocated approximately 55 feet south and a new center taxiway is constructed. This qualitative analysis relies on airfield and air traffic analyses conducted for the Final LAX Master Plan as well as updated information provided by LAWA and the FAA. Annualized runway use patterns for 2008 were projected using the results of the air traffic pattern and procedure analysis. Expected 2008 runway use patterns were compared to 2003 Baseline conditions to identify potential runway use pattern changes after the SAIP is completed.

Table 4.5-22

Schools Exposed to Significant Interior Single Event Noise Levels: Project (2005) Compared with 2003 Baseline Conditions

Impact Category	Project (2005)	2003 Baseline Net Change	2003 Baseline Newly Exposed
Exposure ≥ 35 dBA ($L_{eq(h)}$)			
Number of Public Schools	9	0	2
Number of Private Schools	10	1	1
Average $L_{eq(h)}$	38.9	0.7	N/A
Exposure ≥ 55 dBA (L_{max})			
Number of Public Schools	5	-3	0
Number of Private Schools	7	-3	0
Average Number of Events/School	53.9	25.3	N/A
Average Seconds/Event	3.3	0.3	N/A
Exposure ≥ 65 dBA (L_{max})			
Number of Public Schools	2	2	2
Number of Private Schools	1	1	1
Average Number of Events/School	114.8	114.8	N/A
Average Seconds/Event	0.4	0.4	N/A

Note: N/A = Not Applicable

Source: Ricondo & Associates, Inc., 2004. Based on Landrum & Brown INM analysis of 2005 scenario and PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.
Prepared by: Ricondo and Associates, Inc.

Based on the statistics provided in Appendix M, Subsection M.1.7, it was concluded qualitatively that post-project construction conditions are not expected to reflect any major changes in air traffic airspace and airfield operational characteristics compared to pre-project conditions. Therefore, runway use patterns realized in 2003 Baseline conditions would be expected to be consistent in post-project construction years (prior to any further LAX Master Plan elements to be implemented).

Because annual runway use patterns are expected to be largely unchanged (based on assumptions provided in the Final LAX Master Plan and updated FAA information) in post-project years, significant aircraft noise exposure changes related to runway use patterns are not expected. Because growth is expected to occur in post-project years (2008) compared to 2003 Baseline conditions, the overall contour may increase, but not to a degree that would cause a significant change in noise exposure (1.5 CNEL or greater) within the area exposed to 65 CNEL and higher.

The main difference between 2003 Baseline and post-SAIP construction noise exposure would be the effect of the approximately 55-foot shift of Runway 7R-25L to the south, which was adequately addressed in the LAX Master Plan Final EIR. In any post-SAIP construction year (prior to any further LAX Master Plan elements to be implemented), the CNEL exposure area is expected to be within the 1992 ANMP boundary as well as within the noise exposure impact area evaluated in the LAX Master Plan Final EIR. Yearly Title 21 evaluations would include any changes that may occur as a result of the minor shift in the Runway 25L arrival CNEL footprint, and possibly expand the program to mitigate land uses that would be considered incompatible with aircraft noise impacts associated with the approximately 55-foot shift of Runway 7R-25L. This mitigation measure is identified as MM-LU-1 in the LAX Master Plan MMRP.

Table 4.5-23

Listing of Schools Newly Exposed to Noise Thresholds: Project (2005) Compared with 2003 Baseline Conditions

Name	Jurisdiction	Newly Affected 65 CNEL	1.5 dB CNEL	55 dB L_{MAX}	65 dB L_{MAX}	35 dB ($L_{eq(h)}$)	Grid ID
Public (10)							
Beulah Payne Elementary School	Inglewood	X	X				PBS017
Felton Elementary School	LA County		X		X		PBS035
Hillcrest Continuation School	Inglewood		X				PBS047
Jefferson Elementary School	LA County		X		X		PBS055
Kelso Elementary School	Inglewood		X				PBS059
Westchester Washington Community Adult School	LA City		X			X	PBS062
Manhattan Place Elementary School	LA City	X	X			X	PBS101
Oak Street Elementary School	Inglewood		X				PBS105
University of West Los Angeles	Inglewood		X				PBS114
Westchester High School and Magnet Center	LA City	X	X				PBS121
Private (15)							
Anthony's Preschool	Inglewood	X	X				PVS028
Debbie's Child Development Center	Inglewood		X				PVS055
Escuela de Montessori	LA City	X	X				PVS107
Faith Lutheran Church School	Inglewood	X	X				PVS108
Inglewood Christian School	Inglewood		X				PVS051
Morningside United Church of Christ School	Inglewood	X	X				PVS073
Paul & Willa Devan School	LA County				X		PVS077
Providence Missionary Baptist School	LA City	X	X			X	PVS081
St. Bernard High School	LA City		X				PVS007
St. Eugene Elementary School	LA City	X	X				PVS004
Tender Care Child Development Center	Inglewood		X				PVS083
Training Research Foundation Headstart	LA City		X				PVS077
Visitation Elementary School	LA City	X	X				PVS011
Westchester Neighborhood School	LA City		X				PVS104
Wiz Child Center	Inglewood	X	X				PVS070
Total schools exposed to noise thresholds: 25							

Source: Ricondo & Associates, Inc., 2004. Based on Landrum & Brown INM analysis of 2005 scenario and PCR, Inc. GIS analysis, April 2004 – LAX Master Plan Final EIR.
Prepared by: Ricondo and Associates, Inc.

4.5.6.2 Project (2005) Construction Traffic Noise

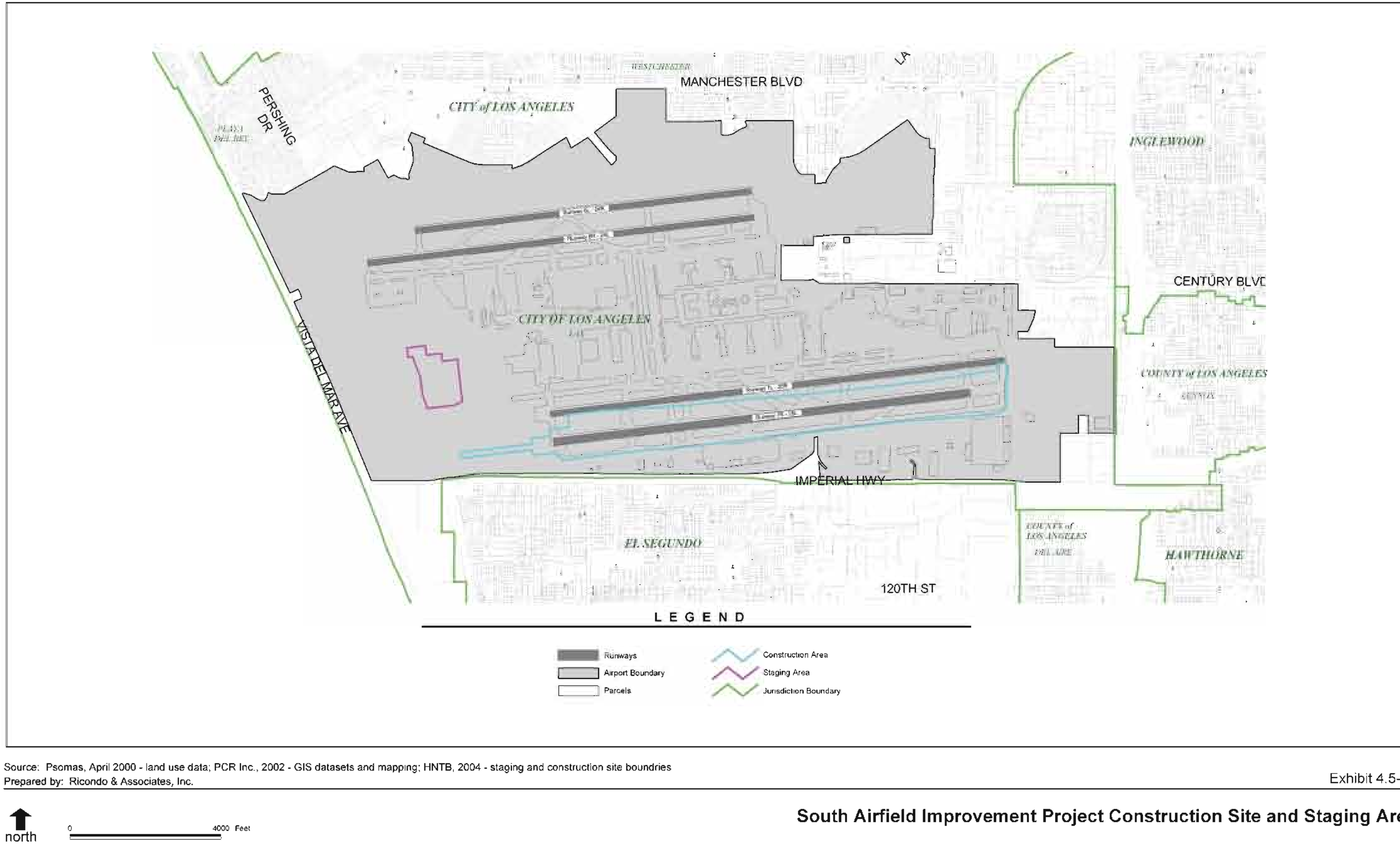
Both trucks and employee vehicles may potentially generate construction traffic noise. As part of the LAX Master Plan Final EIR, commitments were made to shift trips to off-peak hours, encourage remote parking, and minimize employee car trips. Additionally, construction-related trucks (delivery and haul) would be restricted to designated routes ensuring that these vehicles utilize the nearby freeways and major arterials to the maximum extent and minimize use of local roadways. Details related to employee shift trip peak hours, remote parking location and designated delivery/haul/employee shuttle routes are provided in Section 4.2. For the construction of the SAIP, delivery routes established by LAWA would keep truck traffic on the interstate freeways as much as possible. Therefore, traffic volumes reported for the delivery peak hour were limited to those intersections that would accommodate traffic associated with delivery trucks accessing the project construction site. The only study area intersections that would be impacted are along the western segment of Imperial Highway (identified as intersections #1-Imperial Highway/Pershing Drive and #2-Imperial Highway/Main Street in Section 4.2.)

If traffic conditions on a road are good (Level of Service-LOS of A or B) sound levels increase at a rate of 3 dBA per doubling of traffic volume. On roads with good traffic conditions, roadway traffic volumes would have to increase at more than a 3-fold rate to reach the CEQA threshold of significance of a 5 dBA increase. Several intersections with LOS of A or B evaluated for the employee morning peak, construction delivery, and employee afternoon peak hour volume did not result in a 3-fold increase of traffic volume between 2003 Baseline and SAIP levels. Traffic volume data are provided in Section 4.2. Therefore, construction related traffic in areas with good traffic conditions would not exceed the CEQA construction traffic noise threshold.

When traffic conditions are not good, such as when traffic conditions are at LOS C, D, E, or F, increased traffic volumes (including construction traffic) result in decreasing speeds, and traffic noise gets progressively quieter based on reduced engine operation levels, reduced drive-train and tire rotations, and reduced wind shear. Of the nineteen roadway intersections evaluated, four were found to have a LOS C or worse for 2003 Baseline and seven for 2005 Adjusted Baseline conditions. Adjusted baseline includes airport-related traffic generally comprised of vehicles from other airport construction, airline passengers, employees and cargo, and background traffic comprised of ambient non-airport related traffic plus any local area non-airport projects that would contribute vehicle trips to the study area. SAIP construction traffic would not exceed the threshold of significance for substantial increase in traffic noise at these intersections. Therefore, the construction traffic noise impact is expected to be less than significant and no additional mitigation is required. (The analysis of construction traffic relative to off-airport surface transportation conditions is presented in Section 4.2.)

4.5.6.3 Project (2005) Construction Equipment Noise

Because new information related to the construction site boundaries, staging area, construction scheduling, and construction equipment activity was available, additional construction equipment noise analysis was considered appropriate for this project level EIR. On-airport construction noise was evaluated for two areas: (1) the Runway 7R-25L construction site and (2) the related staging area for construction equipment and materials. These two components of SAIP represent the peak construction activity. Based on an estimated work schedule provided by LAWA, the major activities associated with construction of Runway 7R-25L would take place in four distinct work areas, which combined occur along the length of existing Runway 7R-25L as illustrated on **Exhibit 4.5-16**.



Source: Psomas, April 2000 - land use data; PCR Inc., 2002 - GIS datasets and mapping; HNTB, 2004 - staging and construction site boundries
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.5-16

South Airfield Improvement Project Construction Site and Staging Area

As recommended by the LAX Master Plan MMRP mitigation measure MM-N-8, the construction staging area would be as far from noise-sensitive areas as possible. As depicted on Exhibit 4.5-16, the contractor staging area is located on airport property west of the CTA.

4.5.6.3.1 2005 Ambient Level

Based on the thresholds of significance for construction activity defined in the *Draft L.A. CEQA Thresholds Guide,* May 1998 (summarized in Section 4.5.4.), the significance criteria for the SAIP construction was defined as an increase in noise of 5 dBA over ambient CNELs within noise-sensitive land uses. The 5 dBA threshold was selected because scheduled construction activity is expected to last for more than 10 days and will occur between 9:00 p.m. and 7:00 a.m. Monday through Friday and before 8:00 a.m. or after 6:00 p.m. on Saturday. It is important to note that most of the construction activities were expected to take place during daytime hours with a second shift starting at 4:00 p.m. and ending to 2:00 a.m. The primary purpose of the second shift would be to conduct construction activities that cannot be accomplished during the daytime shift due to coordination or interference issues (caused by airport operations, safety, delivery of materials, or equipment malfunction/availability).

In order to obtain a 2005 non-construction ambient noise level that included an aircraft component, an INM-modeled aircraft CNEL (67.4) for 2005 with Runway 7R-25L closed was calculated for LAWA's permanent noise monitoring ES2 site. This value was logarithmically added to the 2003 community or non-aircraft CNEL (57.9 dBA) measured value at Site ES2[42]. As mentioned previously, LAWA's permanent noise monitoring site ES2 was chosen to provide a representation of ambient noise level based on (1) the availability of long-term measurement data, (2) aircraft correlated CNELs, and (3) location of noise-sensitive areas closest to the SAIP construction site.

The calculation resulted in a 68.0 dBA CNEL non-construction ambient noise level for 2005. Compared with the 2003 Baseline non-construction ambient (70.4 dBA CNEL), the reduction between 2003 and 2005 was attributed to the temporary reduction in aircraft noise levels during the Runway 7R-25L closure period.

4.5.6.3.2 Project (2005) Construction Equipment Noise

For both the staging area and construction site, it was conservatively assumed for this analysis that noise of 86 dBA can be detected 50 feet from the entire area boundary. This construction activity noise level was based on typical levels contained in the *Draft L.A. CEQA Thresholds Guide*[43]*,* as derived from USEPA documents[44]. Based USEPA information, excavation and finishing are typically the noisiest construction activities with mufflers installed. For purposes of this analysis, excavation and finishing construction activity noise levels were used to represent average activity noise levels for all heavy construction activities planned for the SAIP, including activities such as rock crushing within the staging area. Starting from the edge of the SAIP construction site boundary or staging area (illustrated on Exhibit 4.5-16), the noise attenuation factor of 4.5 dBA (as stated in the *Draft L.A. CEQA Thresholds Guide)* was applied over the soft surface environment (i.e., vegetation) between the SAIP construction site and noise-sensitive land uses across Imperial Highway. For every doubling of distance after the initial 50 feet from the noise source, the noise levels decrease by 4.5 dBA.

---

[42] LAWA NMD Airport Noise Monitoring and Management System, January through December 2003.
[43] City of Los Angeles, *Draft L.A. CEQA Thresholds Guide*. May 14, 1998.
[44] U.S. Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances.* Prepared by Bolt, Beranek and Newman, 1971.

Although construction equipment would likely be distributed throughout the construction and staging areas, the following assumptions were used in evaluating construction noise impacts:

- All construction equipment was assumed to operate at the same point source either in or at the construction site or staging area boundaries.
- Construction activities were assumed to be conducted at any point along the entire SAIP construction site or staging area and, therefore, the construction noise exposure area starts at the edge of the construction site or staging area and extends outward.
- Shielding effects caused by natural or manmade structures were not included in noise attenuation calculations, although several structures exist between the construction site and noise-sensitive areas south of the airport.

The results of the analysis based on the assumptions above should not be interpreted to mean that the construction noise exposure area would actually occur simultaneously or continuously throughout the construction period, but instead the results provide a conservative estimate of potential noise impacts caused by construction activities within the SAIP construction site.

Because new information indicated construction activities were scheduled to occur both during the daytime and nighttime hours, the CNEL metric was chosen to quantify the cumulative noise levels caused by construction within the SAIP construction site, and to compare with the existing and future ambient CNELs that represent affected noise-sensitive areas. In order to calculate a construction CNEL, hourly activity or utilization factors were needed. The hourly activity factors were expressed as the percentage of time that construction activities are emitting average noise levels equaling 86 dBA L_{eq} at 50 feet from the activity. The hourly activity levels may be considered average values. There may be a potential for some periods that may emit higher levels due to variables such as operator techniques. Hourly activity factors for an average day were delineated by more recent construction shift estimates, and are presented in **Table 4.5-24**. The hourly activity factors were used in computing average hourly construction L_{eq} levels, which were then applied a penalty-weighting of 4.77 dBA to the construction noise levels in the evening (7:00 p.m. to 9:59 p.m.), and 10 dBA during nighttime hours (10:00 p.m. to 6:59 a.m.).

Table 4.5-25 presents the estimated daily average CNEL construction noise level for the entire period of construction at the construction site and staging area boundary. Each hourly L_{eq} value identified in Table 4.5-25 was weighted according to CNEL weighting factors and averaged together to determine a 24-hour construction site CNEL of 89.0 dBA.

Table 4.5-24

South Airfield Construction Site: Hourly Activity Estimate

	Hour	Hourly Activity Factor
Nighttime	12:00 am – 01:00 am	50%
	01:00 am – 02:00 am	50%
	02:00 am – 03:00 am	0%
	03:00 am – 04:00 am	0%
	04:00 am – 05:00 am	0%
	05:00 am – 06:00 am	0%
	06:00 am – 07:00 am	90%
Daytime	07:00 am – 08:00 am	100%
	08:00 am – 09:00 am	100%
	09:00 am – 10:00 am	100%
	10:00 am – 11:00 am	100%
	11:00 am – 12:00 pm	100%
	12:00 pm – 01:00 pm	100%
	01:00 pm – 02:00 pm	100%
	02:00 pm – 03:00 pm	100%
	03:00 pm – 04:00 pm	100%
	04:00 pm – 05:00 pm	100%
	05:00 pm – 06:00 pm	100%
	06:00 pm – 07:00 pm	100%
Evening	07:00 pm – 08:00 pm	75%
	08:00 pm – 09:00 pm	75%
	09:00 pm – 10:00 pm	75%
Nighttime	10:00 pm – 11:00 pm	50%
	11:00 pm – 12:00 am	50%

Note: no activity expected on Sundays.

Sources: HNTB, 2004.
Prepared by: Ricondo and Associates, 2004

Table 4.5-25

Estimated Daily CNEL Construction Noise: Runway 7R-25L Reconstruction

	Hour	Hourly Activity Factor	Hourly Average Sound Level (L_{eq}) 1/	Weighted-Hourly Average Sound Level (L_{eq} + Penalty 2/)
Nighttime	12:00 am – 01:00 am	50%	83.0	93.0
	01:00 am – 02:00 am	50%	83.0	93.0
	02:00 am – 03:00 am	0%	0.0	0.0
	03:00 am – 04:00 am	0%	0.0	0.0
	04:00 am – 05:00 am	0%	0.0	0.0
	05:00 am – 06:00 am	0%	0.0	0.0
	06:00 am – 06:59 am	90%	85.5	95.5
Daytime	07:00 am – 08:00 am	100%	86.0	86.0
	08:00 am – 09:00 am	100%	86.0	86.0
	09:00 am – 10:00 am	100%	86.0	86.0
	10:00 am – 11:00 am	100%	86.0	86.0
	11:00 am – 12:00 pm	100%	86.0	86.0
	12:00 pm – 01:00 pm	100%	86.0	86.0
	01:00 pm – 02:00 pm	100%	86.0	86.0
	02:00 pm – 03:00 pm	100%	86.0	86.0
	03:00 pm – 04:00 pm	100%	86.0	86.0
	04:00 pm – 05:00 pm	100%	86.0	86.0
	05:00 pm – 06:00 pm	100%	86.0	86.0
	06:00 pm – 06:59 pm	100%	86.0	86.0
Evening	07:00 pm – 08:00 pm	75%	84.8	89.5
	08:00 pm – 09:00 pm	75%	84.8	89.5
	09:00 pm – 09:59 pm	75%	84.8	89.5
Nighttime	10:00 pm – 11:00 pm	50%	83.0	93.0
	11:00 pm – 12:00 am	50%	83.0	93.0
	Estimated Daily CNEL 3/,4/			**89.0**

Notes:

1/ Noise value is calculated by adding the $\log_{10}$ value of the activity factor to 86 dBA L_{eq}.

2/ The penalty value added to Leq is the same levels used to calculate CNEL to account for the greater sensitivity of nearby land uses in the quieter hours between 7 p.m. and 7 a.m. During evening hours, 4.77 dBA is added to each hourly L_{eq}. During nighttime hours (10 p.m. to 6:59 a.m.), a 10 dBA weighting is applied to each hourly L_{eq}.

3/ CNEL represents cumulative sound level 50 feet from the source.

4/ Daily CNEL is calculated via the following equation: Average Daily CNEL= 10*[log (Sum of Hourly L_{eq} energy levels)] – 13.8. (13.8 represents the $\log_{10}$ value of 24 hours- 10*log(24)).

Sources: Ricondo and Associates, Inc., 2004 and HNTB, 2004.
Prepared by: Ricondo and Associates, Inc.

4.5.6.3.3 Project (2005) Construction Equipment Noise Compared to Ambient

With Runway 7R-25L closed, the estimated 2005 ambient (non-construction) CNEL within areas near the construction site is projected to be 68 dBA. Based upon the attenuation assumptions previously mentioned, a construction CNEL of 71 dBA might be detected up to 500 feet from the construction site[45]. As depicted on Exhibit 4.5-8, no noise-sensitive sites or parcels are located within the 500-foot buffer from both the runway construction site and staging area.

The closest noise-sensitive sites are approximately 600 to 700 feet from the Runway 7R-25L construction site. The construction equipment CNEL was estimated at 70 dBA, 600 feet from the construction site. Adding the 2005 ambient and construction CNELs resulted in an estimated total of 72 dBA. Compared to 2003 Baseline ambient CNEL measured at site ES2 (70.4 dBA), an increase of 2 dBA may be expected during construction in 2005.

4.5.6.3.4 Threshold of Significance – CNEL

Using the 5 dBA CNEL threshold of significance, construction noise that raises the ambient noise level to 73 dBA (68 dBA CNEL + 5 dBA = 73 dBA CNEL) or more may be considered significant. In order to raise the total background noise level to 73 dBA CNEL, construction noise would need to be 71.0 dBA CNEL or more at a noise-sensitive site (68 dBA CNEL + 71 dBA CNEL = 73 dBA CNEL). For the closest noise-sensitive site, the estimated total (construction equipment and ambient) was 72 dBA. Compared to 2003 Baseline ambient levels, an increase of 2 dBA may be expected during Project (2005) conditions.

Both calculations above were below the 5 dBA threshold of significance. Therefore, noise levels caused by SAIP construction activities are not expected to cause a significant impact on noise-sensitive areas and no additional mitigation is required

4.5.6.4 SAIP Impact Summary

Sections 4.5.1.1 through 4.5.6.3 presented a variety of measures for assessing significant noise impacts related to SAIP construction. As depicted in **Table 4.5-26**, the anticipated potentially significant impacts caused by the SAIP conditions can be summarized as follows:

- Newly exposed to 65 CNEL and higher: 4,714 dwelling units, 13,452 residents, and 34 non-residential noise-sensitive locations
- Newly exposed to 75 CNEL and higher: 176 dwelling units and 756 residents
- 1.5 CNEL or greater increase within areas exposed to 65 CNEL and higher: 9,278 dwelling units, 28,574 residents, and 50 non-residential noise-sensitive locations
- Newly exposed to 94 dBA SEL (nighttime awakenings): 5,512 dwelling units and 16,063 residents
- Newly exposed schools (classroom disruption)
    - 55 dBA L_{max}: 0 schools
    - 65 dBA L_{max}: 3 schools
    - 35 $L_{eq(h)}$: 3 schools

No significant noise impacts would result from construction traffic and equipment and thus no additional mitigation is required.

[45] Soft-ground attenuation equation: Attenuated Level=Reference Noise Level – [15 * log(Distance/50 feet)]

Table 4.5-26

Significant Impact Summary – Noise Exposure Effects of Project (2005) Compared with 2003 Baseline Conditions by Jurisdiction

Impact Category	LA City	LA County	El Segundo	Inglewood	Hawthorne	Total
65 CNEL and Greater						
Net Change in Acres Exposed	122.3	-17.8	-53.9	205.1	0.0	255.7
Net Change in Units Exposed	1,142	102	-443	2,299	0	3,100
Net Change in Population Exposed	2,476	57	-941	6,546	0	8,138
Net Change in Non-residential Noise-Sensitive Uses Exposed	6	-2	-1	23	0	26
Newly Exposed Units	1,261	736	0	2,717	0	4,714
Newly Exposed Population	2,829	2,572	0	8,051	0	13,452
Newly Exposed Non-residential Noise-sensitive Uses	8	2	0	24	0	34
75 CNEL and Higher						
Net Change in Acres Exposed	0	7	-0.4	0	0	6.6
Net Change in Units Exposed	0	119	-23	0	0	96
Net Change in Population Exposed	0	487	-53	0	0	434
Newly Exposed Units	0	176	0	0	0	176
Newly Exposed Population	0	756	0	0	0	756
1.5 CNEL increase in areas exposed to 65 CNEL and Higher						
Units Exposed	2,153	1,293	0	5,832	0	9,278
Population Exposed	4,900	5,148	0	18,526	0	28,574
Non-residential Noise-Sensitive Uses exposed[1/]	15	5	0	34	0	504
94 dBA SEL						
Change in Units Exposed	943	-1,190	-763	2,446	-8	1,428
Change in Population Exposed	1,886	-4,645	-1,612	6,632	-30	2,231
Newly Exposed Units	1,123	0	0	4,389	0	5,512
Newly Exposed Population	2,426	0	0	13,637	0	16,063
Single Event Effects on Schools						
Schools Newly Exposed[2/]	3	3	0	0	0	6

Notes:

1/ The number of noise-sensitive uses newly exposed to 65 CNEL and 75 CNEL is documented in Table 4.5-16, *Newly Impacted Residential and Noise Sensitive Land Use Areas: Project (2005) Compared with 2003 Baseline Conditions.*

2/ The number of noise-sensitive uses exposed to a 1.5 CNEL increase above 65 CNEL is documented in Table 4.5-17, *Residential and Noise Sensitive Land Use Areas Exposed to 1.5 CNEL Increase: Project (2005) Compared with 2003 Baseline conditions*.

3/ The number of residential units newly exposed to potential nighttime awakenings is documented in Table 4.5-18, *94 dBA Single Event Noise Effects on Awakenings: 2005 Project (2005) Compared with 2003 Baseline Conditions.*

4/ The number of schools newly exposed to potential classroom disruption is documented in Table 4.5-23, "*Listing of Schools Newly Exposed to High Single Event Noise Levels: Project (2005) Compared with 2003 Baseline Conditions*".

Sources: Ricondo and Associates with Wyle Laboratories, 2004. Based on Landrum & Brown INM analysis and PCR, Inc. GIS analysis, 2002 – LAX Master Plan Final EIR.

Prepared by: Ricondo and Associates, 2004

Under SAIP construction conditions, there would be significant short-term aircraft noise impacts in all four of the aircraft noise impact categories, but there would be no significant impacts caused specifically by construction activities at the SAIP site or staging area. As documented in Section 4.5.6.1.1, five operational elements contribute to the cumulative significant increase in aircraft noise levels. The first element, Runway 7R-25L closure, is the primary cause for significant increases in noise along the north airfield approach corridor. Aircraft that would otherwise operate on the south airfield may instead be routed to the north airfield due to Runway 7R-25L closure, but those operational shifts are not the only cause for significant noise increases along the north airfield approach corridor. Factors unrelated to the SAIP (increased forecast growth in operations, increase arrival use on Runway 24L during nighttime hours, and forecast growth in the number of heavy jet aircraft) all contribute to the overall increase in noise along the north airfield arrival corridor. The SAIP contribution to the cumulative increase in noise would be temporary due to the limited time Runway 7R-25L would be closed during construction. Noise impacts caused by non-project related factors would continually be evaluated each year by LAWA NMD as required by Title 21 of the California Code of Regulations and LAX Master Plan MMRP measure MM-LU-1.

All significant aircraft noise impacts due to the SAIP construction identified in this report are within the LAX Master Plan expected impact envelope published in the LAX Master Plan Final EIR (Appendix SC-1, Section 3.1.5). The information used to model Project (2005) conditions was identical to the information used for the 2005 LAX Master Plan Alternative D analysis. Therefore, the results used to assess impacts for the SAIP are consistent with those impacts assessed in the LAX Master Plan Final EIR.

4.5.7 Cumulative Impacts

4.5.7.1 Cumulative Construction Traffic Noise

The analysis of transportation impacts documented in Subsection 4.2.7 was cumulative in nature; therefore, construction traffic noise impacts mentioned previously in Subsection 4.5.6.2 represent cumulative conditions. The transportation analysis of future conditions assumed growth in background traffic including local area development projects approved by local jurisdictions that are anticipated to be under construction or operational during the peak construction period of the SAIP. In addition, trips associated with the construction of other LAX projects (i.e., the TBIT Improvements and Baggage Screening Facilities Project and Terminals 1-8 In-Line Baggage System Construction) were specifically included in the analysis.

Traffic generated by the Airfield Intersections Improvement Project and Southside Airfield Improvement Program Remote Boarding Facilities Modifications Project was not directly represented in the Adjusted Baseline volumes because these projects were not developed to a level that would allow an estimation of construction related traffic activity at the time the SAIP traffic study was prepared. However, based on current information, it is estimated that (a) a maximum of 32 employees (i.e., 20 for the airfield intersection project and 12 for the remote boarding facilities project) would be on-site during the construction of both of these projects and (b) the airfield intersection project construction would not overlap with the peak activity of the SAIP. Therefore, it is not anticipated that the construction of these projects would directly result in a cumulative impact given the anticipated timing of these two projects relative to the SAIP and their relatively small scale (32 employees) compared with the TBIT and Terminals 1-8 projects (613 employees at peak).

Construction of other LAX Master Plan project components may overlay with the construction of the SAIP. However, these other project components have not reached a level of planning that allow for a reasonable estimate of the associated traffic volumes and distribution of these trips within the study area. Based on current level of planning, it is unlikely that these projects will contribute appreciably to the background traffic during the peak period of construction activity for the SAIP. To the extent that overlap would occur, the potential cumulative impact will be assessed during the project-level review for each subsequent component of the LAX Master Plan.

Because sound levels increase at a rate of 3 dBA with each doubling of sound energy, traffic volumes would have to increase approximately 3-fold over baseline volumes to reach the CEQA threshold of significance criteria of a 5 dBA increase. The traffic analysis did not indicate a three-fold or greater increase in cumulative traffic volume; therefore, SAIP construction traffic noise will not produce a significant cumulative impact associated with all traffic noise. Accordingly, no additional mitigation would be required.

4.5.7.2 Cumulative Construction Equipment Noise

The potential cumulative impacts of construction equipment noise were reviewed, because both airport and non-airport area projects were anticipated to occur during the SAIP construction period. Impacts of construction equipment noise could create a cumulative impact if any other area project were located nearby the noise impact areas exposed to SAIP construction noise.

4.5.7.2.1 Planned Local Area Non-Airport Development Projects

Planned development projects in the City of Los Angeles and neighboring communities within the vicinity of the study area were listed Chapter III and Subsection 4.2.6.1. Based on a list provided by the Los Angeles Department of Transportation (LADOT), approximately 36 of the 110 development projects listed in Table 4.2.7 are built, under construction or are anticipated to be operational during 2005. An estimated 67 of the projects would not be operational until 2006 or beyond. (As of July 2005, information was not available for 7 projects). Of those projects anticipated to be operational during 2005, 23 are located more than five miles from the airport and would likely have no direct cumulative construction equipment noise impact on noise-sensitive sites south of the airport. Of those 13 projects within five miles of the airport that may be under construction or operational during the construction period, most are relatively small, low-density developments (e.g., fitness center, single family homes, gas station/convenience store, and school expansion) that are anticipated to generate minimal construction equipment noise.

The largest near-term development in the immediate vicinity of the airport is the Playa Vista project, which is a mixed-use development located approximately five miles north of the airport. Based on its proximity, this development is not expected to create significant cumulative construction equipment noise exposure impacts within the vicinity of the SAIP construction site, which is on the south of the airport. Accordingly, no additional mitigation would be required.

Another local area project of potential significance is the proposed Sepulveda/Rosecrans Site Rezoning and Plaza El Segundo Development in the City of El Segundo (between Douglas Street and Nash Street). The proposed project is located approximately 3.2 miles from the study area. The project consists of two components within a 108-acre site: (1) the redesignation and rezoning of approximately 85.8 acres of property with the City of El Segundo currently and formerly used for industrial purposes to a new Commercial Center land use designation and C-4 zoning classification; and (2) construction and operation of a proposed development project on a 43.3-acre portion of the site, if rezoned C-4. Construction of development to the maximum levels allowable under the C-4 zone would not be completed until 2012. Construction completion on the 43.3-acre site is anticipated to occur in 2007. Although neither of these proposed project components, if approved, would be operational until 2007, it is anticipated that the project could feasibly be under construction concurrent with the construction of the SAIP. However, given that the site is not directly adjacent to the SAIP study area, these projects would not expect to contribute additional construction equipment noise exposure that would exceed CEQA thresholds of significance. Accordingly, no additional mitigation would be required.

Campus El Segundo is located approximately 1.2 miles south of the study area. The development encompasses approximately 46.5 acres and, upon full build, would provide approximately 2.2 million square feet of mixed-use development in a corporate campus environment. Based on discussions with the project developer, the development is planned to be implemented in multiple phases with construction beginning in late 2005 at the earliest and full build anticipated by 2014. The first phase of the project comprising 330,000 square feet of development is anticipated to be available for occupancy by late 2007. The second phase of the project comprised of an additional 300,000 square feet of development is anticipated to begin construction in late 2006, beyond the peak construction period of the SAIP. Given that construction of the Campus El Segundo project is not anticipated to begin construction until after the peak construction period for the SAIP, and the project may experience further delays beyond the start dates currently envisions, it is not anticipated that the cumulative construction equipment noise effects of this project combined with the SAIP construction over the remainder of the project would result in cumulative noise levels that exceed thresholds of significance. Therefore, no cumulative construction equipment noise impacts involving the Campus El Segundo project site are expected. Accordingly, no additional mitigation would be required.

4.5.7.2.2 Other Unrelated Airport Project Construction Projects

Other construction activities that would occur at the airport concurrent with construction of the SAIP, but which are otherwise unrelated to the SAIP and would proceed regardless of the SAIP, were described in Chapter III.

All other such independent airport construction activities would take place within the CTA and at the TBIT Renovations project staging area located on the west side of the airport near World Way West and just east of the SAIP staging area.[46] Noise effects from construction equipment activities at the TBIT Renovations project staging area in combination with noise levels from the SAIP are not expected to contribute significant noise exposure on nearby communities because they are both located well within the airport boundaries. Therefore, cumulative construction equipment noise would not reach CEQA threshold of significance criteria of a 5 dBA increase above ambient levels

[46] The TBIT and Terminals 1-8 projects were under design during the preparation of the SAIP traffic study. The staging and employee parking locations and trip generation characteristics of the TBIT and Terminals 1-8 projects that were assumed for these analyses were based on the best information available at the time of the study. Subsequent to the preparation of this study, however, it was determined that staging and employee parking areas for the TBIT and Terminals 1-8 projects would be located on the west side of the Airport and that construction delivery and employee trips generated by the TBIT and Terminals 1-8 projects would be lower than were assumed for the SAIP traffic study. As described in the sensitivity analyses provided in Appendix D, it is anticipated that these revised assumptions would not cause a significant impact. However, the analysis provided in this report has not been revised to reflect these new assumptions given that the original assumptions result in a conservative analysis that generally overestimates traffic activity in the study area. The staging and employee parking locations assumed for these analyses are based on the best information available at the time of the study as provided in an August 25, 2004, memorandum from HNTB, *Employee/Construction Truck Data Estimate for TBIT Renovations, TBIT Inline, Terminals 1-8 In-Line*.

and the project would not result in a significant cumulative impact in this regard. Accordingly, no additional mitigation would be required.

4.5.7.2.3 Other LAX Master Plan Airport Construction Projects

As discussed in Section 3.5, LAX development includes both project components of the LAX Master Plan and projects with independent utility. The major projects with independent utility that are anticipated to be under construction concurrent with the SAIP are:

- Tom Bradley International Terminal (TBIT) Improvements and Baggage Screening Facilities Project
- Terminals 1-8 In-Line Baggage System Construction
- Airfield Intersection Improvements—Phase 1
- Southside Airfield Improvement Program—Remote Boarding Facilities Modifications

Construction equipment activity for all four projects listed above will occur within airport property. The TBIT Improvements and Baggage Screening Facilities Project and Terminals 1-8 In-Line Baggage System Construction involve construction activity primarily in the center of the airport within the Central Terminal Area. Southside Airfield Improvement Program-Remote Boarding Facilities Modification involve primarily structural construction activities, and take place northwest of the SAIP construction site area. Based on current schedule information, the Airfield Intersection Improvements-Phase 1 work is expected to be completed prior to the SAIP peak construction period. Based on location or timing, the four LAX projects listed above would not cause a cumulative construction equipment noise impact.

It is possible that other LAX Master Plan projects would be under construction during the construction period for the SAIP. Although these projects may overlap the construction of the SAIP, they have not reached a level of planning that would allow for a more precise assessment of environmental effects beyond that provided in the LAX Master Plan Final EIR. Based on current level of planning, it is unlikely that these projects will contribute appreciably to the construction equipment impacts during the peak period of activity for the SAIP. To the extent that overlap would occur, the potential cumulative impact will be assessed during the project-level review for each subsequent component of the LAX Master Plan.

4.5.7.2.4 Conclusion

Based on the findings above, there would be no significant cumulative construction equipment noise impacts associated with the SAIP. Accordingly, no additional mitigation would be required.

4.5.7.3 Cumulative Aircraft, Construction Traffic and Equipment Noise

The cumulative effects of noise from aircraft, construction traffic and construction equipment are not expected to be significant. Construction traffic and equipment noise does not occur in areas where aircraft noise increases, and to a large degree, the existing aircraft noise would serve to mask much of the construction traffic and equipment noise, even with the reduction of aircraft noise south of the airport when Runway 7R-25L is closed. Aircraft noise patterns shift to match shifts in flight tracks, and sensitive uses newly exposed to aircraft noise are not in the same locations where construction traffic and equipment noise would occur. Therefore, there are no significant cumulative noise impacts associated with the accumulation of aircraft, construction traffic and equipment noise. Accordingly, no additional mitigation would be required to reduce cumulative impacts.

4.5.8 Mitigation Measures

4.5.8.1 Aircraft Noise

The mitigation of aircraft noise may be accomplished in two general ways: (1) by modifying the loudness of the noise source and/or its distance from the receptor on the ground, to lower the noise level at the receptor or (2) conversely, by modifying the receptor to make it less affected by noise. This subsection discusses potential mitigation of aircraft noise impacts associated with SAIP construction through feasible modifications of either the *noise source* or *noise-sensitive receptors.*

4.5.8.1.1 CNEL Noise Exposure Impacts

Noise abatement measures should reduce noise impacts; provide benefits that exceed their costs; comply with federal, state and local law; and be safe for aircraft operators, passengers, and residents under the routes of flight. Such measures involve altering the use or configuration of airspace, runways, flight tracks and/or airport facilities so as to reduce or shift the location of noise. Such techniques tend to produce one of two general effects. They either reduce the overall size of the noise contours or they move the noise source to other areas.

To reduce the overall noise impact levels around an airport, it is necessary to reduce the total sound energy emitted by the aircraft activity at the airport. This can be accomplished through either the modification of aircraft operating procedures or the imposition of restrictions on the number, type of aircraft, or time of operation allowed at the airport. These measures are often difficult to implement and enforce, as they can erode aircraft operational safety margins or discriminate against certain operators and cause an undue burden on interstate commerce. Such modifications incorporate additional costs that may not exceed the benefit of reducing aircraft noise impacts that are temporary in nature.

As a result, it is often more effective and less disruptive to try to move the aircraft noise source to areas that are either compatible or more distant from-noise sources. This opportunity is usually realized through runway use and flight routing techniques. Even with LAX Master Plan Commitment N-1 in place, which involves runway use and flight routing over more compatible areas, the changes in aircraft noise exposure resulting from construction activities related to the SAIP are expected to continue to result in significant impacts related to 65 CNEL. Because the airport, which typically operates with four-runways, would be limited to three runways during project construction, additional effective and safe measures to abate or move the noise sources during construction via alternate runway use or routing options are limited to those already incorporated for SAIP. No other operational measures that would reduce noise levels while maintaining available efficiency under a constrained three-runway condition were found. Under these circumstances, there are no other feasible measures to move aircraft noise sources without further impacting the FAA's ability to maintain safe and expeditious flow of air traffic.

In lieu of modifying the source, measures to reduce noise impact may involve converting incompatible land uses to compatible uses through sound insulation or the acquisition and conversion of incompatible land uses to compatible land uses. Such measures are typically time-consuming and costly to implement. Several existing LAX Master Plan MMRP measures addressing modification of the *noise-sensitive receptors* for noise mitigation (e.g., soundproofing) were discussed above in Section 4.5.5.1. Due to the temporary nature of the aircraft noise impacts associated with SAIP construction and the time and cost associated with soundproofing dwelling units and educational institutions, the LAX Master Plan MMRP measures designed to modify the receptor to reduce aircraft noise impacts are not feasible. Although the current ANMP will be accelerated during the term of the SAIP as indicated in MM-LU-1, it is not anticipated that the program will be completed during the construction period due to the lengthy implementation process associated with soundproofing and the short-term and temporary nature of the SAIP-construction aircraft noise impacts. Therefore, these measures (or those similar in nature) are not feasible to reduce temporary and short-term aircraft noise impacts while Runway 7R-25L is closed. The aircraft noise exposure impacts are expected to be significant and unavoidable.

4.5.8.1.2 Single-Event Noise Exposure Impacts

Even with LAX Master Plan Commitment N-1 in place, the changes in aircraft noise exposure resulting from construction activities related to the SAIP are expected to continue to result in significant impacts related to nighttime awakenings and classroom disruption. Effective and safe measures to abate or move the noise sources via alternate runway use or routing options are limited to those already proposed for SAIP, because the airfield is limited to three runways. Mitigation measures associated with receptor modifications to reduce or eliminate nighttime awakening and classroom disruption are discussed below.

Nighttime Awakenings

The LAX Master Plan Mitigation Measure MM-LU-2 was designed to soundproof residential units that are impacted by potential sleep disturbance caused by aircraft noise impacts associated with the LAX Master Plan. Based on the timing of the FAR Part 161 application process, the lengthy implementation process for Mitigation Measure MM-LU-2, funding availability, and the short-term and temporary nature of the construction-related aircraft noise impacts, it is not expected that this measure would be implemented during the construction period for the SAIP. There is a possibility that several qualified residential units may be soundproofed during the construction period via existing ANMP criteria or MM-LU-2 criteria, but it is reasonable to expect most qualified residential units will not receive soundproofing and remain impacted during the construction period. Therefore, the temporary nighttime awakening impacts are expected to be significant and unavoidable.

Classroom Disruption

LAX Master Plan Mitigation Measures MM-LU-1 and MM-LU-4 were intended to soundproof current ANMP qualified educational institutions and include those that are newly impacted by classroom disruptions caused by aircraft noise. Although the ANMP is expected to be accelerated during the term of the SAIP-construction period, it is not anticipated that the program will be completed during the construction period due to the lengthy implementation process, associated funding availability and costs for Mitigation Measure MM-LU-1 and MM-LU-4, and the short-term and temporary nature of the construction aircraft noise impacts. Therefore, this measure and those similar in nature are not feasible to reduce temporary and short-term aircraft noise impacts associated with the closure of Runway 7R-25L.

4.5.8.2 Construction Traffic and Equipment Noise

Results described in Sections 4.5.6.2, 4.5.6.3, 4.5.7.1 and 4.5.7.2 show that no significant impacts (project level or cumulative) would result from off-airport and on-airport construction activities. The lack of significant impacts was primarily due to the LAX Master Plan MMRP mitigation measures that were assumed to be in place in the analysis. In addition to the description of each measure in Subsection 4.5.5.2, specific strategies were proposed for the Construction Noise Control Plan measure (LAX Master Plan Mitigation Measure MM-N-7) to ensure that calculated on-airport construction noise exposure levels are maintained at the levels stated in this Draft EIR.

4.5.9 Level of Significance After Mitigation

4.5.9.1 Aircraft Noise

Although LAX Master Plan Commitment N-1 would reduce aircraft noise impacts relative to CNEL, the residual impact would not be less than significant. Other measures typically used to reduce or eliminate aircraft noise impacts were found to be infeasible. As such, a potentially significant and unavoidable impact from aircraft noise is expected, as well as potentially significant and unavoidable aircraft single event impacts. Details related to the impacts are provided above in Section 4.5.6.4.

Sound insulation is currently being offered by LAWA through the existing ANMP and further details associated with the implementation of LAX Master Plan MMRP measures (e.g., LAX Master Plan Mitigation Measure MM-LU-1) related to sound insulation are being formulated. However, certain areas affected by aircraft noise associated with construction of the SAIP would still be exposed to temporary impacts that would, under CEQA, be considered significant. Such impacts include:

- Interim aircraft noise impacts where aircraft noise of 75 CNEL and higher newly impacts residential properties with exterior cognizable private habitable areas, such as backyards, patios, or balconies.
- Interim aircraft noise impacts within 65 CNEL and higher prior to completion of noise insulation or recycling of incompatible land use (for those land uses eligible for mitigation under the existing ANMP criteria).
- Interim aircraft noise impacts prior to completion of noise insulation or recycling of incompatible land uses (for those land uses eligible for mitigation under Mitigation Measures MM-LU-2, MM-LU-3, or MM-LU-4) associated with exposure to 94 dBA SEL or greater noise levels or single event overflight noise resulting in classroom disruption.
- Interim aircraft noise impacts where aircraft noise of 65 CNEL and higher affects noise-sensitive land uses that are ineligible for mitigation under ANMP criteria.
- Interim single-event aircraft noise impacts that would occur to noise-sensitive land uses that are ineligible for mitigation under ANMP criteria.
- Interim aircraft noise impacts on substandard housing units that are not feasible to insulate due to structural constraints or other factors associated with bringing properties into compliance with building codes.

These temporary aircraft noise impacts would be significant and unavoidable.

4.5.9.2 Construction Traffic and Equipment Noise

With the LAX Master Plan MMRP commitments and mitigation measure in place, on-airport and off-airport construction activities are not expected to cause significant noise impacts. Thus, no additional mitigation is needed.

4.6 Biotic Communities

4.6.1 Introduction

The LAX Master Plan Final EIR evaluated potential impacts on biotic communities[1] and proposed mitigation measures to address potentially significant impacts. The analysis of biotic communities provided in this project-level tiered EIR was prepared to examine, at a greater level of detail, the potential impacts on biotic communities associated with construction of the SAIP. The analysis presented in this section "tiers" from the analysis and findings documented in the LAX Master Plan Final EIR. Operational aspects of the SAIP and their potential to impact biotic communities have not changed from what was addressed in the LAX Master Plan Final EIR. Therefore, the potential operational impacts on biotic communities associated with the SAIP are not further addressed herein.

There are five key findings and potential impacts and mitigation measures from Section 4.10 of the LAX Master Plan Final EIR that relate to this section and the SAIP:

- Implementation of the LAX Master Plan would affect 281.8 acres of Non-Native Grassland/Ruderal and 43.8 acres of Disturbed/Bare Ground within the airport boundaries, excluding the Los Angeles/El Segundo Dunes, resulting in a net reduction of 45.43 habitat units.[2] Two species designated as Species of Special Concern by the California Department of Fish and Game (CDFG), the San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) and the loggerhead shrike (*Lanius ludovicianus*), have been observed in habitats that occur within the SAIP project boundary. Implementation of the SAIP would impact these biotic communities.
- Mitigation Measures MM-BC-8, *Replacement of Habitat Units* and MM-BC-9, *Conservation of Faunal Resources*, were provided to reduce impacts on biotic communities to a less than significant level.
- Construction activities, including staging and stockpiling of materials proximal to the Dunes, including the Habitat Restoration Area, were identified as having the potential to result in deposition of fugitive dust within state-designated sensitive habitat. The potential for fugitive dust to affect biotic communities was considered a significant impact prior to mitigation.
- Implementation of Mitigation Measures MM-BC-1, *Conservation of State-Designated Sensitive Habitat within and Adjacent to the El Segundo Blue Butterfly Habitat Restoration Area*, and MM-ET-3, *El Segundo Blue Butterfly Conservation: Dust Control*, was recommended to reduce these potential fugitive dust impacts to a less than significant level.
- No significant indirect impacts due to increased ambient light, noise, or concentrations of air pollutants were identified as a result of the implementation of the LAX Master Plan.

The purpose of this analysis is to examine at a more precise project-level of detail the potential for SAIP construction activities to impact biotic communities. This analysis is based on project-level

[1] Biotic communities are regional assemblages of vegetation (flora) and associated wildlife (fauna) and sensitive plant and animal species.

[2] The environmental consequences of the project on sensitive flora and fauna were quantified in terms of habitat units, calculated by multiplying the number of acres within each biotic community by its habitat value. In addition to the loss of Non-Native Grassland/Ruderal (42.2 habitat units) and Disturbed/Bare Ground (4.38 habitat units), there would also be an increase of 1.15 habitat units associated with 22.9 acres of landscaping. For further details on the analysis, see Section 4.10, of the LAX Master Plan Final EIR.

information regarding construction timing, work areas, and construction staging area. In addition, this section identifies the timing and performance criteria for mitigation measures presented in the LAX Master Plan MMRP to address potential impacts to biotic resources.

4.6.2 Methodology

Existing sensitive biotic communities and plant and animal communities were identified through a series of studies and surveys conducted for the LAX Master Plan EIR. (See Section 4.10 and Technical Report 7 of the LAX Master Plan Final EIR.) For this Draft EIR, biologists conducted a general assessment of the biotic communities in the project area, and reviewed recent aerial photographs and information gathered during January and February 2005. In addition, the biologists reviewed and considered the results of field data compiled by the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Wildlife Services, as part of their wildlife hazards management activities within the Airfield Operations Area (AOA).[3] Since June 1998, LAWA and the USDA have entered into a Cooperative Service Agreement to conduct a wildlife hazard assessment to assist in the development of a Wildlife Hazards Management Plan (WHMP) and to provide operational wildlife control. Pursuant to this effort, LAWA's Environmental Management Division has been working cooperatively with USDA APHIS Wildlife Services to maintain a wildlife biologist on site to monitor bird and other wildlife activity. Based on this cooperation, monthly wildlife monitoring reports are provided to LAWA by the USDA. These reports summarize monthly occurrences of wildlife hazards, particularly those associated with bird strikes, as well as the results of daily wildlife monitoring efforts in and around the AOA.

The discussion of biotic communities uses a Mitigation Land Evaluation Procedure (MLEP) to evaluate the effect of the SAIP on biotic communities and sensitive flora and fauna. The MLEP is a modified form of the Habitat Evaluation Procedure (HEP), a methodology developed by the U.S. Fish and Wildlife Service (USFWS) for comparing habitat quality and quantity for a particular species. This is the same methodology that was used in Section 4.10 of the LAX Master Plan Final EIR and clarification of the MLEP is provided therein.

According to the USFWS Division of Ecological Services' *Habitat as a Basis for Environmental Assessment*, a HEP is a species–habitat approach to impact assessment, in which habitat quality for selected species is quantified with a habitat suitability index (HSI).[4] Modified versions of HEP procedures are performed often for impact assessments as long as sound scientific reasoning is used and assumptions, modifications and adjusted models are thoroughly explained.[5,6] The U.S. Army

[3] Todd J. Pitlick. 2003-2005. United States Department of Agriculture Wildlife Services Reports. United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services. California State Office, 3419A Arden Way Sacramento, CA 95825.

[4] U.S. Fish and Wildlife Service. 15 September 1980. *Habitat as a Basis for Environmental Assessment.* Washington, DC: U.S. Fish and Wildlife Service, Division of Ecological Services.

[5] Dellith, Christian, *Personal Communication,* 3 October 2003. U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road Suite B, Ventura, CA 93003.

[6] Ware, Rick, *Personal Communication*, 9 October 2003. Coastal Resources Management, 3334 East Coast Highway, Corona del Mar, CA 92625.

Corps of Engineers has created a manual for conducting and creating modified HEPs and is used routinely by agency personnel and consultants.[7]

The MLEP compares the overall habitat quality of biotic communities to ideal habitat conditions. More specifically, MLEP is an assessment of overall ecosystem function and value, rather than a species-specific habitat analysis. To accomplish this, the MLEP first determines the habitat variables affecting the biotic communities' ability to support wildlife and plant populations. For the LAX Master Plan analysis, selected habitat variables (such as soil type, vegetative cover, presence/absence of certain species, and contiguity of habitat) were chosen to express the habitat quality of the eight biotic communities that occur within the LAX Master Plan boundaries. These same habitat variables were used in this analysis. Each biotic community within the SAIP project boundary was assigned a habitat value ranging from 0.0 to 1.0 based on the presence or absence of habitat variables, 0.0 representing non-ideal habitat conditions (i.e. absence of a majority of habitat variables), and 1.0 representing optimum habitat conditions (i.e. presence of a majority of habitat variables). Secondly, the MLEP quantifies the determined habitat values into a weighted figure of habitat units.[8] The environmental consequences of the SAIP were quantified in terms of habitat units, calculated by multiplying the number of acres within each biotic community by its habitat value. Habitat units were calculated for each of the biotic communities rather than individual species themselves in order to express the ecological ability of the biotic communities to support the target species. The MLEP yielded habitat values and acreages (calculated in habitat units) for each of the habitat types present within the study area as compared with a target biotic community identified at reference sites.

Specific impacts to biotic communities located within the SAIP work area and construction staging area were identified and timing and implementation of specific mitigation measures presented in the LAX Master Plan MMRP were refined to address these impacts.

4.6.3 Baseline Conditions

Descriptions of conditions relative to biotic communities are presented in Section 4.10 in the LAX Master Plan Final EIR and are incorporated by reference herein. Conditions regarding sensitive biotic communities located within the SAIP work area and construction staging area have not changed materially from those presented in the LAX Master Plan Final EIR. Conditions are based on data provided by Sapphos Environmental, Inc. in 2003 and January and February 2005, as well as recent aerial photography of the project site. The analysis of this combined data confirmed the highly disturbed conditions in the SAIP area have not changed materially since 2003.

The SAIP project area is characterized as a mixture of disturbed bare ground and non-native grassland:

Non-Native Grassland/Ruderal[9]

Non-Native Grassland/Ruderal areas are those that have been subjected to past disturbance. They are dominated by exotic annual grasses with non-native forbs interspersed. Historical aerial photographs

7 Wakeley, J.S., and L.J. O'Neil. 1998. Alternatives to Increase Efficiency and Reduce Effort in Application of the Habitat Evaluation Procedures (HEP). (Technical Report EL-88-13.) Contact: U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. Available at: http://itl.erdc.usace.army.mil/library/

8 A habitat unit is the principal unit of comparison in the HEP for comparing habitat quality and quantity for a particular species. Mathematically, it is the product of habitat value and the area of available habitat.

9 California Natural Diversity Database (CNDDB) Element Code 42220

of the project area reveal that it once supported a vernal pool/grassland complex.[10] However, repeated grading (cut and fill) has modified the substrate to an extent that the vernal pools that were historically (prior to 1950s) present, are no longer capable of providing suitable habitat for vernal pool associated plant and wildlife species.

Within the SAIP, this habitat type provides a low potential to support foraging and reproduction due to the daily wildlife hazards management activities that are undertaken by LAWA, in conformance with the FAA approved Wildlife Hazards Management Plan. The non-native red fox (*Vulpes vulpes*) has been observed in this community. Birds that have been observed by the USDA in this biotic community include western meadowlarks (*Sturnella neglecta*), English sparrows (*Passer domesticus*), killdeer (*Charadrius vociferus*), mourning doves (*Zenaida macroura*), American kestrels (*Falco sparverius*) and red-tailed hawks (*Buteo jamaicensis*). Common butterflies, moths, and reptiles found within this community include the cabbage white butterfly (*Pieris rapae*), the buckeye (*Junonia coenia)*, and the common hairstreak (*Strymon melinus)*, side-blotched lizard (*Uta stansburiana)* and southern alligator lizard (*Gerrhonotus multicarinatus*).

Disturbed/Bare Ground

This biotic community is dominated by bare ground. Historical aerial photographs of this area reveal that it also once supported a Vernal Pool/Grassland complex.[11] As with the non-native grassland/ruderal biotic community, grading, cut and fill, and stockpiling activities within this habitat has removed the physical and biological characteristics required to support vernal pools and the associated plant and wildlife species.

Wildlife species that have been observed as a result of directed surveys and USDA wildlife management surveys in this biotic community include the red fox, house mouse (*Mus musculus*), European garden snail (*Helix aspersa*), house finch, and western fence lizard (*Sceloporus occidentalis*). Based on directed surveys undertaken from 1994 to 1998, two state-designated sensitive species were observed in this biotic community within the SAIP boundary: loggerhead shrike and San Diego black-tailed jackrabbit. The USDA has not observed the loggerhead shrike or the San Diego black-tailed jackrabbit in the daily wildlife management surveys conducted within the AOA between 1998 and 2005.

4.6.4 Thresholds of Significance

Significant impacts to biotic communities would occur if the direct and indirect construction impacts associated with the SAIP would potentially result in one or more of the following future conditions:

- A substantial reduction (greater than 10 percent) in locally designated natural communities including state-designated sensitive habitats, Ecologically Sensitive Habitat Areas (ESHAs), and habitat preservation areas designated pursuant to local ordinances. Specifically, a substantial reduction (greater than 10 percent) in the Habitat Restoration Area (designated as such by City of Los Angeles Ordinance 167940).
- A conflict with the provision of an adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plans.

[10] CNDDB Element Code 44321
[11] CNDDB Element Code 44321

- A substantial net reduction in federal- or state-listed or otherwise sensitive plants, pursuant to the California Native Plant Protection Act.
- Interference with habitat (e.g., from the introduction of noise, light) such that normal species behaviors are disturbed to a degree that may diminish the chances for long-term survival of a sensitive species.
- A substantial adverse effect, either directly or through habitat modifications, on any candidate, sensitive, or special status species.
- Substantial interference with the movement of any native fish or wildlife species or with established wildlife corridors, or impede the use of a native wildlife nursery site.
- Removal of occupied nesting habitat during the breeding season (March 15 to August 15) or harassment of any bird species afforded protection under the Migratory Bird Treaty Act.
- A significant reduction (greater than 10 percent) of a biotic community designated as sensitive by the Coastal Zone Management Act. Specifically, a reduction in size of the Habitat Restoration Area or the encompassing Los Angeles/El Segundo Dunes, including adjacent open areas.

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

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

4.6.5 LAX Master Plan Commitments and Mitigation Measures

LAX Master Plan commitments and mitigation measures are described in the LAX Master Plan MMRP. Of the commitments and mitigation measures that were designed to address biotic communities, the following are applicable to the SAIP and considered in the biotic communities analysis.

- **MM-BC-1. Conservation of State-Designated Sensitive Habitat Within and Adjacent to the El Segundo Blue Butterfly Habitat Restoration Area.** MM-BC-1 requires the implementation of construction avoidance measures in areas where construction or staging are adjacent to the Habitat Restoration Area. The goal of Mitigation Measure MM-BC-1, in conjunction with Mitigation Measure MM-ET-3, is to reduce fugitive dust emissions by 90 to 95 percent.
- **MM-BC-8. Replacement of Habitat Units.** Mitigation Measure MM-BC-8 requires LAWA or its designee to undertake mitigation for the loss of habitat units resulting from implementation of LAX Master Plan projects. These habitat units shall be replaced at a 1:1 ratio.

- **MM-BC-9. Conservation of Faunal Resources.** Mitigation Measure MM-BC-9 addresses impacts associated with state-designated sensitive species as a result of implementation of LAX Master Plan projects. These species include the western spadefoot toad (*Spea hammondii*), loggerhead shrike, and San Diego black-tailed jackrabbit.
- **MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control.** The goal of Mitigation Measure MM-ET-3, in conjunction with MM-BC-1, is to reduce fugitive dust emissions by 90 to 95 percent through the implementation of dust control measures.

Additional project-level information and performance criteria for Mitigation Measures MM-BC-8 and MM-BC-9 are provided in Section 4.6.8.

4.6.6 Impact Analysis

As shown in **Table 4.6-1**, direct impacts on Disturbed/Bare Ground and Non-Native Grassland/Ruderal areas would occur as a result of the relocation of Runway 7R-25L and construction of the center taxiway, including the associated work area and construction staging area. The location of these facilities is shown on **Exhibit 4.6-1**. Estimated areas of disturbance include approximately 92 acres of Non-Native Grassland/Ruderal associated with the SAIP work area and 34 acres of Disturbed/Bare Ground associated with the SAIP construction staging area, this equates to a net reduction of approximately 17.2 habitat units which constitutes a significant impact, requiring the implementation of mitigation measures specified in the LAX Master Plan Final EIR. Implementation of MM-BC-8 would reduce this impact to a less than significant level.[12]

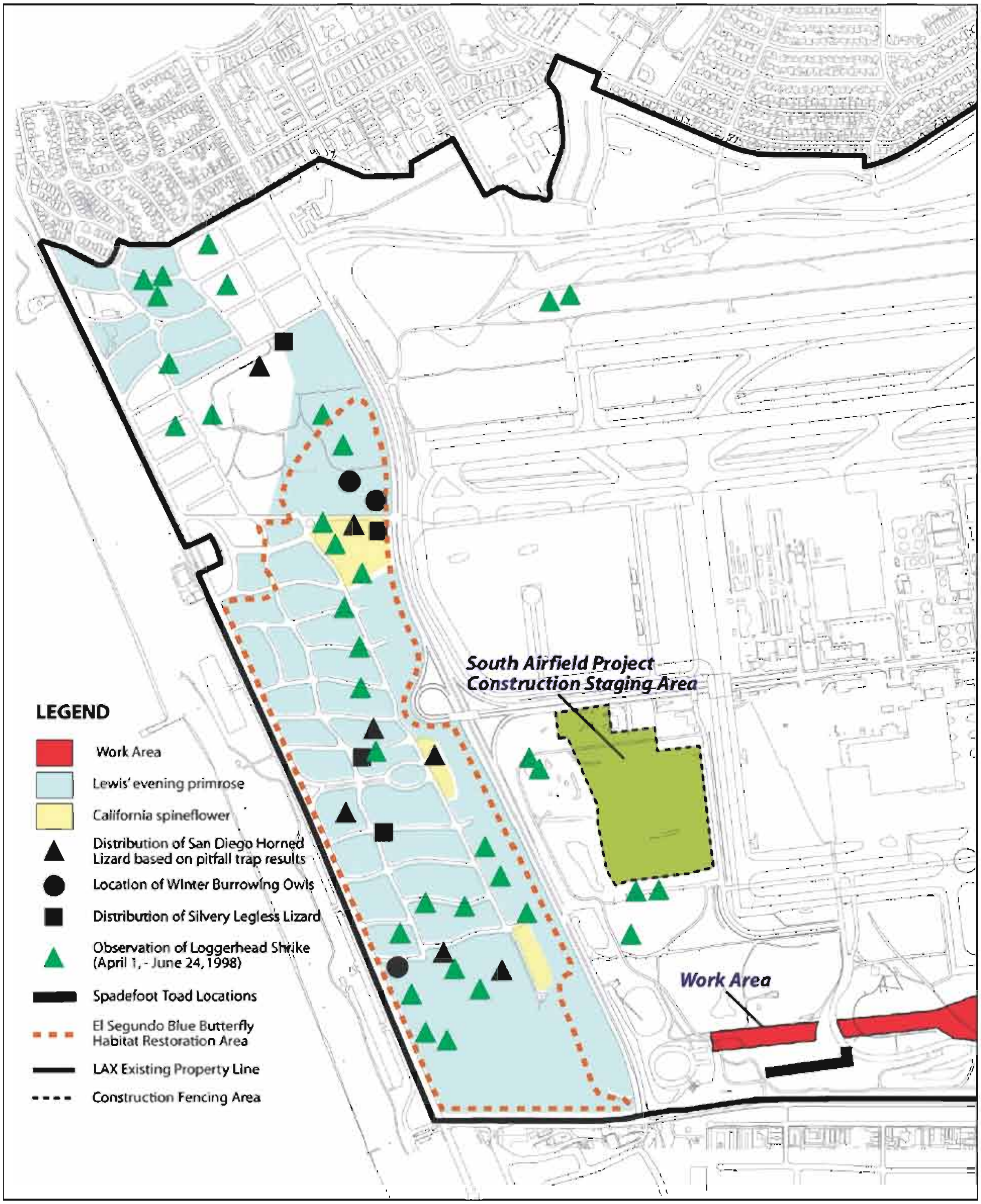
Table 4.6-1

SAIP Impacts on Habitat Units

Habitat Type	Total Impact (acres)	Habitat Value	Habitat Units of Impact
Disturbed Bare Ground	33.72	0.10	3.37
Non-Native Grassland/Ruderal	92.00	0.15	13.80
Total Impact	**125.72**	**-**	**17.17**

Source: Sapphos Environmental, Inc.
Prepared by: Sapphos Environmental, Inc.

[12] Estimates based on a habitat value of 0.15 per acre for Non-Native Grassland/Ruderal and 0.10 per acre for Disturbed/Bare Ground as presented in Table F4.10-5, Habitat Units of Biotic Communities, in Section 4.10, *Biotic Resources*, of the LAX Master Plan Final EIR.



Source: Final LAX Master Plan EIS/EIR
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.6-1

north

Not to Scale

Sensitive Habitat Areas and Observations of Species of Concern

The western spadefoot toad and loggerhead shrike have been observed within the southwest portion of the LAX boundaries, as shown on Exhibit 4.6-1. In addition, the San Diego black-tailed jackrabbit (2 individuals) was observed within the southwestern portion of the airfield during 1998 studies in support of the LAX Master Plan (See Section 4.10 and Technical Report 7 of the LAX Master Plan Final EIR.). Potential direct or indirect impacts on potentially suitable habitat for the San Diego black-tailed jackrabbit and loggerhead shrike would occur due to SAIP construction activities. There is no occupied Western spadefoot toad habitat or potentially suitable habitat located with the grading area or construction staging area for the SAIP project. In compliance with the conservation measures specified in the Biological Opinions issued by the U.S. Fish and Wildlife Service for Alternative D[13] and specified capital improvement projects[14], LAWA has implemented construction avoidance measures including fencing and sandbags to protect the watersheds that contain occupied habitat for the Western spadefoot toad, therefore, there are no anticipated indirect impacts from construction of the SAIP on the Western spadefoot toad.

Based on information presented in **Table 4.6-2**, the SAIP construction and staging area would permanently convert 36.34 acres of potentially suitable habitat for the San Diego black-tailed jackrabbit and loggerhead shrike to developed and operational areas within the AOA that would no longer be capable of supporting these species. Although the USDA surveys conducted between 1998 and 2005 would suggest these species are not resident within the airfield operations area, potentially suitable habitat creates the potential for these species to be present. Due to the degraded nature of the existing habitats, the 36.34 acres represents a corresponding value of 3.8 habitat units of the total 17.2 habitat units that would incur impact as a result of SAIP implementation, which constitutes a significant impact, requiring the implementation of mitigation measures specified in the LAX Master Plan Final EIR. Implementation of MM-BC(SA)-2 would reduce this impact to a less than significant level.

Construction of the SAIP, including staging and stockpiling of materials in close proximity to the Los Angeles/El Segundo Dunes and the Habitat Restoration Area, would have the potential to deposit fugitive dust within State-designated sensitive habitats, a significant impact, requiring the implementation of mitigation measures specified in the LAX Master Plan Final EIR. Implementation of MM-BC-1 and MM-ET-3 would reduce this impact to a less than significant level.

[13] The April 20, 2004 Biological Opinion is included in Appendix F-E, Biological Opinion from United States Fish and Wildlife Service (USFWS) of the LAX Master Plan Final EIR, April 2004.

[14] U.S. Fish and Wildlife Service. 8 April 2005. Biological Opinion for Operations and Maintenance Activities at Los Angeles International Airport, City of Los Angeles, Los Angeles County, California (1-6-01-F-1012.7). Contact: U.S. Fish and Wildlife Service, Ecological Services, Carlsbad Fish and Wildlife Office, 6010 Hidden Valley Road, Carlsbad, CA, 92009.

Table 4.6-2

SAIP Impacts on Sensitive Species

Sensitive Species Found Within and Around the SAIP	Disturbed Bare Ground (acres)	Non-Native Grassland/Ruderal (acres)	Total Impact (acres)	Total Impact (Habitat Units)
San Diego black-tailed jackrabbit	33.72	2.61	36.34	3.76[1/]
Loggerhead shrike	33.72	2.61	36.34	3.76[2/]
Impact Summary	**33.72**	**2.61**	**36.34**	**3.76**[3/]

Notes:

1/ Impacts to the San Diego black-tailed jackrabbit and loggerhead shrike were calculated by multiplying the acreage of impact by the habitat value of the respective habitat type. Non-Native Grassland/Ruderal maintains a habitat value of 0.15, while Disturbed Bare Ground has a habitat value of 0.10.

2/ Impacts to the loggerhead shrike are the same as those to the San Diego black-tailed jackrabbit, as they occupy the same habitat (Exhibit 4.6-1, Sensitive Habitat Areas and Observations of Species of Concern). Therefore, impacts to these species are non-exclusive, as represented in the Impact Summary.

3/ Impacts to sensitive species are inclusive of those represented in Table 4.6-1

Source: Sapphos Environmental, Inc.
Prepared by: Sapphos Environmental, Inc.

4.6.7 Cumulative Impacts

Implementation of the SAIP would result in the loss of 92 acres of Non-Native Grassland/Ruderal associated with the SAIP work area and 34 acres of Disturbed/Bare Ground associated with the SAIP construction staging area, this equates to a net reduction of approximately 17.2 habitat units. With implementation of the recommended mitigation measures, there would be no net loss of habitat value as a result of implementation of the SAIP.

It is anticipated that two other LAX projects would be under construction concurrent with the SAIP: the TBIT Improvements and Baggage Screening Facilities Project (TBIT Project) and the Terminals 1-8 In-Line Baggage System Construction Project (In-Line Baggage Systems Project). Staging areas for the TBIT Project would be located outside those areas subject to construction avoidance measures set forth in the USFWS's April 20, 2004 Biological Opinion.[15] The staging area for the In-Line Baggage Systems Project is located southeast of the intersection of Westchester Parkway and Pershing Drive within Staging Area 2, as identified in Figure F.4.20-2 of the LAX Master Plan Final EIR. Impacts on biotic communities within this area were accounted for and are mitigated by the measures provided in the LAX Master Plan Final EIR. To the extent that the In-Line Baggage System Project proceeds prior to use of Staging Area 2 for master plan staging, the In-Line Baggage System Project's impacts on biotic communities would be assessed during project-level review. If necessary, mitigation similar to that provided in the LAX Master Plan Final EIR would be implemented to address significant impacts. Two additional projects include the Intersection Improvement Projects and Remote Boarding Facilities Modifications. Implementation of the Intersection Improvement Projects and Remote Boarding Facilities Modifications will not result in impacts to biotic communities as they will take place within areas that are already developed. As such, cumulative impacts to biotic communities as a result of implementation of the SAIP in association with the Intersection Improvement Projects and Remote Boarding Facilities Modifications are not expected to occur. Based on the above, cumulative impacts to biotic communities as a result of implementation of the SAIP in association with other non-SAIP LAX Projects are not expected to occur.

[15] The April 20, 2004 Biological Opinion is included in Appendix F-E, Biological Opinion from United States Fish and Wildlife Service (USFWS) of the LAX Master Plan Final EIR, April 2004.

Other planned development projects in the City of Los Angeles and surrounding jurisdictions as listed in Table 4.2-7 of this Draft EIR, would not have cumulative impacts on biological communities. In general, areas surrounding the airport are largely built out and contain little or no habitat value. However, two biologically significant open space areas, the Ballona Wetlands and the Ballona Bluffs are located in the vicinity of the airport. Potential impacts to these areas could occur with the development of the Playa Vista Project (Related Projects 81 and 82) and West Bluff (Related Project 88). However, with no net loss of habitat occurring under the SAIP and with implementation of the mitigation measures provided for these respective projects, the potential for cumulative impacts to biotic communities are considered to be less than significant.

4.6.8 Mitigation Measures

Mitigation Measure MM-BC (SA)-1 is derived from and achieves the same basic performance standard as Mitigation Measure MM-BC-8. Mitigation Measure MM-BC (SA)-1 addresses project-level impacts on Disturbed/Bare Ground and Non-Native Grassland/Ruderal areas associated with the SAIP through provisions for habitat restoration. This mitigation measure also specifies the timing of habitat restoration efforts. Mitigation Measure MM-BC (SA)-2 is derived from and achieves the same basic performance standard as Mitigation Measure MM-BC-9. Mitigation Measure MM-BC(SA)-2 addresses potential project-level impacts on the San Diego black-tailed jackrabbit and loggerhead shrike through habitat restoration. As further described below, Mitigation Measures MM-BC-8 and MM-BC-9 call for habitat restoration and enhancement activities to occur within the Los Angeles/El Segundo Dunes (Dunes), whereas Mitigation Measures MM-BC (SA)-1 and MM-BC(SA)-2 call for restoration at an offsite FAA-owned habitat preserve.

As required by Mitigation Measure MM-BC-8, LAWA must ensure that the restoration and enhancement of biotic communities as related to the establishment or enhancement of wildlife habitat shall not serve as wildlife attractants, in accordance with the provisions of FAA Advisory Circular 150/5200-33A and the LAX Wildlife Hazards Management Plan (WHMP), pursuant to Title 14, CFR, Part 139. Additionally, such restoration and enhancement shall take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes. Pursuant to these requirements, LAWA consulted with the FAA to determine whether habitat restoration and enhancement activities within the Los Angles/El Segundo Dunes would comply with applicable FAA regulations and provisions of the WHMP.[16]

In response to LAWA's request for a consistency determination with the applicable FAA regulations, FAA found that implementation of Mitigation Measures MM-BC-8 and MM-BC-9 within the Los Angeles/El Segundo Dunes would conflict with LAWA's responsibilities under Title 14, Code of Federal Regulations (CFR), Part 139, FAA Advisory Circular 150/5200-33A, and the WHMP, and

[16] Los Angeles World Airports. 18 March 2005. Letter to Federal Aviation Administration, 15000 Aviation Boulevard, Lawndale, CA 90261. Re: Request for Determination of Federal Aviation Administration Consistency with Mitigation Measures MM-BC(SA)-1 and MM-BC(SA)-2 of the Los Angeles International South Airfield Improvement Project Environmental Impact Report and Applicable FAA Regulations. Prepared by: Los Angeles World Airports, 1 World Way, P.O. Box 92216, Los Angeles, CA 90009-2216.

would pose a significant economic and public health and safety threat.[17] Specifically, the WHMP developed for LAX provides for operational wildlife control to alleviate aircraft-wildlife hazards. The need for wildlife hazardous management is based on a history of birdstrikes at LAX. Between January 1, 1990 and February 29, 2002, 95 raptors, 73 rock doves, 58 gulls, and 14 large water birds were struck by aircraft. An additional 392 birds were involved in strikes but were not identified.[18] Requirements included in MM-BC-8 would create perching and nesting areas in the Dunes that would attract birds and mammals of a type that would contribute to aircraft-wildlife strikes. FAA maintains that habitat restoration and on-site conservation and management for the loggerhead shrike and San Diego black-tailed jackrabbit within the Dunes would create an unacceptable hazard to air navigation, which would be contrary to the WHMP and other guidelines and polices of the FAA and LAWA.

Included in their response to LAWA's request, the FAA stated that performance standards stipulated by these mitigation measures for the loss of habitat units (MM-BC-8) and floral and faunal resources (MM-BC-9) could be feasibly attained at an alternate off-site location not subject to wildlife hazards management, such as the FAA-owned habitat preserve at the former Marine Corps Air Station El Toro (El Toro site), or other comparable site. Replacement of habitat units at the El Toro site, or comparable location, enables LAWA to comply with the LAX WHMP as well as FAA regulations while enhancing biotic communities at the El Toro site, which have been degraded due to prolonged military activities. These provisions are included in Mitigation Measures MM-BC (SA)-1 and MM-BC (SA)-2. The El Toro site has received prior approval for habitat restoration activities following Section 7 consultation with the Carlsbad Fish and Wildlife Office of the USFWS for effects to the Riverside fairy shrimp located within the Airfield Operations Area (AOA) at LAX. [19] The El Toro site has undergone varying levels of degradation due to prolonged military activities and its ability to provide quality habitat could be greatly enhanced through the restoration and enhancement of coastal sage scrub and native grassland habitats. In spite of the history of habitat degradation, the site supports both listed and sensitive species, including the coastal California gnatcatcher (*Polioptila californica californica*), and San Diego cactus wren (*Campylorhynchus brunneicapillus sandiegensis*). The enhancement of coastal sage scrub and native grassland habitats would increase the resources available for these species as well as other sensitive species found within and adjacent to the El Toro site consistent with the current land use as a preserve not subject to wildlife hazards management.

- **MM-BC (SA)-1. Replacement of Habitat Units Associated with the South Airfield Improvement Project.** LAWA or its designee shall undertake mitigation for the loss of 17.2 habitat units resulting from implementation of the SAIP. These habitat units shall be

[17] Federal Aviation Administration. 22 June 2005. Los Angeles World Airports, 1 World Way, P.O. Box 92216, Los Angeles, CA 90009-2216, Re: Federal Aviation Administration Consistency Determination of Mitigation Measures MM-BC(SA)-1 and MM-BC(SA)-2 of the Los Angeles International South Airfield Improvement Project Environmental Impact Report and Applicable FAA Regulations. Prepared by: Federal Aviation Administration, 15000 Aviation Boulevard, Lawndale, CA 90261.

[18] One of the most severe aircraft-wildlife strikes occurred on October 15, 1997, when an aircraft experienced multiple birdstrikes and engine ingestions, causing the takeoff to be aborted. After returning to the gate, inspection of the engines disclosed bent turbine blades. As a result of that strike, LAWA and the USDA APHIS Wildlife Services entered into a Cooperative Services Agreement to conduct a wildlife hazard assessment to assist in the development of a WHMP and to provide operational wildlife control.

[19] The April 20, 2004 Biological Opinion is included in Appendix F-E, Biological Opinion from United States Fish and Wildlife Service (USFWS) of the LAX Master Plan Final EIR, April 2004.

replaced at a 1:1 ratio within the FAA owned habitat preserve at the former Marine Corps Air Station El Toro (El Toro site), or other appropriate site.

The site is located northeast of the intersection of the Santa Ana Freeway (Interstate 5) and the Laguna Freeway (State Highway 133), on property owned by the FAA and designated as a habitat preserve at the former MCAS at El Toro, in the city of Irvine, Orange County, California. The site is found within open space of the eastern portion of the MCAS El Toro at the terminus of Magazine Road and accessed via Irvine Boulevard just north of the intersection of Irvine Boulevard and Alton Parkway. The site is bounded on the north by the Foothill Transportation Corridor; the City of Lake Forest to the east; Borrego Canyon Wash to the south; and Irvine Boulevard to the west. The site is identified on the 7.5-minute series U.S. Geological Survey (USGS) topographic quadrangle for El Toro (township 6 south, range 8 west), within property owned by the FAA and managed by the USFWS. **Exhibit 4.6-2** depicts the vicinity map of MCAS El Toro. The El Toro site ranges from 200 feet above mean sea level at the lowest elevation to 300 feet above mean sea level at the highest elevation.

The El Toro site is dominated by coastal sage scrub of varying degrees of disturbance, as well as non-native grassland/ruderal and disturbed bare ground habitat types.

The habitats at the El Toro site are suitable to support breeding and foraging activities for both the San Diego black-tailed jackrabbit and the loggerhead shrike. As required by the mitigation measure, the El Toro site provides opportunities for habitat restoration and habitat enhancement to increase the existing habitat suitability and provided the required numbers of habitat units. Opportunities for compensation for the loss of 17.2 habitat units include 17.2 habitat units (21.5 acres x 0.8 Habitat Value) from restoration of Non-Native Grassland/Ruderal habitat to a Valley Needlegrass Grassland; 17.2 habitat units (21.5 acres x 0.8 Habitat Value) from restoration of Coastal Sage-Scrub habitat. Each acre of replacement habitat shall be fully restored pursuant to the standards and criteria set forth by the USFWS. Accordingly, the replacement habitat shall be given a habitat value of 0.8 for the calculation of habitat units. A habitat value of 0.8 is considered to be the maximum feasible target value for restoration and enhancement of biotic communities pursuant to the USFWS. Restoration shall be implemented at the El Toro site through development of a Habitat Restoration Plan (HRP), which shall account for all impacted biotic communities identified in the LAX Master Plan MMRP. Habitat restoration efforts to mitigate impacts associated with the SAIP shall be initiated and completed prior to or concurrent with commissioning of relocated Runway 7R-25L. The restoration and enhancement of biotic communities at the El Toro site as related to the establishment or enhancement of wildlife habitat allows LAWA and the FAA to comply with the provisions of the FAA Advisory Circular 150/5200-33A regarding hazardous wildlife attractants on or near airports. Additionally, restoration and enhancement activities at El Toro take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes. The FAA and LAWA have determined that habitat restoration and enhancement activities at El Toro site would not constitute a threat to public health or safety.

Source: Hybrid Map: American Automobile Association, Los Angeles Vicinity, 1990/ www.mapquest.com, 2005
Prepared by: Ricondo & Associates, Inc.

Exhibit 4.6-2

north

Vicinity Map of MCAS El Toro

Not to Scale

- **MM-BC (SA)-2. Conservation of Faunal Resources Associated with the South Airfield Improvement Project.** Directed surveys for the San Diego black-tailed jackrabbit shall be undertaken by a qualified wildlife biologist at least 14 days before construction activities. LAWA or its designee shall relocate any observed San Diego black-tailed jackrabbit individuals currently inhabiting the SAIP project areas. Relocation efforts shall be coordinated with CDFG. The San Diego black-tailed jackrabbit shall be captured using live traps and shall be released at El Toro, or a comparable site. Compensation for the loss of 3.8 habitat units shall be the utilization of at least 3.8 habitat units by the San Diego black-tailed jackrabbit individuals relocated to the El Toro site, or a comparable location. Those 3.8 habitat units utilized by the San Diego black-tailed jackrabbit shall be among the 17.2 habitat units restored pursuant to MM-BC (SA)-1. Restoration shall be implemented pursuant to the specifications detailed under MM-BC (SA)-1.

  The restoration and enhancement of biotic communities at the El Toro site as related to the establishment or enhancement of San Diego black-tailed jackrabbit habitat allows LAWA and the FAA to comply with the provisions of the FAA Advisory Circular 150/5200-33A regarding hazardous wildlife attractants on or near airports. Additionally, restoration and enhancement activities at El Toro take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes.

  LAWA or its designee shall implement a monitoring plan to monitor the success of the relocated individuals for a period of not more than five years. Performance criteria shall include confirmed success of survival for three years of the San Diego black-tailed jackrabbit at the El Toro site. This shall be accomplished through a quarterly monitoring plan to document the success or failure of this relocation effort.

  Directed surveys for the loggerhead shrike shall be undertaken at least 14 days preceding the scheduled initiation of construction. Should loggerhead shrike individuals be encountered in the SAIP project area as a result of directed surveys all reasonable efforts should be made to capture individuals by mist nets, or other appropriate methods, and relocate to El Toro or a comparable location. Additionally, in the event loggerhead shrike are found to utilize the SAIP project area LAWA or its designee shall compensate for the loss of 3.8 habitat units resulting from implementation of the SAIP. Compensation for the loss of 3.8 habitat units shall be the utilization of at least 3.8 habitat units by loggerhead shrike individuals at the El Toro site, or a comparable location. Those 3.8 habitat units utilized by the loggerhead shrike shall be among the 17.2 habitat units restored pursuant to MM-BC (SA)-1. Restoration shall be implemented pursuant to the specifications detailed under MM-BC (SA)-1. Habitat restoration efforts to mitigate for the loss of loggerhead shrike habitat shall include nesting and roosting habitat appropriate for the species.

  The restoration and enhancement of biotic communities at the El Toro site as related to the establishment or enhancement of loggerhead shrike habitat allows LAWA and the FAA to comply with the provisions of the FAA Advisory Circular 150/5200-33A regarding hazardous wildlife attractants on or near airports Additionally, restoration and enhancement activities at El Toro take into account, as appropriate, the Memorandum of Agreement between FAA and other federal agencies, including the USFWS, pertaining to environmental conditions that could contribute to aircraft-wildlife strikes. The FAA and LAWA have determined that habitat restoration and enhancement activities at El Toro site would not constitute a threat to public health or safety.

LAWA or its designee shall implement a monitoring program for a period of not more than five years. Performance criteria shall include the use of at least 3.8 habitat units of improved habitat by the loggerhead shrike. Monitoring shall take place quarterly for the first three years and biannually thereafter. Monitoring shall be timed appropriately to include monitoring during the breeding period, which is between February and June.

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

MM-BC-1 and MM-ET-3, as presented in the LAX Master Plan MMRP are proposed to address the project-level impacts associated with the potential to deposit fugitive dust within State-designated sensitive habitats:

- **MM-BC-1. Conservation of State-Designated Sensitive Habitat Within and Adjacent to the El Segundo Blue Butterfly Habitat Restoration Area.** LAWA or its designee shall take all necessary steps to ensure that the state-designated sensitive habitats within and adjacent to the Habitat Restoration Area are conserved and protected during construction, operation, and maintenance.

  These steps shall, at a minimum, include the following:

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

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

- **MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control.** To reduce the transport of fugitive dust particles related to construction, soil stabilization, watering or other dust control measures, as feasible and appropriate, shall be implemented with a goal to reduce fugitive dust emissions by 90 to 95 percent during construction activities within 2,000 feet of the El Segundo Blue Butterfly Habitat Restoration Area. In addition, to the extent feasible, no grading or stockpiling for construction activities should take place within 100 feet of occupied habitat of the El Segundo blue butterfly.

4.6.9 Level of Significance After Mitigation

Implementation of the above mitigation measures would reduce construction impacts on biotic communities associated with the SAIP to a less than significant level and no additional mitigation would be required.

V. Other Environmental Resources

This chapter provides an assessment of environmental impacts associated with the construction of the SAIP, with the exception of impacts associated with hydrology/water quality, off-airport surface transportation, air quality, human health risks, noise, and biotic communities. Impacts on these resource categories associated with the construction of the SAIP are addressed under their respective sections in Chapter IV. With the exception of impacts associated with hydrology/water quality, all effects related to the operation of the airport after the completion of the SAIP are fully addressed in the LAX Master Plan Final EIR. The information presented in this chapter is primarily for disclosure and informational purposes, because further review confirms that the construction impacts of the SAIP were accounted for and addressed in the LAX Master Plan Final EIR and Addenda to the Final EIR. No new significant impacts have been identified and no additional mitigation measures are required in these impact categories beyond those provided in the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP).

Overall construction impacts were addressed at a programmatic level of detail in the LAX Master Plan Final EIR and related technical reports and appendices. To allow the document to be as comprehensive and thorough as possible, the LAX Master Plan Final EIR also contains extensive project-level analysis. Because the SAIP is one component of the LAX Master Plan, project-level construction impacts are evaluated in this chapter based on additional information described in Chapter II, *Project Description*. Each environmental category in this chapter is reviewed to determine the applicability of the LAX Master Plan commitments and mitigation measures presented in the MMRP to the potential project-level construction impacts of the SAIP. An assessment is then made as to whether the evaluation and mitigation of construction impacts presented in the LAX Master Plan Final EIR for a given resource are adequate to address the impacts of the SAIP.

Each of the 13 environmental categories presented in this chapter is set forth in separate subsections. The following headings are included within each subsection:

- The **Introduction** describes the resource category and incorporates by reference relevant sections of the LAX Master Plan Final EIR, Addenda to the LAX Master Plan Final EIR, and related technical reports and appendices.
- The **Setting** briefly describes the existing environment as it relates to the respective resource category.
- The **LAX Master Plan** discussion summarizes construction impacts that are relevant to the SAIP as identified in the LAX Master Plan Final EIR and Addenda, presents LAX Master Plan commitments and mitigation measures that address these impacts, and identifies any construction impacts that would remain significant after mitigation.
- The **SAIP** discussion evaluates the potential for additional impacts not addressed in the LAX Master Plan Final EIR and Addenda to the Final EIR, and, when necessary, further defines impacts presented in the LAX Master Plan Final EIR and Addenda to the Final EIR associated with the SAIP. These impacts are then evaluated to determine whether additional LAX Master Plan commitments and mitigation measures beyond those presented in the MMRP are necessary to address the project-related construction impacts of the SAIP. This SAIP discussion also identifies any construction and/or construction-related impacts that would remain significant after mitigation.

5.1 Land Use

5.1.1 Introduction

This section addresses potential land use incompatibilities that could result from construction activities occurring near residential or other noise-sensitive areas. The determinations and assessments made in this section are based primarily on information contained in:

- LAX Master Plan Final EIR, Section 4.2, *Land Use,* April 2004
- LAX Master Plan Final EIR, Technical Report 1, *Land Use Technical Report*, January 2001
- LAX Master Plan Final EIR, Technical Report S-1, *Supplemental Land Use Technical Report*, June 2003

5.1.2 Setting

The City of El Segundo is located south of the airport boundary and south of Imperial Highway. Along Imperial Highway, commercial uses are located between the 405 Freeway and Sepulveda Boulevard and residential uses are located west of Sepulveda Boulevard. Also located along Imperial Highway is the Imperial Strip, a 7.35-acre open space corridor. To the north of LAX is the City of Los Angeles, which includes the communities of Westchester and Playa del Rey. East of LAX is the City of Inglewood, the unincorporated community of Lennox, the City of Los Angeles Community of South Los Angeles, and the unincorporated community of Athens. These surrounding areas are largely built out and urbanized and have not changed from the conditions described in the LAX Master Plan Final EIR in a manner that would alter the basic findings of this land use analysis.

5.1.3 LAX Master Plan

5.1.3.1 Impacts Identified in the Final EIR

Major construction activities associated with the LAX Master Plan include runway and airfield modifications. A variety of activities would occur within these project work areas and construction staging areas, including demolition, excavation and grading, utility installation, the use of a concrete batch plant and rock crushing facility, and construction of foundations. The majority of construction activities would occur during daytime hours, with second and third shifts 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). Nighttime construction is expected to occur on the airfield.[1]

Construction haul routes would be located away from residential streets and noise-sensitive parcels as provided for under LAX Master Plan Commitment ST-16, *Designated Haul R*outes. Construction staging areas would be located away from residential areas, as stated in Master Plan Mitigation Measure MM-N-8, *Construction Staging*; and LAX Master Plan Commitment ST-12, *Designated Truck Delivery Hours*, would limit construction delivery hours.

The effects of construction in terms of noise, degraded views, surface transportation disruption, and other issues would impact land uses surrounding the LAX Master Plan boundaries. The most notable impact affecting adjacent land uses would be construction noise. As further described in Section 4.1, of the LAX Master Plan Final EIR, even with the implementation of Master Plan Mitigation

[1] LAX Master Plan Final EIR, Section 4.20, page 4-1173.

Measures MM-N-7 through MM-N-10, implementation of the LAX Master Plan would result in significant unavoidable impacts on noise-sensitive areas located within 600 feet of construction sites. Land uses potentially affected by significant construction noise levels of 5 dBA above the lowest ambient noise levels would be those primarily located to the south of the airport in El Segundo and to the north of the airport in Westchester. Within the City of El Segundo, these areas include 132 dwelling units fronting Imperial Highway.

Although most construction impacts would be intermittent and temporary, and would be reduced to less than significant levels through mitigation measures, significant unavoidable impacts from construction-related noise would affect sensitive land uses. Traffic and lane closures due to construction activities would temporarily disrupt normal traffic flows, and construction-related traffic would, at times, result in significant and unavoidable impacts.

Any potential inconsistencies with local and regional plans are discussed in the LAX Master Plan Final EIR. Much of the discussion is provided in Sections 4.2 and 4.6 of the LAX Master Plan Final EIR. [2] Potential plan inconsistencies that would result in physical impacts after implementation of relevant Master Plan commitments and mitigation measures were identified for the Los Angeles County Noise Element, the City of Los Angeles Noise Element, and the City of Inglewood Noise and Housing Elements. These impacts were due to noise-sensitive uses being newly exposed to high noise levels or significant noise increases.

5.1.3.2 Relevant LAX Master Plan Commitments and Mitigation Measures

In addition to Mitigation Measures MM-N-7 through MM-N-10 and LAX Master Plan Commitment C-1, *Establishment of a Ground Transportation/Construction Coordination Office*,N-1, *Maintenance of Applicable Elements of Existing Aircraft Noise Abatement Program*, and LAX Master Plan Commitments ST-9, ST-12, ST-14, ST-16, ST-17, ST-18, and ST-22 would address construction impacts on sensitive land uses.

5.1.4 South Airfield Improvement Project

5.1.4.1 Impacts

As reflected above, the information, analysis, and LAX Master Plan commitments and mitigation measures provided in the LAX Master Plan Final EIR adequately address potential land use impacts

---

2 As analyzed there and further confirmed in the Los Angeles City Council's findings on December 7, 2004, the LAX Master Plan would be consistent with the 2001 Regional Transportation Plan (RTP) and the 2004 RTP, because passenger and cargo activity levels projected under Alternative D would be similar to activity levels contained in these plans. Thus, the SAIP, as a project component of the LAX Master Plan, would also be consistent.
On December 7, 2004, the Los Angeles City Council overruled the Los Angeles County Airport Land Use Commission (ALUC) based on specific findings that the LAX Master Plan was consistent with the purposes of the Aeronautics Act. The findings set forth the reasons the City Council disagreed with the ALUC's prior determination of inconsistency between the LAX Master Plan and the County Airport Land Use Plan (CLUP). Under the Aeronautics Act, the ALUC is now required to amend its CLUP to conform to the LAX Master Plan. In addition, as anticipated in the LAX Master Plan Final EIR, on December 7, and 14, 2004, the City Council adopted amendments to plans within its jurisdiction to make those plans consistent with the LAX Master Plan. The SAIP, as a project component of the LAX Master Plan, would be consistent with these plans. In January 2005, the FAA issued its final General Conformity Determination indicating general conformity between the LAX Master Plan and the governing SIP. The final General Conformity Determination also examined factors related to consistency with the 2003 AQMP, which has not yet been formally incorporated into the SIP.

due to SAIP construction activities. This subsection provides additional analysis of project-specific impacts on sensitive land uses due traffic, noise, and views.

As described for the LAX Master Plan, construction activities associated with the SAIP would include runway and airfield modifications, such as demolition of existing Runway 7R-25L, excavation and grading, utility relocation and replacement, the use of a concrete batch plant and rock crushing facility, and paving for relocated Runway 7R-25L. Construction activities would also require the closure of Runway 7R-25L for approximately twelve months (i.e., four months of closure during nighttime hours only and 8 months of complete runway closure). As stated in Section 4.5, the majority of construction activities would occur during daytime hours, with a second shift used for work activities that cannot be accomplished during the daytime shift due to coordination or interference issues. Construction of the SAIP would not require roadway lane closures; however, as described in Section 4.2, construction traffic would result in a temporary significant impact at the intersection of Imperial Highway and I-105 eastbound ramps for approximately one month.

As described in Section 4.5, during the closure of Runway 7R-25L, aircraft operations would be distributed among the remaining three runways, resulting in temporary shifts in noise exposure over noise-sensitive parcels. As a result, some residential and other noise-sensitive uses would be significantly impacted by aircraft noise, because these areas would be newly exposed to 65 CNEL or greater noise levels, outdoor noise levels of 75 CNEL, and 1.5 CNEL or greater increases within the area exposed to 65 CNEL or greater. In addition, some residents would be newly exposed to single event noise levels that result in nighttime awakening and some schools would be newly exposed to high interior noise levels that result in classroom disruption. Even with LAX Master Plan Commitment N-1 in place, construction-related impacts associated with high noise levels, nighttime awakening and classroom disruption, although temporary, would remain significant and unavoidable.

Similar to the analysis presented in the LAX Master Plan Final EIR, noise-sensitive uses in the County of Los Angeles, City of Los Angeles, and City of Inglewood would be newly exposed to high noise levels and therefore these construction-related impacts would conflict with the respective general plan noise element policies. Exposure to high noise levels under the SAIP would occur as a result of closure of the Runway 7R-25L and would be temporary (i.e., 8 to 12 months duration). These construction-related impacts, although short-term would be significant. Other than temporary conflicts with noise element policies, no other conflicts with local or regional plans would occur due to SAIP construction and construction-related activities. As previously indicated, potential conflicts with local and regional plans due to operational aspects of Alternative D, including the SAIP, were fully addressed in the LAX Master Plan Final EIR.

Construction effects associated with traffic, noise, and views under the SAIP have the potential to impact land uses along the southern boundary of LAX. Potential land use incompatibilities associated with construction traffic would be less than significant with implementation of LAX Master Plan Commitments C-1, ST-9, ST-12, ST-14, ST-16, ST-17, ST-18 and ST-22, presented in Section 4.2. As presented in Section 4.5, although construction noise impacts on sensitive land uses would be less than significant, mitigation measures MM-N-7 through MM-N-10, would be implemented to reduce the potential for any effects. As concluded below in Section 5.8, short-term aesthetic impacts from construction activities would be potentially significant. However, the potential for visual impacts would be less than significant with the implementation of LAX Master Plan Commitment DA-1, *Provide and Maintain Airport Buffer Areas*, and Mitigation Measure MM-DA-1, *Construction Fencing*.

5.1.4.2 Mitigation Measures

The nature and degree of land use effects related to construction of the SAIP is similar to, or less than, the land use effects identified in the LAX Master Plan Final EIR. Therefore, no additional mitigation measures are proposed.

5.1.4.3 Level of Significance After Mitigation

During the closure of Runway 7R-25L, aircraft operations would be distributed among the remaining three runways, resulting in temporary shifts in noise exposure over noise-sensitive parcels. As described in Section 4.5, the temporary noise impact would be significant and unavoidable.

5.2 Population, Housing, Employment and Growth-Inducement

5.2.1 Introduction

This section addresses the potential for SAIP construction activities to induce substantial population or economic growth, which would result in the construction of new housing or other development that would directly or indirectly cause significant impacts on the environment. The potential for SAIP construction activities to displace existing housing or businesses is also identified.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.2, *Land Use,* April 2004
- LAX Master Plan Final EIR, Section 4.4.1, *Employment/Socio-Economics*, April 2004
- LAX Master Plan Final EIR, Section 4.4.2, *Relocation of Residences or Businesses,* April 2004
- LAX Master Plan Final EIR, Section 4.5, *Induced Socio-Economic Impacts (Growth Inducement),* April 2004
- LAX Master Plan Final EIR, Section 4.20, *Construction Impacts,* April 2004
- LAX Master Plan Final EIR, Technical Report 5, *Economic Impacts Technical Report,* January 2001
- LAX Master Plan Final EIR, Technical Report S-3, *Supplemental Economic Impacts Technical Report,* July 2003
- LAX Master Plan Program Draft Relocation Plan, April 2004
- Addendum to the LAX Master Plan Final EIR, September 2004

5.2.2 Setting

Descriptions of the population, housing, employment, and growth-inducing characteristics of the communities surrounding the airport are presented in Sections 4.4.1, 4.4.2, and 4.5 of the LAX Master Plan Final EIR. This information is incorporated by reference herein. Data within these sections includes the role of LAX in the regional economy, demographic information by census tracts for the surrounding area, and regional distribution of population, housing, and employment. The potential for project-induced growth to trigger construction of new infrastructure or remove obstacles to growth was also assessed. The information most relevant to the SAIP is construction employment and related growth-inducing effects. However, the SAIP would not require relocation of residences or businesses. The assumptions used to estimate construction jobs and other growth-inducing impacts have not changed from the conditions described in the LAX Master Plan Final EIR in a manner that would alter the basic findings. For example, estimates of construction employment and related demand on housing, utilities, and services and removal of obstacles to growth would be similar to what was described in the LAX Master Plan Final EIR.

5.2.3 LAX Master Plan

5.2.3.1 Impacts Identified in the Final EIR

Under the LAX Master Plan, residential acquisition of approximately 9-12 units could occur with the implementation of Mitigation Measure MM-ST-13, *Create A New Interchange at I-405 and Lennox Boulevard*. Residential acquisition could also occur if the ANMP land acquisition for Manchester Square cannot be completed prior to construction within the Manchester Square and Belford areas.

In addition, under the LAX Master Plan, approximately 34 businesses would be acquired and relocated. No acquisition would be required to implement the SAIP.

The LAX Master Plan construction-related expenditures, excluding land acquisition and relocation costs, would be approximately $6.4 billion (in 1997 dollars), and there would be an estimated 48,778 jobs directly involved in design and construction. When a multiplier effect[3] is applied, construction of the LAX Master Plan would generate 102,244 construction-related jobs.[4] Based on estimated direct construction expenditures, the LAX Master Plan would yield an estimated $11.3 billion dollars in total economic output in Los Angeles County. The majority of construction-related jobs associated with the LAX Master Plan would be filled from the local labor force within a 20-mile radius and the jobs would be temporary.

Growth-inducing impacts associated with job growth, population and housing growth, related services and utilities, and removal of obstacles to population growth under the LAX Master Plan would be less than significant. This is primarily due to the overall projected net decrease in LAX-related employment for the region and the characteristics of Alternative D. Therefore, project–related job growth, population, housing and removal of obstacles to population growth would not meaningfully contribute to regional growth forecasts, create a net new demand for public utilities or services, or extend development to undeveloped areas.

5.2.3.2 Relevant LAX Master Plan Commitments and Mitigation Measures

Because no acquisition would be required for the SAIP and construction-related employment would not induce growth in the area, LAX Master Plan commitments and mitigation measures identified in the MMRP for the LAX Master Plan are not relevant to the SAIP. However, the following LAX Master Plan commitments presented in the LAX Master Plan MMRP to address environmental justice is relevant to the SAIP, as they would apply to construction jobs:

- **EJ-1. Aviation Curriculum.**
- **EJ-2. Aviation Academy.**
- **EJ-3. Job Outreach Center.**
- **EJ-4. Community Mitigation Monitoring Aviation Curriculum.**

5.2.4 South Airfield Improvement Project

5.2.4.1 Impacts

As reflected above, the information, analysis, and LAX Master Plan commitments provided in the LAX Master Plan Final EIR adequately address the potential population, housing, employment, and growth-inducing impacts due to SAIP construction activities. As further indicated above, the SAIP does not involve any acquisition. Therefore, there would be no residential or business-related acquisition impacts associated with construction of the SAIP.

The SAIP would provide temporary construction and construction-related employment opportunities for approximately 250 workers during the approximately 26 month period. Other industries that would indirectly benefit from construction activities associated with the SAIP include those that

[3] The "multiplier effect" includes indirect jobs (i.e., those related to purchases of goods and services by companies directly involved in the design and construction of the project) and induced jobs (i.e., those related to the re-spending of earnings by direct and indirect job holders).
[4] LAX Master Plan Final EIR, Section 4.4.1, page 4-528.

provide services for construction and manufacturing employees such as eating/drinking establishments, retail trade, auto repair, and transportation equipment and industrial machinery manufacturing. The majority of the construction jobs would be filled by workers who already reside within a 20-mile radius, and the jobs would be temporary. Few construction workers are expected to move into the area due to temporary construction jobs at LAX. Therefore construction workers would not induce substantial demand for housing, utilities, or other development to the area. Furthermore, construction of the SAIP would not create a net new demand for public utilities or services, or extend development to undeveloped areas. As a result, growth-inducing impacts would be less than significant.

As noted in **Table 5-1,** construction expenditures associated with the SAIP would be approximately $207 million.

Table 5-1

South Airfield Improvement Project Estimated Construction-Related Expenditures

Project:	Approx. Cost (Planning, Design and Construction)
Relocation of Runway 7R-25L (includes relocation and replacement of all navigational and visual aids)	$125 million
Center Taxiway	$ 80 million
Strengthening improvements to Sepulveda Boulevard Tunnel	$ 2 million
Total	**$207 million**

Source: HNTB Final Bid Estimate, September 17, 2004; HNTB 50 Percent Cost Estimate, July 26, 2004
Prepared by: Ricondo & Associates, Inc.

As stated earlier, the expenditures would translate into approximately 250 jobs associated with design and construction of the SAIP in Los Angeles County over the duration of the construction period. Considering the multiplier effect to account for the indirect effects on other industries, the total employment impact within the County during the construction period would be even higher. As presented in LAX Master Plan Commitment MM-EJ-3, *Job Outreach Center*, LAWA would make special efforts to offer construction jobs to MBE/WBE/DBE subcontractors and minority or disadvantaged residents within affected communities.

5.2.4.2 Mitigation Measures

No significant impacts on population, housing, employment, and related growth-inducing effects would occur as a result of the SAIP. Therefore, no mitigation measures are required.

5.3 Cultural Resources

5.3.1 Introduction

The cultural resources analysis described in this section addresses the potential construction impacts of the SAIP on cultural resources including historical, archaeological, and paleontological resources. Historical and archaeological resources considered include prehistoric or historic buildings, sites, districts, structures, or objects that meet criteria of significance as established by the National Register of Historic Places, California Register of Historical Resources (National Register), California Register of Historical Resources (California Register), and local jurisdictions. This section also addresses paleontological resources, or fossilized remains of plants and animals that may be considered unique.

Potential construction impacts on these resources could occur from excavation and grading associated with the relocated Runway 7R-25L, new taxiways, the relocation and replacement of underground utilities, and the relocation of landing and navigational aids.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.9, *Historic/Architectural and Archaeological/Cultural and Paleontological Resources*, April 2004
- LAX Master Plan Final EIR, Section 4.20, *Construction Impacts*, April 2004
- LAX Master Plan Final EIR, Appendix I, *Section 106 Report*, January 2001
- LAX Master Plan Final EIR, Appendix S-G, *Supplemental Section 106 Report*, June 2003

5.3.2 Setting

5.3.2.1 Historic and Archaeological Resources

Descriptions of existing conditions relative to historical and archaeological resources are presented in Section 4.9.1 of the LAX Master Plan Final EIR. This information is incorporated herein by reference. Ten historic properties were identified within the vicinity of LAX that are of federal, state or local significance. These properties are identified on Figure F4.9.1-1, *Composite Area of Potential Effects Map*, in the LAX Master Plan Final EIR. In addition, within a radius of approximately two miles of LAX, 32 previously recorded archeological sites were identified. Furthermore, four previously unrecorded archaeological sites were identified during the study conducted for the LAX Master Plan. Due to the characteristics of the area, there is a high likelihood of additional undiscovered archaeological resources being present. No changes in the significance of historic properties or the number of recorded archeological sites at LAX have occurred since publication of the LAX Master Plan Final EIR.

5.3.2.2 Paleontological Resources

Existing paleontological resources are described in Section 4.9.2, in the LAX Master Plan Final EIR. That information is incorporated herein by reference. A records search conducted by the Natural History Museum of Los Angeles County noted that fossils are likely to exist within the sand dune deposits and underlying Palos Verdes Sand formation present at LAX. The records search also identified the presence of fossils in the vicinity of LAX at depths ranging from 13 to 70 feet. Such areas could be affected by construction of the SAIP. Conditions relating to the potential for encountering paleontological resources in the project area have not changed from those described in the LAX Master Plan Final EIR.

5.3.3 LAX Master Plan

5.3.3.1 Impacts Identified in the Final EIR

5.3.3.1.1 Historic and Archaeological Resources

Construction activities associated with the LAX Master Plan would affect one California Register eligible historic resource, the International Airport Industrial District. This resource would not be affected by construction activities associated with the SAIP. While Hangar One, a property listed on the National Register, and the World War II Munitions Storage Bunker, a property eligible for the National Register as a contributor to a potential historic district, are located in proximity to the SAIP, these historic resources would not be affected by the construction activities associated with the LAX Master Plan and mitigation measures would not be required.

Under the LAX Master Plan, including the SAIP, some loss of as-yet discovered archaeological resources could occur during grading and excavation activities. The disturbance or destruction of potentially significant undiscovered archaeological resources by these activities would be considered a significant impact. With implementation of Master Plan Mitigation Measures MM-HA-4 through MM-HA-10, project impacts on archaeological/cultural resources would be reduced to a less than significant level.

5.3.3.1.2 Paleontological Resources

Under the LAX Master Plan, grading or excavation involving depths generally greater than 6 feet are likely to expose and possibly damage potentially important paleontological resources. These potential impacts are also relevant to the SAIP. Construction activities would also increase the potential for the project site to be accessible for unauthorized fossil collection, which could result in the loss of additional fossil remains, associated scientific data, and fossil sites. These construction impacts are considered significant. Implementation of Master Plan Mitigation Measures MM-PA-1 through MM-PA-7 would reduce potential adverse impacts to paleontological resources to a less than significant level.

5.3.3.2 Relevant LAX Master Plan Commitments and Mitigation Measures

5.3.3.2.1 Historic and Archaeological Resources

- **MM-HA-4. Discovery.**
- **MM-HA-5. Monitoring.**
- **MM-HA-6. Excavation and Recovery.**
- **MM-HA-7. Administration.**
- **MM-HA-8. Archaeological/Cultural Monitor Report.**
- **MM-HA-9. Artifact Curation.**
- **MM-HA-10. Archaeological Notification.**

5.3.3.2.2 Paleontological Resources

- **MM-PA-1. Paleontological Qualification and Treatment Plan.**
- **MM-PA-2. Paleontological Authorization.**
- **MM-PA-3. Paleontological Monitoring Specifications.**

- **MM-PA-4. Paleontological Resources Collection.**
- **MM-PA-5. Fossil Preparation.**
- **MM-PA-6. Fossil Donation.**
- **MM-PA-7. Paleontological Reporting.**

5.3.4 South Airfield Improvement Project

As indicated above, the information, analysis, and mitigation measures provided in the LAX Master Plan MMRP adequately address the potential construction impacts of the SAIP on historical, archaeological, and paleontological resources. Therefore, no further project level analysis and no additional mitigation is required.

5.4 Endangered and Threatened Species of Flora and Fauna

5.4.1 Introduction

This section addresses the potential for construction activities associated with the SAIP, including the construction staging areas and work areas, to affect endangered and threatened species of flora and fauna, as defined by the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG). These species are protected under the State and federal Endangered Species Acts. In addition to direct impacts associated with construction activities, potential indirect construction impacts from light emissions, air emissions, and noise are also assessed.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.11, *Endangered and Threatened Species of Flora and Fauna*, April 2004
- LAX Master Plan Final EIR, Section 4.18, *Light Emissions*, April 2004
- LAX Master Plan Final EIR, Appendix J1, *Biological Assessment,* January 2001
- LAX Master Plan Final EIR, Technical Report 7, *Biological Resources, Memoranda for the Record on Floral and Faunal Surveys*, January 2001
- LAX Master Plan Final EIR, Appendix S-H, *Updated Biological Assessment*, June 2003
- LAX Master Plan Final EIR, Appendix F-E, *Biological Opinion,* April 2004
- Second Addendum to the LAX Master Plan Final EIR, Chapter 2, Regulatory Agency Actions, December 2004.

5.4.2 Setting

Descriptions of existing conditions relative to endangered and threatened species of flora and fauna are presented in Section 4.11 of the LAX Master Plan Final EIR and Section 2.2 of the Second Addendum to the Final EIR. This information is incorporated herein by reference. There are ten federally- or state-listed species of flora that were evaluated for their potential to occur within the LAX Master Plan boundaries. However, based on direct surveys, none of these plant species were determined to be present. There are nine federally- or state listed species of fauna that potentially occur within the LAX Master Plan boundaries. Three species, the Riverside fairy shrimp, the El Segundo blue butterfly, and the American peregrine falcon were observed on site. Riverside fairy shrimp cysts (or eggs) were determined to be present in seven areas of ephemerally wetted soils near the south airfield, as shown on **Exhibit 5-1**. The El Segundo blue butterfly is present within the El Segundo Blue Butterfly Habitat Restoration Area, as shown on Exhibit 4.6-1. The American peregrine falcon has been observed roosting in tall buildings and structures adjacent to LAX but was not observed within the LAX boundary during surveys conducted in 2002 and 2003. Conditions regarding the presence of federal- or state- listed species of fauna or flora within or adjacent to the SAIP work area and construction staging area have not changed materially from those presented in the LAX Master Plan Final EIR. This assessment is based on data provided by Sapphos Environmental, Inc. in 2003, and January and February 2005, as well as review of recent aerial photography of the project site. The 2003 analysis identified highly disturbed conditions, which are similar to the conditions identified in the LAX Master Plan Final EIR and similar to conditions that currently exist.

Legend

EW - Ephemerally Wetted Areas

- Fenced Construction Staging Areas

- Fenced Work Area (Portion)

Source: Eagle Aerial, 10-7-02; Final LAX Master Plan EIS/EIR
Prepared by: Ricondo & Associates, Inc.

Exhibit 5-1

north

Not to Scale

Ephemerally Wetted Areas Containing Riverside Fairy Shrimp Cysts near the South Airfield Improvement Project Area

5.4.3 LAX Master Plan

5.4.3.1 Impacts Identified in the Final EIR

As identified in the LAX Master Plan, 0.04 acres (1,853 sq. ft.) of degraded wetland habitat containing embedded cysts of the Riverside fairy shrimp would be permanently converted as a result of construction staging, airfield operations and maintenance activities, and/or airfield improvements. This converted area includes 1,438 sq. ft. associated with ephemerally wetted (EW) area EW6, located near the SAIP construction staging area. The permanent conversion of the 1,853 sq. ft. was considered a significant impact and triggered the need for Section 7 consultation with the USFWS. As a result of this consultation, the April 20, 2004 Biological Opinion for the LAX Master Plan[5] stated that soils bearing embedded cysts of the Riverside fairy shrimp from EW6, as well as EW1 and EW2, will be salvaged and stored prior to implementation of Alternative D projects. Therefore, the conversion of EW1, EW2, and EW6 would not result in a significant impact. In addition, these activities have the potential to indirectly affect EW9, EW12, EW13, EW14, EW15, and EW16, which comprise 1.26 acres of degraded wetland habitat. Specifically, EW9, EW12, and EW13, would potentially be affected by an alteration of upland hydrology resulting from the construction staging and development of the proposed employee parking garage. EW14, EW15, and EW16 would potentially be affected by construction staging in support of development of the Taxiway/Aircraft Apron and the proposed employee parking garage. Potential indirect impacts to ephemerally wetted areas located adjacent to SAIP work areas would be avoided through the implementation of construction avoidance measures, including Best Management Practices (BMPs), and the creation of a buffer area around the degraded wetland habitat. Watershed buffer areas located near the SAIP are shown on **Exhibit 5-2.** Implementation of Mitigation Measure MM-ET-1, *Riverside Fairy Shrimp Habitat Restoration*, would reduce direct impacts and potential indirect impacts to embedded cysts of the Riverside fairy shrimp to a level less than significant.

Avoidance measures required by the April 20, 2004 Biological Opinion, including BMPs required pursuant to the Standard Urban Stormwater Mitigation Plan and the establishment of a buffer area around the six occupied areas (i.e., those areas containing embedded cysts of the Riverside fairy shrimp) shown on Exhibit 5-2, would be implemented for the approximately 23 acres of ephemerally wetted areas, including the associated watershed buffer areas, until cyst bearing soils from these areas are salvaged and stored, pursuant to the April 8, 2005 Biological Opinion for Operation and Maintenance Activities at Los Angeles International Airport.[6] These avoidance measures would not apply to EW6 because this area would be permanently converted following the salvage and storage of cyst bearing soils in this area, as previously described.

The Second Addendum to the LAX Master Plan Final EIR provides additional discussion of the Riverside fairy shrimp. As stated therein, on April 27, 2004, the USFWS published a new proposed designation of critical habitat for Riverside fairy shrimp, which included 108 acres proposed as critical habitat within the Airfield Operations Area (AOA). Ephemerally wetted areas EW9, EW12, EW13, EW14, EW15, and EW16 were within the proposed designation of critical habitat for the Riverside fairy shrimp. On July 20, 2004, FAA, LAWA, and the USFWS held a conference,

---

[5] The April 20, 2004 Biological Opinion is included in Appendix F-E, Biological Opinion from United States Fish and Wildlife Service (USFWS) of the LAX Master Plan Final EIR, April 2004.

[6] U.S. Fish and Wildlife Service. 2005. Biological Opinion for Operations and Maintenance Activities at Los Angeles International Airport, City of Los Angeles, Los Angeles County, California (1-6-01-F-1012.7). Contact: U.S. Fish and Wildlife Service, Ecological Services, Carlsbad Fish and Wildlife Office, 6010 Hidden Valley Road, Carlsbad, CA, 92009.

pursuant to 50 CFR, Part 402.10, at which the USFWS concluded that continued construction, operations and maintenance activities on the proposed critical habitat areas outside the approximately 23 acres included in the April 20 2004 Biological Opinion, would not result in adverse modification of the proposed critical habitat areas.[7] Specific avoidance measures for the 23 acres are described in FAA's letter of no adverse modification.[8] The USFWS subsequently issued a letter of concurrence with the FAA's letter of no adverse modification.[9] Copies of these letters are provided in Appendix M, *Other Environmental Resources*. Further consideration of critical habitat for the Riverside fairy shrimp at LAX is not required. On April 12, 2005 the USFWS excluded these areas from designation of critical habitat for the Riverside fairy shrimp based on the fact that primary constituent elements required for the Riverside fairy shrimp to complete its life cycle are not met at LAX.[10]

No conversion of occupied habitat of the El Segundo blue butterfly in the Habitat Restoration Area would occur as a result of the relocation of the Runway 7R-25L. Indirect impacts to the El Segundo Blue Butterfly Habitat Restoration Area have the potential to occur from fugitive dust particles related to construction activities. This potential impact would be avoided with implementation of Master Plan Mitigation Measure MM-ET-3, *El Segundo Blue Butterfly Conservation: Dust Control*. Implementation of the LAX Master Plan would not affect the continued existence of the American peregrine falcon, because this species does not occupy habitat in the work area or in areas that would be developed or used for construction staging activities.

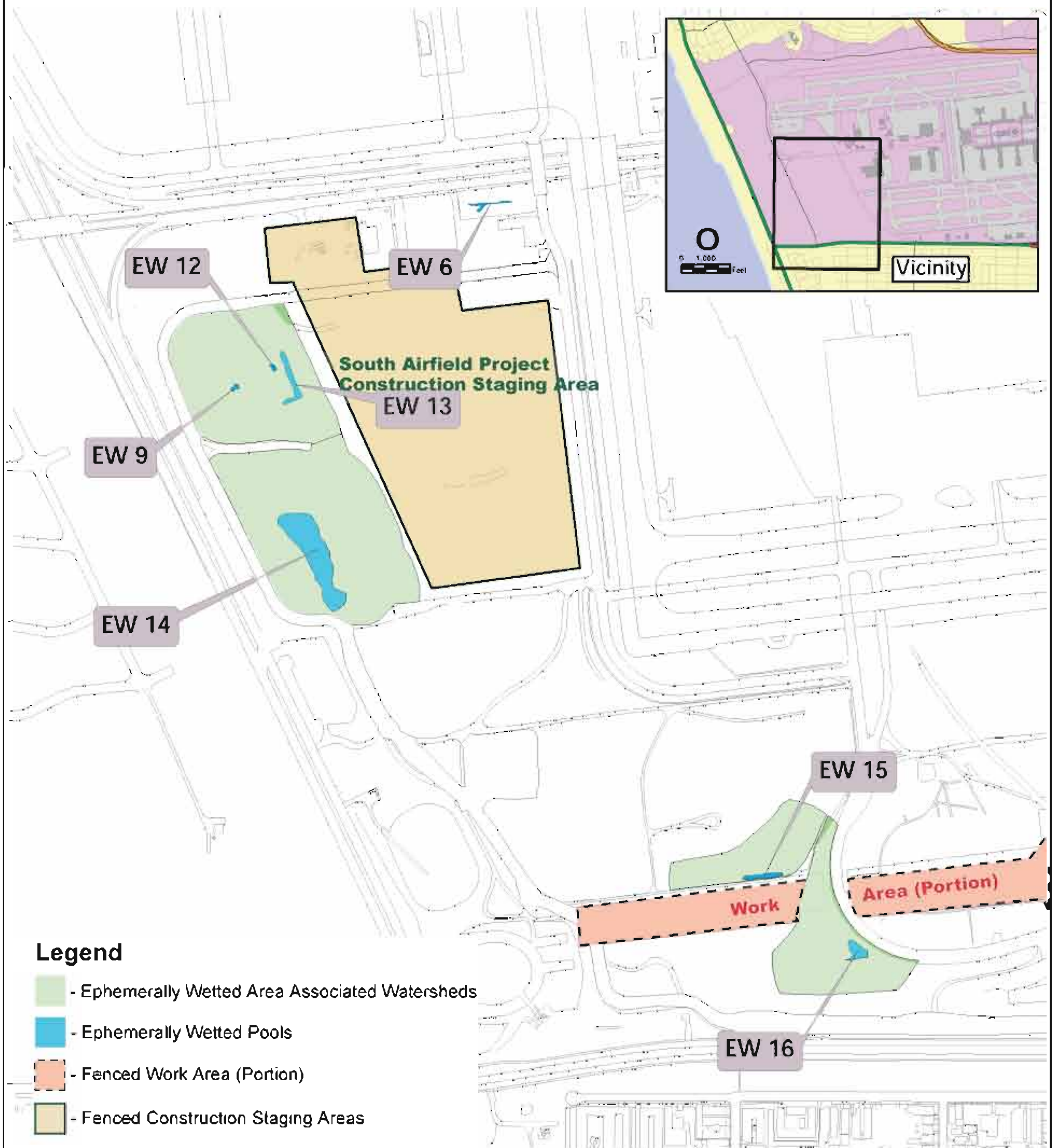
---

7 Code of Federal Regulations. Title 50, CFR, Part 402.10. "Conference on Proposed Species or Proposed Critical Habitat."

8 Federal Aviation Administration. 12 August 2004. Letter to U.S. Department of the Interior, Fish and Wildlife Service, Biological Services, Carlsbad Fish and Wildlife Office, 6010 Hidden Valley Road, Carlsbad, CA 92009. Subject: Los Angeles International Airport, Proposed Designation of Critical Habitat. Prepared by: Federal Aviation Administration, P.O. Box 92007, Los Angeles, CA 90009-2007.

9 U.S. Fish and Wildlife Service. 13 September 2004. Letter to the U.S. Department of Transportation Federal Aviation Administration. Re: Informal Conference for Five Projects at Los Angeles International Airport, Los Angeles County, California.

10 70 Fed. Reg. 19,154 (2005)



Data Source. LAWA, PSOMAS, SEI, Recon
Prepared by. PCR/Ricondo & Associates, Inc

Exhibit 5-2

north

Watershed Buffer Areas Near the South Airfield Improvement Project Area

5.4.3.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **MM-ET-1. Riverside Fairy Shrimp Habitat Restoration.**
- **MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control.**

5.4.4 South Airfield Improvement Project

5.4.4.1 Impacts

As reflected above, the information, analysis, and LAX mitigation measures provided in the LAX Master Plan Final EIR adequately address the potential construction impacts of the SAIP on Riverside fairy shrimp and El Segundo blue butterfly habitat. No impacts on EW006 would occur as a result of SAIP construction activities, as the construction staging area would not be placed on this location.

As shown on Exhibit 5-2, a portion of the work area associated with the SAIP would be located immediately south of a contributory watershed to EW15, and east and west of a contributary watershed to EW16. The SAIP would not directly impact the watersheds for EW15 and EW16. Through the implementation of construction avoidance measures – such as BMPs and the establishment of buffer areas – as described in Mitigation Measure MM-ET-1 and specified in the April 20, 2004 Biological Opinion issued by the UFWS in support of the LAX Master Plan, there would be no impacts on EW15 and EW16. Such construction avoidance measures shall be implemented until cyst bearing soils from these areas are salvaged and stored, pursuant to the April 8, 2005 Biological Opinion for Operation and Maintenance Activities at Los Angeles International Airport.[11] The SAIP construction staging area would not overlap the watershed area for EW9, EW12, EW13 or EW14. Therefore, no impact on these areas would occur.

Construction of the SAIP, including staging and stockpiling of materials in close proximity to the Los Angeles/El Segundo Dunes and the Habitat Restoration Area, would have the potential to deposit fugitive dust within State-designated sensitive habitats, which would be considered a significant impact.

5.4.4.2 Mitigation Measures

To address the potential for significant construction impacts on habitat for the Riverside fairy shrimp and the El Segundo blue butterfly and the Dune area, Mitigation Measures MM-ET-1 and MM-ET-3, presented in the LAX Master Plan MMRP are required for the SAIP.

5.4.4.3 Level of Significance After Mitigation

Implementation of Mitigation Measures MM-ET-1 and MM-ET-3, identified in the LAX Master Plan MMRP, would reduce SAIP construction impacts to a less than significant level.

[11] U.S. Fish and Wildlife Service. 2005. Biological Opinion for Operations and Maintenance Activities at Los Angeles International Airport, City of Los Angeles, Los Angeles County, California (1-6-01-F-1012.7). Contact: U.S. Fish and Wildlife Service, Ecological Services, Carlsbad Fish and Wildlife Office, 6010 Hidden Valley Road, Carlsbad, CA, 92009.

5.5 Wetlands

5.5.1 Introduction

This section addresses the potential for any construction activities to impact "waters of the United States," including wetlands and other special aquatic habitats protected by the federal government, and to natural rivers, streams, and lakes protected by the State of California. Information pertaining to protected species that exist in wetland areas is provided in Section 4.6.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.12, *Wetlands,* April 2004
- LAX Master Plan Final EIR, Appendix J2, *Jurisdictional Delineation,* January 2001
- LAX Master Plan Final EIR, Technical Report 7, *Biological Resources – Memoranda for the Record on Floral and Faunal Surveys*, January 2001
- LAX Master Plan Final EIR, Appendix S-A, *Agency Consultation Letters,* June 2003.
- Second Addendum to the LAX Master Plan Final EIR, Chapter 2, *Regulatory Agency Actions*, December 2004

5.5.2 Setting

Descriptions of existing conditions relative to wetlands and protected species that exist in wetlands are presented in Sections 4.11 and 4.12 of the LAX Master Plan Final EIR and supplemented by Section 2.2 of the Second Addendum to the Final EIR. This information is incorporated herein by reference. There are a total of 1.3 acres within the Airfield Operation Area (AOA) that meet the U.S. Army Corps of Engineers (USACOE) criteria for wetland hydrology. The areas closest to the work area and construction staging area associated with the SAIP are shown on Exhibit 5-1.

5.5.3 LAX Master Plan

5.5.3.1 Impacts Identified in the Final EIR

As identified in the LAX Master Plan Final EIR, 0.04 acre (1,853 square feet) subject to the jurisdiction of the USACOE would be permanently converted as a result of construction staging, airfield operations and maintenance activities, and/or airfield improvements. Ephemerally wetted (EW) areas EW1 and EW2, located adjacent to the north airfield and comprising approximately 415 square feet, would be directly affected by construction staging activities in support of development of the airside service road. EW6, comprising 1,438 square feet, would be directly affected by the development of the proposed employee parking garage. Potential direct impacts would be avoided through implementation of Master Plan Mitigation Measure MM-ET-1 and construction avoidance measures specified in the April 20, 2004 Biological Opinion.[12]

In addition, EW9, EW12, EW13, EW14, EW15, and EW16, comprising 1.26 acres of jurisdictional wetlands have the potential to be indirectly impacted by implementation of the LAX Master Plan as a result of construction staging, airfield operations and maintenance activities, and/or airfield improvements within or adjacent to these jurisdictional wetland areas. Specifically, EW9, EW12, and EW13, would potentially be affected by an alteration of upland hydrology resulting from the

[12] The April 20, 2004 Biological Opinion is included in Appendix F-E, Biological Opinion from United States Fish and Wildlife Service (USFWS) of the LAX Master Plan Final EIR, April 2004.

construction staging and development of the proposed employee parking garage. EW14, EW15, and EW16 would potentially be affected by construction staging in support of development of the Taxiway/Aircraft Apron and the proposed employee parking garage. As described in the April 20, 2004 Biological Opinion, potential indirect impacts would be avoided through implementation of construction avoidance measures, including BMPs, and the establishment of a buffer area around these six jurisdictional wetland sites. Such construction avoidance measures shall be implemented until cyst bearing soils from these areas are salvaged and stored, pursuant to the April 8, 2005 Biological Opinion for Operation and Maintenance Activities at Los Angeles International Airport.[13] Ephemerally wetted areas and associated watersheds identified for the LAX Master Plan and located in proximity to the SAIP are shown on Exhibit 5-2.

5.5.3.2 Relevant LAX Master Plan Commitments and Mitigation Measures

Through the use of construction avoidance measures described in Mitigation Measure MM-ET-1 and the April 20, 2004 Biological Opinion impacts on wetlands would be less than significant.

5.5.4 South Airfield Improvement Project

5.5.4.1 Impacts

As reflected above, the information, analysis, and LAX Master Plan mitigation measures provided in the LAX Master Plan Final EIR as well as the April 20, 2004 and April 8, 2005 Biological Opinions adequately address the potential construction impacts of the SAIP on wetlands. The SAIP work area and construction staging area would not affect EW6. Impacts on jurisdictional wetlands EW15 and EW16, located adjacent to SAIP work area, as shown on Exhibit 5-2, would be avoided through the implementation of construction avoidance measures, such as BMPs and establishing buffer areas, as specified in the April 20, 2004 Biological Opinion issued by the USFWS in support of the LAX Master Plan. The SAIP construction staging area would not overlap the watershed area for EW9, EW12, EW13 or EW14. Therefore, no impacts on these areas would occur.

5.5.4.2 Mitigation Measures

With the implementation of construction avoidance measures, specified in Mitigation Measure MM-ET-1 as well as the April 20, 2004 and April 8, 2005 Biological Opinions, SAIP construction impacts on wetlands would be avoided and no further mitigation would be required.

[13] U.S. Fish and Wildlife Service. 2005. Biological Opinion for Operations and Maintenance Activities at Los Angeles International Airport, City of Los Angeles, Los Angeles County, California (1-6-01-F-1012.7). Contact: U.S. Fish and Wildlife Service, Ecological Services, Carlsbad Fish and Wildlife Office, 6010 Hidden Valley Road, Carlsbad, CA, 92009.

5.6 Energy Supply and Natural Resources

5.6.1 Introduction

This section addresses electricity, natural gas, and other fossil fuel consumption resulting from construction activities associated with the SAIP. Such construction activities include fuel consumption for construction-related vehicle trips, construction lighting, and utility relocation. This analysis also addresses access to and use of natural resources including mineral, petroleum, and aggregate resources.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.17, *Energy Supply and Natural Resources,* April 2004
- LAX Master Plan Final EIR, Technical Report 8, *Energy Supply Technical Report,* January 2001
- LAX Master Plan Final EIR, Technical Report S-6, *Supplemental Energy Supply Technical Report,* June 2003

5.6.2 Setting

5.6.2.1 Energy Supply

Existing conditions relative to electricity generation and transmission, natural gas supply and transmission, and fuel consumption are provided in Section 4.17.1 of the LAX Master Plan Final EIR and are incorporated herein by reference. Assumptions regarding energy availability and consumption required for construction activities, including the SAIP, have not changed in a manner that would alter the basic findings presented herein or in the LAX Master Plan Final EIR.

5.6.2.2 Natural Resources

Information regarding the sources of mineral, petroleum and aggregate resources is provided in Section 4.17.2 of the LAX Master Plan Final EIR and is incorporated herein by reference. The Hyperion Oil Field is located directly beneath and adjacent to the southwestern portion of the LAX boundaries, including the construction and staging areas for the SAIP. No active wells are located within the LAX boundaries. Assumptions regarding the availability and use of mineral, petroleum, and aggregate materials for construction activities, including the south airfield, have not changed in a manner that would alter the basic findings presented herein and in the LAX Master Plan Final EIR.

5.6.3 LAX Master Plan

5.6.3.1 Impacts Identified in the Final EIR

5.6.3.1.1 Energy Supply

Construction activities described in the LAX Master Plan would require fuel for the operation of construction equipment and for construction-related vehicle trips, as well as electricity for lighting. Because adequate electricity, gasoline, and diesel supplies are anticipated to be available through 2015, the impact associated with the consumption of these energy resources for construction activities would be less than significant.

Construction associated with the LAX Master Plan would include activity near existing natural gas and electrical power lines. Excavating near natural gas or electrical power lines could cause an interruption in service to LAX or the surrounding area if improper construction methods are used or poor planning occurs. Construction near submerged high voltage electrical power lines could later affect the transmission capacity of the lines if surrounding insulation material is improperly changed. The ability of utility providers to access underground pipes or lines could also be affected by construction. Under LAX Master Plan Commitments E-2, *Coordination with Utility Providers*, and PU-1, *Develop a Utility Relocation Program*, LAWA would work with the utility providers to assure that changes to the electrical distribution system would not adversely affect electricity or natural gas service to the surrounding area. Implementation and adherence to the measures specified in the commitments would reduce the potential for impacts to the existing electricity supply and distribution system from construction activities to a level that is less than significant.

5.6.3.1.2 Natural Resources

Implementation of the LAX Master Plan would require aggregate materials to be used for construction of the various proposed improvements. The estimated aggregate consumption for construction improvements proposed in the LAX Master Plan is 11.4 million tons, or less than one percent of the estimated 1.7 billion tons of currently permitted reserves in the Los Angeles region. Construction materials from demolition work would be recycled; therefore, not all of this demand for aggregate would require raw materials.

The California Department of Conservation, Division of Mines and Geology anticipates that currently permitted aggregate reserves in the Los Angeles region will be available through 2046. Although use of materials from more distant production areas may be more costly, the need for aggregate materials would not result in a significant impact on available reserves.

5.6.3.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **E-2. Coordination with Utility Providers.**
- **PU-1. Develop a Utility Relocation Program.**

5.6.4 South Airfield Improvement Project

As reflected above, the information, analysis, and LAX Master Plan commitments provided in the LAX Master Plan MMRP adequately address the potential construction impacts of the SAIP on energy supply and natural resources. Therefore, no further project-level analysis is required.

5.7 Solid Waste

5.7.1 Introduction

This section addresses impacts related to construction solid waste generation and disposal. The primary source of construction solid waste generation from the development of the south airfield would be concrete and asphalt from demolition of the existing runway and taxiways.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.19, *Solid Waste*
- LAX Master Plan Final EIR, Technical Report #10, *Solid Waste Technical Report,* January 2001
- LAX Master Plan Final EIR, Technical Report S-7, *Supplemental Solid Waste Technical Report,* June 2003

5.7.2 Setting

Existing conditions regarding solid waste generation and disposal are described in Section 4.19 of the LAX Master Plan Final EIR. This information is incorporated herein by reference. Construction and demolition waste includes wood, concrete, asphalt, and ferrous materials. These materials are considered inert and can be disposed of at unclassified landfills, which are often abandoned gravel pits. There is currently no shortfall in disposal capacity for inert waste in Los Angeles County. In addition, there are a number of operations in Los Angeles County that recycle most kinds of construction and demolition material, and asphalt from demolition is commonly crushed and reused as filler below new pavement. Assumptions regarding construction demolition debris, including the south airfield, and the availability of disposal capacity for inert waste in Los Angeles County have not changed in a manner that would alter the basic findings presented herein or in the LAX Master Plan Final EIR.

5.7.3 LAX Master Plan

5.7.3.1 Impacts Identified in the Final EIR

Construction and demolition activities associated with the LAX Master Plan would generate a substantial amount of inert solid waste requiring disposal. To the extent possible, suitable materials would be recycled or reused at LAX. Additionally, LAX Master Plan Commitment SW-3, *Requirements for the Recycling of Construction and Demolition Waste*, would reduce the amount of demolition and construction waste requiring disposal by requiring contractors to recycle demolition and construction-related waste. Recycling of construction materials would be consistent with FAA policies pertaining to waste minimization and resource conservation. Inert disposal capacity is anticipated to be available well beyond the 2015 planning horizon.[14] Therefore, construction and demolition solid waste impacts would be less than significant.

[14] As stated on page 4-1114 of the LAX Master Plan Final EIR and based on the 2000 Annual Report on the Countywide Summary Plan and Countywide Siting Element (County of Los Angeles, Department of Pubic Works, September 2001), "As of December 31, 2000, the total remaining permitted inert waste capacity in Los Angeles County was estimated to be approximately 57.7 million tons. Based on the average 2000 disposal rate, this capacity would be exhausted in approximately 44 years."

5.7.3.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **SW-3. Requirements for the Recycling of Construction and Demolition Waste.**

5.7.4 South Airfield Improvement Project

5.7.4.1 Impacts

As reflected above, the information, analysis, and LAX Master Plan commitment provided in the LAX Master Plan Final EIR adequately address the potential construction impacts of the SAIP on solid waste generation and available landfill capacity. Specific to the SAIP, a minimum of 20 percent of construction waste materials, such as concrete and asphalt, will be required to be recycled under Master Plan Commitment SW-3. The SAIP would not result in a significant impact related to the generation or disposal of solid waste.

5.7.4.2 Mitigation Measures

No mitigation measures are required.

5.8 Aesthetics

5.8.1 Introduction

This section addresses the potential for the construction of the SAIP to result in significant visual or lighting impacts.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.21, *Design, Art and Architecture Application/Aesthetics,* April 2004
- LAX Master Plan Final EIR, Section 4.18, *Light Emissions,* April 2004
- LAX Master Plan Final EIR, Technical Report #11, *Design, Art and Architecture Application/Aesthetics Technical Report,* January 2001
- LAX Master Plan Final EIR, Technical Report #9, *Light Emissions Technical Report,* January 2001

5.8.2 Setting

Descriptions of existing visual conditions relative to views and lighting are presented in Sections 4.18 and 4.21 of the LAX Master Plan Final EIR. This information is incorporated herein by reference. No significant scenic views have been identified along Imperial Highway south of the airport boundary. Views of the southern runway and the southwest corner of the airport would be most visible from residential areas along Imperial Avenue west of Loma Vista Street.

Land uses south of LAX are separated from the southern airport boundary by Imperial Highway, Imperial Avenue, and the Imperial Strip (a distance of over 250 feet). Due to the distance between LAX light sources and residences and one hotel there is no effect from light spillover or high ambient light levels.

The surrounding areas located to the south of LAX that would have the most direct view of SAIP construction activities have not materially changed from those analyzed in the LAX Master Plan Final EIR.

5.8.3 LAX Master Plan

5.8.3.1 Impacts Identified in the Final EIR

Construction activities would be visible along the southern boundary of the airport, near the Sepulveda Boulevard/Imperial Highway intersection and areas extending east to the I-405. Areas most exposed and sensitive to views of the construction activities would include: residential and hotel uses along the southern site boundary along Imperial Highway west of Sepulveda Boulevard. Although construction would be phased from the time of approval of the LAX Master Plan, these construction activities would cause areas of the airport environs to have an incomplete, disrupted, and unattractive quality. The short-term aesthetic effects of construction on surrounding uses and airport visitors are considered to be significant. With implementation of Mitigation Measure MM-DA-1, *Construction Fencing*, aesthetic and view construction impacts would be reduced to a less than significant level.

Construction activities on the airport under the LAX Master Plan may involve nighttime activities that would require lighting of work areas. Construction lighting would be directed on airport property and away from residential areas. Furthermore construction hours within the project areas adjacent to sensitive uses would be restricted in accordance with municipal code requirements. Because no nighttime construction or construction lighting would occur in areas close enough to disturb residential uses, no significant impacts from construction lighting are expected with development of the LAX Master Plan.

5.8.3.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **DA-1. Provide and Maintain Airport Buffer Areas.**
- **MM-DA-1. Construction Fencing.**

5.8.4 South Airfield Improvement Project

5.8.4.1 Impacts

As reflected above, the information, analysis, and LAX Master Plan commitment and mitigation measure provided in the LAX Master Plan Final EIR adequately address potential view and lighting impacts due to SAIP construction. Impacts associated with construction staging and construction activities would be visible to some residents south of Imperial Highway in the City of El Segundo and for travelers along Imperial Highway. The quality of views towards the area of the airport is not considered scenic and is generally reflective of the industrial nature of the airport. While there would be views of construction activities from El Segundo and along Imperial Highway, the alteration of views is not likely to be significant given the current quality of views and the industrial nature of the views in this area of the airport. Nonetheless, it is accepted that views in some areas may be temporarily degraded. Therefore, the short-term aesthetic effects of construction would be potentially significant.

5.8.4.2 Mitigation Measures

To address the potential for significant construction impacts on views, LAX Master Plan Commitment DA-1 and Mitigation Measure MM-DA-1 would be applicable to the SAIP.

5.8.4.3 Level of Significance After Mitigation

Implementation of LAX Master Plan Commitment DA-1 and Master Plan Mitigation Measure MM-DA-1 in the LAX Master Plan MMRP, would address impacts associated with the SAIP and therefore would reduce construction impacts to a less than significant level.

5.9 Earth and Geology

5.9.1 Introduction

This section addresses the potential for construction activities associated with the SAIP to increase the consequences of adverse geologic conditions and hazards, such as earthquake-induced ground shaking, earthquake fault surface rupture, earthquake-induced liquefaction and settlement, non-seismic settlement, expansive soils, slope stability, and oil field gases. Possible effects could include substantial damage to structures or infrastructure or exposure of people to substantial risk of injury as a result of a geologic hazard, or sediment runoff/erosion.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.22, *Earth Geology (CEQA),* April 2004
- LAX Master Plan Final EIR, Technical Report 12, *Earth/Geology Technical Report*, January 2001

5.9.2 Setting

Descriptions of existing conditions relative to topography, geology, faults and other geological hazards are presented Section 4.22 of the LAX Master Plan Final EIR. This information is incorporated herein by reference. Geologic hazards associated with LAX include seismic, settlement/expansion of foundation soils, slope stability, oil field gases, and erosion hazards. Conditions related to geological hazards in the vicinity of the SAIP work area and construction staging area have not changed from the conditions described in the LAX Master Plan Final EIR.

5.9.3 LAX Master Plan

5.9.3.1 Impacts Identified in the Final EIR

Geological considerations identified in Table F4.22-1 of the LAX Master Plan Final EIR for south airfield facilities include slope stability, settlement, expansion, fault surface rupture, ground shaking, liquefaction, seismic slope settlement, and grading. Earth-related construction considerations for implementation of the LAX Master Plan would include grading and earthwork activities, alteration of topography (landforms), erosion, stability of temporary construction slopes and excavations, and settlement of existing structures. As identified for Alternative D, total earthwork volumes are estimated to include 4,121,926 cubic yards (c.y) of cut (1,264,870 c.y. which are unsuitable for fill) and 1,400,666 c.y. of fill, resulting in a net disposal fill requirement of 1,456,390 c.y.

Compliance with requirements to conduct site-specific geotechnical investigations during design and to design and implement remedial and protective measures would ensure that the potential impacts associated with earth-related construction considerations identified in the LAX Master Plan would be less than significant.

5.9.3.2 Relevant LAX Master Plan Commitments and Mitigation Measures

No LAX Master Plan commitments or mitigation measures were identified in the LAX Master Plan MMRP.

5.9.4 South Airfield Improvement Project

5.9.4.1 Impacts

As reflected above, the information, and analysis provided in the LAX Master Plan Final EIR adequately address the potential for geologic hazards due to SAIP construction activities. Construction of the SAIP would require grading and excavation. Grading quantities associated with the Runway 7R-25L and the center taxiway are estimated to be 779,689 c.y. of cut and 133,889 c.y. of fill resulting in 645,800 c.y. of material for export. The approximate area of disturbance is 296 acres. Geologic hazards identified for the SAIP would be rendered less than significant through a geotechnical investigation for the SAIP work area to design and implement remedial and protective measures in accordance with local, State, and federal requirements.

5.9.4.2 Mitigation Measures

No mitigation measures are required.

5.10 Hazards and Hazardous Materials

5.10.1 Introduction

This section addresses potential impacts associated with hazardous materials use and storage; hazardous waste generation, transport, and disposal; soil and groundwater contamination and remediation operations that may occur as a result of construction of the SAIP. This section also discusses the potential of SAIP construction-related activities to increase the risk of aviation incidents and accidents at LAX, including birdstrikes.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.23, *Hazardous Materials,* April 2004
- LAX Master Plan Final EIR, Section 4.24.3, *Safety (CEQA),* April 2004
- LAX Master Plan Final EIR, Technical Report 13, *Hazardous Materials Technical Report,* January 2001
- LAX Master Plan Final EIR, Technical Report S-8, *Supplemental Hazardous Materials Technical Report*, June 2003
- LAX Master Plan Final EIR, Technical Report 14c, *Safety Technical Report,* Attachment A, *Aviation Incidents and Accidents,* January 2001
- LAX Master Plan Final EIR, Technical Report S-9b, *Supplemental Safety Technical Report,* June 2003

5.10.2 Setting

A description of existing conditions relative to hazardous materials usage and waste generation, and hazardous materials contamination and remediation are presented Section 4.23 of the LAX Master Plan Final EIR. This information is incorporated herein by reference. The most common hazardous materials used and stored at the airport are fuels. The most common types of hazardous waste generated at the airport include waste oil and fuel, used solvents, and used maintenance fluids. Existing soil and groundwater contamination and remediation are located throughout the airport property. These conditions regarding the types of hazardous materials used and generated, ongoing remediation activities, and the potential for soil contamination, have not changed from those presented in the LAX Master Plan Final EIR in a manner that would alter the basic findings presented herein.

A discussion of existing conditions relative to aviation safety is provided in Section 4.24.3, of the LAX Master Plan Final EIR, and incorporated by reference. The FAA regulates, promotes, develops, and ensures the safety of LAX. Regulations and other measures that ensure the safety of LAX include Airport Design Standards, FAR Part 77, and other design standards. Airport Design Standards establish land use guidelines within three safety zones in proximity to runways: Runway Object Free Area (ROFA), Runway Safety Area (RSA), and Runway Protection Zones (RPZs). FAR Part 77 requires that the FAA be notified of any proposed development or structural changes that would obstruct the path of operating aircraft. In addition to the designation of safety zones, the FAA provides standards for runway, taxiway, and taxilane design, including width, length, separation, radius of turns, layout, and pavement material composition. LAX was built prior to the establishment of the FAA's current design standards for airports serving large commercial jets. For this reason, not all of the safety areas and safety zones surrounding the four LAX runways universally meet today's recommended dimensions for new airport development.

The FAA also takes measures to avoid birdstrikes by restricting land uses that may serve as wildlife attractants and interfere with airport operations in accordance with the provisions of FAA Advisory Circular 150/5200-33A and the LAX Wildlife Hazards Management Plan (WHMP), pursuant to Title 14, CFR, Part 139. Specifically, the WHMP developed for LAX provides for operational wildlife control to alleviate aircraft-wildlife hazards. The need for wildlife hazardous management is based on a history of birdstrikes at LAX. Between January 1, 1990 and February 29, 2002, 95 raptors, 73 rock doves, 58 gulls, and 14 large water birds were struck by aircraft. An additional 392 birds were involved in strikes but were not identified.[15]

5.10.3 LAX Master Plan

5.10.3.1 Impacts Identified in the Final EIR

The LAX Master Plan Final EIR evaluated potential impacts to existing contamination and to current remediation activities conducted by tenants and other third parties. This evaluation was performed by mapping areas of known contamination within LAX Master Plan boundaries and comparing those locations to areas of planned excavation that would occur under Alternative D, now the approved LAX Master Plan project, and under the three other build alternatives and the No Action/No Project Alternative. This process identified areas where substantial contamination may be encountered during construction and where construction activities would have the potential to prevent the clean up of sites that tenants and other third parties are remediating or plan to remediate in the near future.[16] This evaluation generally did not identify any areas of know contamination or any remediation projects between or immediately alongside the runways. However, as further described below under Subsection 5.10.4.1, remediation activities associated with the Continental Maintenance Facility could occur within the area designated as the west employee parking garage (which is the site of the SAIP construction staging area).

Under LAX Master Plan Commitment HM-1, *Ensure Continued Implementation of Existing Remediation Efforts*, for remediation of sites now on airport property, LAWA will work with tenants to ensure that, to the extent possible, remediation is complete before construction of LAX Master Plan improvements begins. If remediation must be interrupted to allow for construction related to the LAX Master Plan, 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 protective measures will be taken. As part of this commitment, remediation systems would be reinstated following the completion of construction, if required. Therefore, potential impacts would be less than significant.

As stated in the LAX Master Plan, grading in areas with soil contamination could expose construction workers to hazardous materials. In addition, it is possible that, during other construction activities for implementing the LAX Master Plan, previously unidentified soil and/or perched groundwater contamination would be encountered. Due to the many safety measures required by local, State, and federal laws and regulations that govern contaminated materials encountered during

[15] One of the most severe aircraft-wildlife strikes occurred on October 15, 1997, when an aircraft experienced multiple birdstrikes and engine ingestions, causing the takeoff to be aborted. After returning to the gate, inspection of the engines disclosed bent turbine blades. As a result of that strike, LAWA and the USDA APHIS Wildlife Services entered into a Cooperative Services Agreement to conduct a wildlife hazard assessment to assist in the development of a WHMP and to provide operational wildlife control.

[16] LAX Master Plan Final EIR, pages 4-1262 through 4-1279, especially Table F4.23-1 and Figure F4.23-1.

construction, worker health and safety and the environment would be protected to the maximum extent possible. As a result, potential impacts associated with construction in areas that may be contaminated would be less than significant. In addition, implementation of LAX Master Plan Commitment HM-2, *Handling of Contaminated Materials Encountered During Construction*, would further reduce potential adverse effects encountered with handling contaminated materials.

Implementation of the LAX Master Plan would alter ground access in the vicinity of the airport during construction. Because local access would be adequately maintained through detours and diversions and emergency access would be coordinated and ensured through LAX Master Plan Commitment C-1, *Establishment of a Ground Transportation/Construction Coordination Office*, and LAX Master Plan Commitments ST-9, ST-12, ST-14, and ST-16 through ST-22, project-related construction would not significantly impair the implementation of emergency response plans, and no significant impact would occur.

Construction activities would include the use and transport of hazardous substances, including fuels for construction equipment. As such, there is the potential for an accidental discharge of hazardous substances during construction activities. Compliance with safety precautions and regulatory requirements identified in Section 4.23 in the LAX Master Plan Final EIR, would be required and would reduce the risk of an accidental release of hazardous materials during construction to a level less than significant.

As identified in the LAX Master Plan, existing runways and taxiways would be upgraded and relocated to meet current FAA design standards and minimize the potential for runway incursions. The proposed location of a surface parking lot within the RPZs of runways 25R and 25L is outside of the extended ROFA and therefore meets FAA design standards.[17] Because LAX was built prior to the establishment of the FAA's current design standards for airports serving large commercial jets, not all of the safety areas and safety zones universally meet today's recommended dimensions for new airport development. However, declared distances and clearways would satisfy FAA design standards while controlling project costs and minimizing physical impacts on neighboring areas. Therefore, no significant impacts with respect to aviation incidents and accidents would occur.

Regarding bird strikes, the LAX Master Plan would not modify the Los Angeles/El Segundo Dunes, an existing bird attractant, in such a way that it would increase bird strike hazards.

5.10.3.2 Relevant Master Plan Commitments and Mitigation Measures

- **HM-1. Ensure Continued Implementation of Existing Remediation Efforts.**
- **HM-2. Handling of Contaminated Materials Encountered During Construction.**

[17] Although the southwest corner of the approach RPZ to Runway 7R would overlap approximately 20 feet of the northwest corner of an existing apartment building, located in the City of El Segundo, the repositioning of the RPZ would not compromise aviation safety. The reasons for this determination are based on the following: 1) the location of the apartment building would be substantially beyond the runway object free area; 2) the location and height of the apartment building would not conflict with FAR Part 77; 3) the airport layout plan is subject to the review and approval of the FAA; and 4) the relocation of Runway 7R-25L is necessary to solve the existing potential for runway incursions.

5.10.4 South Airfield Improvement Project

5.10.4.1 Impacts

As reflected above, the information, analysis, and LAX Master Plan commitments provided in the LAX Master Plan Final EIR adequately address potential remediation, exposure to hazardous materials, ground access, transportation of hazardous materials, and aviation safety impacts due to SAIP construction activities. However, mitigation measures included in Section 4.6 to reduce the potential for bird strikes are also referenced in this section.

Due to the location of the SAIP construction staging area a potential conflict could occur if the use of the staging area coincides with the use of this area for the installation and monitoring of extraction wells required for the remediation of the Continental Maintenance Facility. Coordination of these activities by LAWA, and the implementation of LAX Master Plan Commitment HM-1 would reduce any potential impacts to less than significant. As described above, it is unlikely that excavation or construction traffic associated with the SAIP work area would interfere with any ongoing remediation efforts conducted by LAX tenants. Although this potential impact is unlikely, the implementation of LAX Master Plan Commitment HM-1, would further reduce any potential impact associated with the SAIP work area to a less than significant level.

Potential impacts from the exposure of workers to contaminated soils during grading are the same as identified in the LAX Master Plan. Although this potential impact would not be significant, LAX Master Plan Commitment HM-2 would further reduce this potentially adverse effect. Ground access would not be substantially altered by construction traffic, because the construction work area is located within the airport boundaries, no detours are proposed and only one intersection would be significantly impacted on a temporary basis as described in Section 4.2.

Impacts associated with RPZs and other design standards, that would occur with the relocation of Runway 7R-25L are the same as described in the LAX Master Plan Final EIR and would be less than significant. As further described in Section 4.6, the FAA has determined the restoration and enhancement of habitat for the black-tailed jackrabbit and loggerhead shrike within the Los Angeles/El Segundo Dunes would be inconsistent with FAA regulations and could increase the potential for aircraft-wildlife strikes. Therefore, habitat restoration and enhancement to mitigate loss of habitat associated with the SAIP is no longer proposed within the Los Angeles/El Segundo Dunes, but rather, is proposed to be implemented at an alternative off-site location not subject to wildlife hazards management. As a result, impacts associated with bird strikes would be less than significant.

5.10.4.2 Mitigation Measures

Implementation of LAX Master Plan Commitments HM-1 and HM-2 and new Mitigation Measure MM-BC-(SA)-1 and MM-BC-(SA)-2 would reduce any impacts relative to hazardous materials and aviation safety associated with the SAIP to a less than significant level and no additional mitigation measures would be required.

5.11 Public Utilities

5.11.1 Introduction

This section addresses potential impacts from construction activities associated with the SAIP on water use and distribution facilities, and the wastewater collection infrastructure.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.25.1, *Water Use (CEQA)*, April 2004
- LAX Master Plan Final EIR, Section 4.25.2, *Wastewater (CEQA)*, April 2004
- LAX Master Plan Final EIR, Technical Report 15a, *Water Use Technical Report*, January 2001
- LAX Master Plan Final EIR, Technical Report 15b, *Wastewater Technical Report*, January 2001
- LAX Master Plan Final EIR, Technical Report S-10a, *Supplemental Water Use Technical Report*, June 2003
- LAX Master Plan Final EIR, Technical Report S-10b, *Supplemental Wastewater Use Technical Report*, June 2003

5.11.2 Setting

Descriptions of existing conditions relative to water supply, water use, and wastewater conveyance and treatment are presented Section 4.25 of the LAX Master Plan Final EIR. This information is incorporated herein by reference. As presented in Section 4.25.1, water is supplied to the airport through a 36-inch trunk line in Sepulveda Boulevard that distributes water to a combination of 12-inch and 16-inch transmission lines along the airport perimeter. As described in Section 4.25.2, three major sewer outfalls, the North Central Outfall Sewer (NCOS), North Outfall Relief Sewer (NORS), and the Central Outfall Sewer (COS), and other sewer lines underlie LAX. Water supply conditions and the location of utilities potentially affected by construction activities have not materially changed from what was presented in the LAX Master Plan Final EIR.

5.11.3 LAX Master Plan

5.11.3.1 Impacts Identified in the Final EIR

5.11.3.1.1 Water Use and Facilities

Water would be required during construction of the LAX Master Plan improvements, including the SAIP. Additionally, water would be used during construction for the mixing of concrete. It is possible that reclaimed water could be used for dust suppression, reducing the quantity of potable water required. The use of reclaimed water and additional water conservation measures are incorporated in LAX Master Plan Commitments W-1, *Maximize Use of Reclaimed Water,* and W-2*, Enhance Existing Water Conservation Program*. Due to the projected availability of local water supplies and increase use of water conservation measures for implementation of the LAX Master Plan, construction water usage would be a less than significant impact.

Construction of subsurface structures identified in the LAX Master Plan may interfere with existing water supply and distribution facilities. Preliminary review of the LAX Master Plan indicates that relocation/adjustment of water system facilities may be required. Under LAX Master Plan Commitment PU-1, *Develop a Utility Relocation Program*, a utility relocation program would be implemented during construction to minimize potential impacts on existing subsurface utilities. It is possible that some connections would experience brief, temporary disruption of service during utility relocation. The utility relocation program would be prepared to minimize these disruptions. Developing and implementing this utility relocation program would ensure that potential impacts on existing water supply and distribution facilities would be less than significant.

5.11.3.1.2 Wastewater

Construction of subsurface structures identified in the LAX Master Plan may interfere with existing wastewater collection infrastructure and require relocation or modification. Under LAX Master Plan Commitment PU-1, *Develop a Utility Relocation Program*, a utility relocation program would be implemented during construction to minimize potential impacts on existing subsurface utilities and ensure that potential impacts to existing wastewater outfalls would be less than significant.

5.11.3.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **W-1. Maximize Use of Reclaimed Water.**
- **W-2. Enhance Existing Water Conservation Program.**
- **PU-1. Develop a Utility Relocation Program.**

5.11.3.3 South Airfield Improvement Project Impacts

5.11.3.3.1 Water Use and Facilities

As reflected above, the information, analysis, and LAX Master Plan commitments provided in the LAX Master Plan Final EIR adequately address the potential construction impacts of the SAIP on water supply and distribution facilities. Water use for construction activities associated with the SAIP would be the same as identified in the LAX Master Plan Final EIR. Although adequate water supply would be available for construction of the SAIP, reclaimed water would also be used to the extent feasible for dust suppression in accordance with LAX Master Plan Commitment W-1. Increased water use for construction and landscaping associated with the SAIP would be further reduced by implementing LAX Master Plan Commitment W-2. Based on the above analysis provided in the LAX Master Plan Final EIR, construction water use required for the SAIP would be less than significant. The relocation of Runway 7R-25L would require the relocation and replacement of existing water lines. With the implementation of LAX Master Plan Commitment PU-1, in the LAX Master Plan MMRP, impacts on water distribution facilities would be less than significant.

5.11.3.3.2 Wastewater

As reflected above, the information, analysis, and LAX Master Plan commitment provided in the LAX Master Plan Final EIR adequately address the potential construction impacts of the SAIP on existing wastewater collection system. Impacts on the wastewater collection system as a result of grading activities associated with the SAIP are the same as analyzed for the LAX Master Plan and would be less than significant with implementation of LAX Master Plan Commitment PU-1 in the LAX Master Plan Final EIR.

5.11.3.4 Mitigation Measures

Implementation of LAX Master Plan Commitments W-1, W-2, and PU-1 would reduce any impacts on water distribution facilities and wastewater collection system to a less than significant level and no mitigation measures would be required.

5.12 Public Services

5.12.1 Introduction

This section addresses potential impacts from construction activities associated with the SAIP on fire protection and law enforcement response times, and other potential construction effects on parks and recreation and libraries.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.26.1, *Fire Protection (CEQA*), April 2004
- LAX Master Plan Final EIR, Section 4.26.2, *Law Enforcement (CEQA*), April 2004
- LAX Master Plan Final EIR, Section 4.26.3, *Parks and Recreation (CEQA*), April 2004
- LAX Master Plan Final EIR, Section 4.26.4, *Libraries (CEQA*), April 2004
- LAX Master Plan Final EIR, Technical Report 16a, *Public Services Fire Protection and Emergency Services,* January 2001
- LAX Master Plan Final EIR, Technical Report 16b, *Public Services Law Enforcement,* January 2001
- LAX Master Plan Final EIR, Technical Report 16c, *Public Services Parks and Recreation,* January 2001
- LAX Master Plan Final EIR, Technical Report 16d, *Public Services Libraries,* January 2001

5.12.2 Setting

Descriptions of existing conditions relative to fire protection, law enforcement, parks and recreation, and libraries are presented Section 4.26 of the LAX Master Plan Final EIR. This information is incorporated herein by reference. As described in Section 4.26.1, fire protection service is provided by the City of Los Angeles Fire Department (LAFD) from three fire stations located on the airport. As presented in Section 4.26.2, law enforcement services at the airport are provided by the LAWA Police Division (LAWAPD) and the Los Angeles Police Department (LAPD) from facilities located on LAX. As stated in Section 4.26.3, the closest recreational facilities to the SAIP are the South Bay Bicycle Trail and the Imperial Strip. The El Segundo library is the closest library to the SAIP. The location of these facilities has not changed from those analyzed in the LAX Master Plan Final EIR. Although LAFD, LAWAPD, and LAPD staffing and equipment levels may have changed from those described in the LAX Master Plan Final EIR, these changes are expected to be minor and would not alter the basic findings of this public services analysis regarding response times, fire department access, and noise impacts on Imperial Strip associated with SAIP construction.

5.12.3 LAX Master Plan

5.12.3.1 Impacts Identified in the Final EIR

5.12.3.1.1 Fire Protection and Law Enforcement

The traffic congestion associated with the demolition and construction of major projects identified in the LAX Master Plan within and adjacent to the airport property would have the potential to hamper or delay emergency response. However, temporary roadway Level of Service (LOS) deficiencies associated with compromised emergency response would be avoided through implementation of LAX Master Plan Commitment C-1, *Establishment of a Ground Transportation/Construction*

Coordination Office, and LAX Master Plan Commitments ST-9, ST-12, ST-14, and ST-16 through ST-22, presented in the LAX Master Plan Final EIR. These commitments would ensure proper advanced coordination with LAFD, LAWAPD, and LAPD and planning of detours and emergency access routes to maintain response times. Implementation of LAX Master Plan Commitment C-1 would avoid potentially significant traffic-related impacts on fire protection and law enforcement response times. Therefore, impacts of construction on emergency response times would be less than significant.

5.12.3.1.2 Parks and Recreation

Construction of transportation facilities and other improvements in proximity to park and recreational facilities are not expected to restrict access to area parks and recreation areas. Construction noise impacts would occur at a small portion of Imperial Strip, just south of Imperial Highway in the City of El Segundo. However, Imperial Strip serves as a buffer between the airport and the City of El Segundo and much of its use is for viewing aircraft, rather than quiet activities. Furthermore, construction noise at Imperial Strip would be temporary and additive to a currently noisy environment. Therefore, construction noise impacts at Imperial Strip relative to park use are considered to be less than significant. As the focus of construction would be largely on airport property and within immediately adjacent acquisition areas, there would be no significant impacts on the South Bay Bicycle Trail.

5.12.3.1.3 Libraries

Construction of projects within and adjacent to airport property under the LAX Master Plan, would not occur adjacent to local libraries. Due to the distance between construction activities and libraries, it is not anticipated that construction activities would cause substantial increases in noise levels or impair access to local libraries. Therefore, construction activities associated with the LAX Master Plan would not result in impacts to local libraries.

5.12.3.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **FP-1. LAFD Design Recommendations.**

5.12.4 South Airfield Improvement Project

5.12.4.1 Impacts

5.12.4.1.1 Fire Protection and Law Enforcement

As reflected above, the information, analysis, and LAX Master Plan commitments provided in the LAX Master Plan Final EIR adequately address the potential construction impacts of the SAIP on fire and law enforcement response times. As further described in Section 4.2, construction-related vehicle trips would be generated with the construction of the SAIP. No detours or lane closures would be required; however, project-generated construction traffic would significantly impact one intersection (Imperial Highway and I-405 Eastbound Ramps). This impact would be short-term (approximately one month) duration. Implementation of LAX Master Plan Commitment C-1, *Establishment of a Ground Transportation/Construction Coordination Office*, and LAX Master Plan Commitments ST-9, ST-12, ST-14, ST-16, ST-17, ST-18, and ST-22 would reduce impacts of construction on emergency response times to less than significant. These LAX Master Plan commitments are presented in Section 4.2. On-airport emergency response times would not be affected with implementation of LAX Master Plan Commitment FP-1, *LAFD Design Recommendations*.

5.12.4.1.2 Parks and Recreation

As reflected above, the information and analysis provided in the LAX Master Plan Final EIR adequately address the potential construction impacts of the SAIP on parks and recreation. Construction activities associated with the SAIP would be contained within the airport property and therefore would not restrict access to area parks and recreation areas, including the South Bay Bicycle Trail. Based on information provided in Section 4.5, construction noise impacts would occur at a small portion of Imperial Strip, just south of Imperial Highway in the City of El Segundo. Impacts on the Imperial Strip are the same as analyzed in the LAX Master Plan Final EIR and are considered to be less than significant.

5.12.4.1.3 Libraries

Impacts on local libraries as a result of construction activities associated with the SAIP are the same as analyzed for the LAX Master Plan and would be less than significant.

5.12.4.2 Mitigation Measures

Implementation of LAX Master Plan Commitment FP-1 would reduce any impacts relative to emergency access to a less than significant level and no mitigation measures would be required.

5.13 Schools

5.13.1 Introduction

This section addresses potential impacts from construction activities associated with the SAIP on student enrollment, student safety, and noise exposure.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.27, *Schools (CEQA),* April 2004
- LAX Master Plan Final EIR, Technical Report 17, S*chools Technical Report,* January 2001

5.13.2 Setting

Descriptions of existing conditions relative to student enrollment and high school clusters in the general area surrounding the airport are presented Section 4.27 of the LAX Master Plan Final EIR. This information is incorporated herein by reference.

Given the urbanized nature of the communities surrounding LAX, locations of schools have not materially changed from what was presented in the LAX Master Plan Final EIR. Although there may be minor changes to current student enrollment within high school cluster areas, such changes would not alter the basic findings of the schools analysis.

5.13.3 LAX Master Plan

5.13.3.1 Impacts Identified in the Final EIR

Three public schools (i.e., Westchester High School, Paseo del Rey Magnet School, and Westchester-Emerson Community Adult School) would be potentially impacted by noise associated with LAX Master Plan construction activities. Mitigation Measures MM-N-7 through MM-N-10 in Section 4.1, in the LAX Master Plan Final EIR would reduce temporary construction noise impacts on schools. These impacts and potential impacts related to access and safety would also be addressed through LAX Master Plan Commitments ST-16, *Designated Haul Routes* and C-1, *Establishment of a Ground Transportation/Construction Coordination Office*, in the LAX Master Plan Final EIR, which includes provisions to coordinate roadway projects and address traffic concerns with other neighboring jurisdictions (including affected school districts). Even with implementation of these measures, construction impacts could periodically remain significant.

5.13.3.2 Relevant Master Plan Commitments and Mitigation Measures

Relevant LAX Master Plan commitments and mitigation measures described above are presented in Sections 4.2 and 4.5.

5.13.4 South Airfield Improvement Project

5.13.4.1 Impacts

As reflected above, the information, analysis, and LAX Master Plan commitments and mitigation measures provided in the LAX Master Plan Final EIR adequately address potential noise, access, and safety impacts due to SAIP construction activities. This subsection provides additional analysis of project-specific impacts on student enrollment, access and safety, and noise.

As previously described in Section 5.2.4.1, above, workers associated with construction activities would not result in a substantial demand for housing, and therefore would not result in a substantial increase in student enrollment. As further described in Section 4.27, in the LAX Master Plan Final EIR, overall student enrollment would decrease, compared to current conditions. Therefore, the effect of construction employment on student enrollment and available capacity of schools in the area would be less than significant.

Because construction staging and work areas would be located within the airport property, and access to these areas is restricted, SAIP construction impacts relative to student safety would be less than significant. Although not significant, potential impacts on student safety would be further reduced with implementation of LAX Master Plan Commitments C-1 and ST-16, as described in Section 4.2.

As described in Section 4.5, on-airport construction activities would not result in significant noise impacts to nearby schools. However, the temporary closure of Runway 7R-25L would redistribute all aircraft operations among the remaining three runways resulting in temporary noise impacts on some public schools located in Inglewood, Los Angeles County, and the City of Los Angeles. As listed in Table 4.5-23, such aircraft noise impacts would include 11 schools newly exposed to noise of 65 CNEL and higher, 24 schools exposed to noise increases of 1.5 CNEL or more in areas exposed to 65 CNEL and higher, and 6 schools newly exposure to interior noise levels that result classroom disruption. These aircraft noise impacts would be temporary (approximately 8 months) and unavoidable for those schools not subject to an existing avigation easement until the relocation of Runway 7R-25L is complete.

5.13.4.2 Mitigation Measures

Sections 4.5.8 and 4.5.9 of this document address LAX Master Plan commitments and mitigation measures related to aircraft noise impacts as those relate to schools. No additional mitigation measures are provided.

5.13.4.3 Level of Significant After Mitigation

Temporary aircraft noise impacts on schools that are not subject to an existing avigation easement would be significant and unavoidable during the 8-month closure of Runway 7R-25L.

This page intentionally left blank.

VI. List of Preparers, Persons/Agencies Consulted, Parties to Whom Sent, References, NOP Comments, and List of Acronyms

6.1 List of Preparers

Ricondo & Associates, Inc.

John C. Williams, Vice President: B.S., Civil Engineering; M.S., Civil Engineering. 24 years of experience in airport environmental and facilities planning, including the preparation of federal and state environmental impact analyses and planning documents for a variety of airport projects. Provided overall guidance, coordination, and quality control for preparation of the Draft EIR.

Michele V. Del Duca, Director: B.A., International Relations; M.S., Civil Engineering. 14 years of experience preparing federal and state environmental impact analyses and planning documents for a variety of transportation, infrastructure, and development projects. Provided technical assistance and coordinating efforts for the preliminary EIR Administrative Draft and Final Draft report.

Adrian Jones, Director: B.A., Urban Studies; M.A., City and Regional Planning. 10 years experience in airport environmental and physical planning. Responsible for air quality documentation and assisted with the construction air quality analysis.

M. Allen Hoffman, Director: B.S. Civil Engineering; M.S. Engineering (Transportation); 17 years experience; task manager responsible for off-airport surface transportation analysis and related documentation.

Aaron S. Heumann, P.E., PTOE, Managing Consultant: B.S. Civil Engineering; 12 years experience; responsible for off-airport surface transportation data collection and traffic analysis.

Allaudin Jaffr, Senior Consultant: M.A., City and Regional Planning, 6 years experience; assisted with off-airport traffic analysis.

Stephen Smith, Director: B.A., Liberal Studies. 10 years of experience. Responsible for technical analysis of aircraft and construction equipment noise including aircraft noise data preparation, computation of noise contours and single event analysis.

Joseph J. Birge, Director: B.S. Aviation Administration. Over 19 years of experience as an airport planning consultant and as an airport executive in airport planning and airport operations. Provided technical assistance and coordinating efforts for the South Airfield EIR Administrative Draft and Final Draft reports.

Sjohnna M. Knack, Managing Consultant: B.S., Airport Management. 8 years of airport planning and operational experience. Provided technical assistance and coordinating efforts for the South Airfield EIR Administrative Draft and Final Draft reports.

Khalid R. Siddiqi, Senior Consultant: B.A., Geography. 7 years of experience. Responsible for GIS analysis and map preparation.

Jason Apt, Consultant: B.S., Aviation Business Administration; M.B.A., 3 years experience. Responsible for the construction emissions analysis. Assisted with air quality documentation.

Christian Jones, Consultant: B.A., Sociology; J.D. Responsible for document coordination and technical assistance.

HNTB

Andres Garcia, Project Manager: BS Civil Engineering; MS Engineering Administration; 20 years of experience, Associate Vice President; Aviation Department Manager Southern California; Responsible for management of all project related technical support and procedural aspects of the EIR document.

Tony Fermelia, Design Coordinator: BS Civil Engineering; 12 years of experience, Aviation Project Manager; Provided technical design and construction details of the South Airfield Project as support to the project description to the EIR.

Lillian Yan, Senior Design Engineer: BS Civil Engineering; 11 years of experience, Design Coordinator; responsible for coordination with sub-consultants and provided technical support in assisting the preparation of the document.

PCR Services Corporation

Mark Hagmann, P.E., Principal Engineer: B.S., Environmental Engineering, Register Professional Engineer, State of California. 11 years of experience. Responsible for on-airport emission inventory, criteria pollutant dispersion modeling, and construction-related toxic air contaminant assessment.

Everest Yan, Assistant Associate Scientist: B.S., Chemical Engineering, 4 years experience. Assisted in the air quality impact assessment, including on-airport emission inventory, criteria pollutant dispersion modeling, and construction-related toxic air contaminant assessment.

Greg Spalek, Media & Systems Manager: B.A. Environmental Studies (GIS emphasis), 10 years experience. Responsible for GIS analysis of demographic, land use, noise and environmental justice issues, and also all exhibits and graphic design of those sections.

Melissa Burn Consultant Consulting Services

Melissa Burn – Principal: B.S.E., Engineering Science and Mechanics; M.S., Conflict Analysis and Resolution; Ph.D. (ABD), Conflict Analysis and Resolution. 20 years experience in acoustical engineering and aviation consulting including program management, aviation noise analysis, public involvement, and community conflict resolution. For LAX South Airfield EIR, responsible for technical writing and editing of aircraft and ground noise analyses.

Camp Dresser & McKee, Inc. (CDM)

Robin E. Ijams, Principal: B.A., Environmental Studies. 20 years experience. Task Manager for water quality analysis and technical review of the EIR, with an emphasis on consistency with the Master Plan.

Don Schroeder, P.E., Vice President: B.S., Civil Engineering; M.S., Civil/Environmental Engineering. 33 years experience. Oversaw water quality analysis, and prepared hydrology and water quality documentation.

John R. Pehrson, P.E., Principal: B.S., Chemical Engineering; M.B.A. 24 years experience. Task Manager for toxic air pollutant modeling and analysis, and preparation of operational health risk assessment.

Rebecca Albrecht, Water Resources Engineer: B.A., Environmental Studies – Water Resources; M.S., Environmental Science and Engineering. 5 years experience. Conducted modeling for water quality analysis.

Darren Hartwich, Planner: B.S., Environmental Sciences; M.B.A. 9 years experience. Participated in the water quality analysis and preparation of hydrology and water quality documentation.

Thomas Lo, Environmental Engineer: B.S., Mechanical Engineering; M.S., Environmental Science. 8 years experience. Participated in the water quality analysis and preparation of hydrology and water quality documentation.

Wei Guo, Air Quality Engineer: B.S. Mechanical Engineering; M.S., Applied Science. 12 years experience. Responsible for modeling toxic air pollutants using USEPA ISCST3 dispersion model.

Kassandra Tzou, P.E., Environmental Engineer: B.S., Civil and Environmental Engineering; M.S., Environmental Engineering. 8 years experience. Conducted risk modeling for quantitative health risk assessment.

<u>Wyle Laboratories</u>

Clint Morrow, Acoustical Engineer: B.S., Mechanical Engineering. 3 years experience. Provided engineering and analysis support relating to aircraft noise.

Jawad Rachami, Aviation Program Manager*:* B.S., Aviation Management – Flight Technology, M.S., Aeronautical Science, M.A., International Commerce and Policy. 8 years experience: Provided engineering and analysis support relating to aircraft noise.

Xaviera Jessurun, Aviation Specialist*:* B.S. (Honors), Aviation Management. 6 years experience. Provided engineering and analysis support relating to aircraft noise.

<u>Metromedia Graphics</u>

Tatiana Ortiz, Principal: 7 years experience. Responsible for graphics and exhibits associated with the report.

6.2 Organizations and Persons Consulted

Los Angeles World Airports

Pat Tomcheck, Senior Transportation Engineer
Scott Tatro, Environmental Supervisor

Landrum and Brown, Inc.

John Woodward, Executive Vice President – Environmental Services Division
Rob Adams, Senior Project Manager
Berta Fernandez, Executive Vice President – Planning Services Division

6.3 List of Parties to Whom Sent

Maribel Bautista
10023 Firmona Ave. # 17
Inglewood, CA 90304

Lilia Ochoa
10119 Burl Ave.
Inglewood, CA 90304

Lorena Lopez
10207 Redfern Ave.
Lennox, CA 90304

Jose Alfredo Pena
10208 Felton Ave. #1
Inglewood, CA 90304

Ramiro and Carmen Garcia
10208 Felton Ave. #3
Lennox, CA 90304

Cynthia Poehler
10208 Felton Ave. #5
Inglewood, CA 90304

Francisco Guzman Contreras
10208 Felton Ave. #7
Inglewood, CA 90204

Betty Roberts
1021 W. 103rd St.
Los Angeles, CA 90044

Teresa and Astrid Bernal
10210 Felton Ave #3
Inglewood, CA 90304

Abraham and Rosalia Cervantes
10210 Felton Ave. #7
Inglewood, CA 90304

Amilcar Ortiz
10210 Felton Ave. #8
Inglewood, CA 90304

Miriam and Carlos Godinez Pantoja
10212 Felton Ave. # 3
Inglewood, CA 90304

Javier & Martha Alvarez
10212 Felton Ave. # 4
Inglewood, CA 90304

Manuel Lopez & Silvia Mondragon
10212 Felton Ave. # 6
Inglewood, CA 90304

Laura D. Godinez Pantoja
10214 Felton Ave. # 4
Lennox, CA 90304

Eliza Jimenez Galvez
10214 Felton Ave. #6
Inglewood, CA 90304

Jesus Lopez
10214 Felton Ave. #8
Inglewood, CA 90304

Juan Alvarez
10224 Buford Ave.
Lennox, CA 90304

Sabino Pimienta
10305 Buford Ave. #6
Lennox, CA 90304

Perla de la Cruz
10306 Felton Ave. #7
Inglewood, CA 90304

Veronica Cedillo
10306 Felton Ave. #8
Lennox, CA 90304

Abel Campos
10410 Truro Ave.
Lennox, CA 90304

Jose Arellano
10413 S. Burin Ave.
Lennox, CA 90304

Antonio Estellanos
10418 S. Truro Ave.
Lennox, CA 90304

Jose Angel & Maria Isabel Rosales
10506 Inglewood Ave #8
Lennox, CA 90304

Marleny De Jesus
10525 Salerose Ave.
Inglewood, CA 90304

Igancio Garcia G.
10527 Burin Ave.
Lennox, CA 90304

Margarita Olmedo Ramirez
10531 Dalerose Ave.
Lennox, CA 90304

Eduardo Gutierrez
10533 Inglewood
Lennox, CA 90304

Jesus Cortez
10600 Buford Ave.
Lennox, CA 90304

Maria Mendez
10601 Truro Ave.
Lennox, CA 90304

Mary & Pat Riley
10602 S. Burl Ave.
Lennox, CA 90304

Angelica Maldonado
10605 Buford Ave. #1
Lennox, CA 90304

Daniel E. Luna
10612 Buford Ave.
Lennox, CA 90304

Deanna Rocha
10616 Freeman Ave.
Lennox, CA 90304

Ray D. Martinez
10620 Buford Ave.
Lennox, CA 90304

Jaime Gomez
10621 S. Grevillea Ave.
Lennox, CA 90304

Jose L. Castellanos
10640 Buford
Lennox, CA 90304

Maira and Juan Ramon Jimenez
10702 Felton Ave.
Lennox, CA 90304

Maricela Dominguez
10703 1/2 Buford Ave.
Lennox, CA 90304

Luiz Barragan
10705 Buford Ave.
Lennox, CA 90304

Ronald S. Price
10725 S. 7th Ave.
Inglewood, CA 90303

Elvia Ramirez
10726 S. Truro Ave.
Inglewood, CA 90304

Margarita Geronimo
10815 Grevillea Ave.
Lennox, CA 90304

Jose and Maria Aurora Gomez
10827 Burl Ave.
Lennox, CA 90304

Jacinto and Lucila Angel
10901 Firmona Ave.
Inglewood, CA 90304

Imelda Hernandez
10911 Condon
Lennox, CA 90304

Gildardo Rodriguez
10912 1/2 S. Inglewood Ave.
Lennox, CA 90304

Eugene Richards
10918 S. Truro Ave.
Lennox, CA 90304

Manuel & Guadalupe Pelayo
10920 Burin Ave
Lennox, CA 90304

Margarita de Pulido
10928 Firmona Ave.
Lennox, CA 90304

Julie Walsh
11005 Firmona Avenue
Lennox, CA 90304

Irma Rojas
11006 Dalerose Ave.
Lennox, CA 90304

Ana Meza
11007 Mansel Ave
Lennox, CA 90304

Ricardo Cutz
11010 Burin Ave., #3
Inglewood, CA 90304

Jose R. Castro
11010 S. Burl Ave.
Lennox, CA 90304

Ana Roman
11027 Burin Ave.
Lennox, CA 90304

Esteban Puc
11114 1/2 Firmona Ave.
Inglewood, CA 90304

Petra Netro
3232 W. 112th St.
Inglewood, CA 90303

Audias Netro
3538 W. 112th St.
Inglewood, CA 90303

Barbara Yamamoto
370 Fowling Street
Playa Del Rey, CA 90293

Domingo Pech
3723 1/2 W. 106th St.
Inglewood, CA 90303

Telma A. Garcia
3905 W. 104th St.
Inglewood, CA 90303

Genaro Yanez
4028 W. 102nd St. #I
Inglewood, CA 90304

Maria Perdomo and Gerardo Torres
4122 W. 102nd St.
Inglewood, CA 90304

Leticia Lopez
4229 W. 103rd St.
Inglewood, CA 90304

Erick Pineda
4438 Lennox Blvd. # C
Inglewood, CA 90304

Matias Sandoval
4468 W. 111th St.
Lennox, CA 90304

Esteban Felix
4537 W. 111th St.
Lennox, CA 90304

Gladys Garcia
4849 W. 104 St St.
Inglewood, CA 90304

Arthur H. Garretson
4927 W. 104th St.
Lennox, CA 90304

Patrick and Marjorie Riley
5425 W. 124th St.
Del Aire, CA 90250

Marvin Walter
7015 S. Sepulveda
Los Angeles, CA 90045

Shahzad Salahshour
AAA Rent A Car
8820 S. Sepulveda Blvd., Rm. 111
Los Angeles, CA 90045

Marshall A. Fein
Advantage RentaCar
P.O. Box 5D
San Antonio, TX 78217

Evan L. Gee
AGI Logistics Inc.
228 W. Wells St.
San Gabriel, CA 917663240

Robert Dibble
Air Transport Assoc.
1301 Pennsylvania Ave., Suite 1100
Washington, DC 20004

Maxima Reyes de Magallanes
4543 W. 104th St.
Inglewood, CA 90304

Jose Valle
4919 W. 104th St.
Lennox, CA 90304

Refugio and Maria Lozano
5011 1/2 W. 16th St.
Lennox, CA 90304

Silvia and Jose Becerra
6141 Will Rogers St.
Los Angeles, CA 90045

Andrew C. Lazzaretto
A.C. Lazzaretto and Associates
PO Box 3073
Burbank, CA 91508

Gerry Miller
Acting Chief Legislative Analyst
200 N. Spring St., City Hall, 2nd Flr.
Los Angeles, CA 90012

Bill Arthur
Aeronautical Radio, Inc.
7001 World Way West
Los Angeles, CA 90045

Jon Russell
Air Line Pilots Association, Int. (ALPA)
4168 Bon Homme Road
Calabasas, CA 91302

Mike
Airport Rent A Car
9142 S. Sepulveda Blvd.
Los Angeles, CA 90045

Bob Crigler
Airport Trade Center
9111 S. La Cienega Blvd., #106
Inglewood, CA 90301

Amir Azmi
All International Rent A Car/Econo Rent A Car
5250 W. Century Blvd. #326
Los Angeles, CA 90045

Lucille W. Vestal
Alma Reaves Woods
10205 Compton Avenue
Los Angeles, CA 90002

Steven R. Holt
American Airlines
PO Box 619616, MD 5317
Dallas/Fort Worth Airport, TX 75261

David Rupp
American Worldwide Freight
5777 W. Century Blvd. Suite 945
Los Angeles, CA 90045

Ali Arjmand
AOne Rent A Car
6502 Arizona Ave.
Los Angeles, CA 90045

Mike Arias, Esq.
Arias, Ozzello & Gignac, LLP
Howard Hughes Center
6701 Center Drive West, Suite 1400
Los Angeles, CA 90045

Michael H. Anderson
Base Architecture
4332 11th Ave.
Los Angeles, CA 90008

Flora Gil Krisiloff
Brentwood NC (11)
11965 Venice Blvd., Suite 202
Los Angeles, CA 90066

Mark Berg
Alaska Airlines
P.O. Box 68900
Seattle, WA 98168

Jafar Qurbanzadeh
All State Car Rental
8705 La Tijera Blvd.
Los Angeles, CA 90045

Martin Coyne
AMB Property Corp.
17777 Center Court Drive N., Suite 100
Cerritos, CA 90703

Ron Yamamoto
American Trans AirCargo
5720 Avion Dr, Unit A
Los Angeles, CA 90045

Susan Clark
Andy M. Camacho, Inc.
845 N. Alameda St.
Los Angeles, CA 90012

Joseph IsaTatavosian
Ariana Rent A Car
6201 W. 87th St.
Los Angeles, CA 90045

Ray Mengez
Atwest Rent A Car
5777 W Century STE 110
Los Angeles, CA 90045

David Sajasi
Beverly Hills RentACar
9220 S. Sepulveda Blvd.
Los Angeles, CA 90045

Kurt Clausen
CA One Services, Inc.
209 World Way
Los Angeles, CA 90045

Karen Settlemeyer
California Pizza Kitchen
6053 W. Century Blvd.
Ste. 1100
Los Angeles, CA 90045

Michael Lourey
Cargolux Airlines, Intl.
5621 W. Imperial Hwy.
Los Angeles, CA 90045

Charles Adams
Carter Burgess
15821 Ventura Blvd.
Encino, CA 91436

Victor Adduce
Centra Freight Services
10326 Aviation Blvd.
Los Angeles, CA 90045

Dan Burgner
Century Investments Inc.
101 The Grove Drive
Los Angeles, CA 90036

Jerry Ramirez
Chief Administrative Office
500 W. Temple St.
Room 723
Los Angeles, CA 90012

Lawrence Kirkley
City of Inglewood
1 Manchester Blvd.
Inglewood, CA 90301

Martin Rubin
Concerned Residents Against Airport Pollution
2822 Barry Ave.
Los Angeles, CA 90064

Rhey Lee
Congresswoman Jane Harman
2321 Rosecrans Boulevard, Suite 3270
El Segundo, CA 90245

Robyn Ijams
Camp Dresser & McKee, Inc
18581 Teller Avenue
Irvine, CA 92612

William W. Geary, Jr.
Carlsberg Management, Inc.
6171 W. Century Blvd.
Los Angeles, CA 90045

Ross O'Donell
CENDANT Car Rental Group
5740 Arbor Vitae
Los Angeles, CA 90045

Ann Marie Hickambottum
Century Housing Corp/CCTC
1000 Corporate Pointe, Suite 200
Culver City, CA 90230

Martin Zimmerman
Chief Administrative Office
500 W. Temple St.
Room 723
Los Angeles, CA 90012

Carl Jacobson
City of El Segundo
350 Main Street
El Segundo, CA 90245

Horace Penman
Community & Neighbors for 9th District Unity (9)
606 E. 76th St.
Los Angeles, CA 90001

Perla Hernandez
Congresswoman Grace Napolitano
11627 East Telegraph Road, #100
Santa Fe Springs, CA 90670

Edgar Saenz
Congresswoman Maxine Waters
7357 W. 85th St.
Los Angeles, CA 90045

Jerome A. Copelan
Coplan Consulting, LLC
409 N. Pacific Coast Hwy.
Redondo Beach, CA 90277

Sayed I. Ali
Creative Host Services, Inc.
16955 Via Del Campo, Ste. 110
San Diego, CA 92127

Steve Knight
Del Rey NC (11)
12820 Short Ave.
Los Angeles, CA 90066

Mike Patonai
Department of Public Works
1828 Sawtelle Boulevard
Los Angeles, CA 90025

Esther L. Valadez
District 1 Board of Supervisors
320 W. Temple St., 13th Flr.
Los Angeles, CA 90012

Gretchen Hardison
EADCity of Los Angeles
200 N. Spring St., #2005
Los Angeles, CA 90012

David Herbst
El Segundo Chamber of Commerce
427 Main Street
El Segundo, CA 90245

Charles Scott
Elegant Flower Affair
9800 S. Van Ness Ave.
Los Angeles, CA 90047

William Bettison
Enterprise RentACar
17210 S. Main Street
Gardena, CA 90248

Thomas Faughnan
County Counsel
500 W. Temple St.
Room 648
Los Angeles, CA 90012

Christine Manforz
Culver City Planning Division
9770 Culver City Blvd.
Culver City, CA 90232

Edward C. DeLand
Deland Associates
254 Redlands St.
Playa del Rey, CA 90293

Joseph Lyons
DFS Group, L.P.
1580 Francisco St.
Torrance, CA 90501

Tammy Branham
Dollar Thrifty Automotive Group., Inc.
5330 E. 31st Street
Tulsa, OK 74153

John Ek
Ek & Ek Public Advocacy
461 W. 6th St.
San Pedro, CA 90731

Erica Rios
El Toro Reuse Planning Authority
25 Orchard
Lake Forest, CA 92630

Frank Prater
Empowerment Congress Central Area
Neighborhood Development Council (8)
6050 S. Western Ave.
Los Angeles, CA 90047

Peter Cohen
Eurotal
1008 N. Cole Ave.
Los Angeles, CA 90038

Faizel Tar
Exclusive Car Rental
2020 Lomita Blvd Suite# 6
Lomita, CA 90717

William A. Feathers
Feathers Executive Search
4164 Tarrybrae Terrace
Tarzana, CA 91356

David H. Parker
Fluor Coporation
3 Polaris Way
Aliso Viejo, CA 92698

Steve Callahan
Gate Gourmet
6701 West Imperial Hwy
Los Angeles, CA 90045

Jim Biondi
Grubb & Ellis
19191 S. Vermont Ave., Suite 600
Torrance, CA 90502

Crystal Bloom
HMS Host Retail
746 South Glasgow Ave.
Inglewood, CA 90301

Joseph & Yolanda Caddell
J.A. Caddell Trucking
8323 S. San Pedro
Los Angeles, CA 90003

James Williams, Jr.
Jenkins Constrcution Co., Inc.
606 S. Olive St., Suite 1900
Los Angeles, CA 90014

Connie McCormick
L.A. County Office of the County Clerk
12400 Imperial Highway
Norwalk, CA 90650

David P. Steward
Fairview Construction Co.
1317 N. La Brea Avenue
Inglewood, CA 90302

Gail Orendorff
Federal Aviation Administration
800 Independence Ave. SW
Washington D.C., CA 20591

Joe Knight
FOX RentACar
5500 W. Century Blvd.
Los Angeles, CA 90045

Saeed Aroelana
Global Rent A Car
5249 W. Century Blvd.
Los Angeles, CA 90045

Connie Gurich
Hertz Rental Car
6151 W. Century Blvd., Suite 600
Los Angeles, CA 90045

Mike Blakely
Hudson Group
300 World Way, Terminal 3 Departure Level
Los Angeles, CA 90045

Jason Holmes
Jefferson School, Lennox School District
10319 Firmona Ave.
Lennox, CA 90304

Richard Weiss
L.A. County Counsel
500 W. Temple Street Ste 648
Room 648
Los Angeles, CA 90012

Mike Bonin
LA City Councilmember Rosendahl
200 N. Spring Street, Rm 415
Los Angeles, CA 90012

James Cohn
LA County Department of Public Works: Traffic and Lighting
P.O. Box 1460
Alhambra, CA 91802

Veronica Vargas
La Curacao
10118 S. Burt Ave.
Lennox, CA 90304

Stuart H. Garrison
Law Offices of Stuart H. Garrison
7601 Goddard Ave.
Los Angeles, CA 90045

Ellen Wright, AIA
LAWA
1 World Way, 8th Floor
Los Angeles, CA 90045

Renee GonzalezFong
LAWA Concessions Management
7301 World Way West, 2nd Floor
Los Angeles, CA 90045

Regner Globus
LAWA Properties
1 World Way
Los Angeles, CA 90009

William D. Smart, Jr.
LAX Coalition c/o LAANE
215 W. 6th St., Suite 1204
Los Angeles, CA 90014

Danna Cope
LAX Area Advisory Committee
8219 Reading Ave.
Westchester, CA 90045

Maria Cerdas
LAX Courthouse Field Office
11701 La Cienega Bl. #103
Los Angeles, CA 90045

Nasser Khoshkolgh
LAX RentACar
7115 W. Manchester Ave.
Los Angeles, CA 90045

Paul A. Chapla
LAX TWO Corp.
200 World Way, Box 11
Los Angeles, CA 90045

Olibra J. Bailey
LAX/Century Community Training Program
5021 Lennox Blvd.
Lennox, CA 90304

Linda Peterson
LAXAAC
7053 Vista del Mar Lane
Playa del Rey, CA 90293

John Bowman
LAXEN
407 Exton #4
Inglewood, CA 90302

Frank Clark
LAXTEC (TBIT Airlines)
300 Worldway
Los Angeles, CA 90045

Maria T. VerduzcoSmith
Lennox Coordinating Council
10927 Grevillea Ave.
Lennox, CA 90304

Bruce McDaniel
Lennox School District
10319 Firmona Ave.
Lennox, CA 90304

Melissa Ayala
Los Angeles Airport Marriott
5855 W. Century Blvd.
Los Angeles, CA 90045

Jerry Jeffe
Los Angeles Chamber of Commerce, Transportation Commitee
350 South Bixel St.
Los Angeles, CA 90017

Mason Shayan
Los Angeles RentACar, Inc.
8911 Bellanca Ave.
Los Angeles, CA 90045

Anita Ware
McDonald's Corp.
21300 Victory Blvd.,Ste. 900
Woodland Hills, CA 91367

Robert Acherman
Neighborhood Council of Westchester Playa del Rey
6055 W. 75th PL.
Westchester, CA 90045

Briana Abghari
PCN3, Inc.
6285 E. Spring St.
#291
Long Beach, CA 90808

Jeffery Henderson
Playa Vista Jobs
12555 W. Jefferson Blvd.
Los Angeles, CA 90066

David Talichet
Proud Bird Restaurant
11022 Aviation Blvd.
Los Angeles, CA 90045

Carlton Werner
Radisson LAX
6225 W. Century Blvd.
Los Angeles, CA 90045

Mike Movagar
Rex RentACar
9200 S. Sepulveda Blvd.
Los Angeles, CA 90045

James Chon
Los Angeles County Department of Public Works
P. O. Box 1460
Alhambra, CA 91802

Tom Lu
Lucky Rent A Car
8620 Airport Blvd.
Los Angeles, CA 90045

Joe Czyzyk
Mercury Air Group
5456 McConnell Ave.
Los Angeles, CA 90066

Jason Moshfegh
Ok Rent A Car
12301 Santa Monica Blvd.
Los Angeles, CA 90025

Gary Fulena
PCR Venture LLC, DBA Payless Car Rental
450 Las Olas Blvd.
Ft. Lauderdale, FL 33301

Al Patel
Priceless Rent A Car
4831 W. Century Blvd.
Los Angeles, CA 90045

Benjamin Squire
R.K. Squire Co.
P.O. Box 1056
Topanga, CA 90290

Roland Wiley
Raw International
606 S. Olive St. 19th Fl.
Los Angeles, CA 90014

Larry Lyons
Rideny Rideau
600 Wilshire Blvd., Suite 1222
Los Angeles, CA 90017

Mohammad Khansari
Ritz Rent A Car
9100 S. Sepulveda Blvd. #101
Los Angeles, CA 90045

Abel Aragon
Roadrunner Shuttle
537 W. Constitution Ave., Unit G
Camarillo, CA 93012

Tony Aramipour
Sakura Rent A Car
5250 W. Century Bl. #109
Los Angeles, CA 90045

Emma Schafer
Schafer Communications
4201 Summertime Lane
Culver City, CA 90230

Kenneth Stewart
Sierrra Hotel Productions
9466 Hidden Valley Place
Beverly Hills, CA 90210

Jose Luis Sanchez
Southwest Airlines Co.
1155 Westmoreland, Suite 234
El Paso, TX 79925

Mary Agnes Erlandson
St. Margaret's CenterCatholic Charities
10505 Hawthorne Blvd.
Lennox, CA 90304

Scott Morgan
State Clearing House
1400 Tenth Street
Sacramento, CA 95814

Tom Martin
Supervisor Don Knabe
825 Maple Ave., Rm 150
Torrance, CA 90503

Robert Avery
RJA & Associates
9348 S. 6th Ave.
Inglewood, CA 90305

Tom Flintoft
Rose and Kindel
900 Wilshire Blvd. # 1030
Los Angeles, CA 90017

Irena Mendez
Sapphos Environmental, Inc
1351 4th Street Suite 227
Santa Monica, CA 90401

Osa Wolff
Shute, Mihaly & Weinberger
396 Hayes St.
San Francisco, CA 94102

Candy Saenz
South Bay Latino Chamber of Commerce
13545 South Hawthorne Blvd
Hawthorne, CA 90250

Laura Glass
Spring Hill Suites & Townes Place Suites by Marriott
500 E. First Street
Long Beach, CA 90810

Mustapha Janneh
Star Alliance
PO Box 91094
Los Angeles, CA 90009

Mohammad Dehkoda
Sunrise RentACar
9204 Airport Blvd.
Los Angeles, CA 90045

Nicole Englund
Supervisor Gloria Molina
500 W. Temple St., Suite 856
Los Angeles, CA 90012

Bob Haueter
Supervisor Michael D. Antonovich
500 W. Temple St., Suite 723
Los Angeles, CA 90012

Chuck Bookhammer
Supervisor Yvonne B. Burke
500 W. Temple St., Suite 866
Los Angeles, CA 90012

Juan and Teresa Villegas
Teresa's Bridal
2515 El Dorado
Torrance, CA 90503

Robert Rodine
The Polaris Group
14649 Tustin St.
Sherman Oaks, CA 91403

BJ Meder
Trans Tech Systems, Inc.
77 Lakeview
Irvine, CA 92604

Alan Wayne
United Airlines
1960 E. Grand
El Segundo, CA 90245

Mike Scanlan
United Airlines (Domestic)
700 World Way
Los Angeles, CA 90045

Bob Gilbert
URS/LAX Master Plan Stakeholder
Liaison Office
6151 Century Blvd,, Suite 702
Los Angeles, CA 90045

Peter Van Valkenburg
Vanguard Car Rental USA Inc.
6929 N. Lakewood Ave.
Tulsa, OK 74117

Paul Novak
Supervisor Michael D. Antonovich
500 W. Temple St., Suite 869
Los Angeles, CA 90012

Samantha Bricker
Supervisor Zev Yaroslavsky
500 West Temple St., Suite 821
Los Angeles, CA 90012

David Johnson
The Argonaut Newspaper
5355 McConnell Ave
Los Angeles, CA 90066

Nazim Uthman
The Uthman Group
24250 Postal Ave., Suite 201
Moreno Valley, CA 92553

David Tomsovic
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

San Chang
United Airlines
P.O. Box 737
Trabuco Canyon, CA 92678

Brent Clermont
University of Southern California
1246 W. 30th St., # 205
Los Angeles, CA 90007

Albert Soufer
USave Auto Rental
941 W. Manchester Blvd.
Inglewood, CA 90301

Randy Eleval
Venice Beach Suites
417 Oceanfront Walk
Venice, CA 90291

Paul Reznik
West Los Angeles Neighborhood Council
11611 San Vincente Blvd.
Los Angeles, CA 90049

John Ruhlen
Westchester Chamber of Commerce
6151 W. Century Blvd. Suite 514
Los Angeles, CA 90045

Irene Andreadis
Westchester Neighborhood Association
5462 W. 76th St.
Los Angeles, CA 90045

D.A. Curt Curtiss
Westchester Neighbors Association
7880 Vicksburg Ave.
Westchester, CA 90045

Nancy Aguirre
WWCWindow Cleaning
180 Glendale Blvd.
Los Angeles, CA 90026

Rosa Velia Sanchez
10022 Mansel Ave.
Inglewood, CA 90304

Milvia & Christophor Kelliger
10104 Felton #9
Inglewood, CA 90304

Jose & Teresa Gomez
10130 Inglewood Ave. #7
Inglewood, CA 90304

Maria Espinosa
10138 Felton Ave. #5
Inglewood, CA 90304

Arlin Pojoy
10202 S. 10th Ave. #5
Inglewood, CA 90303

Josef Castellanos
10205 Felton Ave
Lennox, CA 90304

Felix Degado
10208 Buford Ave
Lennox, CA 90304

Roberto Mondragon
10208 Felton Ave. #2
Inglewood, CA 90304

Enrique and Margarita Villanueva
10208 Felton Ave. #4
Inglewood, CA 90304

Jose Luis Vasquez & Maria Ferrer
10210 Felton Ave. #5
Inglewood, CA 90304

Grover Montano Licona
10210 Felton Ave. #6
Lennox, CA 90304

Leticia Fajardo
10212 Felton Ave. #7
Inglewood, CA 90304

Erica Ruiz de la Pena
10212 Felton Ave. #8
Inglewood, CA 90304

Jesus and Maria Magallon
10214 Felton Ave. #1
Lennox, CA 90304

Norberto & Jesus Guerra
10214 Felton Ave. # 7
Inglewood, CA 90304

Cruz Maria & Beatriz Ramirez
10214 Felton Ave. #3
Inglewood, CA 90304

Ericka Arteaga & William Pojoy
10214 S. 10th St. #1
Inglewood, CA 90303

Gladys Rojas
10216 Felton Ave., Apt. 3
Inglewood, CA 90304

David Figueroa
10217 Condon Ave.
Inglewood, CA 90304

Ramon Cervantes
10300 Felton Ave. # 5
Inglewood, CA 90304

Teresa Leon
10300 Mansel Ave.
Inglewood, CA 90304

Carlos Castillo
10307 Felton Ave
Inglewood, CA 90304

Oscar Vizcarra
10310 Buford Ave.
Lennox, CA 90304

Christian Mendoza
1032 S. Walnut St.
Inglewood, CA 90301

Crispino Gonzalez
10322 Grevillea Ave.
Inglewood, CA 90304

Robert Smitheal
10405 S. 7th Ave
Ingelwood, CA 90303

Arturo Campos
10500 S. Grevillea
Inglewood, CA 90304

Rosario Rodriguez
10511 Ravenswood ave
Lennox, CA 90304

Manuel Quintero
10514 Dalerose Ave.
Lennox, CA 90304

Juana Arteaga
10603 S. Felton Ave.
Lennox, CA 90304

Maria Castellanos
10604 Buford Ave.
Lennox, CA 90304

Hector Raul & Teresa Rivera
10606 Buford Ave.
Lennox, CA 90304

Gloria Camacho
10607 Felton Ave.
Inglewood, CA 90304

William Lowell Bullard
10615 Buford Ave
Lennox, CA 90304

Alberto & Miriam Davila
10617 Felton Ave.
Lennox, CA 90304

Maria Flores
10620 Burl Ave
Lennox, CA 90304

Sochil Franco & Julio Espinoza
10623 S. Truro Ave.
Lennox, CA 90304

Olivia Salazar
10702 Mansel Ave.
Lennox, CA 90304

Juan Moreno
10720 Buford Ave.
Lennox, CA 90304

Maria Casillas
10801 Redfern Ave.
Inglewood, CA 90304

Rosalia Ramas
10825 Firmona Ave.
Lennox, CA 90304

Barbara Bowie
10900 Atkinson Ave
Inglewood, CA 90303

Rigoberto Llamas
10914 Truro Ave.
Lennox, CA 90304

Marisol & Samuel Cruz
10915 Truro Ave.
Lennox, CA 90304

Claudia Guerrero
10916 Firmona Ave
Lennox, CA 90304

Gabriel & Isabel Alvarez
10930 S. Mansel
Lennox, CA 90304

Leonel Arevalo
11002 Grevilla Ave #A
Lennox, CA 90304

Alfredo Mercado
11040 Firmona Ave.
Lennox, CA 90304

Cindy Limon
11045 Condon Ave
Lennox, CA 90304

Alma Hernandez
11109 Firmona Ave.
Lennox, CA 90304

Antonio Mendez
11115 Dalerose Ave.
Lennox, CA 90304

Efren Castro
11139 Dalerose Ave.
Inglewood, CA 90304

Philip & Catherine Walker
3300 W. 109th St.
Inglewood, CA 90303

Gloria Dawson
3313 W. 109th Street
Inglewood, CA 90303

Martha Gomez
3521 W. 110th St.
Inglewood, CA 90303

Diane Sambrano
3640 W. 111th Place
Inglewood, CA 90303

Claudia Benitez
3675 W. 108th St.
Inglewood, CA 90303

Cecil Carpio
407 Exton Avenue, #4
Inglewood, CA 90302

Sonia Ramirez
411 Arbor Vitae
Inglewood, CA 90301

Gerardo Torres
4112 W. 105th St.
Inglewood, CA 90304

Rex Bonner
4216 Neosho Avenue
Los Angeles, CA 90066

Nancy Alonzo
4232 S. 104th Street
Inglewood, CA 90304

Guillermo Navarro
4250 W. 104th St.
Lennox, CA 90304

Maria 'Magdalena Camacho Silva
4473 W. 104th St.
Inglewood, CA 90304

Javier & Mirna Camargo
4643 W. 111th St.
Inglewood, CA 90304

Elpidio Guzman
4700 W. 104th St.
Lennox, CA 90304

Daniel & Maria Lomeli
4856 W. 97th St.
Inglewood, CA 90301

Hilda Sanchez
4860 W. 99th St.
Inglewood, CA 90301

Tim McOster
515 Altaro St.
San Pedro, CA 90732

Don Terry
5402 W. 134th Street
Hawthorne, CA 90250

Stanley Stain
6400 Green Valley Circle, Suite 304
Culver City, CA 90230

Robert Dalton
7128 Glasgow Ave.
Westchester, CA 90045

Lawrence Lurvey
7545 Whitlock Ave.
Playa Del Rey, CA 90293

Harry Len Rose
8160 Redlands St. # 102
Playa del Rey, CA 90293

Debora Roberts
8916 Kitty Hawk
Westchester, CA 90045

John Dragone
922 Sheldon St.
El Segundo, CA 90245

Jack Wilson
11957 Menlo Avenue
Hawthorne, CA 90250

Neil S Rubenstein
4733 Maytime Lane
Culver City, CA 902305069

J. Luis Martin
5547 W. Century Blvd.
Los Angeles, CA 90045

Albert Vera
5518 S. Sepulveda Blvd.
Culver City, CA 90230

Roy Hefner
6548 W. 80 PL.
Los Angeles, CA 90045

Enrique R. Valenzuela
732 N. 4th St.
Montebello, CA 90640

Denny & Nan Schneider
7929 Breen Ave.
Los Angeles, CA 90045

James Harris
8475 S. Vermont Ave.
Los Angeles, CA 90044

Michael Radclif
8950 Fleetwing Ave.
Westchester, CA 90045

Roger Terry
9507 10th Ave.
Inglewood, CA 90305

Paul Struhl
4057 Albright Avenue
Los Angeles, CA 90066

Irene Andreadis
5462 W. 76th St.
Los Angeles, CA 90045

6.4 List of References

American Society of Civil Engineers and U.S. Environmental Protection Agency, National Storm Water Best Management Practices (BMP) Database, http:\\www.bmpdatabase.org; Vortechics, Inc.

Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners, (2001) 91 Cal.App.4th 1344.

California Air Resources Board, Emission Inventory of Off-Road Large Compression-Ignited Engines (>25 HP) Using the New Offroad Emissions Model (Mailout MSC #99-32), http://www.arb.ca.gov/msei/msei.htm, 2003

California Air Resources Board, Research Division, EMFAC 2002 On-Road Emissions Inventory Estimation Model, Version 2.2, 2002.

California Department of Transportation, BMP Retrofit Final Report ID CTSW-RT-01-050, January 2004.

California Department of Transportation, Division of Aeronautics, California Airport Land Use Planning Handbook, January 2002, 7-30 to 7-34.

California Stormwater Quality Association, Best Management Practices Handbooks, *New Development and Redevelopment*, 2003.

Caterpillar, Caterpillar Performance Handbook, ed. 30, 1999.

City of Los Angeles Department of Public Works, Bureau of Engineering Manual - Part G, Storm Drain Design, 1973.

City of Los Angeles, Draft L.A. CEQA Thresholds Guide, May 14, 1998.

City of Los Angeles, Los Angeles World Airports, Final On-Site Hydrology Report for Los Angeles International Airport, October 2002.

City of Los Angeles, Los Angeles World Airports, Revised Hydrology Report for Los Angeles International Airport North Perimeter Storm Drain, December 2001.

City of Los Angeles, Los Angeles World Airports, Standard Urban Stormwater Mitigation Plan (SUSMP) Volume I: Southside Airfield Improvements, Los Angeles International Airport (LAX), 2004.

City of Los Angeles, Ordinance 167,940, "El Segundo Dunes", June 1992.

Code of Federal Regulations, Title 50, CFR, Part 402.10, "Conference on Proposed Species or Proposed Critical Habitat."

Ellicott City, Maryland, Center for Watershed Protection, National Pollutant Removal Performance Database for Storm Water Treatment Practices, 2nd Edition, June 2000.

Federal Aviation Administration, Order 5050.4A, "Airport Environmental Handbook", October 1985

Federal Aviation Administration, Order 1050.1D, "Policies and Procedure for Considering Environmental Impacts", June 2001.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Draft EIS/EIR, January 2001.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, April 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR Response to Comments, Section 3, *Comments and Responses,* State of California, Department of Aviation, Comment #SAS00002-3, pp. 3-5576 to 3-5578, 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Section 4.4, *Social Impacts,* Subsection 4.4.1.4.1, *CEQA Significance*, p. 4-519, 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Section 4.4, *Social Impacts,* Subsection 4.4.1.6.5, *Alternative D – Enhanced Safety and Security Plan*, pp. 4-526 to 4-528, April 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Section 4.9, *Historical/Architectural and Archaeological/Cultural Resources*, p. 4-831, 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Section 4.10, *Biotic Communities* and Section 4.11, *Endangered and Threatened Species of Flora and Fauna,* 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Executive Summary, *Endangered and Threatened Species of Flora and Fauna,* p. ES-54, 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Section 4.10, *Biotic Communities*, Table F4.10-5, 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Section 4.18, *Light Emissions*, Figure F4.18-1, 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Section 4.19, *Solid Waste,* 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Section 4.24.3, *Safety (CEQA)*, 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Section 4.24.3, *Safety (CEQA)*, April 2004, Figures F4.24.3-11 and F4.24.3-19, 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Section 4.26.2, *Law Enforcement*, 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, Section 4.27, *Schools (CEQA)*, p. 4-1605, 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Final EIS/EIR, State Clearinghouse No. 1997061047, April 2004.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Supplement to the Draft EIS/EIR, June 2003.

Federal Aviation Administration and Los Angeles World Airports, LAX Master Plan Supplement to the Draft EIS/EIR, Section 4.2.6.5, *Land Use - Alternative D – Enhanced Safety Plan,* p. 4-196, 2004.

Federal Aviation Administration, FAA Runway Safety Report, Runway Incursions Trends and Initiatives at Towered Airports in the United States, FY2000-FY2003, August 2004.

Federal Aviation Administration, Letter to U.S. Department of the Interior, Fish and Wildlife Service, Biological Services, Carlsbad Fish and Wildlife Office, Subject: Los Angeles International Airport, Proposed Designation of Critical Habitat, August 12, 2004.

The Federal Interagency Committee on Aviation Noise (FICAN), Effects of Aviation Noise on Awakenings from Sleep, June 1997, http://www.fican.org/pages/sleepdst.html.

Federal Interagency Committee on Aviation Noise (FICAN), Federal Agency Review of Selected Airport Noise Analysis Issues, August 1992.

Gale Research, Climates of the States, Volume 1: Alabama-New Mexico, 1985.

HNTB, Southside Airfield and New Large Aircraft (NLA) Studies, Final Report, April 2004.

HNTB, Program Refinement/Preliminary Engineering Report, September 2003.

HNTB, Memorandum Re: Runway 25L Relocation Employee/Construction Truck Data Estimate, August 19, 2004.

HNTB, Memorandum Re: Runway 25L Relocation, Preliminary Construction Schedule, August 9, 2004.

Jim Ritchie, Deputy Executive Director, LAWA, Memorandum RE: LAX South Airfield Project – 2005 Alternative D Airfield Activity Forecast Assumptions, August 31, 2004.

Los Angeles County Department of Public Works, Hydraulic/Water Conservation Division, Hydrology Manual, December 1991.

Los Angeles Department of Transportation, Los Angeles Department of Transportation (LADOT) Traffic Study Policies and Procedures, Revised March 2002

Los Angeles International Airport, Consensus Plan for LAX, Modified Alternative D, December 2004.

Los Angeles World Airports, Clean Air Act Draft General Conformity Determination, Los Angeles International Airport Proposed Master Plan Improvements Alternative D, January 2004.

Los Angeles World Airports Draft LAX Master Plan, November, 2000.

Los Angeles World Airports, Appendix S-C1: Supplemental Aircraft Noise Technical Report, June 2003, page 147, 148.

Los Angeles World Airports, NMD Airport Noise Monitoring and Management System, January - December 2003.

Los Angeles World Airports Final LAX Master Plan, April 2004.

Los Angeles World Airports, LAX Master Plan Addendum, June 2003.

Los Angeles World Airports, Taking Flight for a Better Future, Alternative D Mitigation Monitoring & Reporting Program, April 2004.

Los Angeles World Airports, Taking Flight For a Better Future, LAX Final Master Plan, April 2004.

Los Angeles World Airports, Annual Activity Statistics, 2004.

Official Airline Guide, Scheduled Departures, Los Angeles International Airport, 2004

Ogershok, D., Editor, National Construction Estimator, 49th Edition, Craftsman Book Co., 2001.

Regional Board Executive Officer, Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County, March 8, 2000.

Santa Monica Bay Restoration Project, Characterization Study of the Santa Monica Bay Restoration Plan - State of the Bay 1993, January 1994.

Santa Monica Bay Restoration Project, Taking the Pulse of the Bay - State of the Bay 1998, April 1998.

Schexnayder, Cliff, PhD., PE, Effective Noise Control During Nighttime Construction, May 10, 2002.

Seitz, John S., U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Memorandum RE: Interim Implementation of New Source Review Requirements for $PM_{2.5}$, October 21, 1997.

South Coast Air Quality Management District, 1997 Air Quality Management Plan, 1996.

South Coast Air Quality Management District, 2003 Final Air Quality Management Plan, 2003.

South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993.

South Coast Air Quality Management District, Rules and Regulations, http://www.aqmd.gov/rules, 2003.

South Coast Air Quality Management District, Rule 1122, “Solvent Degreasers”, February 24, 1995.

South Coast Air Quality Management District, Rule 1171, "Solvent Cleaning Operations", February 24, 1995.

The Hazardous Waste Source Reduction and Management Review Act of 1989 (SB14), http://www.dtsc.ca.gov/PollutionPrevention/index/html.

State of California, California Clean Air Act 1988, 1988.

State Water Resources Control Board, Water Body Fact Sheet, May 18, 1994.

Transportation Research Board, Interim Materials on Highway Capacity, Transportation Research Circular No. 212, January 1980.

U.S. Department of Transportation, Federal Aviation Administration, Federal Aviation Regulation (FAR) Part 150, "Land Use Compatibility Guidelines".

U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1: Stationary Point and Area Sources, March 2003, http://www.epa.gov/ttn/chief/ap42.

U.S. Environmental Protection Agency, Preliminary Data Summary of Urban Storm Water Best Management Practices Methodology, August 1999.

U.S. Environmental Protection Agency, Total Maximum Daily Load Fact Sheet, Available: http://www.epa.gov/region09/water/tmdl/fact.html [4/24/00].

U.S. Environmental Protection Agency, Total Maximum Daily Load Program, Available: http://www.epa.gov/region09/water/tmdl/index.html#303d [11/1/00].

U.S. Congress, Clean Air Act Amendments of 1990, Public Law 101-49, November 15, 1990.

U.S. Congress, Clean Air Act of 1970, Public Law 91-604, December 31, 1970.

U.S. Department of Commerce, U.S. Census Bureau, 2000 U.S. Census.

U.S. Department of Transportation, Federal Aviation Administration, FAA Advisory Circular 150/5300-13, Airport Design Change 5, Appendix 8, February 14, 1997.

U.S. Department of Transportation, Federal Aviation Administration, Record of Decision: Proposed LAX Master Plan Improvements, May 20, 2005.

U.S. Fish and Wildlife Service, 50 CFR Part 17, "Endangered And Threatened Wildlife And Plants".

U.S. Fish and Wildlife Service, Letter to the U.S. Department of Transportation Federal Aviation Administration, Re: Informal Conference for Five Projects at Los Angeles International Airport, Los Angeles County, California, September 13, 2004.

6.5 NOP and Correspondence

Notice of Preparation (NOP) for the SAIP was published on August 5, 2004. The public comment period concluded September 5, 2004. Correspondence through the conclusion of the comment period is listed below in chronological order. Included is correspondence between the City of El Segundo, its representatives, and LAWA that is considered commentary on the NOP. The NOP and comment documents can be found at the end of this chapter.

Agency/Contact	Date of Correspondence
Jim Ritchie Los Angeles World Airports 1 World Way P.O.Box 92216 Los Angeles, CA 90009-2216	July 23, 2005
E. Clement Shute, Jr. Shute, Mihaly & Weinberger, LLP 396 Hayes Street San Francisco, CA 94102	July 30, 2004
Mr. Scott Morgan State of California Governor's Office of Planning and Research State Clearinghouse and Planning Unit 1400 Tenth Street P.O. Box 3044 Sacramento, CA 95812	August 5, 2004
Jim Ritchie Los Angeles World Airports 1 World Way P.O.Box 92216 Los Angeles, CA 90009-2216	August 6, 2004
Steve Smith, Ph.D South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765	August 11, 2004
Ms. Cheryl Powell Department of Transportation District 7, Regional Planning IGR/CEQA Branch 120 S. Spring St. Los Angeles, CA 90012	August 12, 2004

The Honorable Kelly McDowell Via e-mail: kmcdowl@pacbell.net	August 13, 2004
Mr. David Cohen Department of Transportation Division of Aeronautics – M.S.#40 1120 N Street P.O. Box 942873 Sacramento, CA 94273	August 24, 2004
Mr. Jeffrey M. Smith, AICP Southern California Association of Governments 818 West Seventh Street - 12th Floor Los Angeles, CA 90017	September 21, 2004

6.6 List of Acronyms

$\mu g/m^3$	micrograms per cubic meter
AAM	Annual Arithmetic Mean
AC	Air Conditioning
AC	FAA Advisory Circular
ADT	Average Daily Traffic
AGM	Annual Geometric Mean
ALS	Approach Lighting Systems
ALSF-2	Approach Light System with Flashers
ANMP	Airport Noise Mitigation Program
AOA	Aircraft/Airfield Operations Area
APHIS	Animal and Plant Health Inspection Service
APUs	Auxiliary Power Units
AQMP	Air Quality Management Plan
ARFF	Aircraft Rescue and Firefighting Facilities
ARTCC	Air Route Traffic Control Center
ATCT	Air Traffic Control Tower
ATR	Automatic Traffic Recorder
ATSAC	Automated Traffic Surveillance and Control
BMPs	Best Management Practices
CAAA	Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBA	Community Benefit Agreement
CDFG	California Department of Fish and Game
CDMG	California Department of Conservation, Division of Mines and Geology
CDP	Conceptual Drainage Plan
CEQA	California Environmental Quality Act
CM	Construction Management
CMA	Critical Movements Analysis
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CO	Carbon Monoxide
COS	Central Outfall Sewer
CTA	Central Terminal Area
CWA	Clean Water Act
c.y.	Cubic Yards
DNL	Day Night Average Sound Level
Draft EIR	Project-Level Tiered Draft Environmental Impact Report
Draft EIS/EIR	Draft Environmental Impact Statement/Environmental Impact Report
EA	Environmental Assessment
EDMS	Emissions and Dispersion Modeling System
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMCs	Event Mean Concentrations
EPA	U.S. Environmental Protection Agency

ESHAs	Ecologically Sensitive Habitat Areas
EW	Ephemerally Wetted
FAA	Federal Aviation Administration
FICON	Federal Interagency Committee on Noise
GA	General Aviation
GIS	Geographic Information System
GPUs	Ground Power Units
GSE	Ground support equipment
GTC	Ground Transportation Center
HCP	Habitat Conservation Plan
HEP	Habitat Evaluation Procedure
HIRL	High Intensity Runway Lighting
HMP	Habitat Management Plan
HRA	Habitat Restoration Area
HRP	Habitat Restoration Plan
HSI	Habitat Suitability Index
ILS	Instrument Landing System
INM	Integrated Noise Model
ISCST3	Industrial Source Complex-Short Term
ITC	Intermodal Transportation Center
LACDPW	Los Angeles County Department of Public Works
LADOT	Los Angeles Department of Transportation
LAFD	Los Angeles Fire Department
LAPD	Los Angeles Police Department
LARWQCB	Los Angeles Regional Water Quality Control Board
LAWA	Los Angeles World Airports
LAWAPD	LAWA Police Department
LAX	Los Angeles International Airport
LAX MP-MPAQ	LAX Master Plan-Mitigation Plan for Air Quality
L_{eq}	Equivalent Noise Level
L_{max}	Maximum Noise Level
LOS	Level of Service
LTO	Landing and Takeoff
MALSR	Medium Approach Light System
mg/m^3	milligrams per cubic meter
MLEP	Mitigation Land Evaluation Procedure
MMRP	Mitigation Monitoring and Reporting Program
MPO	Metropolitan Planning Organization
N/A	Not applicable
NA	Number of Events Above
NAAQS	National Ambient Air Quality Standards
NAR	National Airspace Redesign
NASA	National Aeronautics and Space Administration
NAVAIDS	Navigational Aids
NCCP	Natural Communities Conservation Plan
NCOS	North Central Outfall Sewer
NLA	New Large Aircraft
NO_2	Nitrogen Dioxide
NOI	Notice of Intent

NOP	Notice of Preparation
NORS	North Outfall Relief Sewer
NO_x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NWS	National Weather Service
O_3	Ozone
OLM	Ozone-Limited-Method
Pb	Lead
PCE	Passenger Car Equivalent
PM_{10}	10 micrometers
$PM_{2.5}$	2.5 micrometers
ppm	parts per million (by volume)
ppmw	parts per million by weight
RAC	Rent-A-Car Facility
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RTP	Regional Transportation Plan
RVR	Runway Visual Range
SAE	Society of Automotive Engineers
SAIP	South Airfield Improvement Project
SA-NLA Final Report	Southside Airfield and New Large Aircraft Studies
SCAG	Southern California Associations of Governments
SCAQMD	South Coast Air Quality Management District
SEL	Sound Exposure Level
SID	Standard Instrument Departure
SIMMOD	Simulation Modeling
SMBRP	Santa Monica Bay Restoration Project's
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxides
SPL	Sound Pressure Level
SR	State Route
SST	SuperSonic Transport
STAR	Standard Terminal Arrival Route
SUSMP	Standard Urban Storm Water Mitigation Plan
SUVs	Sport-utility Vehicles
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SWTS	Storm Water Treatment Systems
TA	Time Above
TBIT	Tom Bradley International Terminal
tc	Time of Concentration
TDZ	Touchdown Light Zone System
TIM	Time-in-mode
TMDLs	Total Maximum Daily Loads
TRACON	Terminal Radar Approach Control Facility
TSP	Total Suspended Particulates
USACOE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture

USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VASI	Visual Approach Slope Indicator
v/c	Volume Capacity
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
WHMP	Wildlife Hazards Management Plan
WPD	Watershed Protection Division
WSCMO	Weather Service Contract Meteorological Observatory

Correspondence associated with Section 6.5.

This page intentionally left blank.

Los Angeles World Airports

July 23, 2004

The Honorable Kelly McDowell
Mayor
City of El Segundo
c/o Mr. David Herbst
660 South Figueroa Street
Suite 1400
Los Angeles, CA 90017

Dear Mayor McDowell:

Previously, we discussed and you confirmed by email that there were six items that El Segundo wanted to include in the scope of the Environmental Impact Report (EIR) that Los Angeles World Airports (LAWA) is preparing for the South Runway project. You stated:

> *"As we discussed at the May 27 meeting at LAX, attached is a one-page list prepared by Clem Shute and Christy Taylor of items which El Segundo would like to see included in the South Airfield Focused EIR. I have briefly summarized the six items below:*
>
> 1. *Analyze the impacts of the southern airfield project during the various implementation phases of Alternative D.*
>
> 2. *Conduct a single event noise analysis, including El Segundo impacts from takeoffs, landings and taxiing events.*
>
> 3. *Use modeling assumptions consistent with the most recent assumptions for forecasted LAX operations.*
>
> 4. *Specify taxiway layout and use patterns to be utilized at the southern complex during various implementation phases of Alternative D.*
>
> 5. *Provide a comparative analysis of a reasonable range of alternatives to the centerline taxiway.*
>
> 6. *Provide effective, enforceable project-level mitigation measures to address noise and pollution impacts."*

In response to that email, LAWA provided you with information that all six of these issues were being addressed in the South Runway EIR.

You have subsequently provided us with a list refining those requests and we offer the following responses:

Item 1: Analyze impacts of the southern airfield improvement project through the various phases of the implementation of Master Plan Alternative D. This should include analysis of impacts of operations (including noise and air pollution) assuming the improvements are made to the southern runways but not the northern runways. The addition of a centerline taxiway between Runways 25 L and R would make these runways more attractive and more effective than the other pair at LAX, especially for larger aircraft and IFR conditions. Air traffic would accordingly shift to the southern runways. A comprehensive analysis of these impacts is needed.

Response: The scope of work for the EIR for the southern airfield improvement project will include a project-level construction impact analysis. The scope will also include a noise and air quality impact analysis of aircraft operations spanning from the completion of construction of this project to the beginning of the construction of the northern airfield improvement project, which would include analysis of any potential increased use of this runway configuration.

Item 2: Conduct a meaningful single event noise analysis, including the impacts of individual takeoff and landing and taxiing events on El Segundo and its residents. The noise analysis should be designed to provide useful information regarding individual noise events, including how loud an event will be at specified locations, how many times such events will occur, and the distribution of the events during the day and night.

Response: It is our position that the program level analysis LAWA has already prepared addresses the issues you raise. If you can identify specifically why you do not believe this to be the case, we will be happy to further review this issue. The project EIR does intend to analyze the single event noise impacts from construction activity.

Item 3: In analyzing the project impacts for the southern airfield modifications use modeling assumptions that are consistent with the most recent assumptions for projected aircraft operations at LAX. (The available HNTB document regarding the southern airfield was done prior to the development of Alternative D and contains traffic assumptions that are not consistent with those used for Alternative D.) These assumptions include critical input to the noise models, such as total operations, seasonal and peak hour traffic, and fleet mix. Input regarding taxiing speeds, flight paths, and thrust settings should also be consistent with fleet mix assumptions, and checked against actual operations at LAX.

Response: The project-level analysis for the south airfield will use the activity information developed in the programmatic EIS/EIR. This information will be applied to the design-level refinements of the south airfield layout and construction sequence. The input information to this analysis will be checked against 2003 activity levels experienced at LAX. We feel this approach is consistent with El Segundo's request.

Item 4: Define the specific taxiway layout and use patterns that will be utilized for the southern runway complex at the various phases of development of Alternative D, and disclose and analyze the resulting aircraft taxiing patterns and noise impacts. Clarify the role of remote aircraft parking areas for continued aircraft parking and/or loading.

Response: We would like clarification on what you mean by "the various phases of development of Alternative D." Please refine the intention of your request and clarify if you are referring to phasing of construction assumed in the LAX Master Plan EIR or some other phasing. Further, because the scope of the project level EIR already includes an analysis of the noise and other significant impacts of the project, the need for additional analysis of taxiing patterns and noise impacts is not clear. Finally, because the South Runway project was always proposed to be the first project, the Master Plan EIR has taken into account the phasing of the construction of this project. If prior to the start of the project, anything changes with respect to that phasing, the project EIR will address those changes.

Item 5: Provide a comparative analysis, including the costs and safety benefits, for a reasonable range of alternatives to the centerline taxiway. Specifically, compare the noise, air pollution, and other environmental impacts of a centerline taxiway (B1B) with the end-round taxiway alternative (A1-4). Also clarify whether or not with the centerline taxiway option there will be any need for exits to the left (south) from Runway 25L.

Response: It appears by the alternative references that you used in your letter, that you have received an early draft version of the HNTB document titled South Airfield & New Large Aircraft (NLA) Studies, Los Angeles International Airport. We are providing, for your information, the Final HNTB report by the same name as completed in April 2004. In this report, HNTB conducted an analysis of alternatives to the centerline taxiway. We believe their analysis adequately addresses this subject. Also, as part of the scope of work for the South Airfield Focused EIR, the HNTB Team is required to perform an environmental alternatives analysis comparing the impacts of the center parallel taxiway to the most feasible version of the end-around taxiway concept. As to the balancing of cost and safety benefits of a range of alternatives to the proposed taxiway, that cost-benefit balancing is not required under an environmental analysis and thus is inappropriate to be considered in the EIR.

Item 6: Provide effective and enforceable project-level mitigation measures to address noise and air pollution impacts.

Response: The EIR will include an analysis of feasible mitigation measures to mitigate any significant noise and air pollution impacts. The HNTB Team has reviewed the entire list of proposed mitigation measures listed in the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP). From this list, they have identified each mitigation measure that specifically applies to the South Airfield project and those that are general in nature and generally related to any LAX Master Plan project. These measures will be programmed into the project and will be assessed as part of the Focused EIR. Additionally, the Mitigation Monitoring and Reporting Program will include a process and responsible party to ensure compliance with the mitigation measures. Finally, the LAX Specific Plan calls for findings and conditions for each LAX Plan Compliance approval that include all appropriate mitigation measures. We will provide you with this information as soon as it becomes available.

Please be advised that this is our initial response to your request. Additional clarification and information is necessary to provide responses that address your request appropriately.

As we discussed, the City will shortly be issuing a Notice of Preparation (NOP) for this project and scoping for the EIR will follow. We will consider these comments as a response to the NOP.

We look forward to working with the City of El Segundo as we conduct the scoping for the South Runway Project EIR.

Sincerely,

Jim Ritchie
Deputy Executive Director

JR:jm

cc: Cindy Miscikowski, Councilmember
Timothy B. McOsker, Mayor's Office
Kim Day, Interim Executive Director

SHUTE, MIHALY & WEINBERGER LLP
ATTORNEYS AT LAW

E. CLEMENT SHUTE, JR.
MARK I. WEINBERGER
MARC B. MIHALY, P.C.
FRAN M. LAYTON
RACHEL B. HOOPER
ELLEN J. GARBER
CHRISTY H. TAYLOR
TAMARA S. GALANTER
ELLISON FOLK
RICHARD S. TAYLOR
WILLIAM J. WHITE
ROBERT S. PERLMUTTER
OSA L. ARMI
BRIAN J. JOHNSON
JANETTE E. SCHUE
MATTHEW D. ZINN

396 HAYES STREET
SAN FRANCISCO, CALIFORNIA 94102
TELEPHONE: (415) 552-7272
FACSIMILE: (415) 552-5816
WWW.SMWLAW.COM

CATHERINE C. ENGBERG
MATTHEW D. VESPA
ROBIN A. SALSBURG
AMY J. BRICKER
JENNY K. HARBINE
MADELINE O. STONE

LAUREL L. IMPETT, AICP
CARMEN J. BORG
URBAN PLANNERS

DAVID NAWI
OF COUNSEL

July 30, 2004

Via Facsimile and Overnight Mail

Jim Ritchie
Deputy Executive Director
Los Angeles World Airports
One World Way, Floor 10
Los Angeles, CA 90045

Re: Information Requested by El Segundo for Inclusion in the Environmental Impact Report (EIR) being Prepared for the South Runway Project

Dear Mr. Ritchie:

This letter is submitted to you on behalf of Mayor Kelly McDowell and the City of El Segundo in response to your letter addressed to Mayor McDowell dated July 23, 2004. As was discussed at the meeting of July 20, 2004 in Mayor Hahn's Office, El Segundo desires that the EIR for the South Runway Project provides a complete picture of the impacts of the project on El Segundo during the life of Alternative D. Our responses set forth below are intended to further that goal as well as to emphasize the importance of including all feasible mitigation measures. El Segundo appreciates the willingness of the Mayor's Office and LAWA to address the City's concerns.

We will use summary descriptions of the six subject areas for reference. Your letter sets forth in full El Segundo's concerns in each subject area. El Segundo's responses were developed following review by the City's consultants.

Item 1 of El Segundo's Concerns: Analyze the impacts of the southern airfield project during the various implementation phases of Alternative D

LAWA's response states that the EIR will include the requested analysis, including the construction impacts of the south runway project and an analysis of the air quality and noise impacts of aircraft operations from completion of the project to the beginning of the construction of the northern airfield improvement project. El Segundo assumes that the impacts on aircraft operations as a result of the northern airfield improvement project would be assessed in an environmental document for that project. LAWA's response satisfies El Segundo's concerns for this item.

Item 2 of El Segundo's Concerns: Conduct a single event noise analysis, including El Segundo impacts from takeoffs and landings and taxiing events.

LAWA's response is that the program level analysis already done has addressed these issues. In order to assess this response, El Segundo has reviewed the Final Report of HNTB dated April 2004 which LAWA provided to us. Unfortunately, the noise analysis in that report is insufficient to make meaningful conclusions about the noise impacts of the project. It shows only comparative taxi-only noise contours for the 100 dB level between alternative A1 and B2 while B3 is the recommended alternative. The report states that the landing and take-off noise levels do not differ appreciably between the alternatives but does not show the actual results. In order to define and evaluate specific mitigation measures one needs the actual results of the noise analysis. Furthermore, the contours shown in the April 2004 report do not seem to reflect the assumed taxiway pattern as it evolves over the development stages of the Alternative D. The crossings to the west or to the east will depend on which terminals are operating during which phase of the project. The taxi paths to the remote gates, especially for the heavy jets and the NLA's, do not seem to be reflected in the contours either. Nor is the difference in noise impact between East flow and West flow. Consequently, El Segundo requests a detailed noise analysis, using both SEL and CNEL metrics, to show the impacts of the project during the various phases as just discussed. We are uncertain as to whether the project will have differing impacts on the eastern and western sides of El Segundo. This concern should also be addressed. Finally, we understand there is a grade differential of approximately two percent increasing from south to north along the western portion of the southern runway complex. LAWA has agreed to consider an alternative of grading out the differential in order to reduce noise impacts as aircraft leaving Runway 25L increase power to go up grade to the centerline taxiway.

Item 3 of El Segundo's Concerns: Use modeling assumptions consistent with the most recent assumptions for forecasted LAX operations.

LAWA's response is that the activity information developed in the programmatic EIS/EIR will be used. El Segundo notes, however, that some of the assumptions used in the April 2004 report by HNTB are not consistent with those found in the Master Plan. The total number of daily operations, 2330, used for the noise analysis is not consistent with the numbers used in the Master Plan under alternative D. The fleet mix proportions used in the INM noise model are also different from those found in the Master Plan. Aircraft seating configurations used in sizing the terminal departure lounges also do not appear to be consistent with those used in the Master Plan. The continued circulation of aircraft landing on Runway 25 to remote parking positions is not consistent with the Master Plan provision that these gates will be eliminated. It is therefore unclear what activity information will be used or should be used. El Segundo requests clarification on this issue. It is the City's position that the most recent and best information about projected operations should be utilized.

Item 4 of El Segundo's Concerns: Specify taxiway layout and use patterns to be utilized at the southern complex during various implementation phases of Alternative D

LAWA has requested that El Segundo refine the information it desires on this subject. Our concern is that alternative D of the Master Plan is scheduled to evolve over a 10-year period from 2005 to 2015. During this period different elements of the plan, will be introduced (western gate concourse, remodeled TBIT, remodeled northern terminal, de-commissioned remote gate positions, and reconstructed northern runway 24L) At the various stages of this process there will be different patterns of circulation of aircraft between runways and gate positions. These patterns will result in different noise and air quality impacts. Therefore the environmental impact of the south runway project will change as the general configuration of the airport evolves over the period of development of alternative D. El Segundo requests an assessment in the EIR of the changing impacts of the project as airport facilities and configuration change during the life of Alternative D. Of particular importance is the role of Taxiway A after the Centerline Taxiway is operational. El Segundo believes that use of Taxiway A for exiting Runway 25L should be minimal. Consideration should be given to minimizing use of that taxiway as a mitigation measure in the EIR.

Item 5 of El Segundo's Concerns: Provide a comparative analysis of a reasonable range of alternatives to the centerline taxiway.

LAWA provided El Segundo with the April 2004 Final Report of HNTB which does contain relevant information. We would note only that the report refers to the recommended alternative as B2 while it is actually B3. We assume this will be corrected. Otherwise, El Segundo is satisfied with the scope of the EIR on this subject. In this regard, we withdraw the request for a cost benefit analysis.

Item 6 of El Segundo's Concerns: Provide effective and enforceable project-level mitigation measures to address noise and air pollution impacts.

LAWA's response is that the EIR will include feasible mitigation measures. El Segundo accepts that response. Without the environmental analysis of the EIR, as it will hopefully be supplemented by the requests discussed above, the City is unable to suggest specific mitigation measures at this time (other than minimizing use of Taxiway A as discussed in Item 4). We would observe that this is ultimately the most important subject. El Segundo is looking for effective mitigation to reduce noise, air quality and other impacts of the project.

Pursuant to the commitment in your letter to provide responses after receiving El Segundo's comments, the City will await receipt of further information concerning the scope of the EIR for the South Runway Project. In the meantime, we assume that no steps will be taken in the EIR process which will prejudice the inclusion of the analysis we have requested in this letter.

Thank you for working with El Segundo on this important project.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

E. Clement Shute, Jr.

cc: Kelly McDowell, Mayor of El Segundo
James K. Hahn, Mayor of Los Angeles
Cindy Miscikowski, Los Angeles Councilmember
Timothy B. McOsker, Chief of Staff to Mayor of Los Angeles
Lisa Gritzner, Chief of Staff to Cindy Miscikowski
Jeff Stewart, Assistant City Manager, City of El Segundo
David Herbst, MWW Group

This page left intentionally blank

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Jan Boel
Acting Director

Notice of Preparation

August 5, 2004

To: Reviewing Agencies

Re: South Airfield Improvement Project
SCH# 2004081039

Attached for your review and comment is the Notice of Preparation (NOP) for the South Airfield Improvement Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Karen Hoo
City of Los Angeles
Los Angeles World Airports, Long Range Planning
7301 World Way West, Room 308
Los Angeles, CA 90045

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Erin Larson
for Scott Morgan
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2004081039
Project Title South Airfield Improvement Project
Lead Agency Los Angeles, City of

Type **NOP** Notice of Preparation

Description The City of Los Angeles proposes to construct a new 75-foot wide Airplane Design Group V center taxiway between Runways 7L-25R and 7R-25L at LAX in order to minimize the potential for runway incursions. This project is identified as the first Phase 1 improvement project under Alternative D of the LAX Master Plan EIS/EIR. The project site is located on LAX property near the Airport's southern boundary. The site is currently paved and in active airfield use for commercial service aircraft operations.

Lead Agency Contact

Name Karen Hoo
Agency City of Los Angeles
Phone 310-646-3853 **Fax**
email
Address Los Angeles World Airports, Long Range Planning
7301 World Way West, Room 308
City Los Angeles **State** CA **Zip** 90045

Project Location

County Los Angeles
City Los Angeles, City of
Region
Cross Streets Sepulveda Boulevard Tunnel
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports LAX
Railways
Waterways
Schools
Land Use The site is currently paved and in active airfield use for commercial service aircraft operations.

Project Issues Traffic/Circulation; Air Quality; Noise; Water Quality

---

Reviewing Agencies Resources Agency; Regional Water Quality Control Board, Region 4; Department of Parks and Recreation; Native American Heritage Commission; Department of Water Resources; Department of Fish and Game, Region 5; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 7; Air Resources Board, Airport Projects

---

Date Received 08/05/2004 **Start of Review** 08/05/2004 **End of Review** 09/03/2004

Note: Blanks in data fields result from insufficient information provided by lead agency.

2004081059

Resources Agency

- ■ **Resources Agency**
  Nadell Gayou
- ☐ **Dept. of Boating & Waterways**
  David Johnson
- ☐ **California Coastal Commission**
  Elizabeth A. Fuchs
- ☐ **Colorado River Board**
  Gerald R. Zimmerman
- ☐ **Dept. of Conservation**
  Roseanne Taylor
- ☐ **California Energy Commission**
  Environmental Office
- ☐ **Dept. of Forestry & Fire Protection**
  Allen Robertson
- ☐ **Office of Historic Preservation**
  Wayne Donaldson
- ■ **Dept of Parks & Recreation**
  B. Noah Tilghman
  Environmental Stewardship Section
- ☐ **Reclamation Board**
  DeeDee Jones
- ☐ **Santa Monica Mountains Conservancy**
  Paul Edelman
- ☐ **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- ■ **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

Fish and Game

- ☐ **Dept. of Fish & Game**
  Scott Flint
  Environmental Services Division
- ☐ **Dept. of Fish & Game 1**
  Donald Koch
  Region 1
- ☐ **Dept. of Fish & Game 2**
  Banky Curtis
  Region 2
- ☐ **Dept. of Fish & Game 3**
  Robert Floerke
  Region 3
- ☐ **Dept. of Fish & Game 4**
  William Laudermilk
  Region 4
- ■ **Dept. of Fish & Game 5**
  Don Chadwick
  Region 5, Habitat Conservation Program
- ☐ **Dept. of Fish & Game 6**
  Gabrina Gatchel
  Region 6, Habitat Conservation Program
- ☐ **Dept. of Fish & Game 6 I/M**
  Tammy Allen
  Region 6, Inyo/Mono, Habitat Conservation Program
- ☐ **Dept. of Fish & Game M**
  George Isaac
  Marine Region

Other Departments

- ☐ **Food & Agriculture**
  Steve Shaffer
  Dept. of Food and Agriculture
- ☐ **Dept. of General Services**
  Robert Sleppy
  Environmental Services Section
- ☐ **Dept. of Health Services**
  Wayne Hubbard
  Dept. of Health/Drinking Water

Independent Commissions,Boards

- ☐ **Delta Protection Commission**
  Debby Eddy
- ☐ **Office of Emergency Services**
  Dennis Castrillo
- ☐ **Governor's Office of Planning & Research**
  State Clearinghouse

____

- ■ **Native American Heritage Comm.**
  Debbie Treadway
- ☐ **Public Utilities Commission**
  Ken Lewis
- ☐ **State Lands Commission**
  Jean Sarino
- ☐ **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Business, Trans & Housing

- ■ **Caltrans - Division of Aeronautics**
  Sandy Hesnard
- ☐ **Caltrans - Planning**
  Terri Pencovic
- ■ **California Highway Patrol**
  John Olejnik
  Office of Special Projects
- ☐ **Housing & Community Development**
  Lisa Nichols
  Housing Policy Division

Dept. of Transportation

- ☐ **Dept. of Transportation 1**
  Mike Eagan
  District 1
- ☐ **Dept. of Transportation 2**
  Don Anderson
  District 2
- ☐ **Dept. of Transportation 3**
  Jeff Pulverman
  District 3
- ☐ **Dept. of Transportation 4**
  Tim Sable
  District 4
- ☐ **Dept. of Transportation 5**
  David Murray
  District 5
- ☐ **Dept. of Transportation 6**
  Marc Birnbaum
  District 6
- ■ **Dept. of Transportation 7**
  Cheryl J. Powell
  District 7
- ☐ **Dept. of Transportation 8**
  John Pagano
  District 8
- ☐ **Dept. of Transportation 9**
  Gayle Rosander
  District 9
- ☐ **Dept. of Transportation 10**
  Tom Dumas
  District 10
- ☐ **Dept. of Transportation 11**
  Mario Orso
  District 11
- ☐ **Dept. of Transportation 12**
  Bob Joseph
  District 12

Cal EPA

Air Resources Board

- ■ Airport Projects
  Jim Lerner
- ☐ Transportation Projects
  Kurt Karperos
- ☐ Industrial Projects
  Mike Tollstrup

- ☐ **California Integrated Waste Management Board**
  Sue O'Leary
- ☐ **State Water Resources Control Board**
  Jim Hockenberry
  Division of Financial Assistance
- ☐ **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- ☐ **State Water Resouces Control Board**
  Steven Herrera
  Division of Water Rights
- ☐ **Dept. of Toxic Substances Control**
  CEQA Tracking Center

Regional Water Quality Control Board (RWQCB)

- ☐ **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- ☐ **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- ☐ **RWQCB 3**
  Central Coast Region (3)
- ■ **RWQCB 4**
  Jonathan Bishop
  Los Angeles Region (4)
- ☐ **RWQCB 5S**
  Central Valley Region (5)
  - ☐ **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - ☐ **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- ☐ **RWQCB 6**
  Lahontan Region (6)
  - ☐ **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- ☐ **RWQCB 7**
  Colorado River Basin Region (7)
- ☐ **RWQCB 8**
  Santa Ana Region (8)
- ☐ **RWQCB 9**
  San Diego Region (9)
- ☐ **Other** ________________

Last Updated on 7/29/04

This page left intentionally blank

Los Angeles World Airports

August 6, 2004

The Honorable Kelly McDowell
Mayor
City of El Segundo
c/o Mr. David Herbst
660 South Figueroa Street
Suite 1400
Los Angeles, CA 90017

Re: July 30, 2004 Letter Requesting Information for Inclusion in the EIR Being Prepared for the LAX South Runway Project

Dear Mayor McDowell:

This letter is in response to the July 30, 2004 letter from Clem Shute on behalf of the City of El Segundo. The letter included six items we had previously discussed.

The letter indicates that El Segundo accepts our previous responses to Items 1, 5 and 6. As for those matters, LAWA will be vigilant in fulfilling the commitments expressed in our prior letter.

In response to the remaining three items, we note below summaries of your concern and our responses.

Item 2 requests a single event noise analysis including impacts on El Segundo from takeoffs, landings and taxing events. The programmatic-level Master Plan EIR analyzed these operational impacts. The South Airfield Focused EIR is a project-level analysis focused on construction impacts. However, we see from your comments that you would like further analysis of the information in the Master Plan EIR and in the independent study done by HNTB on the South Runway Project. LAWA will review these studies and provide detailed analysis and discussion of the assumptions and conclusions in these studies. Also, with respect to this comment, the letter notes that LAWA has "agreed to consider an alternative of grading out the differential in order to reduce noise impacts as aircraft leaving Runway 25 increase power to go up grade to the centerline taxiway. LAWA will consider the feasibility of such an analysis, but has not agreed to study the alternative.

Item 3 requests use of modeling assumptions consistent with the most recent assumptions for forecasted LAX operations. LAWA will also provide detailed analysis and discussion with respect to the operations assumptions in the Master Plan EIR and the HNTB study on the South Runway Project.

Item 4 requests study of impacts of specific taxiway layout and use patterns to be used on the South Runway complex during various implementation phases of Alternative D. As stated in Item 2 previously, the South Airfield Focused EIR is a project-level analysis focused on construction impacts because the operational impacts were analyzed in the Master Plan EIR. Studying the project with assumptions drastically different from those assumed in the EIR project description would be a different project and not a part of the Master Plan program or the Master Plan EIR.

On August 2, 2004, LAWA issued a Notice of Preparation (NOP) for the South Airfield Focused EIR. We are considering each of your comments as a response to the NOP. We appreciate the continuing dialogue with the City of El Segundo on this important matter.

Sincerely,

Jim Ritchie
Deputy Executive Director

cc: The Honorable Mayor James K. Hahn
The Honorable Councilmember Cindy Miscikowski
Kim Day, Interim Executive Director
E. Clement Shute, Jr.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 · www.aqmd.gov

August 11, 2004

Ms. Karen Hoo, City Planner
City of Los Angeles
Los Angeles World Airports,
Long Range Planning
7301 World Way West, Room 308
Los Angeles, CA 90045

Dear Ms. Hoo:

Notice of Preparation of a Draft Environmental Impact Report for
South Airfield Improvement Project

The South Coast Air Quality Management District (SCAQMD) appreciates the opportunity to comment on the above-mentioned document. The SCAQMD's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the Draft Environmental Impact Report (EIR). Please send the SCAQMD a copy of the Draft EIR upon its completion.

Air Quality Analysis

The SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The SCAQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the SCAQMD's Subscription Services Department by calling (909) 396-3720. Alternatively, lead agency may wish to consider using the California Air Resources Board (CARB) approved URBEMIS 2002 Model. This model is available on the CARB Website at: www.arb.ca.gov.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, that is, sources that generate or attract vehicular trips should be included in the analysis. An analysis of all toxic air contaminant impacts due to the decommissioning or use of equipment potentially generating such air pollutants should also be included.

Mitigation Measures

In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures be utilized during project construction and operation to minimize or eliminate significant adverse air quality impacts. To assist the Lead Agency with identifying possible mitigation measures for the project, please refer to Chapter 11 of the SCAQMD CEQA Air Quality Handbook for sample air quality mitigation measures. Additionally, SCAQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook contain numerous measures for controlling construction-related emissions that should be considered for use as CEQA mitigation if not otherwise required. Pursuant to state CEQA Guidelines §15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed.

Data Sources

SCAQMD rules and relevant air quality reports and data are available by calling the SCAQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the SCAQMD's World Wide Web Homepage (http://www.aqmd.gov).

The SCAQMD is willing to work with the Lead Agency to ensure that project-related emissions are accurately identified, categorized, and evaluated. Please call Charles Blankson, Ph.D., Air Quality Specialist, CEQA Section, at (909) 396-3304 if you have any questions regarding this letter.

Sincerely,

Steve Smith

Steve Smith, Ph.D.
Program Supervisor, CEQA Section
Planning, Rule Development and Area Sources

SS:CB:li

LAC040803-03LI
Control Number

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, REGIONAL PLANNING
IGR/CEQA BRANCH
120 S. SPRING STREET
LOS ANGELES, CA 90012
PHONE (213) 897-4429
FAX (213) 897-1337

Flex your power!
Be energy efficient!

August 12, 2004

IGR/CEQA cs/040815
NOP
City of Los Angeles
LAX South Airfield Improvement
Project
Vic. LA-1-(26.17-26.54)
SCH# 2004081039

Ms. Karen Hoo
City of Los Angeles
Los Angeles World Airports, Long Range Planning
7301 World Way West, Room 308
Los Angeles, CA 90045

Dear Ms. Hoo:

Thank you for including the California Department of Transportation in the environmental review process for the above-mentioned project. Based on the information received, we have the following comments:

Any work to be performed within the State Right-of-way such as the construction for the realignment of the south runways and new taxiway over the State Route 1 Sepulveda tunnel will need a California Department of Transportation Encroachment Permit. Projects which are expected to cost over $1 million will need a Caltrans Project Study report (PSR), a draft PSR may have been already completed. Engineering plans which address the integrity of the Sepulveda tunnel bridge structure will need to be reviewed by Caltrans HQ Structures. The NOP did not discuss the New Large Aircraft (NLA) Program which is a component of this project.

We recommend that construction related truck trips on State highways be limited to off-peak commute periods. Transport of over-size or over-weight vehicles on State highways will need a Transportation Permit from the California Department of Transportation.

The applicant should agree to avoid excessive or poorly timed truck platooning (caravans of trucks) to minimize transportation related operational conflicts, minimize air quality impacts, and maximize safety concerns in respect to construction haul routes.

The proposed project will need to conform with the National Pollution Discharge Elimination System (NPDES) requirements relating to construction activities and Post-Construction Storm Water Management. To the maximum extent practicable, Best Management Practices will need to be implemented to address storm water runoff from new development. The responsible water quality control agencies will need to review storm water runoff facilities and drainage plans.

If you have any questions regarding our response, refer to our IGR/CEQA Record # cs/040815 and please do not hesitate to contact me at (213) 897-3747.

Sincerely,

Cheryl J. Powell

CHERYL J. POWELL
IGR/CEQA Branch Chief

cc: Mr. Scott Morgan, State Clearinghouse

This page left intentionally blank

-----Original Message-----
From: Kelly McDowell [mailto:kmcdowl@pacbell.net]
Sent: Friday, August 13, 2004 3:11 PM
To: Tim McOsker (E-mail)
Cc: Lisa Gritzner (E-mail); Herbst, David; Stewart, Jeffrey; E. Clement Shute
Subject: South Runway EIR; LAWA Letter To Me Dated August 6, 2004

Hi, Tim,
After discussing Jim Ritchie's letter to me dated August 6, 2004 with our team, I wanted to get in touch with you. El Segundo's goal has always been an EIR which contains an objective analysis of the impacts which the southern runway project could have on our City. And that analysis should include feasible mitigation measures to eliminate or reduce any adverse impacts. Unfortunately, Jim's letter is not helpful in this regard, as follows:

Item 2
Jim's letter states that LAWA will review the Master Plan EIR and the HNTB studies and provide analysis of the assumptions and conclusions of those studies. That's not what we asked for. We pointed out that the noise analysis in both reports is insufficient to make meaningful conclusions about the noise impacts of the project and went on to suggest specific subjects which should be included in the EIR.

Further, his letter says that LAWA did not agree to study the alternative of grading out the differential as aircraft leave Runway 25 to go up-grade to the centerline taxiway. LAWA will only study the feasibility of such an analysis, he says. At the July 20 meeting where this was discussed, our side of the table heard LAWA say that this alternative would be included in the EIR. This strikes us as backtracking.

Item 3
We are not sure what LAWA's response means here. If it means that our request to use the most recent and best information about projected operations will be used in the EIR, that's fine. If it means that that LAWA will continue to use the Master Plan EIR and HNTB studies, that's not satisfactory. (As you'll recall, our request pointed out inconsistencies between these two reports.)

Item 4

8/16/04

Here the LAWA response states that we are asking for analysis of a project different from Alternative D. That is incorrect. We asked for a study of the impacts of Alternative D during the various phases of its implementation.

We had hoped this subject would be put to bed before we next meet, but obviously there are still open issues. This should be on the agenda for the post-Labor Day meeting.

-Kelly

DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS – M.S.#40
1120 N STREET
P. O. BOX 942873
SACRAMENTO, CA 94273-0001
PHONE (916) 654-4959
FAX (916) 653-9531
TTY (916) 651-6827

Flex your power!
Be energy efficient!

August 24, 2004

Ms. Karen Hoo
City of Los Angeles
LAWA, Long-Range Planning
7301 World Way West, Room 308
Los Angeles, CA 90045

Dear Ms. Hoo:

Re: Los Angeles International Airport (LAX) South Airfield Improvement Project
SCH# 2004081039

Thank you for including the California Department of Transportation (Department), Division of Aeronautics in the environmental review process for the above-referenced project. We have reviewed the Notice of Preparation for an Environmental Impact Report, dated August 2004, and we offer the following comments with respect to the environmental management of the proposed activities.

1. The City of Los Angeles is proposing to construct a new 75-foot wide airplane design group V center taxiway between Runway 7L-25R and Runway 7R-25L. This project is identified as the Phase One improvement project under Alternative D of the LAX Master Plan. The project site is located on LAX property near the airport's southern boundary. The site is currently paved and in active use. To meet the required centerline spacing of the new taxiway, the proposed project would result in the realignment of the Runway 7R-25R by 55.42 feet to the south. The new center parallel taxiway would provide a new runway-to-taxiway centerline spacing of 400 feet from both Runway 7L-25R and the realigned Runway 7R-25L. The realignment of Runway 7R-25L would include the relocation of all navigational and visual aids, and other associated site improvements, such as drainage, utilities, lighting, signage, and grading. The proposed project would be constructed in two phases with no overlap. The first phase is the relocation of Runway 7R-25L and the second phase is the construction of the new center taxiway. During the estimated 14-month construction period of Phase One, Runway 7R-25L would be closed for approximately 8 months, and all aircraft would be rerouted and distributed among the south airfield Runway 7L-25R, and the north airfield Runways 6L-24R and 6R-24L. During the estimated 12-month construction period of Phase Two, no runway closures for an extended period of time would be required. In addition, sections of Sepulveda Boulevard (State Route 1) Tunnel superstructure would be strengthened to support aircraft loads (Airbus 380) associated with the proposed project. All four runways will be operational at LAX after the completed construction of the first phase. The construction of the new center taxiway and relocated Runway 7R-25L is anticipated to be completed in the second quarter of 2007. LAX is a major international gateway for passengers and cargo in the National Plan of Integrated Airport System, and it is a Part 139 certificated airport.

2. The guidance in the Federal Aviation Administration's (FAA) Advisory Circular 150/5370-2E, *Operational Safety on Airports During Construction*, should be incorporated into the environmental document. The environmental analysis should mention any permanent or temporary (construction-related) impacts on airport imaginary surfaces, as defined by the Federal Aviation Regulation Part 77. The runway realignment will require coordination with the FAA for airspace determinations through the Form 7480-1 (Notice of Landing Area Proposal) process. For your reference, a copy of the Form 7480-1 is published on-line at http://forms.faa.gov/forms/faa7480-1.pdf. We also recommend that the airport sponsor take steps to bring the Runway Safety Areas around the south airfield complex up to airport design standards as a part of this project.

3. The Noise section of the environmental analysis discusses that the rerouting of aircraft may result in temporary changes to the aircraft noise contours. For example, the aircraft noise contours toward the City of El Segundo may temporarily shrink due to the runway closure, and the contours may temporarily extend further elsewhere due to the rerouting. The Department will be interested in reviewing the temporarily shifted aircraft noise contours as a part of your analysis and disclosure of construction-related impacts.

4. The proposed project will require amendments to the State airport permit for LAX. Please coordinate with our Aviation Safety Officer Mr. Kurt Haukohl at 916-654-5284 to initiate this process.

5. The project should be referred to the Los Angeles County Airport Land Use Commission for their review and consistency finding. Ideally, this consultation should be included in the environmental record. If inconsistencies are identified, then the airport land use commission should amend its airport land use compatibility plan to reflect the proposed changes to the facilities and operations of the airport.

6. Aviation plays a significant role in California's transportation system. This role includes the movement of people and goods within and beyond our state's network of over 250 airports. Aviation contributes nearly 9% of both total state employment (1.7 million jobs) and total state output ($110.7 billion) annually. These benefits were identified in a recent study, "Aviation in California: Benefits to Our Economy and Way of Life," prepared for the Division of Aeronautics which is available at http://www.dot.ca.gov/hq/planning/aeronaut/. Among other things, aviation improves mobility, generates tax revenue, saves lives through emergency response, medical and fire fighting services, annually transports air cargo valued at over $170 billion and generates over $14 billion in tourist dollars, which in turn improves our economy and quality-of-life.

These comments reflect the areas of concern to the Department's Division of Aeronautics with respect to the environmental management of the project and airport land use compatibility planning. We also advise you to contact our District 7 office concerning surface transportation issues.

We appreciate the opportunity to review and comment on this environmental document. If you have any questions, please call me at (916) 654-5253.

Sincerely,

D. Cohen

DAVID COHEN
Associate Environmental Planner

c: State Clearinghouse
Los Angeles International Airport
Los Angeles County ALUC

This page left intentionally blank

SOUTHERN CALIFORNIA

ASSOCIATION of GOVERNMENTS
Main Office

818 West Seventh Street
12th Floor
Los Angeles, California
90017-3435

t (213) 236-1800
f (213) 236-1825

www.scag.ca.gov

September 21, 2004

Ms. Karen Hoo
City Planner
City of Los Angeles
Los Angeles World Airports, Long Range Planning
7301 World Way West, Room 308
Los Angeles, CA 90045

RE: **Comments on the Notice of Preparation for a Draft Environmental Impact Report for the South Airfield Improvement Project – SCAG No. I 20040515**

Dear Ms. Hoo:

Thank you for submitting the **Notice of Preparation for a Draft Environmental Impact Report for the South Airfield Improvement Project** to SCAG for review and comment. As areawide clearinghouse for regionally significant projects, SCAG reviews the consistency of local plans, projects, and programs with regional plans. This activity is based on SCAG's responsibilities as a regional planning organization pursuant to state and federal laws and regulations. Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of regional goals and policies.

It is recognized that the proposed Project considers the construction of a new 75-foot wide airplane design group V center taxiway between Runways 7L-25R and 7R-25L at Los Angeles International Airport (LAX) to minimize the potential for runway incursions. The Project is identified as the first Phase One improvement project under Alternative D of the LAX Master Plan EIS/EIR. The proposed Project site is located on LAX property near the Airport's southern boundary.

We have reviewed the aforementioned **Notice of Preparation** and have determined that **the proposed Project is regionally significant per SCAG mandates that directly relate to policies and strategies contained in the Regional Comprehensive Plan and Guide (RCPG) and Regional Transportation Plan (RTP).** CEQA requires that EIRs discuss any inconsistencies between the proposed project and applicable general plans and **regional plans (Section 15125 [d]).** If there are inconsistencies, an explanation and rationalization for such inconsistencies should be provided.

We understand that the proposed Project implements the LAX Master Plan. The implementation of the proposed Project is consistent the RTP. However, the proposed improvements to the airport should not provide additional airport "capacity" beyond 78 MAP to ensure consistency with the RTP.

Based on the information provided **Notice of Preparation,** we have no further comments. A description of the proposed Project was published in the August 1-15, 2004 Intergovernmental Review Clearinghouse Report for public review and comment. If you have any questions, please contact me at (213) 236-1867. Thank you.

Sincerely,

JEFFREY M. SMITH, AICP
Senior Regional Planner
Intergovernmental Review

This page left intentionally blank