Draft Environmental Impact Report (Draft EIR)

[State Clearinghouse No. 2008121080]

for

Los Angeles International Airport (LAX) Bradley West Project

(formerly Los Angeles International Airport [LAX] Tom Bradley International Terminal [TBIT] Reconfiguration Project)

Volume 1

Main Document

City of Los Angeles
Los Angeles City File No. AD 043-08

May 2009

BRADLEY WEST PROJECT

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Los Angeles World Airports (LAWA) has prepared this project-level draft environmental impact report (Draft EIR) for the Bradley West Project pursuant to the California Environmental Quality Act (CEQA). The Bradley West Project 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 Bradley West Project Draft EIR is "tiered" from, and incorporates by reference, 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 public agencies, decision makers, and interested parties to evaluate the Bradley West Project 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 later EIRs (such as this Draft EIR) on issues that may have not 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 individual projects encompassed within the Master Plan, such as the improvements currently proposed for the Bradley West Project. 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, and it focuses on those effects not previously considered in the Master Plan EIR. For this reason, much of the information related to the Bradley West Project improvements contained in the LAX Master Plan EIR is not repeated in this Draft EIR. However, a brief summary of each of the areas covered in the LAX Master Plan Final EIR has been provided in this project level Draft EIR, along with 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 written comments on this Draft EIR during the 45-day public comment period, which expires on June 22, 2009. LAWA will then prepare written responses to all comments received on issues pertinent to the Draft EIR during the comment period. Those responses, along with a copy of the comments received, will be published in a Final EIR. LAWA, the Los Angeles Board of Airport Commissioners, and other decision-makers will use the Final EIR to inform their decisions on the Bradley West Project, as CEQA requires.

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1. INTRODUCTION AND EXECUTIVE SUMMARY

This document is a project-level Draft Environmental Impact Report (Draft EIR) for Bradley West Project improvements proposed for the Tom Bradley International Terminal (TBIT) at Los Angeles International Airport (LAX) (also referred to as the "TBIT Reconfiguration Project"). 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, as well as LA/Ontario International Airport, Van Nuys Airport, and LA/Palmdale Regional Airport. 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 Bradley West Project is located entirely within the boundaries of LAX. **Figure 1-1** shows the regional location of LAX and **Figure 1-2** shows the local setting of the airport. The Bradley West Project involves certain terminal, concourse, and airfield improvements that are components of the LAX Master Plan, which was approved by the Los Angeles City Council in December 2004.[2] **Figure 1-3** shows the location of the Bradley West Project relative to the approved Master Plan. The LAX Master Plan provides a conceptual strategic framework for a variety of improvements to occur throughout the airport in light of specific existing and anticipated needs at LAX. Concurrent with the approval of the LAX Master Plan was the certification of the LAX Master Plan Final EIR, which addresses the environmental impacts associated with the LAX Master Plan improvements. The main elements of the Bradley West Project are identified within the LAX Master Plan Final EIR as the "reconfiguration" of TBIT.[3] As a programmatic level EIR, the LAX Master Plan Final EIR was prepared and certified by LAWA for the entire LAX Master Plan. In accordance with CEQA, subsequent activities occurring within the Master Plan are examined in light of the program EIR to determine whether an additional environmental document must be prepared. As further described later in this section, LAWA determined that detailed design, engineering, and construction plan information recently developed for the Bradley West Project provides the ability to address certain impacts, particularly construction-related impacts and certain operations-related impacts, that are not otherwise addressed, or not fully addressed, in the LAX Master Plan EIR. As such, this Draft EIR provides additional project-specific information on the environmental effects of the Bradley West Project, focusing on potentially significant environmental effects of the Bradley West Project that may not have been fully addressed in the LAX Master Plan Final EIR, and summarizing where and how other environmental impacts associated with the Bradley West Project are addressed in the LAX Master Plan Final EIR. Pursuant to the state CEQA Guidelines,[4] the information presented in this EIR considers and incorporates by reference the information presented in the LAX Master Plan Final EIR, and provides the new or revised information necessary to describe the specific environmental effects associated with the Bradley West Project that were not otherwise addressed in the LAX Master Plan Final EIR.

In addition to addressing the environmental impacts associated with the Bradley West Project, this Draft EIR describes the relationship of the Bradley West Project to other LAX Master Plan improvement projects nearby that have been, or are currently being, advanced into implementation, such as the South Airfield Improvement Project (SAIP), the Crossfield Taxiway Project (CFTP), and the proposed development of the Midfield Satellite Concourse. It also describes the LAX Specific Plan Amendment Study (SPAS), for which a separate EIR is currently being prepared by LAWA, and explains how that study applies to certain improvements within the LAX Master Plan, but not the Bradley West Project.

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1 California Environmental Quality Act, Public Resources Code Section 21000, et seq.

2 City of Los Angeles, Los Angeles World Airports, Los Angeles International Airport Final Master Plan, April 2004.

3 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, page 3-82.

4 California Environmental Quality Act Guidelines, California Code of Regulations, Title 14, Section 15000, et seq.

1.1 Summary of Proposed Project

This chapter provides a summary of the reconfiguration and improvement of TBIT, including development of new aircraft gates on the west side of TBIT and improvements to the central core of TBIT. The project construction and scheduling are described in greater detail in Chapter 2 of this EIR.

The proposed Bradley West Project includes: construction of new north and south concourses at TBIT just west of the existing concourses, which would be demolished; construction of nine aircraft gates, and associated loading bridges and apron areas, along the west side of the new concourses at TBIT; relocation and consolidation of existing aircraft gates along the east side of TBIT; renovation, improvement, and enlargement of the existing U.S. Customs and Border Protection (CBP) areas within the central core of TBIT; renovation, improvement, and enlargement of existing concessions areas, office areas, and operations areas within the central core of TBIT; construction of secure/sterile passenger connector corridors (i.e., areas allowing only passengers that have gone through security clearance and are subject to FAA or airline security requirements) between Terminals 3 and 4 and TBIT; and westward relocation of existing Taxiways S and Q,[5] which are currently located in the area proposed for the new concourses and/or gates.

Construction of the relocated taxiways would require the relocation and/or removal of several existing airfield facilities, including the existing busing operations holdroom at TBIT, various utilities, the existing loading dock at TBIT, seven remain-overnight (RON) aircraft parking spots, ground service equipment (GSE) storage and maintenance facilities, two ground vehicle fueling stations, an airfield operations area (AOA) access control post, all or a part of the aircraft maintenance hangar formerly owned and operated by TWA, the American Airlines Low-Bay Hangar, one or more of the three water deluge tanks located south of the American Airlines Low-Bay Hangar, a flight kitchen, the Los Angeles Fire Department Station 80/Aircraft Rescue and Firefighting (ARFF) Facility,[6] a vehicle parking lot, the American Eagle Commuter Terminal building, and a fuel vault.

Additional information regarding the characteristics of the Bradley West Project, along with figures depicting the project and the proposed construction phasing, are provided in Chapter 2, *Project Description*, of this Draft EIR.

1.2 Relationship to LAX Master Plan

1.2.1 LAX Master Plan and EIR

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 to accommodate projected growth in passengers and cargo at LAX 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 formulation of the LAX Master Plan was completed in three main phases and included an exhaustive iterative process during which LAWA reviewed a wide range of alternatives before selecting a preferred development program known as Alternative D. A brief summary of each of the three main phases is provided below.

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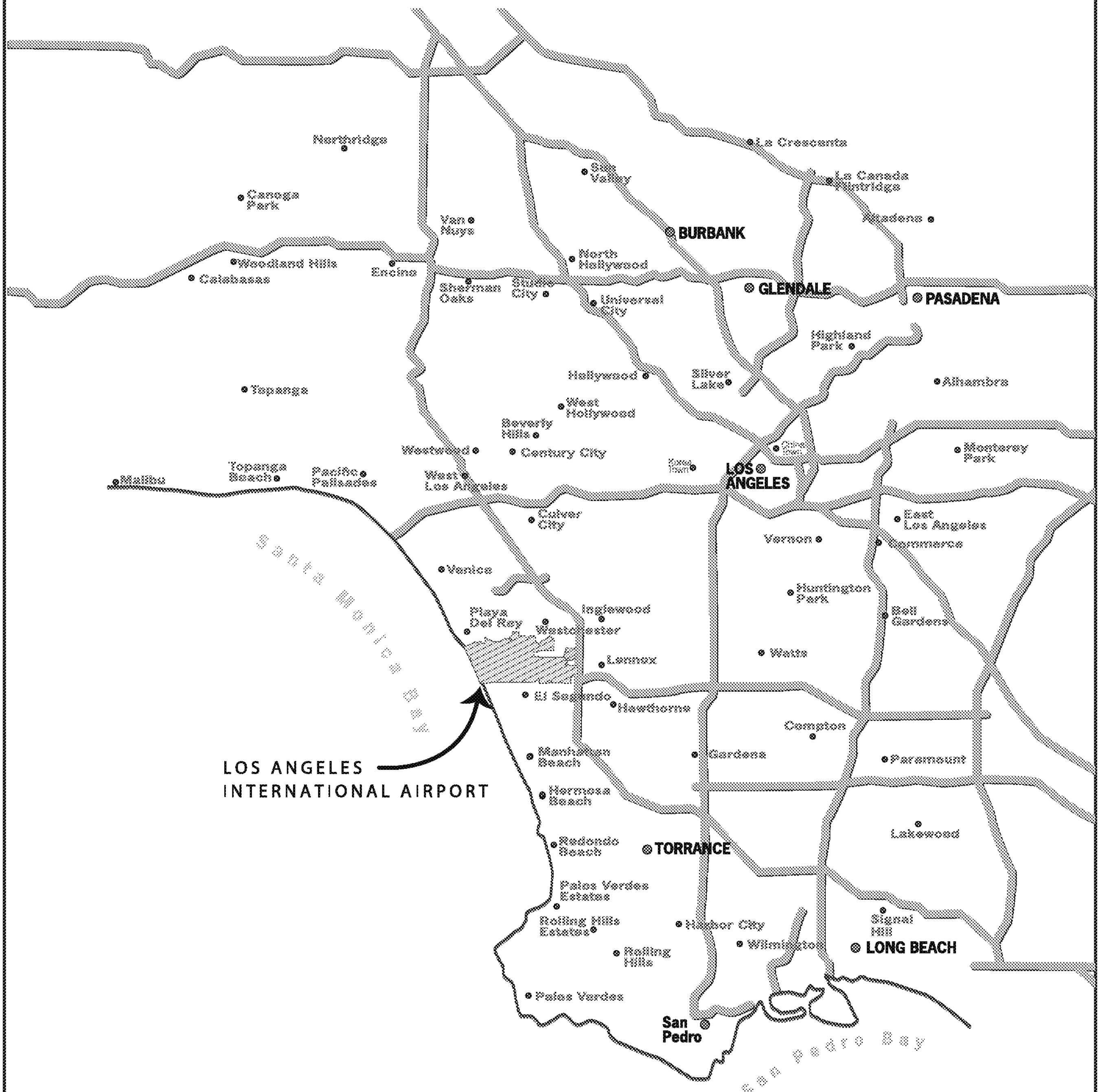
5 Based on the proximity of the alignments proposed for the two relocated taxiways, relative to the locations of other existing taxiways nearby, it is possible that relocated Taxiways "S" and "Q" would be redesignated as new Taxiways "T" and "S," respectively. That assumption is carried for the purpose of referencing the subject taxiways within this EIR, understanding that the FAA would later determine and assign the actual letter designations for the relocated taxiways.

6 A new fire station/ARFF would be constructed prior to, and independent of, demolition of the existing ARFF.



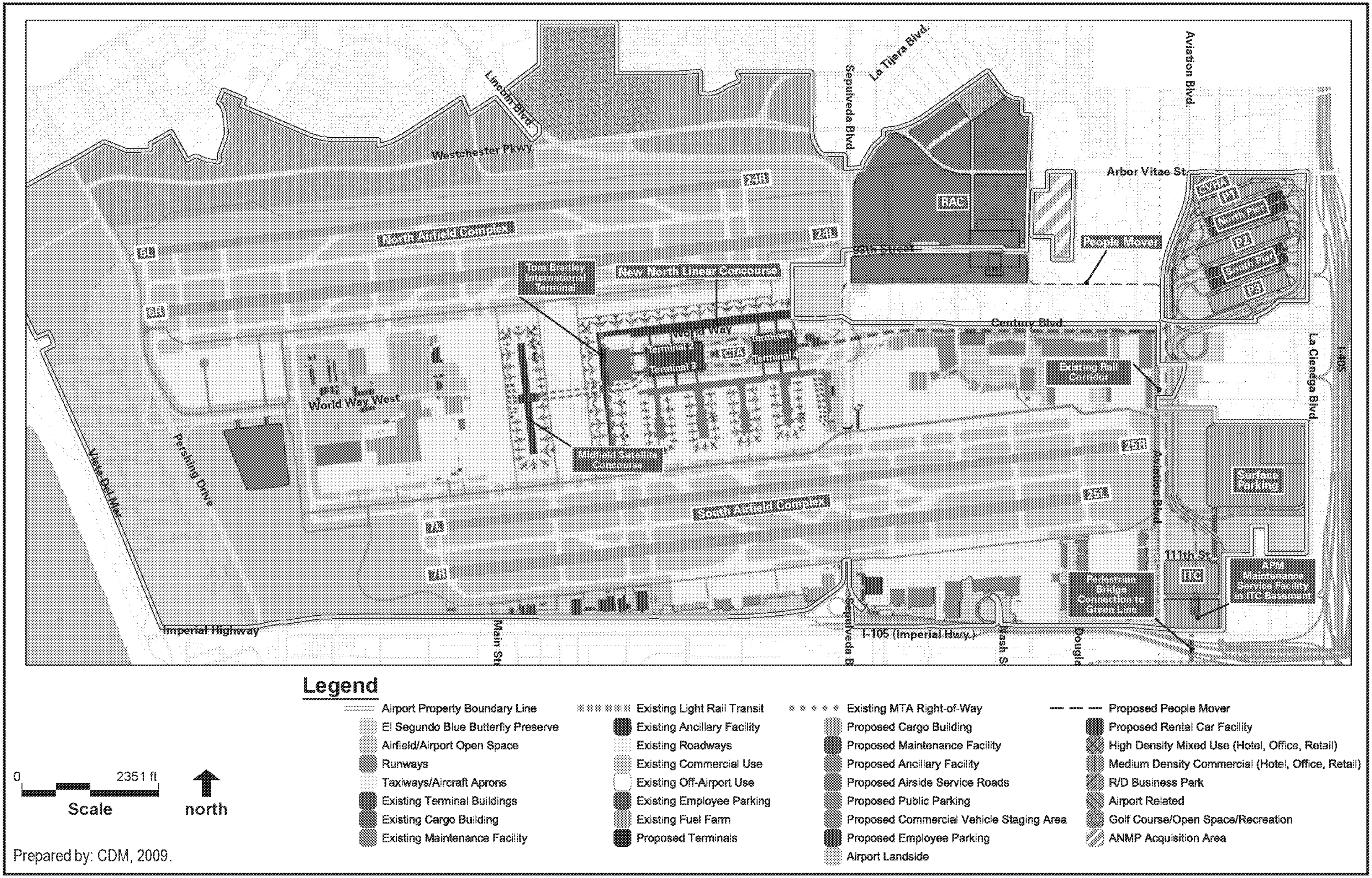
north
Not to Scale

Prepared by: CDM, 2009.

LAX Bradley West Project Draft EIR	Regional Location Map	Figure 1-1

Prepared by: CDM, 2009.

LAX Bradley West Project Draft EIR	Existing Airport	Figure 1-2



LAX Bradley West Project Draft EIR	LAX Master Plan	Figure 1-3

- 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 would be 98 million annual passengers and 4.2 million annual tons of cargo. During this phase, the Master Plan preparation process 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 more than five years and included dozens of options to identify 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 initially moved forward to the third and final phase of the LAX Master Plan process and a fourth build alternative was later added to the process, following the events of September 11, 2001.
- Environmental Review and Approval (Phase III): Phase III of the LAX Master Plan Study included a thorough evaluation of the potential environmental effects associated with the four build alternatives, in accordance with 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 addressing three build alternatives and the No Action/No Project Alternative was released for public and agency review in January 2001, and the Supplement to the Draft EIS/EIR, addressing the fourth build alternative, was released for public and agency review in July 2003. All four of the build alternatives included a reconfiguration of TBIT and, depending on the design of the reconfiguration, relocation of existing taxiways west of TBIT. The main elements of the Bradley West Project, including the addition of new aircraft contact gates (i.e., aircraft parking and servicing positions located next to terminal buildings with passenger boarding bridges connecting aircraft to the terminal) and the relocation of the two adjacent taxiways (i.e., Taxiways Q and S), are evident on the airfield plan associated with Alternative D, which was ultimately selected as the approved LAX Master Plan. As indicated above, these types of improvements are specifically identified in the LAX Master Plan Final EIR as the "reconfiguration" of TBIT.

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 Mitigation Monitoring and Reporting Program (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.

In January 2005, a number of lawsuits challenging the approval of the LAX Master Plan Program were filed. In early 2006, the City of Los Angeles and plaintiffs gave final approval to a settlement of the subject lawsuits. As part of the Stipulated Settlement, LAWA is proceeding with the SPAS process to identify potential alternative designs, technologies, and configurations for the LAX Master Plan Program that would provide solutions to the problems that the Yellow Light Projects[7] were designed to address, consistent with a practical capacity of LAX at 78.9 million annual passengers, the same practical capacity as included in the approved LAX Master Plan. While the SPAS is being processed, LAWA may continue to process and develop projects that are not Yellow Light Projects, such as the Bradley West Project, consistent with the LAX Specific Plan Compliance Review procedures.

1.2.2 LAX Master Plan Implementation

As indicated above, the LAX Master Plan provides a comprehensive long-term plan for a variety of major improvements throughout the airport, including airside facilities (i.e., the airfield area) and landside facilities (i.e., roads, parking areas, terminals, etc.). The LAX Master Plan EIR addresses the environmental impacts associated with those improvements, both in terms of impacts specific to particular improvements, such as noise impacts to hotels along the route of the proposed Automated People Mover, as well as impacts resulting from a combination of improvements, such as traffic impacts resulting from a combination of roadway system changes and project-related changes in passenger activity levels, as appropriate. As such, the public, agencies, surrounding jurisdictions, and decision-makers have been provided with a comprehensive look at the long-term plan for improvements at LAX and the environmental impacts associated with those improvements. As is the case for most, if not all, large-scale long-term improvement plans, implementation of the LAX Master Plan will occur in increments over many years, with the nature and timing of each improvement or set of improvements to be determined based on a number of considerations including, but not limited to, funding considerations, relationship to existing facilities, and relationship to future facilities identified in the plan.

The first improvement to be implemented under the LAX Master Plan was the SAIP, which started construction in March 2006 and was completed in June 2008. The SAIP provided for much needed improvements to the runway and taxiway system in the south airfield to address high-priority safety and efficiency issues in that portion of the LAX airfield, consistent with approved LAX Master Plan. The CFTP is the second airport improvement project to be processed under the LAX Master Plan. The CFTP includes construction of a crossfield taxiway between the north runway complex (i.e., Runways 6L/24R and 6R/24L) and the south runway complex (i.e., Runways 7L/25R and 7R/25L) and an associated connection to, and extension of, the existing Taxiway D. The CFTP taxiway improvements will ameliorate airfield congestion that occurs periodically at and near the existing midfield taxiways relative to movement of aircraft on the ground, and will also enhance the efficient movement of new large aircraft, such as the Airbus A380, between the north and south runway complexes. The CFTP was approved by the Board of Airport Commissioners (BOAC) on February 9, 2009 and received LAX Plan Compliance approval from the City Council on March 4, 2009. Construction of this project is anticipated to start in the second quarter of 2009. Similar to the SAIP and CFTP, implementation of the proposed Bradley West Project improvements addresses an existing need at LAX and is also an integral part of the approved LAX Master Plan to serve future needs, as addressed in the LAX Master Plan EIR.

The SAIP, the CFTP, and the Bradley West Project are only three of numerous major improvements contemplated in the approved LAX Master Plan. As noted above, the nature, scope, and timing of implementing the various improvements at LAX take into account a number of considerations including the relationship of a proposed improvement to existing and future facilities at LAX. In the case of the Bradley West Project, the subject improvements would occur in an active portion of the airport that is primarily occupied by a variety of airside and landside structures. The midfield portion of the airport, within which the Bradley West Project is situated, is identified in the LAX Master Plan as the location of several major improvements including development of the future Midfield Satellite Concourse (referred to as the "West Satellite Concourse" in the LAX Master Plan EIR) and adjacent dual crossfield taxiways, and the development of aircraft contact gates on the west side of TBIT and additional passenger holdroom

7 As further discussed in Section 3.3.2, "Yellow Light Projects" are a subset of the LAX Master Plan projects that are subject to special approval procedures. The Yellow Light Projects include: the Ground Transportation Center (GTC); Automated People Mover (APM) 2 from the GTC to the Central Terminal Area (CTA); demolition of CTA Terminals 1, 2, and 3; North Runway re-configuration, including center taxiways; and, on-site road improvements associated with the GTC and APM 2.

area within TBIT. LAWA is proceeding with the detailed planning, engineering, and design of the Bradley West Project for immediate implementation in coordination with the other Master Plan improvements it plans to propose in the midfield area (i.e., the area between the remote gates and the CTA) in the next few years. The specifics of the Bradley West Project are presented in Chapter 2, *Project Description*, of this EIR and the characteristics and relationship of the other Master Plan improvements are described in Chapter 3, *Overview of Project Setting*.

While the major improvements planned for the midfield area are currently being advanced into more detailed planning, engineering, design, and construction, consistent with the approved LAX Master Plan, certain elements of the LAX Master Plan are currently being reevaluated as part of the SPAS. The SPAS will identify and evaluate alternatives to certain elements of the LAX Master Plan that are referred to as "Yellow Light Projects." Based on input from the public and the LAX SPAS Advisory Committee, several alternative concepts for the Yellow Light Projects have been formulated and LAWA is currently preparing an EIR to address the potential impacts associated with each alternative. Additionally, the formulation, refinement, and evaluation of alternatives for improvements to the north airfield complex are being coordinated with the LAX North Airfield Safety Study currently being conducted by the NASA Ames Research Center. The Bradley West Project is not, however, a Yellow Light Project and the SPAS will not materially affect, or be affected by, the Bradley West Project, as further explained in Section 3.3.2, *LAX Specific Plan Amendment Study*, of this EIR.

1.2.3 Environmental Review in Light of LAX Master Plan EIR

Section 15168(a) of the CEQA Guidelines provides for the use of a program EIR to address a series of actions that can be characterized as one large project and are related either: (1) geographically; (2) as logical parts in the chain of contemplated actions; (3) in connection with rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or (4) as individual activities carried out under the same regulatory authority and having generally similar environmental effects which can be mitigated in similar ways. The LAX Master Plan, which provides for a variety of related actions within LAX that are under the authority of LAWA and are governed by a common set of criteria (i.e., the LAX Specific Plan and LAX Plan), is particularly well suited to the CEQA construct for use of a program EIR.

In the processing of subsequent activities in the program, Section 15168(c) of the CEQA Guidelines requires that the activities be reviewed in light of the program EIR to determine whether an additional environmental document must be prepared. In conducting such a review, Section 15162 of the CEQA Guidelines sets forth several criteria for determining whether a subsequent EIR needs to be prepared. One of the criteria pertains to the question of whether new information of substantial importance, which was not known at the time of the previous EIR, indicates that: (1) the project will have one or more significant effects not discussed in the previous EIR; (2) significant effects previously examined will be substantially more severe than shown in the previous EIR; (3) mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt them; or (4) mitigation measures or alternatives considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt them. As described in greater detail below, the recent development of detailed design, engineering, and construction plans for the Bradley West Project provides information that was not available at the time of the LAX Master Plan EIR. Such new information now allows for a more detailed evaluation of certain impacts, particularly those that are construction-related, and the relatively new practice of addressing impacts associated with greenhouse gases. These considerations provide the bases for LAWA's determination that an additional EIR is required for the Bradley West Project.

Where a program-level environmental document has been prepared, such as in the case of the LAX Master Plan EIR, CEQA encourages the public agency to "tier" subsequent project-level environmental analyses from that document.[8] 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.

Additionally, Section 15168(d)(3) of the CEQA Guidelines provides that a program EIR can be used to simplify the task of preparing environmental documents for later activities by having the EIR focus solely on new effects that had not been considered before.

This Draft EIR for the Bradley West Project is "tiered" from, and incorporates by reference, the LAX Master Plan Final EIR and focuses on those effects not previously considered in the Master Plan EIR. The LAX Master Plan Final EIR is available for public review at Los Angeles World Airports, Facilities and Environmental Planning Department, One World Way, Los Angeles, CA 90045 and via the internet at www.ourlax.org.

As identified in the December 10, 2008, Notice of Preparation (NOP) for this project-level EIR, LAWA initially determined, based on an preliminary review of the Bradley West Project, that five categories of environmental resources could potentially be affected by construction of the project and require additional review that was not otherwise provided in the LAX Master Plan Final EIR. These five categories of environmental resources included traffic, air quality (including human health risks and global climate change/greenhouse gas), surface water quality, biological resources, and noise. **Table 1-1** summarizes the results of LAWA's initial review of the Bradley West Project in light of the LAX Master Plan EIR. The subject table briefly summarizes: (1) where within the Master Plan EIR the environmental impacts of relevance to the Bradley West Project are considered; (2) whether the Bradley West Project as currently proposed poses the potential to result in new significant impacts that were not considered in the Master Plan EIR, result in a substantial increase in the severity of previously disclosed significant impacts, or be subject to new or substantially different mitigation measures or alternatives that the project proponents decline to adopt; and (3) where within the Bradley West Project Draft EIR the subject impact area is discussed. With regard to the last column, environmental disciplines that warrant substantive new analysis are included in Chapter 4, *Setting, Environmental Impacts, and Mitigation Measures*, of the Bradley West Project EIR. For those environmental disciplines where no new significant impacts were identified, a summary discussion of the findings of the LAX Master Plan EIR, and their relevance to the Bradley West Project, is provided in Chapter 5, *Other Environmental Resources*.

As a result of the preliminary review, this EIR for the Bradley West Project focuses primarily on impacts related to surface transportation, air quality, human health risks, global climate change, biological resources, and noise.

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8 California Public Resources Code Section 21093.

Table 1-1

Initial Review of the Bradley West Project in Light of the LAX Master Plan EIR

Environmental Issue	What analysis is provided in the LAX Master Plan EIR for each environmental issue and how does the LAX Bradley West Project relate to that issue and analysis?	Would the Bradley West Project result in a new significant impact, a substantial increase in the severity of a significant impact, or in a new or substantially different mitigation measure or alternative not adopted by the project proponents?	Bradley West Project EIR - Relevant Section
Noise	4.1, 4.2: Noise impacts from aircraft, roadway vehicles, the Automated People Mover (APM), and construction were addressed; significant or potentially significant impacts were identified for each type of noise source; and mitigation measures were recommended. Unavoidable significant impacts were identified relative to aircraft noise (i.e., outdoor living areas within the 65+ CNEL contour) and construction near sensitive receptors. The Bradley West Project site is not near any sensitive noise receptors and implementation of the Bradley West Project would not notably change existing airport operations relative to the aircraft flights that define the CNEL contours.	Potentially Yes. Additional details regarding Bradley West Project construction timing, activity levels, and employee parking/staging area locations provide basis for further evaluation of construction-related noise impacts to noise-sensitive uses to the north and south of the airport.	4.8
Land Use	4.2: Land use impacts addressed in LAX Master Plan EIR included noise compatibility, which is generally described above in Noise, and consistency with relevant land use plans. The Bradley West Project is consistent with the approved LAX Master Plan. The potential for land use impacts due to short-term construction-related traffic disruptions was identified as an unavoidable significant impact, even with mitigation.	No, with the exception of construction-related traffic impacts (see On- and Off-Airport Surface Transportation below).	5.1
On-Airport Surface Transportation	4.3.1: Impacts to on-airport roadway system were addressed. Temporary construction-related traffic disruptions were identified as an unavoidable significant impact, even with mitigation.	Potentially Yes. Additional details regarding Bradley West Project construction timing, activity levels, and employee parking/staging area locations provide basis for further evaluation of construction-related on-airport traffic impacts at west end of airport. Additional details regarding changes in passenger demand and peaking characteristics following construction of the contact gates that would accommodate New Large Aircraft (NLA) and improved federal inspection services (FIS) processing provide basis for further evaluation of impacts on operation of the TBIT curbsides and CTA intersections.	4.1, 4.3

Table 1-1

Initial Review of the Bradley West Project in Light of the LAX Master Plan EIR

Environmental Issue	What analysis is provided in the LAX Master Plan EIR for each environmental issue and how does the LAX Bradley West Project relate to that issue and analysis?	Would the Bradley West Project result in a new significant impact, a substantial increase in the severity of a significant impact, or in a new or substantially different mitigation measure or alternative not adopted by the project proponents?	Bradley West Project EIR - Relevant Section
Off-Airport Surface Transportation	4.3.2: Impacts to off-airport roadways system were addressed; several road/intersections significantly impacted by traffic from future increased activity levels at LAX; mitigation measures recommended but some unavoidable significant impacts remain. Temporary construction-related traffic disruptions identified as an unavoidable significant impact, even with mitigation.	Potentially Yes. Additional details regarding Bradley West Project construction timing, activity levels and employee parking/staging area locations provide basis for further evaluation of construction-related traffic impacts on nearby off-airport roadways and intersections. Additional details regarding changes in passenger demand and peaking characteristics following construction of the contact gates that would accommodate NLA and improved FIS processing provide basis for further evaluation of impacts to off-airport intersections and roadways due to changes in overall passenger throughput and arrival rates at the curbside.	4.2, 4.3
Population, Housing, Employment and Growth-Inducement	4.4.1, 4.4.2, 4.5: Direct and indirect impacts associated with population, housing, and employment were addressed. No significant impacts were identified and no mitigation measures were required. Consistent with the LAX Master Plan, no significant direct or indirect growth impacts would occur from implementation of the Bradley West Project.	No	5.2
Air Quality	4.6: Air quality impacts from aircraft operations, airport operations (e.g., stationary sources, energy consumption), roadway traffic vehicles, and construction were addressed; significant or potentially significant impacts were identified for each type of air pollutant source; and mitigation measures were recommended. Unavoidable significant impacts were identified for construction-related and operations-related emissions.	Potentially Yes. Additional details regarding Bradley West Project construction timing, activity levels and employee parking/staging area locations provide basis for further evaluation of construction-related air quality impacts. Details regarding changes in the routing of aircraft to and from new contact gates at TBIT in place of existing remote gates, which in turn would greatly reduce passenger busing, as well as details regarding TBIT heating and cooling units associated with the Bradley West Project provide the basis for further evaluation of operations-related air quality impacts.	4.4

Table 1-1

Initial Review of the Bradley West Project in Light of the LAX Master Plan EIR

Environmental Issue	What analysis is provided in the LAX Master Plan EIR for each environmental issue and how does the LAX Bradley West Project relate to that issue and analysis?	Would the Bradley West Project result in a new significant impact, a substantial increase in the severity of a significant impact, or in a new or substantially different mitigation measure or alternative not adopted by the project proponents?	Bradley West Project EIR - Relevant Section
Hydrology/Water Quality	4.7: Impacts related to the conversion of pervious/vacant area to paved/developed area were addressed, and provisions for development and implementation of a Conceptual Drainage Plan for hydrology and water quality were delineated to avoid significant hydrology/water quality impacts. Mitigation was also recommended to address a deficient regional drainage system facility. The Bradley West Project site is a relatively flat, largely developed airfield and concourse areas. Implementation of the proposed project would not substantially change the existing hydrology and would provide for improved water quality through the incorporation of short-term and permanent Best Management Practices (BMPs), consistent with the analysis in the Master Plan EIR.	No	5.3
Cultural Resources	4.9: Potentially significant historical and archaeological resources were identified, none of which are at the Bradley West Project site or construction staging/parking areas; potential significant impacts were identified; mitigation included preparation of an archaeological treatment plan and paleontological resources management plan to address the possibility of unexpectedly encountering cultural resources during construction. No unavoidable significant impacts are expected. The Bradley West Project site is not occupied by any historic resources and is underlain mostly by artificial fill. No significant impacts to cultural resources are expected to occur from the Bradley West Project.	No	5.4
Biotic Communities	4.10: Sensitive and non-sensitive flora and fauna were evaluated, with the most notable resources being found to occur in the undeveloped western portion of the airport, well-removed from the Bradley West Project site, and mitigation measures were recommended relative to sensitive resources. No unavoidable significant impacts to biotic resources would occur.	Potentially Yes. Additional details regarding Bradley West Project construction site and staging/parking area boundaries, including within areas that are undeveloped and vegetated, provide basis for further evaluation of impacts on biotic communities.	4.7

Table 1-1

Initial Review of the Bradley West Project in Light of the LAX Master Plan EIR

Environmental Issue	What analysis is provided in the LAX Master Plan EIR for each environmental issue and how does the LAX Bradley West Project relate to that issue and analysis?	Would the Bradley West Project result in a new significant impact, a substantial increase in the severity of a significant impact, or in a new or substantially different mitigation measure or alternative not adopted by the project proponents?	Bradley West Project EIR - Relevant Section
Endangered and Threatened Species of Flora and Fauna	4.11: Potential impacts to listed species, particularly the El Segundo blue (ESB) butterfly and the Riverside fairy shrimp were evaluated; formal consultation with U.S. Fish and Wildlife Service was completed pursuant to Section 7 of the federal Endangered Species Act; and mitigation measures were recommended. Subsequent to certification of the Final EIR, the Riverside fairy shrimp at LAX were removed in accordance with two federal Biological Opinions. ESB butterfly habitat is west of and well-removed from, the Bradley West Project site. The Bradley West Project construction staging areas are closer to, but still removed from, the ESB habitat. Recent field survey of the proposed Bradley West Project construction staging, parking and work areas concluded that, with the exception of the Southeast Construction Staging/Parking Area, suitable habitat is not present in any of the Bradley West Project area for any threatened or endangered plant or wildlife species; therefore, such species are not expected to occur in these areas. Several ponding areas were identified at the Southeast Construction Staging/Parking Area; however, based on the results of 2009 wet season surveys, no Riverside fairy shrimp have been found to be present in these ponded areas.	No	5.5
Wetlands	4.12: The presence of state and federal wetlands and "waters of the U.S." at LAX, including Argo Ditch and ephemerally wetted areas, such as those associated with the Riverside fairy shrimp, was evaluated and a mitigation measure was identified for areas subject to the jurisdiction of the U.S. Army Corps of Engineers (USACOE). The Bradley West Project site is fully developed, with no identified wetlands nearby. The results of recent field surveys conducted in support of a forthcoming jurisdictional delineation for the Bradley West Project indicate that none of the areas surveyed exhibited all three wetland parameters (i.e., hydric soils, wetlands hydrology, and hydrophytic vegetation) and are not believed to be "waters of the U.S." Subject to concurrence by the USACOE, no areas within the Bradley West Project site, including construction staging and parking areas, are considered to be jurisdictional wetlands or "waters of the U.S."	No	5.6

Table 1-1

Initial Review of the Bradley West Project in Light of the LAX Master Plan EIR

Environmental Issue	What analysis is provided in the LAX Master Plan EIR for each environmental issue and how does the LAX Bradley West Project relate to that issue and analysis?	Would the Bradley West Project result in a new significant impact, a substantial increase in the severity of a significant impact, or in a new or substantially different mitigation measure or alternative not adopted by the project proponents?	Bradley West Project EIR - Relevant Section
Energy Supply and Natural Resources	4.17: Potential impacts to energy supply, including fuel and power consumption, and to natural resources, such as construction materials, were evaluated, and energy conservation measures were recommended. No significant impacts related to energy consumption and distribution, or access to, and use of, natural resources were identified. Consistent with the Master Plan EIR, no significant impacts related to energy consumption and distribution or access to and use of natural resources would occur as a result of Bradley West Project construction and operation.	No	5.7
Solid Waste	4.19: Impacts associated with generation of solid waste from construction and operation of the Master Plan projects were addressed, and waste reduction measures were recommended. No significant impacts related to construction solid waste generation and disposal were identified. Consistent with the Master Plan EIR, the Bradley West Project includes reduction measures for construction waste such as reuse of demolished pavement material.	No	5.8
Light Emissions and Aesthetics	4.18, 4.21: Potential impacts associated with new/increased lighting at the airport were addressed, as were visual/aesthetic impacts. Master Plan commitments from the Land Use section were referenced to address potential light impacts; other commitments, included those related to construction screening, were provided for visual/aesthetic impacts. No unavoidable significant light emissions or visual/aesthetic impacts were identified. The Bradley West Project site is in a fully-developed active part of the airport that already has substantial lighting and does not have, or block views of, visual/aesthetic resources. Further, the new/reconfigured facilities would represent an aesthetic improvement over existing conditions. Consistent with the Master Plan EIR, the Bradley West Project includes commitments and measures to reduce/avoid potential aesthetic/light emissions impacts to off-airport receptors during construction activities and operation of the new facilities. Therefore, no new significant impacts are expected to occur.	No	5.9

Table 1-1

Initial Review of the Bradley West Project in Light of the LAX Master Plan EIR

Environmental Issue	What analysis is provided in the LAX Master Plan EIR for each environmental issue and how does the LAX Bradley West Project relate to that issue and analysis?	Would the Bradley West Project result in a new significant impact, a substantial increase in the severity of a significant impact, or in a new or substantially different mitigation measure or alternative not adopted by the project proponents?	Bradley West Project EIR - Relevant Section
Earth and Geology	4.22: Potential impacts related to geotechnical issues, such as earthquakes and other seismic-related hazards, ground failure, and landslides, were evaluated. No significant impacts related to adverse geologic conditions and hazards were identified. The LAX Master Plan EIR analysis fully addresses potential effects of the Bradley West Project relative to earth/geology.	No	5.10
Hazards and Hazardous Materials	4.23, 4.24: Potential impacts related to hazards and hazardous materials, including potential conflicts with ongoing remediation activities, were evaluated and a number of Master Plan commitments were identified to address potential impacts. No significant impacts were identified. Given the nature and location of the Bradley West Project, the proposed project falls within the scope of the Master Plan EIR analysis and no new significant impacts are expected to occur.	No	5.11
Human Health Risks	4.24: Potential human health risk impacts associated with toxic air contaminants, primarily as related to aircraft operations, were addressed. Air quality mitigation measures were identified as a means to reduce potential health risk levels. No unavoidable significant impacts were identified.	Potentially Yes. Additional details regarding Bradley West Project construction timing, activity levels, and employee parking/staging area locations provide basis for further evaluation of construction-related toxic air contaminant emissions, particularly diesel particulate emissions from construction equipment exhaust. Further, additional details regarding aircraft activity on the ground at LAX, (i.e., transporting passengers between TBIT and the gates at the West Remote Pads) and TBIT heating and cooling units associated with the Bradley West Project provide the basis for further evaluation of operations-related toxic air contaminant emissions.	4.5
Public Utilities	4.25: The Master Plan EIR addresses potential impacts related to water consumption and wastewater generation, and identifies water conservation measures. No significant impacts were identified. In light of the basic nature of the Bradley West Project, the proposed project falls within the scope of the Master Plan analysis and no new significant impacts related to water or wastewater are expected to occur.	No	5.12

Table 1-1

Initial Review of the Bradley West Project in Light of the LAX Master Plan EIR

Environmental Issue	What analysis is provided in the LAX Master Plan EIR for each environmental issue and how does the LAX Bradley West Project relate to that issue and analysis?	Would the Bradley West Project result in a new significant impact, a substantial increase in the severity of a significant impact, or in a new or substantially different mitigation measure or alternative not adopted by the project proponents?	Bradley West Project EIR - Relevant Section
Public Services	4.26, 4.27: The Master Plan EIR addresses potential impacts related to fire, police, parks and recreation, schools, and libraries, and identifies a number of measures to reduce potential impacts to those services. Other than aircraft noise impacts on schools, no unavoidable significant impacts were identified. Based on the nature of the Bradley West Project, including the renovation, improvement, and enlargement of the existing U.S. Customs and Border Protection areas within the central core of TBIT, no significant impacts to public services are expected to occur.	No	5.13, 5.14
Climate Change/Greenhouse Gas	The need to address climate change and greenhouse gas issues within an EIR is something that has become more prominent in just the past few years. As was common practice at the time, this issue was not addressed within the LAX Master Plan EIR.	Potentially Yes	4.6

Source: CDM, 2009.

1.3 Organization of this EIR

This EIR follows the preparation and content guidance provided in CEQA and the State CEQA Guidelines. Chapters 1 through 7 are provided in Volumes 1 and 2. Appendices are included in Volumes 3 through 7. Listed below is a summary of the contents of each chapter of the report.

Chapter 1 -- Introduction and Executive Summary

This chapter provides a summary of the proposed project components and the relationship of the project to the LAX Master Plan. Also included is a summary of the environmental analysis.

Chapter 2 -- Project Description

This chapter presents detailed information pertaining to the proposed project including a discussion of the Bradley West Project's relationship to the LAX Master Plan, the objectives of the proposed project, and the specific characteristics of the Bradley West Project. Also provided in this chapter is a description of the intended uses of this EIR as related to specific approvals needed for implementation of the proposed project.

Chapter 3 -- Overview of Project Setting

This chapter provides an overview of the existing land use and environmental setting relevant to the Bradley West Project. This chapter also describes other projects proposed in the nearby area that may, in conjunction with the Bradley West Project, result in cumulative impacts on that existing setting.

Chapter 4 -- Setting, Environmental Impacts, and Mitigation Measures

The introductory portion of Chapter 4 describes the analytical framework for the environmental review of the Bradley West Project. The remainder of the chapter includes detailed analysis of the environmental impacts of the project on surface transportation, air quality, human health risk, global climate change, biotic communities, and noise.

Chapter 5 -- Other Environmental Resources

Chapter 5 provides an assessment of environmental impacts associated with the development of the Bradley West Project related to those environmental topics not addressed in Chapter 4. In accordance with Sections 15152(a) and 15168 of the CEQA Guidelines, the information presented in this chapter is primarily for disclosure and informational purposes, because the impacts of the Bradley West Project on these environmental resources were accounted for and addressed in the LAX Master Plan Final EIR and Addenda to the Final EIR.

Chapter 6 -- Alternatives

As required by CEQA, Chapter 6 evaluates the potential for alternatives to the proposed Bradley West Project to avoid or substantially lessen any significant effects of the project, while also meeting most of the basic objectives of the project.

Chapter 7 -- List of Preparers, Parties to Whom Sent, References, NOP Comments, and List of Acronyms

This chapter provides the following: a list of the individuals from the City of Los Angeles and contractors that performed key roles in the preparation and development of this Draft EIR; a list of the parties to whom copies of this Draft EIR were sent for review or to whom notice of the availability of this Draft EIR was sent; a list containing a bibliography of documents used in the preparation of the Draft EIR; a list of agencies, organizations and individuals who provided comments on the EIR NOP; and a list of acronyms used in the Draft EIR.

1.4 Executive Summary of Environmental Impacts Related to the Bradley West Project

Table 1-2 summarizes the environmental impacts of the Bradley West Project in terms of surface transportation, air quality, human health risks, global climate change, biotic communities, and noise related to the Bradley West Project as identified in Chapter 4 of this EIR. **Table 1-3** summarizes the potential environmental impacts of the Bradley West Project for all other environmental categories for which no, or minimal, additional analysis was required beyond that provided in the LAX Master Plan Final EIR. **Tables 1-2** and **1-3** 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 Bradley West Project. The level of significance following mitigation is also listed.

1.5 Areas of Known Controversy and Issues to be Resolved

Based on comments on the NOP that were received by LAWA, the areas of known controversy are related primarily to 1) how the Bradley West Project relates to other projects and aspects of the LAX Master Plan, and 2) the proposed use of the Northwest Construction Staging/Parking Area and associated potential traffic, air quality, and noise impacts to residents of Westchester. These concerns are addressed in this Draft EIR.

With respect to the first issue, comments were expressed suggesting that the environmental review, processing, and implementation of the Bradley West Project should be combined with that of other improvements included in the LAX Master Plan. As described in Section 2.2 of this EIR, the need for and utility of the Bradley West Project is independent of other Master Plan projects, and implementation of the Bradley West Project is appropriate under the approved LAX Master Plan; is consistent with common practice for the phased development of large, long-term master plan infrastructure projects; and is in accordance with the provisions of CEQA.

NOP comments were also received suggesting that the environmental review, processing, and implementation of the Bradley West Project should await, and be based upon, the outcome of the LAX SPAS process. The Bradley West Project is not dependent on implementation of any of the Yellow Light Projects or alternatives to the Yellow Light Projects that will be evaluated in the SPAS. Nor does construction of the Bradley West Project commit LAWA to, or preclude LAWA from, proceeding with any of the projects that will be evaluated in the SPAS. Therefore, consideration of the Bradley West Project may proceed prior to completion of the SPAS process. Further, under the Stipulated Settlement, LAWA may continue to process and develop projects that are not Yellow Light Projects, such as the Bradley West Project, while the SPAS is being processed.

With respect the second issue, some residents in the Westchester and Vista del Mar areas commented that the proposed Northwest Construction Staging/Parking Area is not an appropriate location for construction staging and parking due to its proximity to those communities. Such comments further proposed that all construction staging and parking activities be limited to staging areas in the west and south parts of the airport. Conversely, the City of El Segundo commented that the proposed Southeast Construction Staging/Parking Area is not an appropriate location for construction staging and parking, and encouraged LAWA to focus on use of other sites including the West Construction Staging Area. In light of comments from all of these communities, the Draft EIR includes an alternative that focuses construction staging and parking primarily on use of the West Construction Staging Area.

Table 1-2

Summary of Environmental Impacts Related to the Bradley West Project for Which Additional Analysis is Required

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures/ Commitments	Level of Significance After Mitigation
On-Airport Surface Transportation: Implementation of the project would change the nature and timing of peak on-airport traffic as the number and processing time of international passengers arriving at specific times of the day would be affected by the project; however, it is the natural increase in international travel activity levels projected to occur at LAX by 2013 that would have the most notable influence on traffic volumes at LAX. This increase is anticipated to occur even if the project is not implemented. The on-airport surface transportation system in 2013 is projected to experience substantial congestion compared to existing (2008) conditions.	None applicable.	MM-AQ-3. Transportation-Related Mitigation Measure	MM-ST (BWP)-1. Trip Reduction Measures MM-ST (BWP)-2. Improve the Intersection of Center Way and World Way South MM-ST (BWP)-3. Widen World Way Across from TBIT	Impacts to CTA intersections would be reduced to less than significant; however, the residual impacts to roadway links would be significant and unavoidable.

Table 1-2

Summary of Environmental Impacts Related to the Bradley West Project for Which Additional Analysis is Required

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures/ Commitments	Level of Significance After Mitigation
Off-Airport Surface Transportation: Similar to above, implementation of the proposed project would change the nature and timing of international passengers being processed through TBIT, which, in turn, affects the volume of traffic being generated at TBIT during peak travel hours; however, it is the natural increase in international travel at LAX projected to occur by 2013 that would have the most influence on off-airport traffic impacts. With TBIT-related operational traffic in 2013, when the proposed improvements would be completed, it is projected that there would be significant traffic impacts at 19 intersections.	None applicable.	None applicable.	MM-ST (BWP)-4. Modify the Intersection of Airport Boulevard and Manchester Avenue (Intersection #9) MM-ST (BWP)-5. Modify the Intersection of Arbor Vitae Street and Aviation Boulevard (Intersection #10) MM-ST (BWP)-6. Modify the Intersection of Imperial Highway and Sepulveda Boulevard (Intersection #71) MM-ST (BWP)-7. Modify the Intersection of La Cienega Boulevard and I-405 Ramps N/O Century Boulevard (Intersection #96). MM-ST (BWP)-8. Modify the Intersection of La Tijera Boulevard and Sepulveda Boulevard (Intersection #101) MM-ST (BWP)-9. Modify the Intersection of Sepulveda Boulevard and 76th/77th Street (Intersection #136)	Impacts to 6 of the 19 intersections would be mitigated to a level less-than-significant. Impacts to the remaining 13 intersections would be significant and unavoidable.

Table 1-2

Summary of Environmental Impacts Related to the Bradley West Project for Which Additional Analysis is Required

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures/ Commitments	Level of Significance After Mitigation
Construction Surface Transportation: Construction of the Bradley West Project would increase traffic volumes on the surrounding area roadway network. Depending on which of several proposed construction staging/parking locations are used, up to four intersections could be significantly impacted by project-specific construction traffic and by cumulative traffic from other nearby projects under construction at the same time as the Bradley West Project.	C-1. Establishment of a Ground Transportation/Construction Coordination Office C-2. Construction Personnel Airport Orientation ST-9. Construction Deliveries ST-12. Designated Truck Delivery Hours ST-14. Construction Employee Shift Hours ST-16. Designated Haul Routes ST-17. Maintenance of Haul Routes ST-18. Construction Traffic Management Plan ST-22. Designated Truck Routes	None applicable.	MM-ST (BWP)-10. Modify the Intersection of Imperial Highway and Main Street (Intersection #68) MM-ST (BWP)-11. Modify the Intersection of Imperial Highway and Pershing Drive (Intersection #69).	Project and cumulative impacts to 2 of the 4 intersections would be mitigated to a level less-than-significant. Impacts to the remaining 2 intersections would be significant and unavoidable.
Air Quality: Construction activities would cause air pollutant emissions that exceed the SCAQMD significance thresholds for carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), and particulate matter (PM10 and PM2.5). The construction threshold for sulfur oxides (SO_x) would not be exceeded. Upon completion of the Bradley West Project, aircraft movements around the airfield would see a slight improvement (reduction) in taxi/idle times and associated emissions from aircraft operations over the 2013 without project scenario, and the need for bus transport of passengers and crews between the remote gates and TBIT would be less in 2013 with the project	None applicable.	MM-AQ-1. LAX Master Plan - Mitigation Plan for Air Quality MM-AQ-2. Construction-Related Measure Community Benefits Agreement, Section X.F.1, Construction Equipment.[1]	None available.	Construction-related impacts would be significant and unavoidable. Operations-related impacts would be significant and unavoidable.

Table 1-2

Summary of Environmental Impacts Related to the Bradley West Project for Which Additional Analysis is Required

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures/ Commitments	Level of Significance After Mitigation
than without the project; however, the amount of natural growth in airfield activity projected to occur by 2013 with or without the project would represent a substantial increase over 2008 baseline conditions and would result in a significant impact. Additionally, there would be a 19 percent increase in energy consumption, and related air pollutant emissions, upon project completion, although this increase would be much less than the increase (100 percent increase) in building floor area proposed for the project. Air pollutant emissions from airfield and building operations would exceed SCAQMD significance thresholds for CO, NO_x, VOC, and SO_2, Off-airport traffic emissions would be significant for CO, VOC, NO_x, PM10 and PM2.5.				
Human Health Risks: People living, working, recreating, or attending school in communities near the airport would not experience increased cancer risks, increased non-cancer chronic health hazards, or increased non-cancer acute health hazards from exposure to toxic air contaminants (TACs) above established thresholds of significance during Bradley West Project construction or project-specific operations. People working at the airport would not be exposed to concentrations of TACs in the air in excess of occupational	None applicable.	MM-AQ-1. LAX Master Plan - Mitigation Plan for Air Quality MM-AQ-2. Construction-Related Measure	None required.	Less than significant.

Table 1-2

Summary of Environmental Impacts Related to the Bradley West Project for Which Additional Analysis is Required

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures/ Commitments	Level of Significance After Mitigation
standards as defined by CalOSHA 8-hour Time-Weighted Average Permissible Exposure Levels (PEL-TWA) during Bradley West Project construction or project-specific operations.				
Global Climate Change: Construction and operation of the Bradley West Project would generate greenhouse gases, primarily in the form of CO_2, which would contribute to climate change; however, such activities would be conducted in accordance with the LAWA Sustainability Guidelines, which are designed and intended to reduce greenhouse gas emissions. Project and cumulative construction and operations-related impacts related to climate change would be significant.	None specific to global climate change; however, the following commitment would contribute to reductions in greenhouse gases:[2] SW-3. Requirements for the Recycling of Construction and Demolition Waste	None specific to global climate change; however, the following measures would contribute to reductions in greenhouse gases:[1] MM-AQ-1. LAX Master Plan - Mitigation Plan for Air Quality MM-AQ-2. Construction-Related Measure	All feasible measures have been applied.	Project and cumulative construction and operations-related impacts would be significant and unavoidable.
Biotic Communities: There are no sensitive biotic resources within the primary Bradley West Project area. One special status plant species, southern tarplant, a CNPS List 1B.1 species, was observed on the Southeast Construction Staging/Parking Area and East Contractor Employee Parking Area. Construction of the Bradley West Project would directly impact approximately 300 southern tarplant individuals, which would be a significant impact.	None applicable.	MM-BC-1. Conservation of State-Designated Sensitive Habitat within and Adjacent to the El Segundo Blue Butterfly Habitat Restoration Area MM-BC-3. Conservation of Floral Resources: Mature Tree Replacement MM-BC-8. Replacement of Habitat Units MM-BC-9. Conservation of Faunal Resources MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control	MM-BC (BWP)-1. Conservation of Floral Resources: Southern Tarplant MM-BC (BWP)-2. Conservation of Floral Resources: Lewis' Evening Primrose MM-BC (BWP)-3. Conservation of Floral Resources: California Spineflower MM-BC (BWP)-4. Conservation of Faunal Resources: Burrowing Owl	Less than significant with mitigation.

Table 1-2

Summary of Environmental Impacts Related to the Bradley West Project for Which Additional Analysis is Required

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures/ Commitments	Level of Significance After Mitigation
Special status plant species that have the potential to occur within the Bradley West Project areas include Lewis' evening primrose and California spineflower. If either of these species is present, construction of the Bradley West Project could directly impact individuals of these sensitive plant species, which, for purposes of this EIR, is considered to be a significant impact. Special status wildlife species that have the potential to occur within the Bradley West Project areas include burrowing owl, loggerhead shrike, and San Diego black-tailed jackrabbit. If any of these species is present, construction of the Bradley West Project could directly impact individuals of these sensitive wildlife species, which would be a significant impact. Construction of the Bradley West Project has the potential to impact nesting birds/raptors subject to the Migratory Bird Treaty Act (MBTA). In addition, use of the Northwest Construction Staging/Parking Area would result in the removal of mature trees. Both are considered to be significant impacts. Bradley West Project construction staging and stockpiling of materials in close proximity to the Los Angeles/El Segundo Dunes and the El Segundo Blue Butterfly Habitat Restoration Area would have the potential to deposit			MM-BC (BWP)-5. Conservation of Faunal Resources: Loggerhead Shrike MM-BC (BWP)-6. Conservation of Faunal Resources: San Diego Black-tailed Jackrabbit MM-BC (BWP)-7. Conservation of Floral Resources: Mature Tree Replacement MM-BC (BWP)-8. Conservation of Faunal Resources: Nesting Birds/Raptors	

Table 1-2

Summary of Environmental Impacts Related to the Bradley West Project for Which Additional Analysis is Required

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures/ Commitments	Level of Significance After Mitigation
fugitive dust within State-designated sensitive habitats, which would be considered a significant impact.				
Noise: Construction noise would not exceed the existing ambient noise level by 5 dBA or more at noise sensitive locations. Construction traffic would not trigger an exceedance of the CEQA construction traffic noise threshold (5 dBA) for a substantial increase in traffic noise.	ST-16. Designated Haul Routes ST-22. Designated Truck Routes	MN-N-7. Construction Noise Control Plan MM-N-8. Construction Staging MM-N-9. Equipment Replacement MN-N-10. Construction Scheduling	None required.	Less than significant.

[1] LAWA and the LAX Coalition for Economic, Environmental and Educational Justice (LAX Coalition) have developed and entered into an agreement, the Community Benefits Agreement (CBA), to ensure that communities adversely affected by the LAX Master Plan Program also receive benefits as a result of the implementation of the Program. The benefits and mitigations included in the CBA were negotiated independently from, and are not a part of, the LAX Master Plan MMRP. The CBA contains a number of air quality mitigation measures, of which Section X.F.1 is applicable to the Bradley West Project.

[2] At the time of preparation of the LAX Master Plan EIR, global climate change was not commonly addressed in EIRs. Therefore, there are no Master Plan commitments or mitigation measures that were developed specifically to address global climate change.

Source: CDM, 2009.

Table 1-3

Summary of Other Environmental Impacts Related to the Bradley West Project for Which No, or Minimal, Additional Analysis is Required Beyond that Provided in the LAX Master Plan Final EIR

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Land Use: Construction effects associated with traffic, air quality, noise and views have the potential to affect land uses along the southern and northern boundaries of LAX.	C-1. Establishment of a Ground Transportation/ Construction Coordination Office C-2. Construction Personnel Airport Orientation ST-9. Construction Deliveries ST-12. Designated Truck Delivery Hours ST-14. Construction Employee Shift Hours ST-16. Designated Haul Routes ST-17. Maintenance of Haul Routes ST-18. Construction Traffic Management Plan ST-22. Designated Truck Routes LU-4. Neighborhood Compatibility Program	MN-N-7. Construction Noise Control Plan MM-N-8. Construction Staging MM-N-9. Equipment Replacement MN-N-10. Construction Scheduling MM-DA-1. Construction Fencing MM-AQ-2. Construction-Related Measure	None required for construction-related noise and aesthetic impacts. See Construction Surface Transportation in Table 1-2 for new mitigation measures to address construction-related traffic impacts.	Less than significant for construction-related noise and aesthetic impacts. Construction-related traffic impacts would be significant and unavoidable. See Construction Surface Transportation above in Table 1-2.
The Bradley West Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project.	None applicable.	None applicable.	None required.	Less than significant.

Table 1-3

Summary of Other Environmental Impacts Related to the Bradley West Project for Which No, or Minimal, Additional Analysis is Required Beyond that Provided in the LAX Master Plan Final EIR

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Population, Housing, Employment and Growth Inducement: No property acquisition would be required for the Bradley West Project and construction and operations-related employment would not induce growth in the area. On-airport tenants and uses affected by the Bradley West Project would be relocated within the airport or to off-site facilities, depending upon the business plans of the individual tenants.	EJ-1. Aviation Curriculum EJ-2. Aviation Academy EJ-3. Job Outreach Center EJ-4. Community Mitigation Monitoring	None applicable.	None required.	Less than significant.
Hydrology/Water Quality: Excavation and grading associated with the Bradley West Project would result in an alteration to existing drainage facilities. The new storm drain facilities would be designed to accommodate larger storm events than the existing facilities. Existing drainage patterns would not be notably altered.	HWQ-1. Conceptual Drainage Plan	None applicable.	None required.	Less than significant.
Implementation of the Bradley West Project would result in the conversion of 5.3 acres from a pervious condition to an impervious condition, resulting in a negligible decrease in surface recharge within the regional groundwater basin. No groundwater production occurs at LAX and beneficial uses of the basin would not be adversely affected.	None applicable.	None applicable.	None required.	Less than significant.
Total impervious area would be increased by approximately 5.3 acres. LAWA would prepare a Standard Urban Storm Water Mitigation Plan (SUSMP) to address long-term impacts to water quality and a Storm Water Pollution Prevention Plan to address construction-related impacts. The addition of permanent Best Management Practices to the on-site drainage system would improve water quality compared to existing conditions.	HWQ-1. Conceptual Drainage Plan	None applicable.	None required.	Beneficial.

Table 1-3

Summary of Other Environmental Impacts Related to the Bradley West Project for Which No, or Minimal, Additional Analysis is Required Beyond that Provided in the LAX Master Plan Final EIR

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Cultural Resources: The Bradley West Project would not affect the one historic property, the International Airport Industrial District, that would be affected by the LAX Master Plan. However, construction activities could potentially disturb or destroy potentially significant, undiscovered archaeological resources. This impact would be significant.	None applicable.	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	MM-HA (BWP)-1. Conformance with LAX Master Plan Archaeological Treatment Plan	Less than significant with mitigation.
As the Bradley West Project would involve grading and excavation greater than 6 feet in depth, it is possible that potentially important paleontological resources could be exposed and/or damaged. In addition, Bradley West Project construction could make paleontological resources accessible for unauthorized fossil collection.	None applicable.	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	MM-PA (BWP)-1. Conformance with LAX Master Plan Paleontological Management Treatment Plan MM-PA (BWP)-2. Construction Personnel Briefing	Less than significant with mitigation.

Table 1-3

Summary of Other Environmental Impacts Related to the Bradley West Project for Which No, or Minimal, Additional Analysis is Required Beyond that Provided in the LAX Master Plan Final EIR

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Endangered and Threatened Species of Flora and Fauna: With the exception of the Southeast Construction Staging/Parking Area, the Bradley West Project site, staging areas, and construction employee vehicle parking areas do not contain suitable habitat for any threatened or endangered species. Based on the results of 2009 wet season surveys, no Riverside fairy shrimp were found on the Southeast Construction Staging/Parking Area site. However, the absence of Riverside fairy shrimp at this site cannot be confirmed until completion of a second protocol survey. In the event that Riverside fairy shrimp are identified at the Southeast Construction Staging/Parking Area, proposed construction activities would have a significant impact on this species.	None applicable.	MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control	MM-ET (BWP)-1. Mitigation for Riverside Fairy Shrimp.	Less than significant with mitigation.
Bradley West Project construction staging and stockpiling of materials in close proximity to the Habitat Restoration Area would have the potential to deposit fugitive dust within habitat for the El Segundo blue butterfly, which is considered a significant impact.	None applicable.	MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control	None required.	Less than significant with mitigation.

Table 1-3

Summary of Other Environmental Impacts Related to the Bradley West Project for Which No, or Minimal, Additional Analysis is Required Beyond that Provided in the LAX Master Plan Final EIR

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Wetlands: The Bradley West Project site is fully developed, with no identified wetlands nearby. The results of recent field surveys conducted in support of a forthcoming jurisdictional delineation for the Bradley West Project indicate that none of the areas surveyed exhibited all three wetland parameters (i.e., hydric soils, wetlands hydrology, and hydrophytic vegetation) and there are no waters of the U.S. subject to USACOE jurisdiction. Subject to concurrence by the USACOE, no areas within the Bradley West Project site, including construction staging and parking areas, are considered to be jurisdictional wetlands or waters of the U.S. If USACOE finds that wetlands or waters of the U.S. are present on-site, these impacts would be the same as those previously identified under the LAX Master Plan and for which a Jurisdictional Determination has already been issued. Therefore, the Bradley West Project would not result in any new impacts.	None applicable.	None applicable.	MM-ET-1. Riverside Fairy Shrimp Habitat Restoration.	Less than significant with mitigation.
Energy Supply and Natural Resources: Adequate energy and aggregate supplies would be available for construction of the Bradley West Project. It is anticipated that operation of the Bradley West Project would result in a net increase in natural gas and electricity demands.	E-1. Energy Conservation and Efficiency Program E-2. Coordination with Utility Providers PU-1. Develop a Utility Relocation Program SW-2. Requirements for the Use of Recycled Materials During Construction SW-3. Requirements for the Recycling of Construction and Demolition Waste	None applicable.	None required.	Less than significant.

Table 1-3

Summary of Other Environmental Impacts Related to the Bradley West Project for Which No, or Minimal, Additional Analysis is Required Beyond that Provided in the LAX Master Plan Final EIR

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Solid Waste: The primary source of construction-related solid waste generation from the Bradley West Project would be demolition of existing facilities. Debris would also be generated from new construction. Construction bid documents for the Bradley West Project would specify that a minimum of 20 percent of construction waste materials would be required to be recycled. The project would not alter passenger numbers assumed in the LAX Master Plan and, as a result, would not result in any new solid waste impacts during operations.	SW-1. Implement an Enhanced Recycling Program SW-2. Requirements for the Use of Recycled Materials During Construction SW-3. Requirements for the Recycling of Construction and Demolition Waste	None applicable.	None required.	Less than significant.
Aesthetics: Construction activities and construction staging would be visible from I-105, the upper stories of hotels and office buildings to the south and some residences on Imperial Avenue, and to a lesser extent due to their distance from the project site, a limited number of residences north of Westchester Parkway.	None applicable.	MM-DA-1. Construction Fencing	None required.	Less than significant.
The Bradley West Project would not impact, and would be complementary of, the iconic Theme Building and the Airport Traffic Control Tower. The reconfigured and new facilities proposed under the Bradley West Project would incorporate more modern design elements, greater architectural articulation, and more extensive landscape amenities than present under existing conditions, consistent with the CTA's Southern Californian landscape theme. Further, the proposed improvements would not cause view obstruction from off-site vantages. The new/reconfigured facilities would represent an aesthetic improvement compared to existing conditions.	None applicable.	None applicable.	None required.	Beneficial impact.

Table 1-3

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Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Light Emissions: Construction of the Bradley West Project would include nighttime activities that would require lighting of work areas. Construction lighting would be focused downward and directed on airport property away from sensitive uses. Further, construction work hours would comply with municipal code requirements. No nighttime construction work and associated lighting would occur in areas close enough to disturb residential uses. The Bradley West Project would result in operational changes to lighting, including new facility and airfield lighting systems, new airfield signage, and aircraft parking apron lighting. The aircraft parking apron and ramp lighting would include tall, bright lights. However, these lights would be distant from the nearest sensitive receptors. The proposed new/relocated Bradley West Project facilities would be constructed of non-reflective materials or materials with non-reflective coating. No building materials or light sources would be introduced that could generate glare which would pose an aviation hazard.	LI-2. Use of Non-Glare Generating Building Materials LI-3. Lighting Controls	None applicable.	None required.	Less than significant.
Earth and Geology: Construction of the Bradley West Project would require grading and excavation. A site-specific geotechnical investigation would be prepared, and provide the basis for the grading plan. Project design would include remedial and protective construction methods, as warranted.	None applicable.	None applicable.	None required.	Less than significant.

Table 1-3

Summary of Other Environmental Impacts Related to the Bradley West Project for Which No, or Minimal, Additional Analysis is Required Beyond that Provided in the LAX Master Plan Final EIR

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Hazards and Hazardous Materials: During construction, ground access on the airport and in the vicinity would be altered. With implementation of Master Plan commitments, emergency access would be adequately maintained.	C-1. Establishment of a Ground Transportation/Construction Coordination Office C-2. Construction Personnel Airport Orientation ST-9. Construction Deliveries ST-12. Designated Truck Delivery Hours ST-14. Construction Employee Shift Hours ST-16. Designated Haul Routes ST-17. Maintenance of Haul Routes ST-18. Construction Traffic Management Plan ST-22. Designated Truck Routes FP-1. LAFD Design Recommendations	None applicable.	None required.	Less than significant.
Due to the presence of sites with contamination within and in proximity to the Bradley West Project site, contamination would be encountered during construction. Construction activities would be conducted in accordance with LAWA's Procedure for the Management of Contaminated Materials Encountered During Construction.	HM-2. Handling of Contaminated Materials Encountered During Construction	None applicable.	None required.	Less than significant.
Hazardous building materials, such as asbestos, PCBs, and lead-based paint would be encountered during demolition. Compliance with existing laws, regulations, codes, and policies would serve to reduce or avoid potential impacts.	None applicable.	None applicable.	None required.	Less than significant.

Table 1-3

Summary of Other Environmental Impacts Related to the Bradley West Project for Which No, or Minimal, Additional Analysis is Required Beyond that Provided in the LAX Master Plan Final EIR

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Public Utilities: Adequate water supply would be available for construction and operation of the Bradley West Project. Reclaimed water would be used to the extent feasible for dust suppression in accordance with Master Plan Commitment W-1. Adequate wastewater treatment capacity would be available to handle additional wastewater generated by the project.	W-1. Maximize Use of Reclaimed Water W-2. Enhance Existing Water Conservation Program PU-1. Develop a Utility Relocation Program	None applicable.	None required.	Less than significant.
Public Services: During construction, ground access on the airport and in the vicinity would be altered, with the potential for affecting emergency response times.	C-1. Establishment of a Ground Transportation/ Construction Coordination Office C-2. Construction Personnel Airport Orientation ST-9. Construction Deliveries ST-12. Designated Truck Delivery Hours ST-14. Construction Employee Shift Hours ST-16. Designated Haul Routes ST-17. Maintenance of Haul Routes ST-18. Construction Traffic Management Plan ST-22. Designated Truck Routes FP-1. LAFD Design Recommendations LE-2. Plan Review	None applicable.	None required.	Less than significant.

Table 1-3

Summary of Other Environmental Impacts Related to the Bradley West Project for Which No, or Minimal, Additional Analysis is Required Beyond that Provided in the LAX Master Plan Final EIR

Impact by Discipline	Master Plan Commitments	Master Plan Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Existing Fire Station No. 80/ARFF would be impacted as part of the Bradley West Project. Under the approved LAX Crossfield Taxiway Project, a new fire station/ARFF will be constructed as a replacement for the existing undersized Fire Station No. 80/ARFF. The Bradley West Project includes renovation, improvement, and enlargement of the existing CBP areas within the Central Core of TBIT. The CBP area improvements would result in a beneficial impact to law enforcement services by enhancing passenger processing by the CBP within TBIT.	PS-1. Fire and Police Facility Relocation Plan PS-2. Fire and Police Facility Space and Siting Requirements	None applicable.	None required.	Beneficial impact.
The Bradley West Project would not adversely affect libraries or parks and recreational facilities.	None applicable.	None applicable.	None required.	Less than significant.
Schools: Bradley West Project construction and operation would not result in a substantial increase in student enrollment.	None applicable.	None applicable.	None required.	Less than significant.

Source: CDM, 2009.

2. PROJECT DESCRIPTION

The proposed project is located near the center of Los Angeles International Airport (LAX), as shown in Figures 1-2 and 1-3 in Chapter 1 of this EIR. As one of the airfield improvements included in the LAX Master Plan, the LAX Tom Bradley International Terminal-Reconfiguration Project (TBIT-RP), now referred to as the "Bradley West Project," provides for the addition of aircraft gates along the west side of the TBIT, which will reduce the existing need for, and use of, remote aircraft gates located at the west end of the airport. In conjunction with development of the new aircraft gates, the existing concourses at TBIT would be replaced by new improved concourses, as described in greater detail below. The new contact gates (i.e., aircraft gates with a passenger loading bridge(s) or "jetway(s)" that extend from the concourse to the aircraft) proposed in the Bradley West Project include several gates specifically designed to accommodate new generation aircraft such as the Airbus A380, Boeing 747-8, and Boeing 787, with features such as multiple jetways for each aircraft, larger passenger lounges/holdrooms, and wider, thicker taxiways and aircraft apron areas. The central core of TBIT, which provides for the processing of passengers at TBIT (i.e., ticketing, baggage check/claim, security screening, concessions, etc.), would also be modified to provide additional floor area and improvements to better serve existing and future passengers at TBIT. The following provides additional details regarding the Bradley West Project, including the background of the project, its relationship to the LAX Master Plan, the project objectives, and the project characteristics.

2.1 Bradley West Project Background

LAX is well recognized as one of the world's leading airports and is an integral part of southern California. In 2007, LAX ranked as the fifth busiest airport in the world, based on number of passengers, and is the second largest gateway for international travelers entering the U.S., second only to JFK International Airport.[9] From a regional perspective, LAX serves a vital role relative to trade and tourism and the associated employment and economic benefits. According to a 2007 study completed by the Los Angeles Economic Development Corporation (LAEDC), LAX flights in 2006 created 363,700 direct and indirect jobs with annual wages of $19.3 billion in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties.[10] Of particular importance to the region is the role of LAX relative to international travel. According to the 2007 LAEDC study, an average transoceanic flight, occurring over the course of 2006, traveling round-trip from LAX every day added $623 million in economic output and sustained 3,120 direct and indirect jobs in southern California with $156 million in wages. The economic output, jobs, and wages were calculated from the production and transportation of freight exports, the transportation of freight imports, the operation of the airport itself, and the purchases made by international visitors on the flights. Freight exports (which are generally high-value items) accounted for over 80 percent of the annual economic activity generated by international flights at LAX.

TBIT is the primary facility that serves international travel at LAX. TBIT, along with the upper roadway level within the Central Terminal Area (CTA), was constructed in the early 1980s as part of preparations for the 1984 Summer Olympics hosted by the City of Los Angeles. Over the subsequent 24 years of operations, hundreds of millions of international travelers have passed through TBIT, and the nature, size, number, and operational characteristics of aircraft serving the international market have changed substantially.

The improvements described below would substantially improve the level and quality of passenger service at TBIT, than is otherwise available today, especially as related to the increased presence of new large aircraft in the fleets of commercial carriers at LAX. Given the extensive nature of these

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9 Airports Council International, Available: www.aci.aero/aci/aci/file/Press%20Releases/2008/Interesting%20Stats_2007.pdf, accessed December 29, 2008.

10 Los Angeles Economic Development Corporation, "LAEDC Study of International Flights at LAX Finds $82.1B in Economic Output to Southern California Region," Available: http://www.laedc.org/newsroom/releases/2007/091307.pdf., accessed December 31, 2008.

improvements, additional consideration was given to other operational aspects of TBIT, especially relative to the desire to improve the level and quality of international passenger service, which collectively would elevate TBIT to a world-class facility that Los Angeles could be proud of. Such other improvements identified as part of the Bradley West Project include, but are not limited to, the need for more area and facilities for processing and claiming baggage; additional and improved stations for Customs and Border Protection processing of passengers and inspection of baggage; more general circulation area; better variety, quality, and availability of concessions; more lounge areas; more restrooms; and expanded ticketing areas.

2.2 Bradley West Project as Part of the LAX Master Plan

The approved LAX Master Plan provides the conceptual framework for an extensive array of improvements at LAX, including a variety of improvements throughout the airfield area. The Bradley West Project is the third project under the LAX Master Plan to be advanced into implementation, with the first project being the South Airfield Improvement Project (SAIP) and the second project being the Crossfield Taxiway Project (CFTP). As further described in Section 3.3.2 of this EIR, LAWA is currently working on the LAX Specific Plan Amendment Study (SPAS) pursuant to the requirements of a stipulated settlement, which will evaluate and reconsider certain projects identified in the LAX Master Plan. Such projects are referred to as the "Yellow Light Projects" and pertain primarily to improvements proposed for the north airfield complex and for the on-airport surface transportation system. While the SPAS is being processed, LAWA may continue to process and develop projects that are not "Yellow Light Projects," such as the SAIP, the CFTP, and the Bradley West Project.

The main elements of the Bradley West Project, including the addition of new aircraft contact gates (i.e., aircraft parking and servicing positions located next to terminal buildings with passenger boarding bridges connecting aircraft to the terminal) and the relocation of the two adjacent taxiways (i.e., Taxiways Q and S), are evident on the airfield plan associated with the approved LAX Master Plan. Figure 1-3, presented earlier, delineates the main components of the approved LAX Master Plan and shows aircraft gated along the west side of TBIT, where no aircraft gates currently exist, and two crossfield taxiways immediately to the west of the new gates, which represents the relocation of the two taxiways that currently exist in the area to be improved for the new gates. Improvements related to the Bradley West Project, referred to as the "reconfiguration of TBIT" in the LAX Master Plan and related EIR, are also noted in Section 3.2.9 of the LAX Master Plan Final EIR and Section 2.10 of the Final LAX Master Plan text, as presented below:

- The Tom Bradley International Terminal (TBIT) would be reconfigured with the addition of a new north/south linear concourse on the west side of the existing building (LAX Master Plan Final EIR page 3-75).
- Reconfigure the TBIT. The components of this reconfiguration include the addition of holdrooms and departure gates on the west side of the TBIT and the demolition of a portion of the north concourse. (LAX Master Plan Final EIR page 3-82).
- Relocate Taxiways Q and S that are located immediately to the west of the TBIT building. Construct the aircraft parking apron associated with the future new TBIT gates. (LAX Master Plan Final EIR page 3-82 and Final LAX Master Plan page 2-123).

Midfield taxiway improvements are also contemplated in the 2015 Alternative D Conceptual Summary Schedule presented as Figure F3-20 of the LAX Master Plan Final EIR, including references to *Clear Midfield Area (Phased, Midfield Aprons & Taxiways, and TBIT Rework)*.

As an integral part of the LAX Master Plan, along with the many other improvements that are represented in Figure 1-3 in Chapter 1 of this EIR, the environmental impacts associated with the Bradley West Project and all the elements of the Master Plan are addressed directly and indirectly throughout the LAX Master Plan Final EIR.

2.3 Bradley West Project Objectives

The objectives of the proposed Bradley West Project include the following:

- Reduce the need for, and use of, existing remote gates at the west end of the airport and the need to bus passengers and crews between TBIT and the remote gates.
- Maintain or improve existing aircraft ground access between the north airfield complex and the south airfield complex.
- Accommodate "New Generation Aircraft"[11] such as the Airbus A380, Boeing 747-8, and Boeing 787.
- Improve passenger level of service.
- Avoid loss of international travelers to other airports outside the region and the adverse direct and indirect economic consequences this would cause.
- Complement the systematic phased implementation of the Master Plan and minimize impacts to existing airport operations during construction.
- Provide a substantial number of construction employment opportunities and substantial direct and secondary regional economic benefits, including the need for construction goods and services, associated with construction of a large capital improvements project such as the Bradley West Project.

2.4 Bradley West Project Characteristics

The main characteristics of the proposed Bradley West Project are shown in **Figure 2-1** and generally include the following:

- Construction of new north and south concourses at TBIT just west of the existing concourses, which would be demolished. Compared to the existing concourses, the new concourses would provide new larger holdrooms, and improved and expanded concessions, airline lounges, passenger corridors, and administrative offices;
- Construction of nine aircraft gates, and associated loading bridges and apron areas, along the west side of the new concourses at TBIT;
- Relocation and consolidation of existing aircraft gates along the east side of TBIT. In conjunction with the demolition of the existing concourses at TBIT, nine new aircraft gates, and associated loading bridges and apron areas, would be constructed along the east side of the new concourses, and one existing gate would be retained, to replace the twelve aircraft gates that currently exist at TBIT;
- Renovation, improvement, and enlargement of the existing federal inspection services of Customs and Border Protection (CBP) areas within the central core of TBIT;
- Renovation, improvement, and enlargement of existing concessions areas, office areas, and operations areas within the central core of TBIT;
- Construction of secure/sterile passenger corridors (i.e., areas allowing only passengers that have gone through security clearance and are subject to FAA or airline security requirements) between Terminals 3 and 4 and TBIT; and
- Westward relocation of existing Taxiways S and Q, which are currently located in the area proposed for the new concourses and/or gates.

Additional information regarding each of these improvements is provided below.

11 New Generation Aircraft is a general term referring to the development and release of new models of commercial aircraft that are larger, more fuel efficient, and incorporate new technology in flight engineering.

2.4.1 Proposed Improvements

2.4.1.1 TBIT Concourse Improvements

The proposed project includes construction of a new concourse area at TBIT to replace the existing north and south concourses. The north and south portions of the new concourse would be constructed approximately 130 feet west of the existing concourses, as measured from the west face of the existing concourses to the east wall of the proposed concourses, and would be approximately 120 feet wide with a maximum roof height of approximately 84 feet above ground. New concourse area would also be constructed west of the existing central core of TBIT, connecting with the new north and south concourses, to provide a total new concourse length of approximately 2,525 feet, including the northern 275 feet length of the existing north concourse. With the exception of that northernmost 275 feet of the existing north concourse, which would tie into the proposed concourse area, the existing north and south concourses at TBIT would be demolished after completion of the new concourses. Demolition would include approximately 77,620 square feet of floor area in the north concourse (i.e., two-story structure with approximately 38,810 square feet on each level) and all of the approximately 127,160 square feet of the south concourse (approximately 63,580 square feet of floor area on each of two levels). The new concourses would provide larger passenger hold areas than the existing concourses, and improved concessions including new food and beverage stores, merchandise stores, airline lounges, passenger corridors, administrative offices, and support space. The new passenger holdrooms on the departure level will be designed to accommodate approximately 125 passengers for Airplane Design Group (ADG) III/IV gates, approximately 225-340 passengers for ADG V gates, and approximately 450 passengers for ADG VI gates. The new concourse facility would be constructed to current seismic standards which are more stringent than those in existence at the time the existing north and south concourses were constructed in the early 1980s. (California seismic safety building standards were revised following the Northridge Earthquake in 1994). **Figure 2-2** shows the proposed configuration of the proposed Bradley West concourse.

2.4.1.2 Aircraft Gates

The development of new gates along the west side of the new concourses includes four gates on the south concourse that would be designed to accommodate ADG VI aircraft such as the A380 and 747-8,[12] providing passenger loading bridges at the fore and aft of the aircraft as well as an additional loading bridge for the upper level of the A380 aircraft. **Figure 2-3** illustrates how an A380 could be gated with three loading bridges, with the two forward bridges connected to the lower level and the rear bridge connected to the upper level, and ground service trucks/equipment distributed around the aircraft. At the north concourse, three gates would be developed on the west side and would be designed to accommodate either two ADG VI aircraft or three ADG V aircraft such as the 787, Boeing 747-400, and Airbus A340; see **Figure 2-2**. Two new gates, one designed to accommodate an ADG IV aircraft and the other to accommodate an ADG VI aircraft, would be constructed west of the existing central core of TBIT, between the new north and south concourses.

As indicated previously, once the new concourse facility is completed, all of the existing south concourse and most (i.e., approximately 75 percent) of the existing north concourse would be demolished. The twelve gates that currently exist along the east side of TBIT would be replaced by nine new gates plus existing Gate 123, which was modified in 2008 to accommodate the A380, and which would be retained. It is currently anticipated that the east side of the north concourse would include one ADG VI gate, two ADG V gates, and two ADG VI/III gates (i.e., such as for Boeing 757 and 737 aircraft and Airbus 320 and 319 aircraft), while the east side of the south concourse would include one ADG VI gate, three ADG V gates, and one ADG IV/III gate (see **Figure 2-2**).

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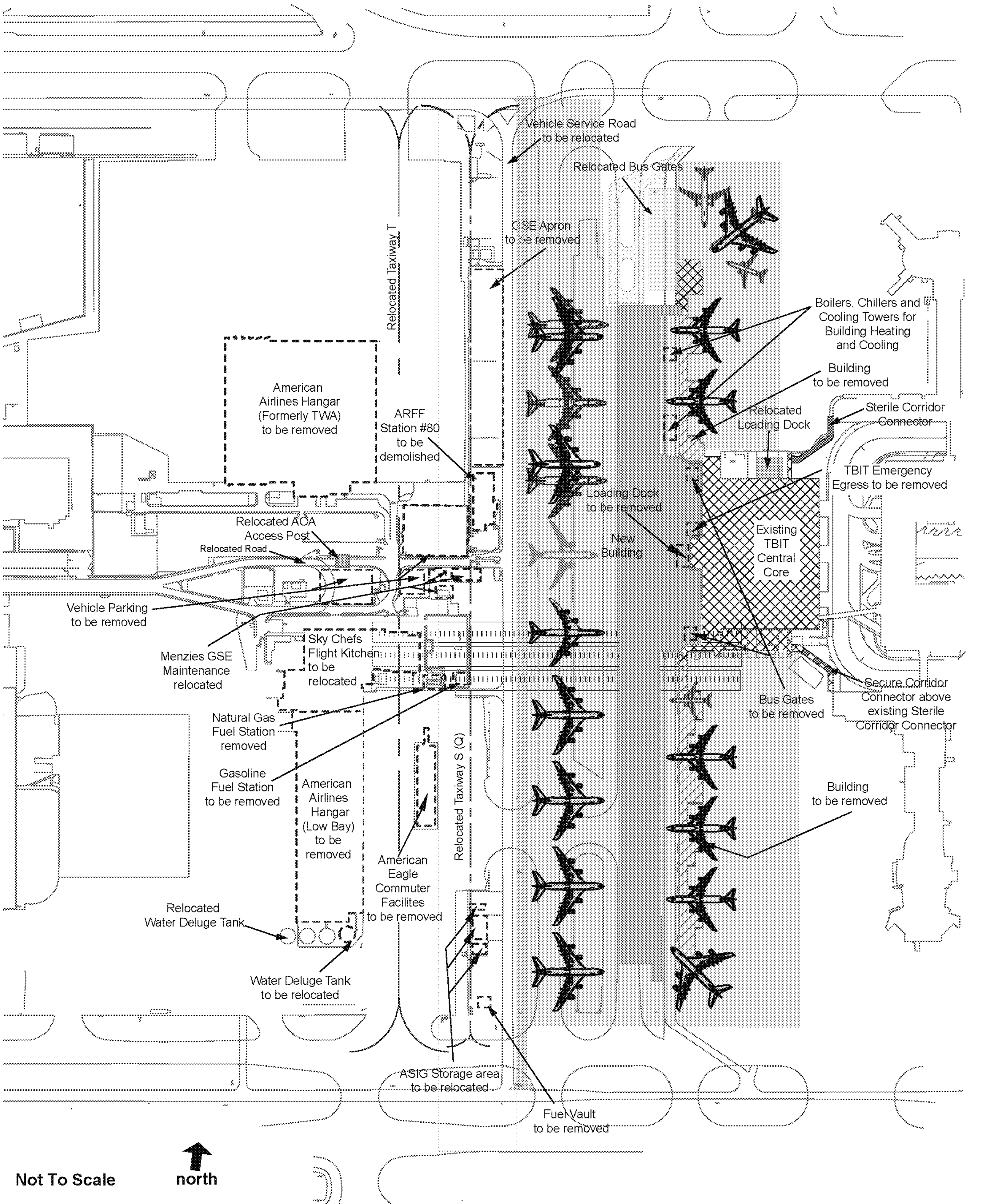
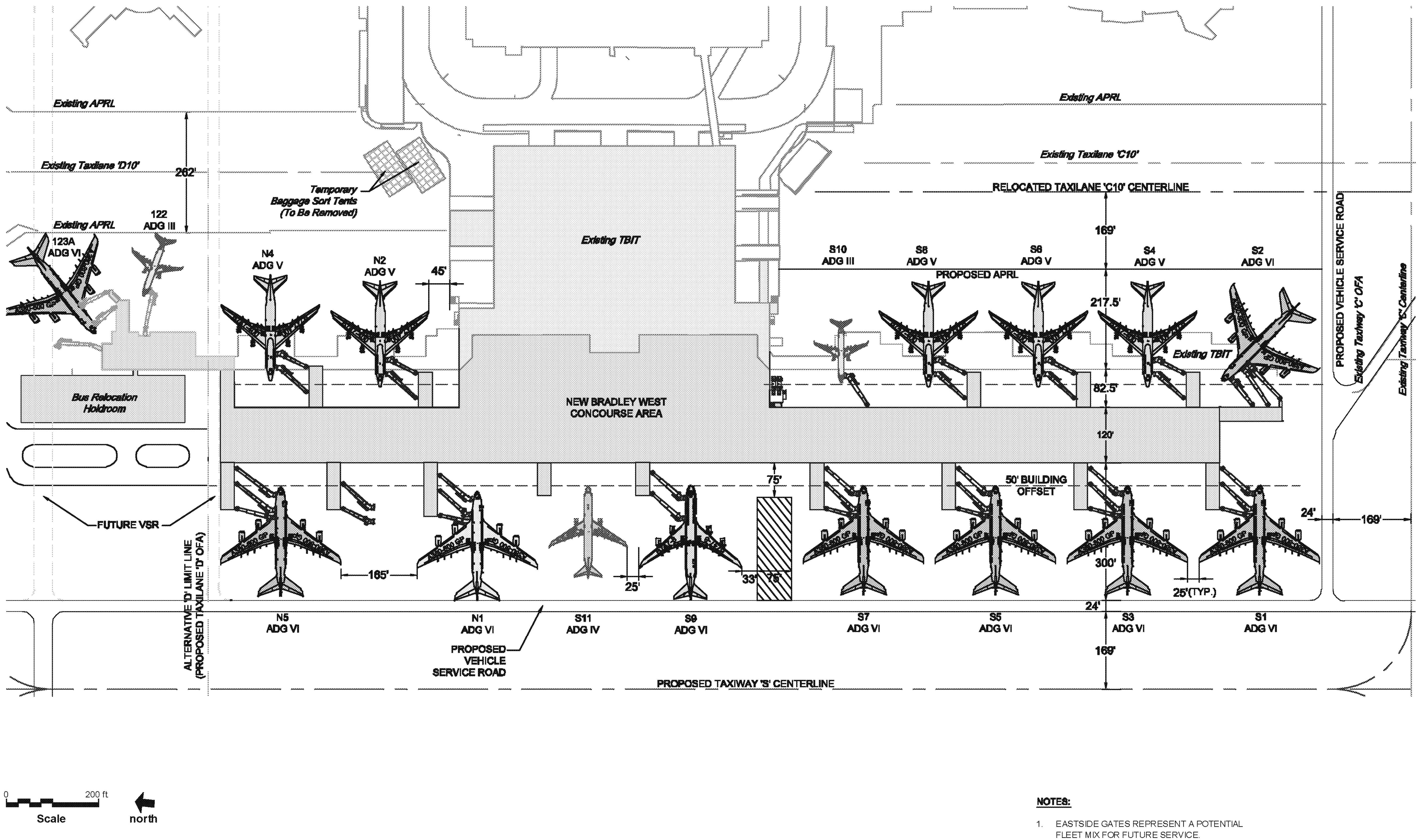
12 ADG VI generally includes aircraft with a wingspan of between 214 and 262 feet and a tail height of between 66 and 80 feet. It should be noted that all New Large Aircraft (NLA) currently in production are considered to be ADG VI aircraft, but not all ADG VI aircraft are NLA. For example, the Lockheed C-5 Galaxy heavy-duty military transport plane is an ADG VI aircraft. NLA generally refers to the new large aircraft that are proposed for commercial service that meet ADG VI size standards.



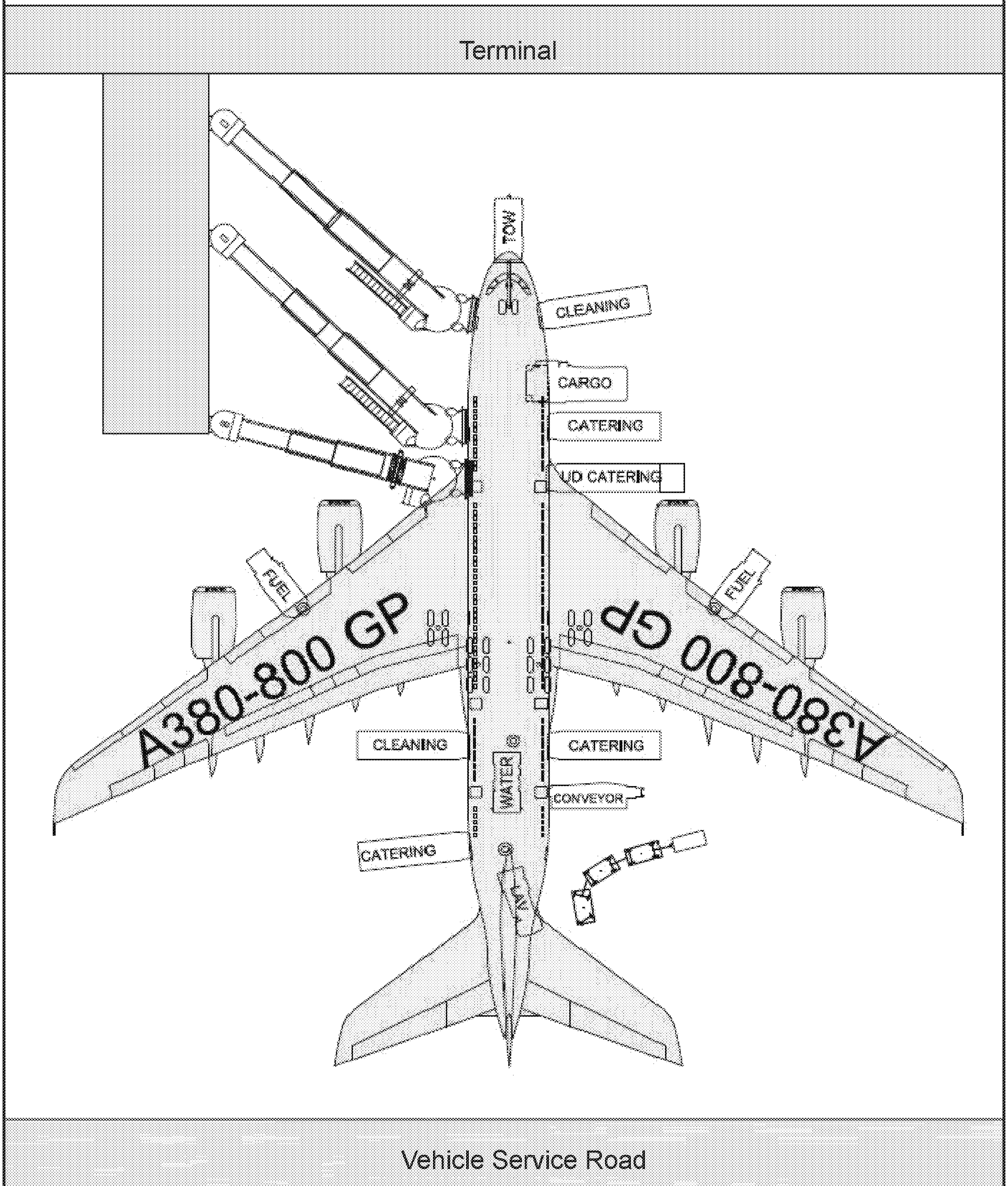
Source: LAX Development Program Team, 2008.

LAX Bradley West Project Draft EIR	Project Site Plan	Figure 2-1



Source: LAX Development Program Team, 2009.

LAX Bradley West Project Draft EIR	Proposed Bradley West Concourse Layout	Figure 2-2



Prepared by: CDM, 2009.

LAX Bradley West Project **Draft EIR**	**A380 Passenger Loading** **Bridge Configuration**	Figure **2-3**

With implementation of the proposed project, international flights that process passengers through TBIT and that would otherwise use remote gates would instead be routed directly to and from TBIT, thereby eliminating the remote gate busing operations associated with those flights. To the extent development of the new gates along the west side of TBIT would reduce the need for, and use of, the existing remote gates for international flights, the remote gates would be more available to be used for Remain Overnight (RON) aircraft parking.

Relocation of existing Taxiways Q and S, as described in greater detail below, would require demolition of the existing American Eagle (American Airlines) Commuter Terminal, which has 12 existing aircraft gates. In conjunction with the expiration of American Airlines' existing lease and establishment of a new lease, the existing commuter operations at that facility would relocate to the existing commuter terminal located just east of Terminal 8, which was formerly operated by United Express but is now vacant.

Nominally, based on the above, implementation of the proposed project would result in a net reduction of 5 aircraft gates, with 7 gates being added to the current total of 12 gates at TBIT and 12 gates being eliminated with the demolition of the American Eagle Commuter Terminal.

2.4.1.3 Bradley West Core

Within the central portion of TBIT, the existing central core would be improved and enlarged to provide additional inspection counters, baggage claim units, primary and secondary processing areas, and CBP administrative/office areas. Other proposed improvements would include renovations within the ticket counter area and airline ticket office area, addition of new concessions areas, expansion and improvement of the meeter/greeter area, additional restrooms, and additional general circulation area. The improved and enlarged area is referred to as the Bradley West Core.

The improvements proposed for the Bradley West Core would occur both within the existing building area as well as within new building area that would fill in the area between the existing west face of the existing central core and the new concourse area to the west. A new roof structure, consistent with the design of the new concourses' roof, would be constructed over both the existing central core and the new building area extending west. The maximum height of the Bradley West Core would be approximately 130 feet above ground. This would require relocation of existing functions that are now located on the west face of the existing central core, including the TBIT loading dock, which would be moved to the north side of the existing building temporarily and then moved back to the new west face of the Bradley Core; a TBIT emergency egress, which would be integrated into the design of the new western portion of the Bradley West Core; and the existing bus gates that provide for the loading and unloading of passengers and crews on the buses traveling between TBIT and other gates, including the west remote gates.

The existing bus gates would be replaced by a 28,400-square-foot busing operations holdroom comprised of either a pre-engineered metal building or a concrete tilt-up structure to be constructed at the northern end of the existing north concourse. The subject facility would accommodate the existing busing operations between TBIT and the west remote gates and between TBIT and international flights occurring at gates within the CTA. With development of the new contact gates at TBIT and the addition of new sterile/secure connector corridors between TBIT and Terminals 3 and 4, the need for busing operations and associated passenger holdroom would be substantially reduced. The temporary busing operations holdroom would remain in operation until a new busing operation holdroom sized to reflect the reduced need for busing is constructed. Such a facility could be accommodated in the new south concourse near the Bradley West Core, after which the temporary busing operations holdroom would be demolished/removed.

Development of the new concourse area and the westward extension of the existing central core to tie into the new concourse will result in an increase in the total floor area of TBIT. The existing facility, including the north and south concourses and central core, encompasses a total of approximately 977,120 square feet. The proposed future facility would provide approximately 2,024,110 square feet of floor area. **Table 2-1** provides a breakdown of existing and future floor area uses within TBIT, including the central core and concourse areas, and **Figures 2-4a** through **2-4e** present conceptual floor plans for the Bradley West Project. **Figure 2-5** presents a conceptual section view looking north through the Bradley West Core, including new building area on the west that would tie into the new concourse.

Table 2-1

TBIT Floor Area Breakdown

		Future Conditions with Project Completion[1]			
Level Detail	**Existing Conditions[1]**	**Existing (Unaltered) Area**	**Renovated Area**	**New Area**	**Total Area**
Level 1 - Arrivals					
Baggage Claim and Customs	89,000				
Baggage Claim			59,500	54,900	114,400
Baggage Re-check	4,820	6,730			6,730
Baggage Trolley				4,050	4,050
Customs Secondary Inspection			9,150		9,150
Circulation	48,310	21,930	50,880	16,030	88,840
Mechanical/Electrical				7,180	7,180
Meter Greeter Hall	25,530	25,530	6,210		31,740
Office/Support	18,490	17,140			17,140
Restrooms	6,110	2,630		2,800	5,430
Retail/Concession	6,810	1,740			1,740
Vertical Circulation	17,610	15,240		13,300	28,540
Total	**216,680**	**90,940**	**125,740**	**98,260**	**314,940**
Level 2 - Interstitial					
Building Core		3,890			3,890
Circulation	40,690			26,790	26,790
Concession	2,660			4,200	4,200
Corridor				17,700	17,700
Duty Free Staging Area				380	380
Gate		16,770			16,770
Holdroom	2,120			11,660	11,660
Inbound Baggage				36,050	36,050
In-Transit Lounge	14,570			18,360	18,360
Information Technology (IT) Rooms/Offices				9,660	9,660
Loading Dock				4,800	4,800
Mechanical/Electrical	2,670			45,920	45,920
Office/Support	55,470	990			990
Open Floor Area				83,080	83,080
Operations/Offices				104,780	104,780
Outbound Baggage	101,800	101,800			101,800
Restrooms	1,740			6,510	6,510
Shuttle Wait Area				380	380
Sterile Corridor	23,260			1,950	1,950
Unassigned			25,330	4,740	30,070
Vertical Circulation	10,040	3,850		10,430	14,280
Total	**255,020[2]**	**127,300**	**25,330**	**387,390**	**540,020**
Level 3 - Departures					
Bus Gates	17,120			38,680	38,680
Circulation	137,450	86,850	1,920	145,000	233,770
Concessions	18,940	12,970	9,900	93,100	115,970
Holdroom/Lounge	37,080	5,510		101,060	106,570
Information Technology (IT) Rooms/Offices				240	240
Loading Dock	2,370				
Mechanical/Electrical	3,220			13,830	13,830
Office/Support	47,340	8,350			8,350
Operations		800			800
Pier (Area Between Holdroom and Jetways at Each Gate)				56,230	56,230
Restrooms	5,450	2,630		14,420	17,050

Table 2-1

TBIT Floor Area Breakdown

Level Detail	Existing Conditions[1]	Future Conditions with Project Completion[1]: Existing (Unaltered) Area	Renovated Area	New Area	Total Area
Retail		1,240			1,240
Security/Passenger Screening	16,260	6,600	23,400		30,000
Ticket Counter Area	11,730				
Ticket Counter Queuing	25,670				
Ticket Office		36,810	10,530		47,340
Ticketing		15,550			15,550
TSA				5,660	5,660
Unassigned				7,490	7,490
Vertical Circulation	12,160	9,340		12,250	21,590
Total	**334,790[3]**	**186,650**	**45,750**	**487,960**	**720,360**
Level 4 - Lower Mezzanine					
Customs & Border Protection Offices				10,940	10,940
Customs & Border Protection Primary Inspection				56,050	56,050
Circulation	2,310	2,310	5,200	20,020	27,530
Concession	30,250				
In-Transit Lounge	15,080	6,500	34,680		41,180
Mechanical/Electrical	10,980		8,870		8,870
Office/Support	23,740	23,740			23,740
Gate Piers				24,590	24,590
Restrooms	4,540		5,600		5,600
Sterile Corridor				78,350	78,350
Vertical Circulation	5,830	5,830		12,940	18,770
Total	**92,730**	**38,380**	**54,350**	**202,890**	**295,620**
Level 5 - Upper Mezzanine					
Airline Alliance Lounge Areas	26,130	26,130		75,090	101,220
Circulation	2,520	6,680		180	6,860
Building Core/Mechanical & Utility	14,630	11,500			11,500
Office/Support	22,500	22,500			22,500
Restrooms	2,140	1,110			1,110
Vertical Circulation	9,980	9,980			9,980
Total	**77,900**	**77,900**	**0**	**75,270**	**153,170**
Grand Total	**977,120[4]**	**521,170**	**251,170**	**1,251,770**	**2,024,110**

1 Different databases were used to calculate existing and future uses on each level. As a result, although the total square footage for each level matches (i.e., the total square footage under "existing conditions" for each level, minus square footage to be demolished, equals the future "existing (unaltered) area" plus the future "renovated area"), there are some discrepancies in the breakdown of square footage by functional area within a given level. These discrepancies do not affect any findings of the environmental analysis.

2 Of the 255,020 square feet on Level 2 under existing conditions, 102,390 would be demolished as part of the Bradley West Project. Of this, 38,810 would be from demolition of the existing north concourse - departure level and 63,580 would be from demolition of the existing south concourse - departure level.

3 Of the 334,790 square feet on Level 3 under existing conditions, 102,390 would be demolished as part of the Bradley West Project. Of this, 38,810 would be from demolition of the existing north concourse - departure level and 63,580 would be from demolition of the existing south concourse - departure level.

4 Of the 977,120 square feet in TBIT under existing conditions, 204,780 square feet would be demolished as part of the Bradley West Project. Demolition would include approximately 77,620 square feet of floor area in the north concourse and all of the approximately 127,160 square feet of the south concourse.

Source: LAX Development Program Team, 2008.

The improvements proposed within Level 1, the Arrivals Level, include substantial emphasis on baggage processing, inspection, and claim areas, with approximately 40,500 square feet of area dedicated to those activities being added to the existing 93,800 square feet for such uses. The associated additional baggage conveyance trolleys, CBP inspection stations, and baggage claim carousels, combined with the addition of new contact gates at TBIT reducing the use of the more distant west remote gates, are expected to substantially improve the processing time and quality of service provided to arriving passengers, especially international travelers. Additionally, the amount of general circulation area on Level 1 would be increased by approximately 80 percent, with approximately 40,500 square feet being added, while the area on Level 1 for retail/concessions would be reduced from approximately 6,800 square feet to 1,740 square feet.

Level 2, referred to as the Interstitial Level, includes the lower level of the concourses. This level is used primarily for baggage conveyance, office area, and operations. Improvements proposed for this level focus primarily on additional area for baggage conveyance; additional area for operations/offices; relocation of the bus gates holdroom and the provision of concessions nearby; and an increased amount of restroom area. Once the new concourses are built, all of the existing south concourse and most of the existing north concourse will be demolished, including the 102,390 square feet on this level (see **Figure 2-4b**).

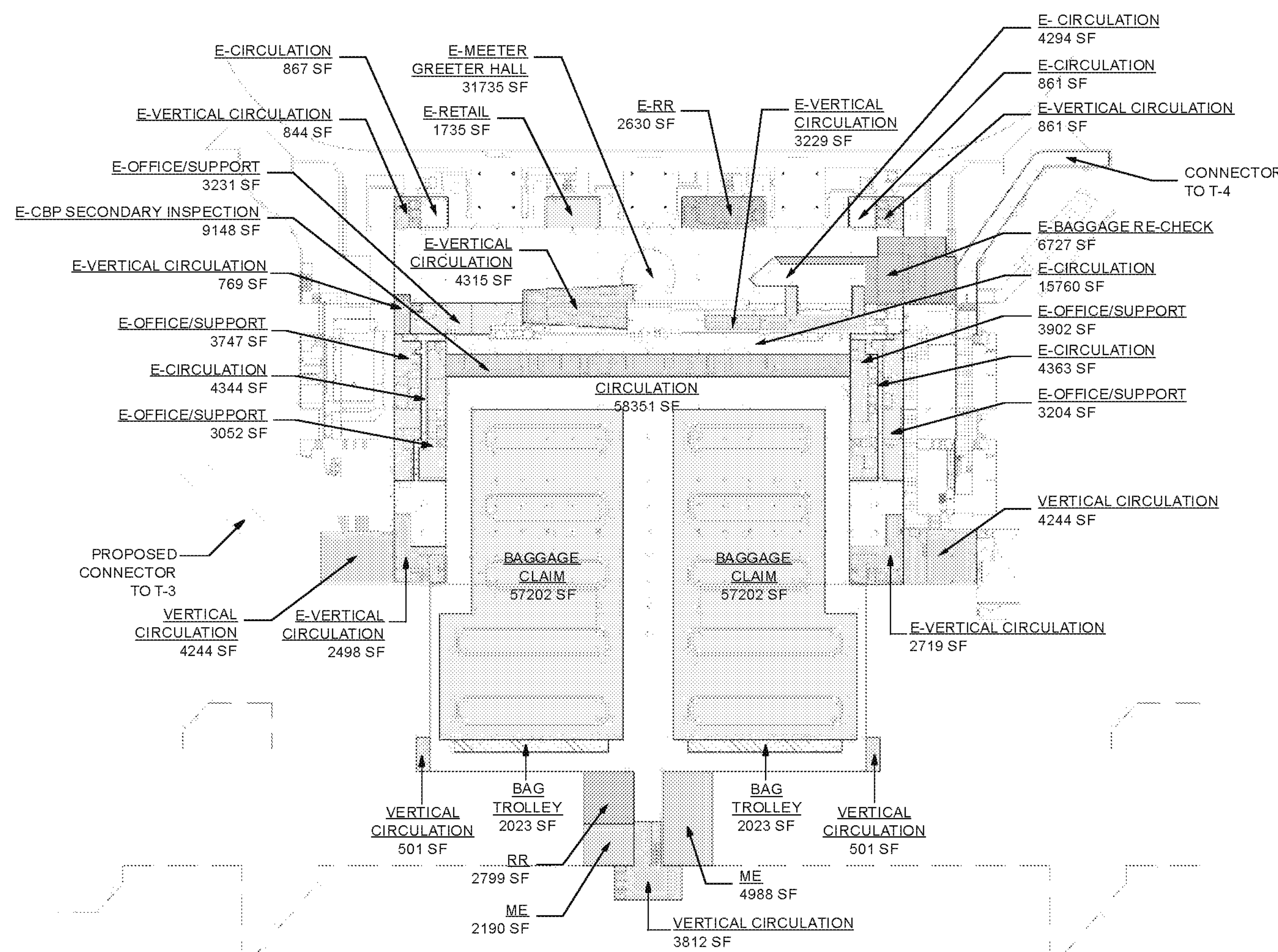
Level 3, the Departures Level, will be improved to provide additional area and checkpoints for security/passenger screening (over 80 percent increase in area), new larger passenger holdrooms including those associated with the new gates on the west side of TBIT (almost a three-fold increase in holdroom area). A key feature on this level within the Bradley West Core is the proposed "Great Hall" which will be a large open space open to natural light, with both high ceilings and glass curtainwall that will contain a variety of concessions, providing an almost five-fold increase in the amount of concessions area currently on that level. Additionally, there would be an approximately 70 percent increase in the ticketing area and an approximately 70 percent increase in general circulation area. Similar to Level 2 described above, completion of the proposed new concourse area would be followed by demolition of the 102,390 square feet of existing concourse area on Level 3.

Level 4, the Lower Mezzanine, would be improved to provide a sterile corridor connecting the aircraft gates to a new 56,000-square-foot CBP primary inspection area for the processing of passengers arriving on international flights, and approximately 11,000 square feet for CBP offices nearby. Other improvements proposed on this level would increase the size of the in-transit lounge area from 15,100 square feet to 41,200 square feet.

Level 5, the Upper Mezzanine, would be improved to fill in the area between the west edge of the existing central core and the east edge of the new concourse area with approximately 75,090 square feet of new airline alliance lounge area. Relatively minor modifications would be made to the remainder of the existing Upper Mezzanine, which contains existing airline alliance lounge areas, office/support area, restrooms, circulation, and building mechanical/utility area.

2.4.1.4 Secure/Sterile Connector Corridors between TBIT and Terminals 3 and 4

Improvements proposed within TBIT include the addition of secure/sterile corridors connecting with Terminals 3 and 4 to allow passengers on international arrival flights in those terminals to have direct access to the screening and inspection services within TBIT, instead of the current procedure of deplaning onto buses and being transported to the west side of TBIT for processing.



Legend

- BAG TROLLEY
- BAGGAGE CLAIM
- CIRCULATION
- E - BAGGAGE RE-CHECK
- E - CBP SECONDARY INSPECTION
- E - CIRCULATION
- E - MEETER GREETER HALL
- E - OFFICE / SUPPORT
- E - RETAIL
- E - RR
- E - VERTICAL CIRCULATION
- ME
- RR (RESTROOMS)
- VERTICAL CIRCULATION

Not To Scale

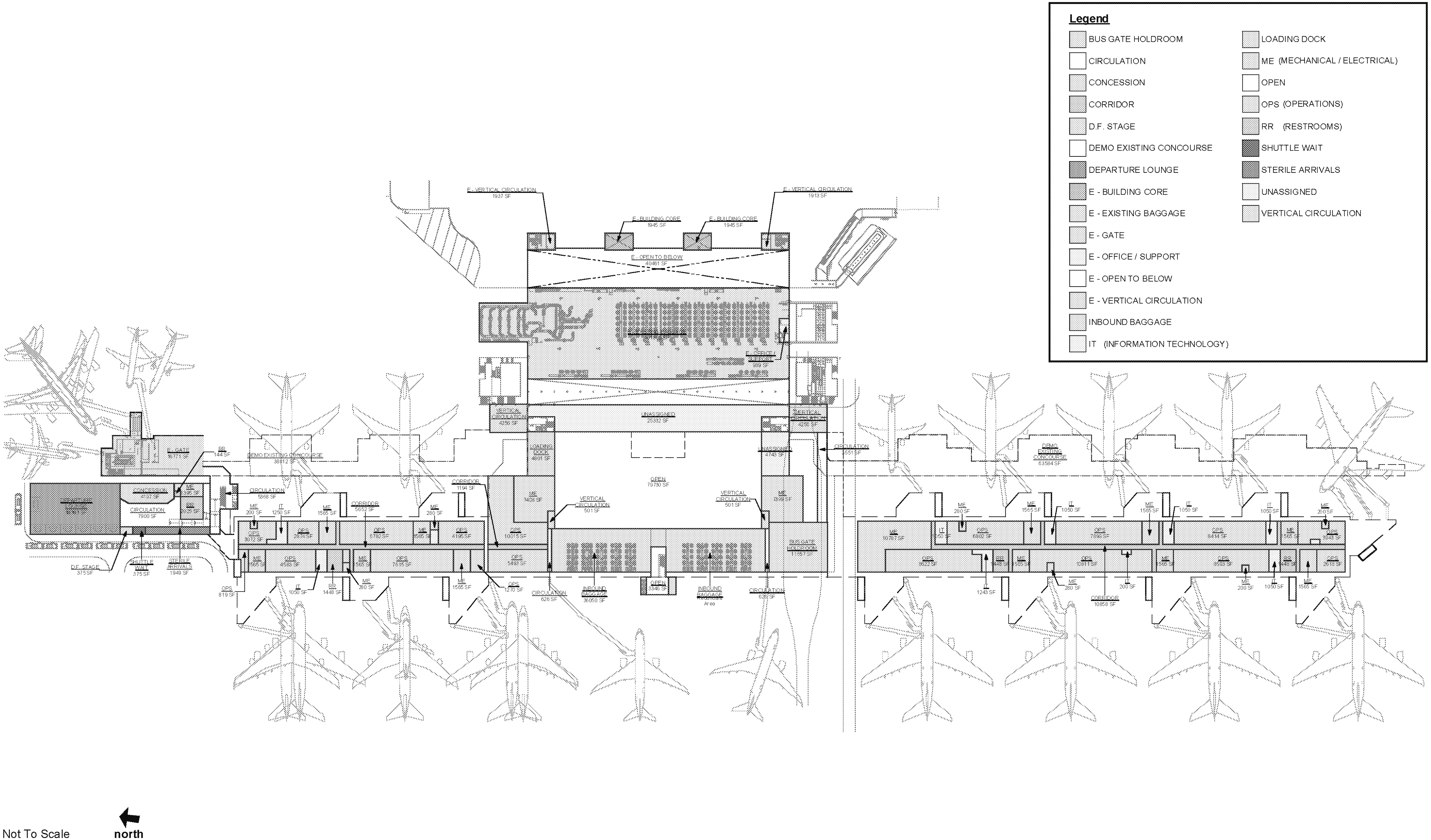
north

Source: LAX Development Program Team, 2008.

LAX Bradley West Project Draft EIR

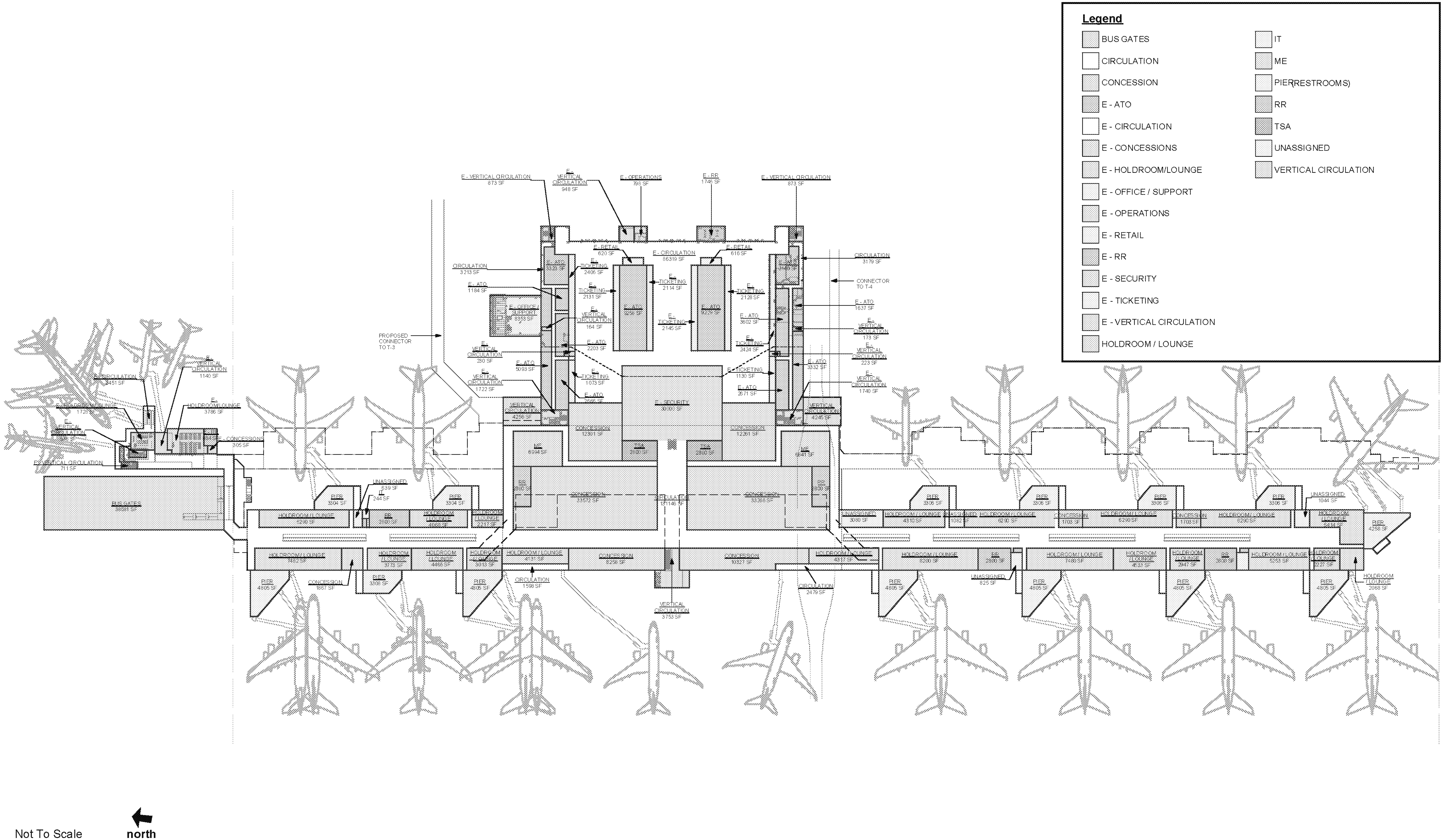
Bradley West Conceptual Floor Plan - Level 1

Figure 2-4a



Source: LAX Development Program Team, 2008.

LAX Bradley West Project Draft EIR	Bradley West Conceptual Floor Plan - Level 2	Figure 2-4b



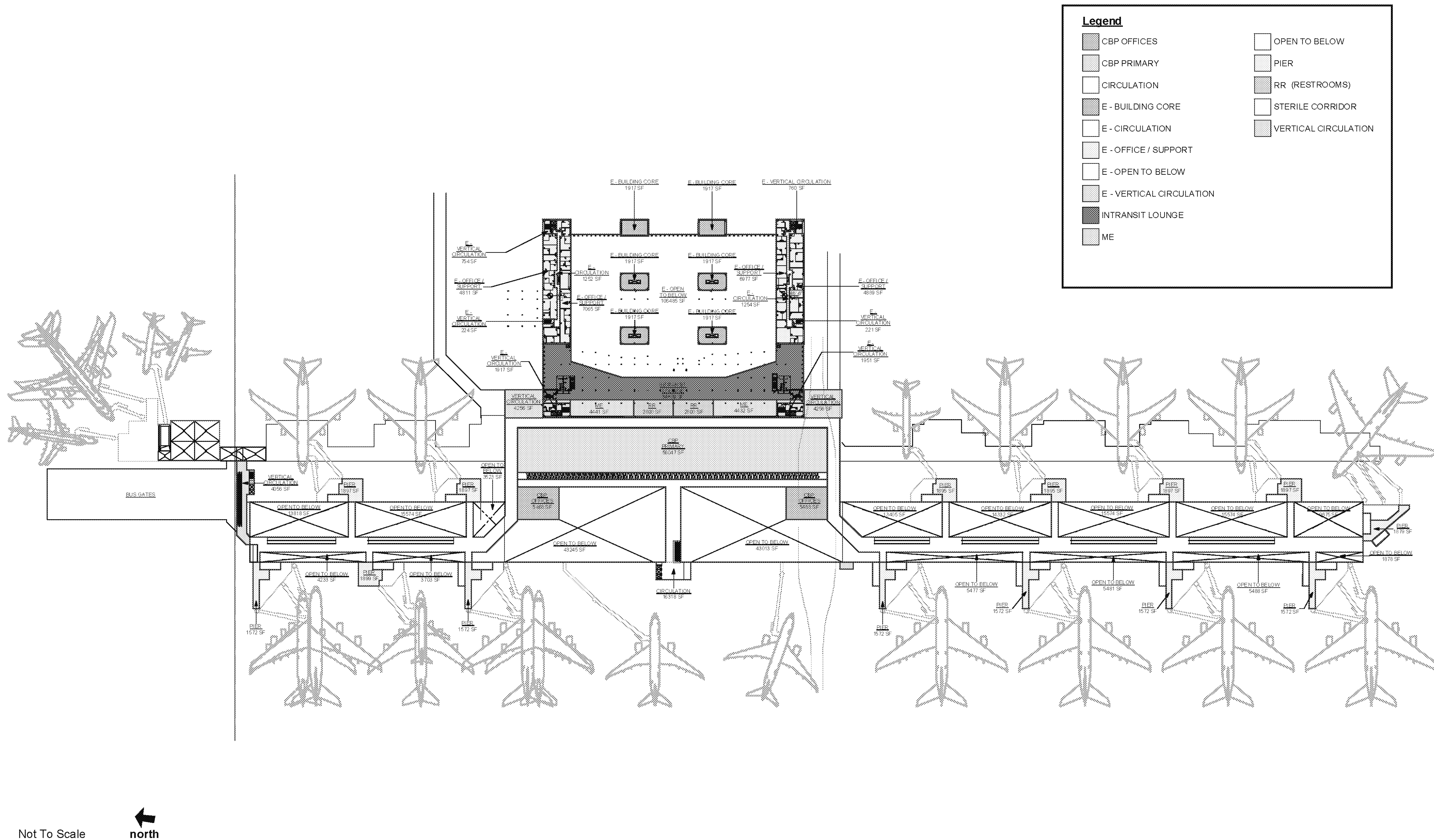
Source: LAX Development Program Team, 2008.

LAX Bradley West Project Draft EIR

Bradley West Conceptual Floor Plan - Level 3

Figure

2-4c

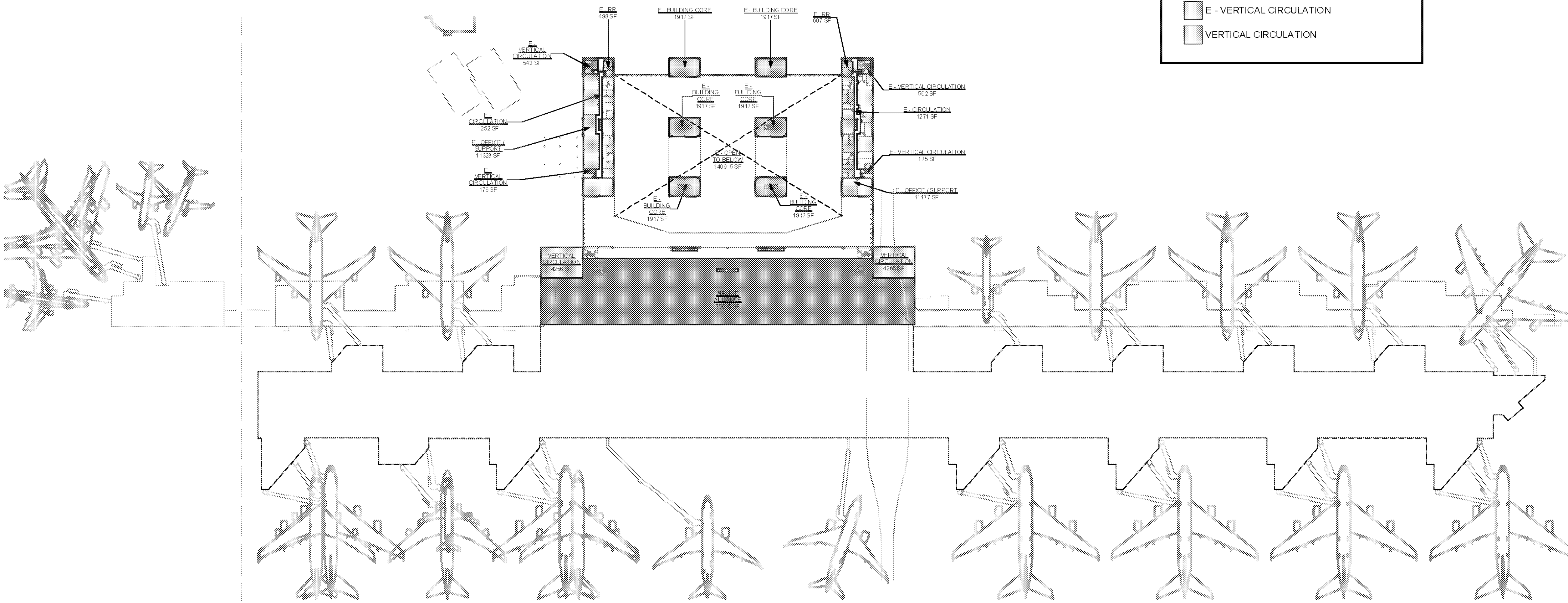


Source: LAX Development Program Team, 2008.

LAX Bradley West Project Draft EIR	Bradley West Conceptual Floor Plan - Level 4	Figure 2-4d

Legend

AIRLINE ALLIANCE
CIRCULATION
E - BUILDING CORE
E - CIRCULATION
E - OFFICE / SUPPORT
E - OPEN TO BELOW
E - RR (RESTROOMS)
E - VERTICAL CIRCULATION
VERTICAL CIRCULATION



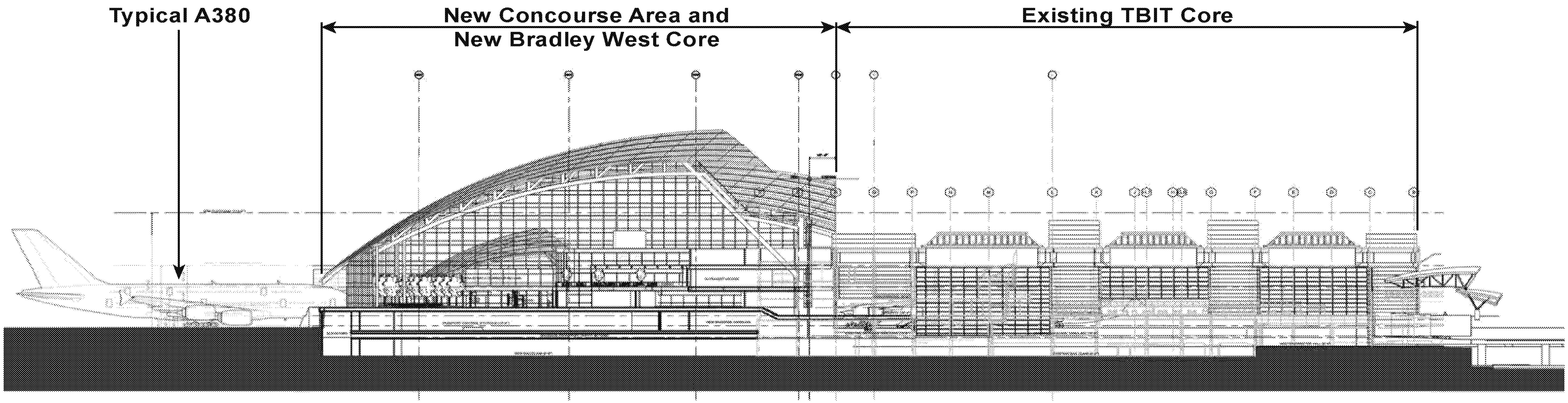
Not To Scale

north

Source: LAX Development Program Team, 2008.

Bradley West Conceptual Floor Plan - Level 5

Figure
2-4e



Not To Scale

Source: LAX Development Program Team, 2008.

Bradley West Conceptual Building Section View
Looking North at Concourse and Bradley West Core

Figure
2-5

2.4.1.5 Taxiways S and Q Westward Relocation

The area along the west side of TBIT that is proposed for the new concourse facility, new gates, loading bridges, and aircraft apron area is currently occupied by Taxiways S and Q and an adjacent service road, which provide aircraft access between the north runway complex and the south runway complex. As part of the proposed project, both taxiways would be relocated approximately 518 feet to the west (from centerline of existing Taxiway Q to centerline of new Taxiway S), and would be designed and constructed to accommodate ADG VI aircraft. The relocated taxiways may be designated by the FAA as either taxiways, taxilanes, or one of each.

Early in the preparation of construction plans for relocation of Taxiways Q and S, consideration was given to the development of various tunnel segments that are improvements included in the approved LAX Master Plan. Specifically, the LAX Master Plan identifies a tunnel system to access the future Midfield Satellite Concourse. While such a tunnel system is not required for the Bradley West Project, construction of those segments of the tunnels situated beneath the relocated taxiways was evaluated relative to reducing future environmental impacts and taxiway operations disruption associated with development of the tunnel system. Constructing the tunnel segments in conjunction with the proposed taxiway construction would avoid the future need to either tunnel beneath the subject taxiways or close them and excavate across them in order to complete the tunnel system. Further evaluation and consideration of that development approach found that it may be preferable to hold construction of the tunnel segments until such time as the entire tunnel system can be developed in conjunction with construction of the future Midfield Satellite Concourse. While the impacts analyses presented in this EIR relative to relocation of Taxiways Q and S include the subject tunnel segments (i.e., tunnel segments were included in the initial project description used as the basis of the impacts analysis), the actual construction of the tunnel segments and system is anticipated to occur through a discretionary approval(s) separate from the Bradley West Project.

2.4.1.6 Building Heating and Cooling System

The Bradley West Project improvements include provisions for meeting the heating and cooling requirements of the building. A system that includes four natural gas boilers to generate hot water and seven chillers, with associated cooling towers, to generate chilled water is proposed to be installed in the outdoor area where the Bradley West Core and the new north concourse would meet (see **Figure 2-1**). This boiler and chiller system would supplement the heating and cooling capabilities of the existing LAX Central Utilities Plant (CUP), which currently operates below its design capacity and is considered to be outdated and inefficient. As described in Chapter 3 of this EIR, the existing CUP is proposed to be replaced with a new and more efficient CUP. Completion of the replacement CUP project would substantially reduce, if not eliminate, the need for supplemental heating and cooling that is proposed to be provided by the system included in the Bradley West Project. Should the supplemental heating and cooling no longer be needed, it is anticipated that the boiler, chiller, and cooling tower system would be decommissioned and removed.

2.4.1.7 Relocation, Modification, and Upgrading of Utility Lines

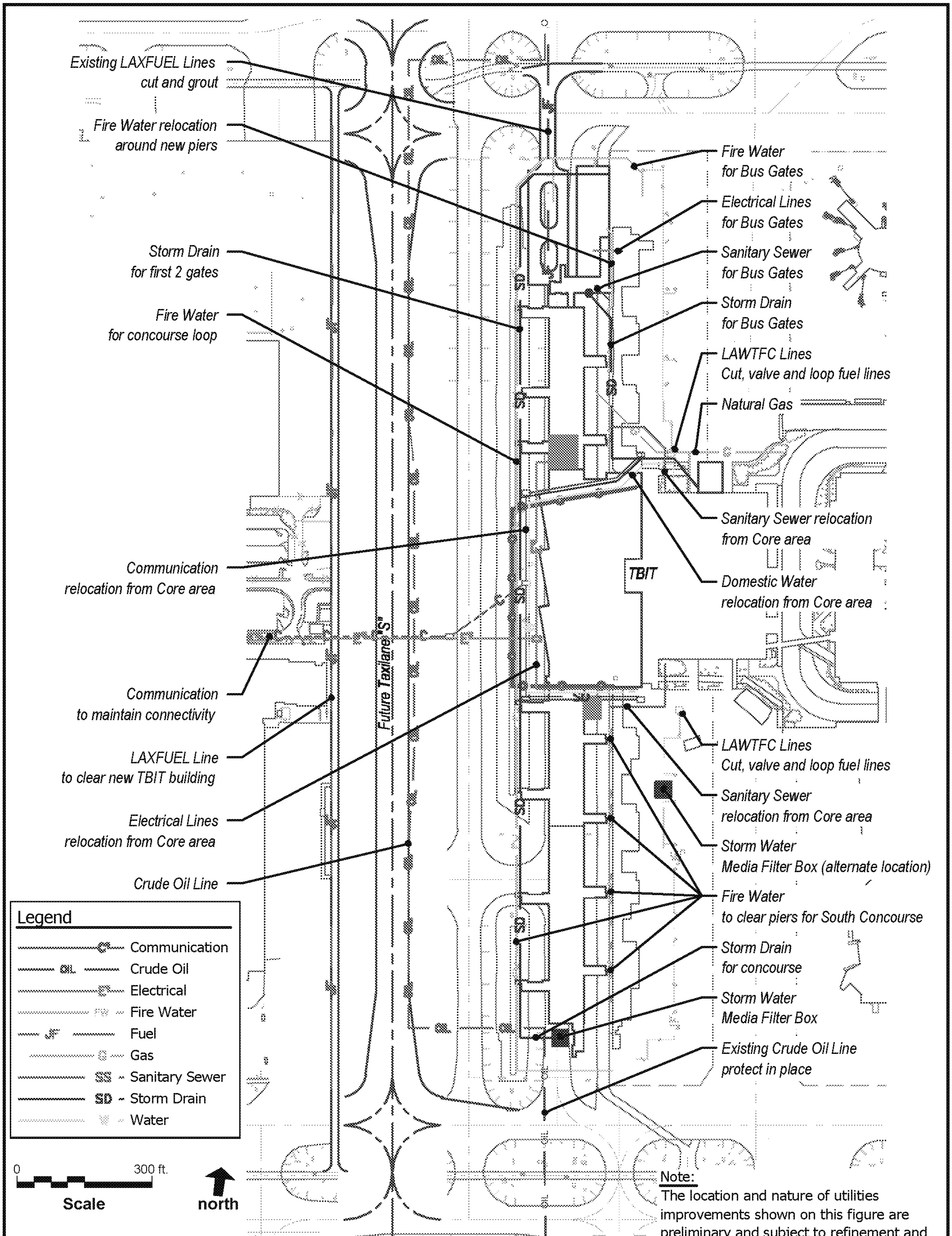
The Bradley West Project site extends across an area that contains various subsurface and above-ground utility lines and facilities, including those related to storm drain, sewer, water, electricity, natural gas, oil and fuel, and communications. Implementation of the Bradley West Project would require the relocation or modification of some lines, and may include the upgrading of lines to meet current code requirements and to function more efficiently. Utility lines in the Bradley West Project area that have been identified as requiring relocation are identified in **Table 2-2** and illustrated in **Figure 2-6**. Additional infrastructure facilities in the project area may also require relocation as a result of project construction.

Table 2-2

Summary of Planned Utility Relocations and Modifications for the Bradley West Project

Utility	Description
Domestic backbone water supply relocation	Existing 12" combined domestic and fire water lines to be relocated around the existing and new TBIT north, west and south peripheral. Total length approximately 1,300 linear feet (LF).
Fire water loops to be rerouted	Existing 8" fire water loops to be re-routed. Total length approximately 5,000 LF.
Sanitary sewer lines relocation	Two existing 8" collectors to be relocated from the northwest and southwest corners of existing TBIT to make room for the new TBIT building. Total length approximately 750 LF.
Roof drains and site drainage rerouting	Existing drainage runoff from TBIT to be rerouted due to demolition of existing trunk lines around TBIT. New building roof runoff to be directed to the same system to be treated per SUSMP requirement. New storm drain system to be installed around the north, west and south sides of new TBIT building. Existing system to be abandoned/removed during core construction. Size of pipe varies from 18" to 48".
Crimson Oil product line relocation	Existing 10" line in Taxiway Q to be relocated on the west side of the existing service road next to Taxiway S. Total length approximately 4,000 LF.
LAXFUEL redundancy lines relocation	Existing 18" line to be relocated from Taxiway Q to between future Taxiway S and Taxiway T. Total length approximately 3,800 LF. Existing lines to be abandoned in place and removed.
LAWTFC aircraft hydrant loop modifications	Existing 2 x 12" lines to be capped, re-looped and isolated.
Electrical feeds to World Way West relocation/new duct bank	Relocate two 34.5 kV (high voltage) electrical feeds that run in duct banks located south of the existing TBIT to route new lines and duct banks to/along World Way West to the west and through the CTA to the east. Coordinate LAWA 34.5 kV system upgrade with LADWP system including new on-airport distribution stations and possibly new network stations.
Power/communication conduit lines rerouting	Subsurface 480v power distribution and communication conduit lines to be rerouted vertically over concourses for a total distance of 1,100 LF at each concourse. After rerouting is completed and conductors pulled through, a "cut over" sequence (i.e., systematic transfer of live power from old lines to new lines) will complete the work.
Communication fiber optic relocations	Provide temporary communication duct bank in front of future TBIT building to supply LAWA communication needs until a new communication duct bank is constructed. New duct bank, separate from 34.5 kV duct bank, will feed LAWA, FAA, AT&T, third party and other miscellaneous communication cables.

Source: LAX Development Program Team, 2009.



Source: LAX Development Program Team, 2009.

Note:
The location and nature of utilities improvements shown on this figure are preliminary and subject to refinement and field verification.

LAX Bradley West Project Draft EIR

Proposed Utility Relocations and Modifications

Figure **2-6**

In general, the relocation, modification, and upgrading of utility systems would involve the placement of new lines or facilities at locations compatible with project plans in advance of taking the potentially affected existing line out of service. The design and construction of the utility systems improvements are coordinated with the affected service provider which, relative to the aforementioned utility types, may include the Los Angeles Bureau of Sanitation, Los Angeles Department of Water and Power, Southern California Edison, Southern California Gas Company, LAXFUEL and other fuel/oil companies with lines at LAX, and various communications companies. The construction activity associated with such utilities systems improvements would occur in conjunction with the other project-related construction activities. For example, when the existing buildings, apron/pavement areas, and other surface improvements are removed to prepare the project site for relocation of Taxiway S or for construction of the new concourses and Bradley West Core, the necessary improvements to the underlying utility lines, including relocation to be compatible with project plans, would occur. In some cases, it is necessary to complete some or all of the improvements associated with a utility line relocation or modification in advance of construction occurring near the existing line in order to avoid a substantial disruption of service, such as if removal of existing surface structures has a high likelihood of impacting the underlying utility line. Work on subsurface utility lines may involve the cutting and removal of surface pavement using equipment such as concrete saws and backhoes, excavation of soils down to the utility line(s) level, removal of existing lines or further excavation and placement of bedding material for installation of a new line(s), placement of the new or modified utility line(s) using a backhoe or crane, backfilling and compaction of the area using equipment such as a backhoe, front loader, compactor, and roller, and placement of new surface pavement. Work on above ground utility lines and facilities would typically involve the use of various lifts and cranes. Haul trucks, materials delivery trucks, and crew pickup trucks would also be involved in subsurface and above ground utility work.

2.4.2 Removal/Relocation of Existing Facilities

Construction of the relocated taxiways would require the relocation and/or removal of several existing airfield facilities including, in addition to the busing facility and utilities described above, the existing loading dock at TBIT, seven RON aircraft parking spots, ground service equipment (GSE) storage and maintenance facilities, a ground vehicle fueling station, an airfield operations area (AOA) access control post, all or a part of the aircraft maintenance hangar formerly owned and operated by TWA, the American Airlines Low-Bay Hangar, one or more of the three water deluge tanks located south of the Low-Bay Hangar, a flight kitchen, the Los Angeles Fire Department Station 80/Aircraft Rescue and Firefighting (ARFF) Facility,[13] a vehicle parking lot, the American Eagle Commuter Terminal, and a fuel vault.

Table 2-3 provides an overview of the existing facilities that would be affected by the proposed project, including the name, size, and disposition of each facility; additional discussion of the subject facilities is provided in the narrative text that follows the table. **Figure 2-7** delineates the existing and proposed locations of the affected facilities.

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13 A new fire station/ARFF would be constructed prior to, and independent of, demolition of the existing ARFF.

Table 2-3

Summary of Existing Facilities to be Removed/Relocated

Facility	Approximate Count	Current Use	Disposition of Facility/Use
American Airlines (Former TWA) Maintenance Hangar	56,500 sq. ft.	The western portion of hangar is used for aircraft maintenance. The eastern portion is generally vacant, but occasionally used for storage.	Either all or just the eastern portion of the building would be demolished and not replaced. Existing aircraft maintenance activities could be relocated to the American Airlines High Bay Hangar and some maintenance activities could occur when aircraft are parked at RON areas.
AOA Access Post #5	144 sq. ft.	Guard Post	Building would be demolished and current use would be relocated to new guard post to be constructed northeast of the World Way West loop.
Vehicle Parking at east end of World Way West	Approximately 120 parking spaces	Employee/visitor parking	Parking associated with uses to be relocated, such as Menzies GSE Maintenance Facility and Sky Chefs Flight Kitchen would be provided at the use relocation areas. Other displaced parking would be accommodated at several other existing parking lots nearby.
Water Deluge Tanks	Three 750,000 gallon tanks	Serves the fire suppression systems for the existing American Airlines High and Low Bay Hangars, the former TWA Hangar and the Coast Guard Hangar	Easternmost storage tank and associated pumping system elements would be demolished and a replacement tank and associated piping would be constructed on the west side of the two remaining tanks.
Sky Chefs Flight Kitchen	270,000 sq. ft.	Food Preparation	Building would be demolished and the current operations therein would be relocated into an existing Sky Chefs facility located at 6901 Imperial Highway and/or moved to other off-site facilities, depending on business planning decisions yet to be made by Sky Chefs.
American Airlines Low Bay Hangar	170,000 sq. ft.	Aircraft, Facility, and GSE Maintenance; Baggage Sorting; Operations/Crew Lounge; Cabin Service; Fixed-Base Operator (Business Jet Maintenance); and Food Preparation	Hangar would be demolished. American Eagle aircraft maintenance would be relocated to the Delta Low Bay Hangar. GSE maintenance, luggage sorting, and operations/crew lounge would be relocated to the former United Express Commuter Terminal located east of Terminal 8 and Sepulveda Boulevard. Cabin service would be relocated to the former United Airlines cargo facility. American Airlines facility maintenance operations could be relocated into the American Airlines High Bay Hangar. The Fixed-Base Operator could be relocated to the Delta Low Bay Hangar or other suitable location along the south side of the airfield where several other fixed-based operators are located. Sky Chefs operations would be relocated to either the Imperial facility or other operations off airport site (see above).

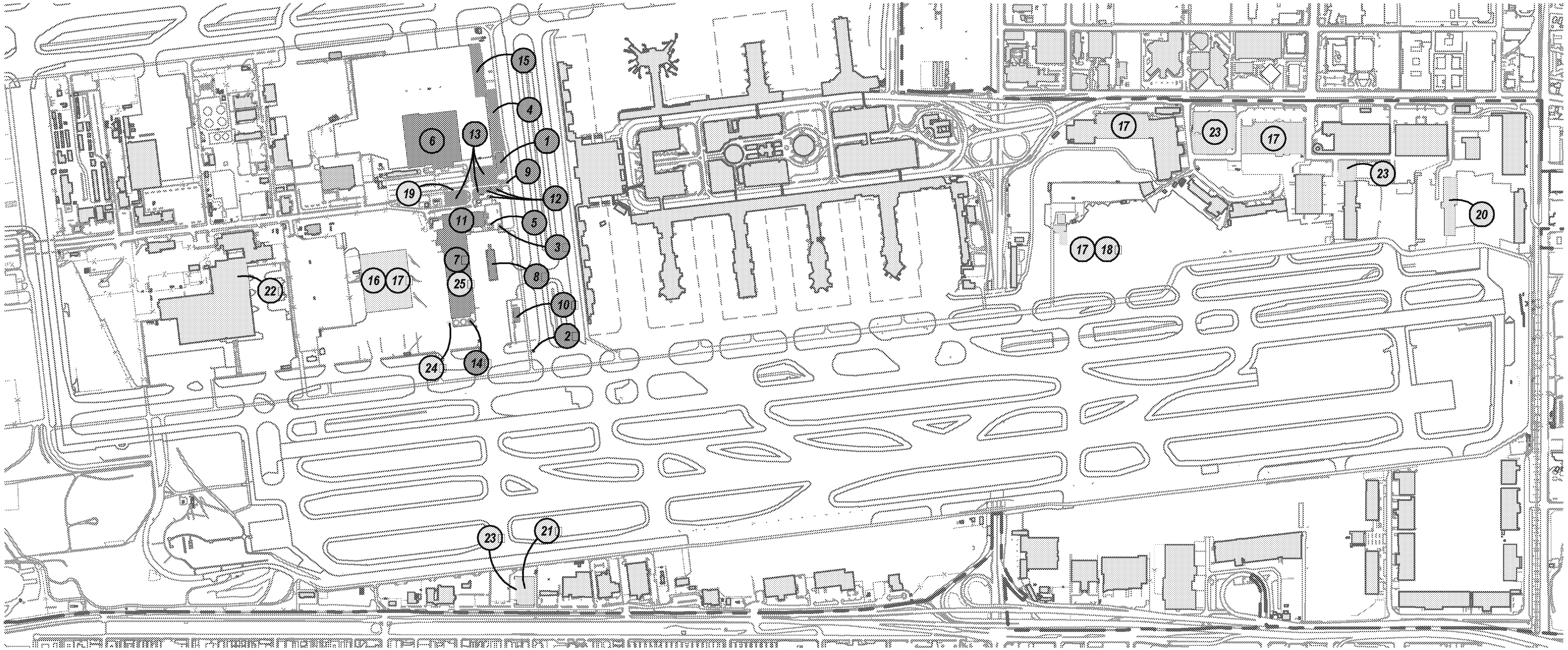
Table 2-3

Summary of Existing Facilities to be Removed/Relocated

Facility	Approximate Count	Current Use	Disposition of Facility/Use
Liquid Gas and Fueling Stations	Three underground tanks (12,000 gallon diesel, 8,000 gallon gasoline, 7,000 gallon storage) and one above ground tank (10,000 gallon liquefied propane storage tank)	Liquid Gas and Fueling Stations operated by American Airlines	Tanks would be removed, the underlying soils would be checked for any contamination and remediated if/as necessary. It is uncertain at this time whether the GSE fueling operations at the existing fueling stations would relocate to another on-airport GSE fueling station, possibly in the vicinity of the former United Airlines cargo facility, or whether the gas/fueling would be provided by an off-airport fuel vendor.
Fuel Vault	One underground concrete vault approximately 4 feet long by 5 feet wide.	Fuel line valve controls	Relocation of fuel lines as part of Taxiways Q and S relocation would include new in-line valve structures; hence, there would be no need to relocate existing fuel vault.
ASIG GSE Storage	7,000 sq. ft.	Vehicle Service/Repair Office	Building would be demolished and current operation would be moved to the Air Freight 8 Building located at the east end of the airport.
GSE Apron	N/A	GSE Equipment Staging/Storage	GSE equipment would be removed.
RON Aircraft Parking	Seven aircraft parking positions	Aircraft Parking	During construction of the relocated Taxiway S, the RON positions would be temporarily relocated to apron areas east of the American Airlines (Former TWA) Maintenance Hangar and east of the American Airlines Low Bay Hangar. Following removal of the American Airlines Low Bay Hangar, the RON positions would be permanently relocated to that location.
Menzies GSE Maintenance	13,000 sq. ft.	GSE Maintenance	Building would be demolished and current operation could be moved to an existing building near the Continental Airlines maintenance hangar.
LAFD Station No. 80/ARFF	14,000 sq. ft.	Fire/Rescue Station (to be vacated upon transition of existing operations to a new station proposed as part of the Crossfield Taxiway Project).	The existing facility is anticipated to be vacated, and the building would possibly be in use for storage, at the time of Bradley West Project implementation. As such, the existing facility would be removed and no further relocation required.
American Eagle Commuter Terminal	16,500 sq. ft.	Commuter Terminal	Building would be demolished. In conjunction with the expiration of American Airlines' existing lease and establishment of a new lease, the current American Eagle commuter operations are planned to relocate to the former United Express Commuter Terminal.

Source: CDM, 2008.

- **Remain Overnight (RON) Aircraft Parking Positions**. There are seven RON aircraft parking positions located within the northern portion of the future Taxiway S. The subject RON positions can accommodate three Boeing 757 and four Boeing 737-800 or McDonnell Douglas MD-80 aircraft. One of the Boeing 757 positions can also accommodate a Boeing 767-300ER; however, the use of the adjacent parking position is limited when a 767 aircraft is present. Generally, only four to five of the seven positions are occupied each night. During construction of future Taxiway S, the displaced RON positions could be temporarily accommodated on the east side of the former TWA Hangar and on the east side of the American Airlines Low Bay Hangar. It is possible to park three aircraft (MD-80) along the east side of the former TWA Hangar, and also three aircraft (one B767 and two B757) along the east side of the American Airlines Low Bay Hangar. Upon demolition of the American Airlines Low Bay Hangar when Taxiway T would be constructed, it would be possible to park RON aircraft on the site formerly occupied by the Hangar.
- **American Airlines (Former TWA) Maintenance Hangar**. Development of future Taxiway T would require demolition of the eastern portion the existing American Airlines Maintenance Hangar that was formerly operated by TWA (i.e., the "TWA Hangar"). While only the eastern portion of the building is located within the Taxiway T improvement area, it may be necessary to demolish and remove the entire building, subject to further evaluation regarding the design, approach, cost, and logistics of demolishing only a portion of the building. For purposes of this EIR, a conservative assumption has been made that the entire hangar would be demolished and removed. Presently, aircraft maintenance operations only occur in the western portion of the hangar and the eastern portion of the building is generally vacant and occasionally used for storage. If the entire hangar were to be demolished, the limited amount of aircraft maintenance activities that presently occur would be relocated to the American Airlines High Bay Hangar and some maintenance activities could occur while aircraft are parked in RON positions. It is anticipated that relocation of the aircraft maintenance activities from the TWA Hangar to the American Airlines High Bay Hangar would require very little, if any, modifications and improvements to the High Bay Hangar given the similarity of uses.
- **Air Operations Area (AOA) Access Guard Post #5**. Guard Post #5 serves as the main access to the existing AOA Service Road S from the end of World Way West. In conjunction with the development of future Taxiway T, this building would be relocated from its current location to a new location northeast of the World Way West loop. Given that the existing guard post building is comprised of assembled panels, it is possible that only a new 12-foot by 12-foot concrete slab and various utilities improvements would be required for the new location. The existing building would then be disassembled, moved, and reassembled at the new site, subject to confirmation that the existing building panels are in a condition suitable for such relocation.
- **Vehicle Parking at East End of World Way West**. The development of future Taxiway T would extend across the eastern end of World Way West, which, in addition to impacting Guard Post #5 described above, would eliminate approximately 120 existing vehicle parking spaces located in the area where the road loops around. This parking is generally shared by existing uses in the nearby area, several of which would be relocated and/or reduced or eliminated by the Bradley West Project and the LAX Crossfield Taxiway Project improvements. Such uses include those associated with the Sky Chefs Flight Kitchens, the American Airlines Low Bay Hangar, the former TWA Hangar, and various GSE maintenance facilities. As those existing uses are relocated, reduced, or eliminated, the need for those existing parking spaces would follow. **Figure 2-7** shows the general areas where existing parking would be redistributed, along with the associated uses, such as the Sky Chefs Flight Kitchens located north of Imperial Highway and various aircraft maintenance and GSE operations within the Century Cargo Complex located to the east of the Bradley West Project site, where there are ample areas to accommodate the parking that would be eliminated by the Bradley West Project.



Source: LAX Development Program Team, 2009.

	To Be Removed	To Be Relocated	New Site
American Airlines (Former TWA) Hangar		6	16
American Airlines Low Bay Hangar		7	17
American Eagle Commuter Terminal		8	18
AOA Access Post #5		9	19
LAFD Station #80/ARFF	1		
ASIG GSE Storage Area		10	20
Fuel Vault	2		
Gasoline Fuel Station	3		

	To Be Removed	To Be Relocated	New Site
GSE Apron	4		
Sky Chefs Flight Kitchen		11	21
Menzies GSE Maintenance		12	22
Natural Gas Fuel Station	5		
Vehicle Parking		13	23
Water Deluge Tanks		14	24
RON Aircraft Parking		15	25

LAX Bradley West Project Draft EIR

Summary of Existing Facilities to be Removed/Relocated

Figure 2-7

- **Water Deluge Tanks**. The water deluge system serves the hangar fire suppression system for the American Airlines hangars including the American Airlines High Bay Hangar, Low Bay Hangar, former TWA Maintenance Hangar and the Coast Guard Hangar. Three 750,000-gallon water storage tanks, and a pumping station and associated supply manifold and pumping manifold are located on the north end and east end of the American Low Bay Hangar, respectively. The easternmost water storage tank and pumping head manifold fall within the footprint of the future Taxiway T object free area. With development of Taxiway T, the easternmost storage tank and associated pumping system elements would be demolished and replaced in-kind on the west side of the two remaining tanks.
- **Sky Chefs Flight Kitchen, American Airlines Low Bay Hangar, and Liquid Gas and Fueling Stations**. These facilities are located within the footprint of future Taxiways S and T. More specifically, the Sky Chefs Flight Kitchen and American Airlines Low Bay Hangar are located within the footprint of Taxiway T, while the Liquid Gas and Fueling Station and associated appurtenances are within the future Taxiway S footprint. The existing Sky Chefs Flight Kitchen building would be demolished and the current operations would be relocated to an existing Sky Chefs facility located at 6901 Imperial Highway and/or moved to other off-site facilities (i.e., other facilities/buildings that may be leased by Sky Chefs, to be determined in the future in conjunction with overall business plans).[14] The American Airlines Low Bay Hangar would be demolished and the existing uses therein would be redistributed as follows: the American Eagle commuter aircraft maintenance operations would be relocated to the Delta Low Bay Hangar east of Sepulveda Boulevard; the GSE maintenance, luggage sorting, and operations/crew lounge would be relocated to the former United Express (United Airlines) Commuter Terminal located east of Terminal 8 and Sepulveda Boulevard; aircraft cabin service would be relocated to the former United Airlines cargo facility located in the eastern portion of the airport; the American Airlines facility maintenance operations could be relocated to the American Airlines High Bay Hangar located nearby; and, the Fixed-Base Operator (FBO) currently utilizing the American Airlines Low Bay Hangar could be relocated to the Delta Low Bay Hangar or other suitable location along the south side of the airfield where several other fixed-based operators are located. The Liquid Gas and Fueling Stations for ground vehicles would also need to be removed. It is uncertain at this time whether the GSE fueling operations at the existing fueling stations would relocate to another on-airport GSE fueling station, possibly in the vicinity of the former United Airlines cargo facility, or whether the gas/fueling would be provided by an off-airport fuel vendor. For those uses described above that would be relocated to another existing facility, it is anticipated that various tenant improvements will be required to accommodate the relocated use. Such improvements could include, but are not limited to, the demolition/clearing of interior areas in order to construct new walls, work bays, storage areas, office areas, restrooms, etc., along with associated electrical, plumbing, mechanical, and space conditioning systems modifications and upgrades. Exterior improvements could include, but not be limited to, installation of fences/walls, modifications to doors, windows, loading docks/bays, placement of storage sheds, designation of parking areas, security lighting, and signage.
- **ASIG GSE Storage**. This building is located within the footprint of the future Taxiway S improvement area. The building would be demolished and current operation would be moved to the Air Freight 8 Building located at the east end of the airport.
- **Fuel Vault**. An underground four-foot by five-foot concrete vault containing fuel line valves is located within the footprint of the future Taxiway S. Relocation of fuel lines as part of Taxiways Q and S relocation would include new in-line valve structures and there would be no need to relocate the existing fuel vault.
- **GSE Apron**. An area where GSE, primarily baggage carts/trolleys and cargo container trailers, are often stored is situated north of the existing Fire Station No. 80/ARFF, which falls within the footprint of future Taxiway S. Such existing GSE storage occurs more by convenience than by need or designation. Once this area is cordoned off for construction, such GSE storage would simply move to

[14] Vogt, Kris, LAX Development Program, Personal Communication, April 15, 2009.

other such areas at the airport and/or the affected GSE operators would be required to store the equipment within their respective leasehold areas, as appropriate.

- **Menzies GSE Maintenance**. This building is located within the footprint of the future Taxiway T improvements and would need to be demolished/removed. It is anticipated that the current operation could be moved to an existing building near the Continental Airlines maintenance hangar.
- **LAFD Station No. 80/ARFF**. LAFD Station No. 80/ARFF is presently located on the west side of Taxiway S, across from TBIT. The existing facility is over 30 years old and severely undersized. Plans to construct a new, larger replacement facility were approved in March 2009 for a location approximately 2,500 feet to the southwest of the existing location. The existing facility is located within the footprint of the future Taxiway S and T, which will require that the existing structure be demolished and removed; however, it is anticipated that relocation of the LAFD operations to the new facility will have already occurred. As such, the existing LAFD Station No. 80/ARFF is anticipated to be vacant at the time of demolition and no replacement facility/use is proposed as part of the Bradley West Project.
- **American Eagle Commuter Terminal Facility**. An American Eagle commuter terminal, operated by American Airlines, is located west of Taxiway S, southwest of the Bradley West Core. In conjunction with the expiration of American Airlines' existing lease that includes the subject facility, and establishment of a new lease, American Eagle commuter operations would relocate from the existing commuter terminal facility to the commuter terminal formerly operated by United Airlines (UAL) east of Terminal 8. Relocation of the American Eagle commuter operations to the former UAL commuter facility would occur prior to the demolition of the existing American Eagle commuter terminal.

2.4.3 Construction Phasing

Construction of the Bradley West Project is anticipated to occur over approximately five and one-quarter years, beginning in late 2009, if approved, and finishing in early 2015. The construction phasing schedule for the project was developed with the goal of having new contact gates suitable to accommodate NLA such as the Airbus A380 in operation on the west side of TBIT by the beginning of 2012 while also attempting to achieve a balance between minimizing the nature, extent, and duration of disruption to airport operations in and near the project area, and managing the costs and logistics of completing substantial amounts of work during the nighttime, weekends, holidays, and extended work shifts. The Bradley West Project construction schedule also took into account the construction activities associated with the Crossfield Taxiway Project, the latter portion of which would overlap with the planned construction of the Bradley West Project.

The general sequence of construction activities that is currently anticipated for the proposed project is summarized below.

- The initial phase of construction will focus primarily on development of the new (relocated) Taxiway S, recognizing that the development of the new aircraft gates and concourses on the west side of TBIT will require closure of existing Taxiways Q and S. Activities occurring immediately upon issuance of the contractor's notice to proceed would include placement of a temporary AOA construction fence around the southern half of the work area for future Taxiway S. This area would encompass the Menzies GSE Maintenance Building on the north, the American Eagle Commuter Terminal on the west, the fuel vault on the south, and the ASIG GSE Storage Area on the east. Placement of this fence would convert the area from being on the airside of the AOA to being on the landside of the AOA, which serves to facilitate construction access and movement within the area and minimize potential conflicts with airfield operations nearby. Once the temporary AOA construction fence is in place, demolition of existing structures, apron area, and pavement within the area would occur. This would be followed by excavation, including remediation/removal of any contaminated soil as appropriate, utility line relocations, and site preparation for the new taxiway. Concurrent with the aforementioned activities would be construction of a new loading dock on the north side of the existing central core of TBIT to replace the existing load dock to be eliminated from the west side of the central core.

- Also occurring early in the construction program would be closure of the northern two-thirds of existing Taxiway Q and placement of a temporary AOA construction fence to remove the subject area from airside operations. This would provide a work area for demolition of existing taxiway pavement, excavation and remediation, if necessary, of underlying soils, and utilities work and site preparation for much of the new concourses, as well as for the new bus gate facility proposed at the northern end to accommodate busing operations to and from the west remote gates. This partial closure of Taxiway Q is expected to occur in early 2010 and would leave open the southern third of the taxiway, which has a cross-over connection to existing Taxiway S, thereby allowing air traffic controllers to still effectively use that portion of Taxiway Q for aircraft movements between the north and south airfield complexes. It is anticipated that the southern portion of Taxiway Q would remain open and operational until the completion of the new Taxiway C13 by mid-2010, which would provide the Air Traffic Control Tower (ATCT) with a complete new crossfield taxiway and allow the full closure of Taxiway Q. That would allow for demolition of the southern portion of Taxiway Q and excavation, utility work, and site preparation activities similar to those described above for the northern two-thirds of the taxiway.
- Following shortly after the full closure of Taxiway Q would be the completion of the new bus gate facility, which would replace the existing bus gate facility on the west side of the TBIT's existing central core. Once that happens, all of the area associated with construction of the new concourses, including the contact gates and associated apron areas along the west side of the new concourses, would be encompassed by a temporary AOA construction fence and closed from airside operations. Site preparation for the new north concourse would be well underway, moving towards construction of the building foundations. Excavation for the new western portion of the Bradley West Core would also be underway at that time.
- Also occurring near the time Taxiway Q is fully closed would be the initiation of work within the northern half of future Taxiway S. This would include placement of a temporary AOA construction fence along the perimeter of the work area, utility line work, demolition of existing Fire Station No. 80/ARFF, demolition of existing aircraft apron areas currently utilized for RON aircraft parking and GSE storage, excavation of underlying soils, including remediation of contaminated soils, if necessary, and site preparation for, and construction of, the northern portion of future Taxiway S. It is anticipated that operation of the future Taxiway S will commence in late 2010.
- Once the new (relocated) taxiway is open, existing Taxiway S would be closed and the TBIT temporary AOA construction fence would be extended to the west to include the existing taxiway area. By that time, construction of the new north concourse and associated gates and apron areas would be underway, and foundation work for the new western portion of the Bradley West Core and new south concourse would have begun. It is anticipated that completion of the new north concourse and contact gates and apron areas along the west side would be completed by the beginning of 2012.
- The construction activities would then focus on completion of the western portion of the Bradley West Core, the new south concourse, and the associated new contact gates and apron areas. It is anticipated that work would be completed by mid-2013, and would be followed immediately by demolition of most of the existing north concourse and associated gates and apron areas along the east side. The northern portion of the existing concourse would not be demolished, as it is proposed to connect the new concourse to the new bus gates facility described above. Also occurring at this time would be the start of construction for the new secure/sterile connector corridors between the Bradley West Core and Terminals 3 and 4.
- Between mid-2013 and late-2013, construction of new replacement gates and apron areas along the east side of the new north concourse would occur and the new secure/sterile connector corridors would be completed. Demolition of the existing south concourse, including existing gates and apron areas, would then occur, and site preparation for, and construction of, the new replacement gates and apron areas along the east side of the new south concourse would start. It is anticipated that work would be completed by fall 2013.
- The final phase of the Bradley West Project involves the development of future Taxiway T, beginning with the placement of temporary AOA construction fencing around the entirety of the proposed work

area. That work area would be generally bound on the east by the new vehicle service road that parallels the west side of future Taxiway S, on the south by existing Taxiway C, on the west by the western tip of the American Airlines Low Bay Hangar for the work area south of World Way West and by the eastern third of the former TWA Hangar for the work area north of World Way West, and on the north by the Taxiway D extension. The Taxiway T work area would also include the eastern end of World Way West, which would be reconfigured to loop around at a location west of where it currently turns. Following vacating and demolishing the existing structures and pavement within the subject area, site preparation including utilities work and excavation, including soils remediation, if appropriate, would occur. Construction of the new taxiway would then occur, with completion anticipated to occur in early 2015.

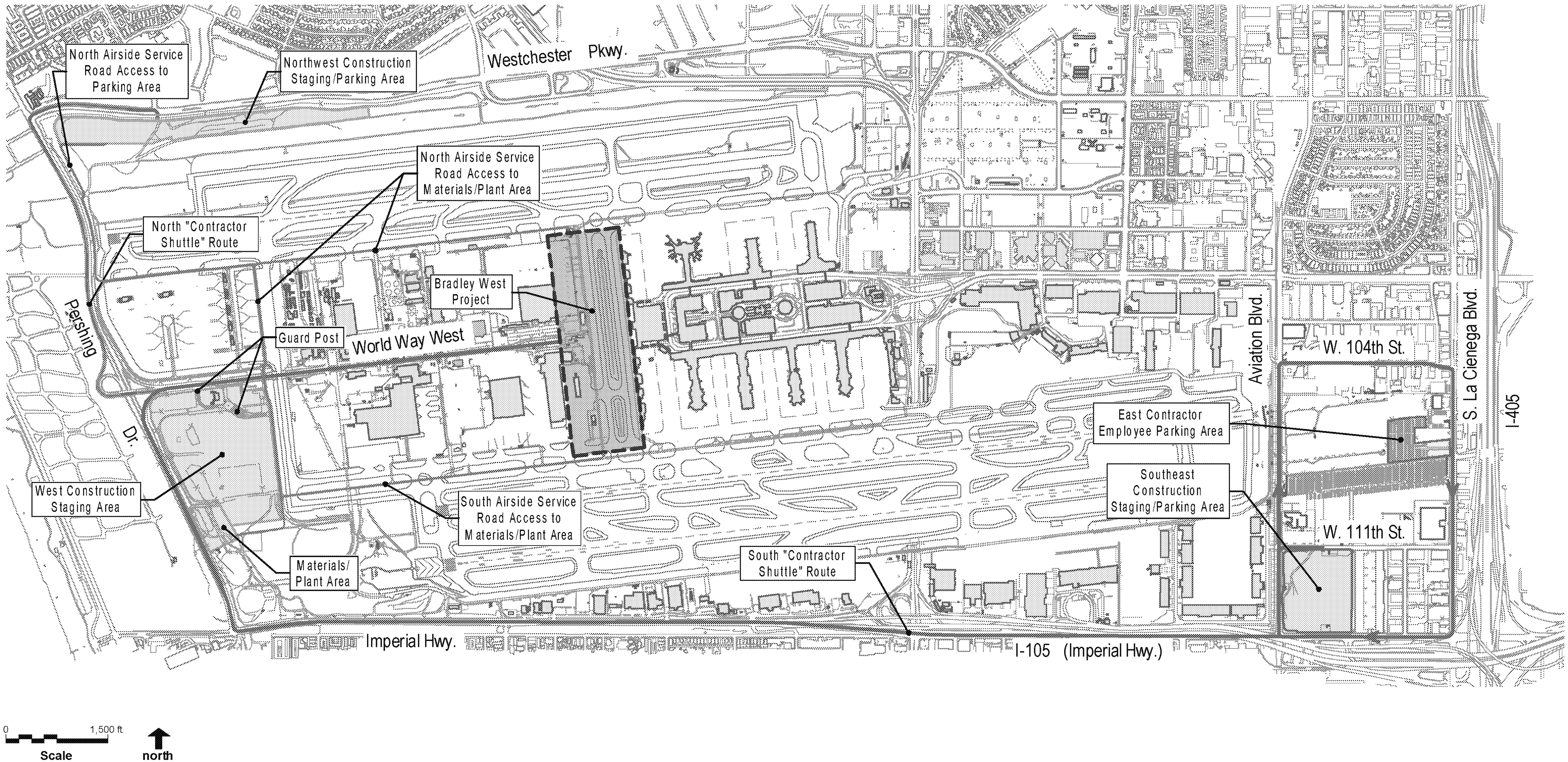
In summary, work on the aforementioned program elements is proposed to begin in the fourth quarter of 2009 and be completed by the first quarter 2015, with the sequence of major construction phases to include development of the future Taxiway S, completion of the new north concourse and associated gates for NLA, completion of the new western portion of the Bradley West Core and new south concourse and associated NLA gates, demolition of the existing concourses and relocation of the existing gates to the new concourses, and development of future Taxiway T. The guidance in FAA Advisory Circular 150/5370-2E, Operational Safety on Airports during Construction, has been incorporated into the project design to address potential impacts on existing airport operations during construction of the Bradley West Project.

2.4.4 Construction Staging, Parking, and Haul Routes

2.4.4.1 Contractor Staging

Construction staging for the proposed project would occur primarily within two areas west of the project site, as shown in **Figure 2-8**. The subject areas include: (1) the Northwest Construction Staging Area - an existing staging area at the northwest edge of the airport, near Pershing Drive and Westchester Parkway, much of which is currently used for the TBIT In-Line Baggage Screening Program construction staging; and, (2) the West Construction Staging Area - an existing staging area at the central west end of the airport near Pershing Drive and World Way West that was used in a similar capacity for the South Airfield Improvement Project and will be used for the Crossfield Taxiway Project. For the most part, the existing Northwest Construction Staging Area is already suitable for use by the Bradley West Project, with the exception of the need for a larger transformer to accommodate the electrical power requirements of the construction trailers planned for the site, and the timing and amount of space needs for the TBIT In-Line Baggage Screening Program are compatible with the construction schedule of the Bradley West Project. Similarly, the existing West Construction Staging Area would require little, if any, modifications to accommodate the Bradley West Project.

Existing pavement, including from existing airfield apron and taxiway areas that are to be demolished as part of the project, would be recycled on-site through the use of a rock crusher and aggregate processing facility within the construction staging area. This processing would also provide for on-site production of concrete instead of having to rely on concrete deliveries trucked from off-site production plants. The processing facility, referred to as a "batch plant" would be located at one or more locations in the West Construction Staging Area.



Source: LAX Development Program Team, 2009.

LAX Bradley West Project Draft EIR	Construction Parking and Staging Areas	Figure 2-8

There is a potential third construction staging area, the Southeast Construction Staging/Parking Area, that could be used during the Bradley West Project's 5+ year construction period. The subject area is the vacant parcel located at the northeast corner of Aviation Boulevard and Imperial Highway, sometimes referred to as the "Continental City" site. Given the location of this parcel, being well removed from the construction work area, it is not anticipated that this area would be actively used for Bradley West Project construction staging, but rather may be used primarily for materials laydown/storage.

2.4.4.2 Contractor Employee Parking

With regard to construction contractor employee parking, it is anticipated three areas would be available for use during all or part of the Bradley West Project construction program. The three areas are shown in **Figure 2-8** and include the Northwest Construction Staging/Parking Area, the East Contractor Employee Parking Area, and the Southeast Construction Staging/Parking Area.

As indicated above, the Northwest Construction Staging/Parking Area is located at the southwest corner of Westchester Parkway and Pershing Drive. A shuttle would be used to transport workers between the parking areas and the Bradley West Project work area. As shown in **Figure 2-8**, the North Contractor Shuttle Route would extend to and from the Northwest Construction Staging/Parking Area and include Westchester Parkway to Pershing Drive, Pershing Drive to World Way West, and World Way West to the project work site. Use of the area for construction staging and lay-down area, as described above, and for worker parking would require removal of existing vegetation within the eastern undeveloped portions of the site; grading of a level surface, with cut and fill anticipated to balance on-site; and placement of gravel or other material to minimize generation of dust and mud while operating.

The other two sites for worker parking are located in the southeast portion of the airport and include the existing contractor employee parking area located at a site north of LAX Parking Lot B on La Cienega Boulevard, shown in **Figure 2-8** as the East Contractor Employee Parking Area, and the Southeast Construction Staging/Parking Area at Imperial Highway and Aviation Boulevard, may be used. The use of either or both of these two areas is proposed to reduce potential traffic impacts, particularly during peak construction periods, by distributing worker parking to two different geographies (i.e., parking at the northwest and southeast ends of the airport). As shown in **Figure 2-8**, the South Contractor Shuttle Route, which would be used for a shuttle to transport construction workers between either or both of these parking areas and the project work site, follows La Cienega Boulevard or Aviation Boulevard south to Imperial Highway, west to Pershing Drive, north to World Way West, and east to the project work site.

2.4.4.3 Contractor Haul Routes

Figure 2-9 delineates the delivery and haul routes proposed to be used during construction of the Bradley West Project. As shown, the primary delivery routes include Imperial Highway, Pershing Drive, and World Way West, with the western end of Westchester Parkway used to access the Northwest Construction Staging/Parking Area and segments of Aviation Boulevard and 111th Street used to access the Southeast Construction Staging/Parking Area. For materials delivered to, and stored at, the Northwest Construction Staging/Parking Area and the West Construction Staging Area, the contractor haul route to and from the Bradley West Project work area would be on the airside of the airport and not on public streets.

2.4.5 Airport Operational Characteristics Before and After Completion of Construction

The subject improvements would not increase or otherwise affect the overall operational capacity of the airport. The Bradley West Project would not alter airspace traffic, runway operational characteristics, or the practical capacity of the airport. 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[15] to be approximately 78.7 million annual passengers (MAP).[16] 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.[17] The Bradley West Project would not change the existing curbside capacity of the CTA, nor would it exceed the aircraft gate limitations identified in the LAX Master Plan and reiterated in the Stipulated Settlement. It is anticipated that the overall level of international travel activity at LAX will increase between late 2008, when the Draft EIR Notice of Preparation was published and the time the proposed Bradley West Project improvements would be completed (2013),[18] but would do so based on overall increases in travel market demands that would occur irrespective of the proposed improvements. Based on an activity level forecast prepared for LAX in 2008, which utilized flight schedules published in the Official Airline Guide (i.e., compilation of all scheduled commercial airline flights) for August 2008 and the June 2009 OAG, and flight schedules projected for each year thereafter through 2013, it was estimated that overall activity levels at LAX would increase from approximately 61 MAP in 2008 to approximately 67.6 MAP in 2013, with the international component being approximately 16.7 MAP in 2008 and approximately 21.8 MAP in 2013.[19] These estimates reflect a projected 5-year growth of approximately 30 percent for international travel and approximately 3 percent for domestic travel. This activity level forecast is based on 2008 data, and is considered conservative in light of the current economic recession and the expected decrease in aviation activity worldwide that would likely occur as a result. Additionally, these passenger activity levels are well below the 78.9 MAP activity level for LAX that is anticipated in the LAX Master Plan and reiterated in the Stipulated Settlement. As such, the environmental impacts associated with the overall market level growth at LAX projected for 2013 have been contemplated and addressed in the LAX Master Plan Final EIR.

The proposed TBIT improvements described above are specifically intended and designed to improve the level and quality of service provided to international travelers at LAX, but would not materially change the overall operational characteristics of the airport. The development of new contact gates along the west side of TBIT would improve passenger convenience, as compared to having to bus passengers and crews between TBIT and the west remote gates, but would not result in additional flights. In light of the existing 2008 flight schedule at LAX and the flight schedule anticipated for 2013 under the LAX Planning Forecast, the existing west remote gates could accommodate all of the scheduled flights even without the new additional contact gates proposed on the west side of TBIT and the other associated improvements. It is projected under the LAX Planning Forecast, however, that without the proposed improvements, there would not be a sufficient number of gates to accommodate the number of new large aircraft anticipated to be arriving and departing during peak periods. It is anticipated that, given the market demand for such flights during those periods under the LAX Planning Forecast, which are characterized by long-distance international flights, the affected airlines would still maintain the scheduled route service, but would use smaller gauge aircraft such as a Boeing 747 or 777. As such, the number of daily flight operations in 2013 is projected under the LAX Planning Forecast to be the same with or without the Bradley West Project, but there would be fewer arriving and departing passengers in 2013 without the project, due to

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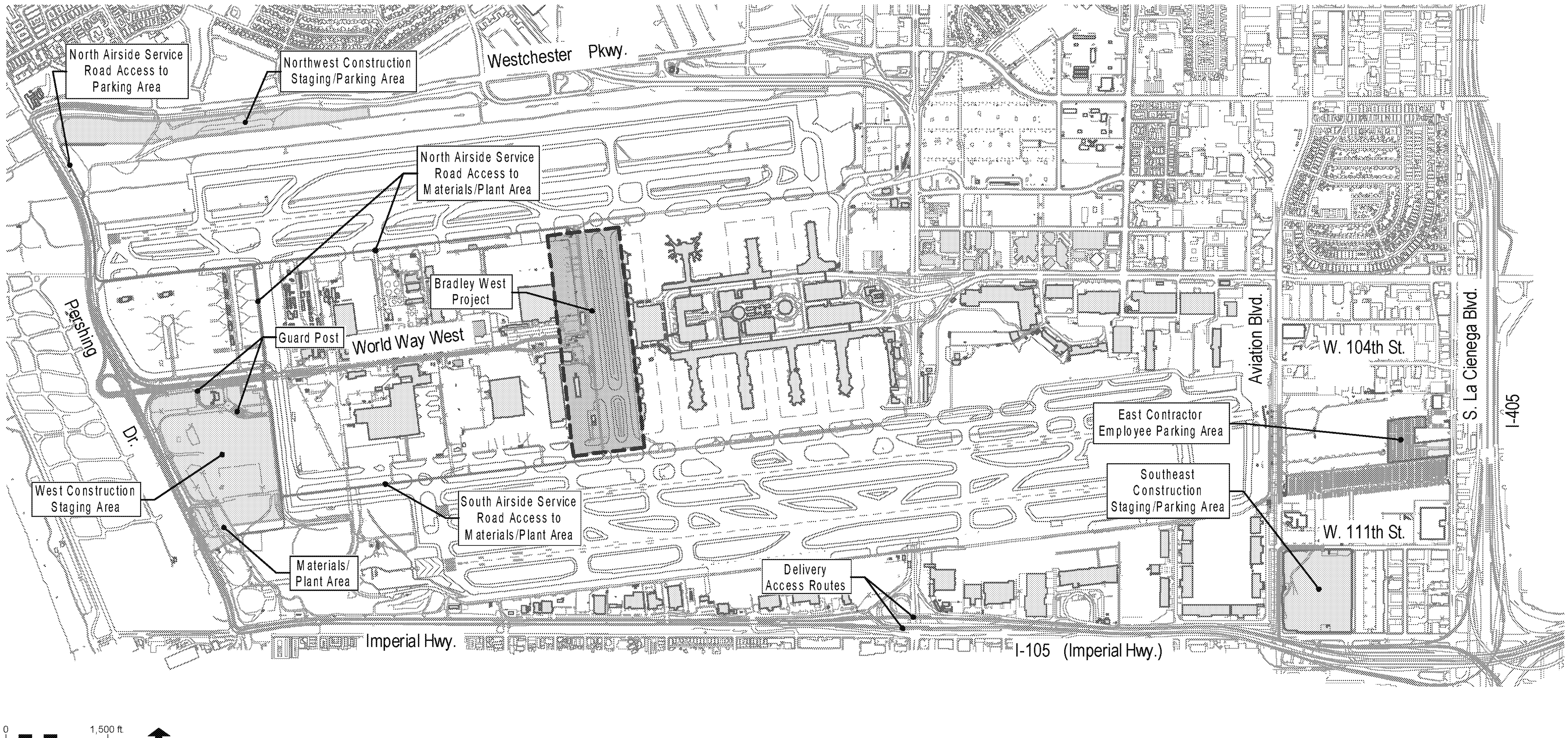
15 Practical capacity is the maximum activity that can be processed by the facility over a specific period at a specified level of delay. (LAX Master Plan Final EIR, Section 2.3.1, Page 2-8.)

16 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Executive Summary, page ES-4.

17 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 3.2.9.

18 Based on the currently proposed construction schedule, it is anticipated that all of the Bradley West Project improvements would be completed by sometime in 2013, with the exception of completion of Taxiway T (i.e., relocation of existing Taxiway S), which would be completed by 2015. Under existing conditions (2008), there are two crossfield taxiways adjacent to TBIT; Taxiways Q and S. By 2013, there would still be two crossfield taxiways; Taxiway S (relocated Taxiway Q) and Taxiway C13 (new taxiway approved in early 2009). As such, any notable change in the operational characteristics of TBIT upon completion of the Bradley West Project, compared to existing conditions, would occur by 2013.

19 Ricondo & Associates, LAX Planning Forecast Documentation, March 2009.



Source: LAX Development Program Team, 2009.

LAX Bradley West Project Draft EIR	Contractor Delivery and Haul Routes	Figure 2-9

the need to use smaller gauge aircraft than otherwise accommodated with the project. For international travel in 2013, the LAX design day schedules project 69,422 passengers with the project and 69,264 passengers without the project; a difference of 158 passengers, or 0.2 percent.[20] That difference would not make an appreciable difference in the overall operational characteristics of the airport. The reliance on using the west remote gates under the 2013-without-project scenario would, however, subject passengers and crews to the inconvenience of having to be bused to and from TBIT. While there would be no appreciable difference in passenger activity levels for 2013 with or without the proposed project, it is anticipated that over time, as a greater number of new generation aircraft including ADG VI aircraft such as the A380 enter the commercial airline fleets, LAX would experience increasing levels of loss in the international travel markets due to other competing airports being able to better accommodate such aircraft.

The proposed expansion and improvement of facilities for the inspection and processing of passengers and baggage arriving on international flights is expected to improve the quality and speed of processing, especially during peak periods, but it is not expected to materially change the overall operational characteristics of the airport (i.e., would not result in additional new flights or a notable change in the timing of flights). The addition of new contact gates at TBIT designed to accommodate new large aircraft and the planned improvements for the processing of arriving passengers and baggage could, however, change the number of arriving passengers reaching curbside within the CTA during peak traffic hours. In other words, the overall number, nature, and timing of international flights at LAX during an average day are not expected to change due to the proposed project; however, the peaking/surge characteristics during peak traffic hours (i.e., AM and PM peak commute hours and airport peak hour) could change as a result of the additional contact gates at TBIT and the reduced passenger/baggage processing time. Such potential changes are addressed in the on-airport traffic and off-airport traffic analyses presented in Sections 4.1 and 4.2, respectively, and in the air quality-related analyses presented in Sections 4.4 through 4.6 of this EIR.

As discussed in Section 2.4.1.3 above, the proposed new contact gates on the west side of TBIT would reduce the need for busing passengers between the existing gates at the West Remote Pads and TBIT compared to 2013 conditions without the Bradley West Project. However, even with this reduction in future busing, with the forecast increase in international operations between 2008 and 2013, the total daily bus trips would still increase from 113 in 2008 to 160 in 2013. (Without the Bradley West Project, the number would increase to 273 daily bus trips.) Therefore, while bus trips would increase as result of increased travel, operation of the proposed project would result in fewer bus trips between the West Remote Pads and TBIT than would occur under conditions in 2013 without the project. Changes in air quality and energy consumption associated with the change in busing activity are addressed Sections 4.4 and 5.7 of this EIR, respectively.

It should be noted that in conjunction with how implementation of the proposed Bradley West Project improvements would change, the passenger processing characteristics of TBIT, as accounted for in the aforementioned traffic analyses, the impacts analysis includes the ambient growth in passenger activity levels projected to occur at TBIT between 2008, when the NOP for the Bradley West Project Draft EIR was published, and 2013, when the TBIT improvements are anticipated to be complete. While such growth during that 5 year period is expected with or without the proposed project, it has been included in the project impacts analysis in order to meet certain CEQA requirements. As indicated above, however, the amount of growth assumed in the EIR analysis to occur between 2008 and 2013 at LAX may actually be less than projected, based on current economic conditions. As such, the impacts analysis presented in this EIR for the Bradley West Project is considered to be conservative and the actual impacts, based on less growth than assumed, would be less than described in the EIR.

20 Ricondo & Associates, LAX Planning Forecast Documentation, March 2009.

2.5 Project Alternatives

CEQA requires that an EIR include a discussion of reasonable project alternatives that would "feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any significant effects of the project, and evaluate the comparative merits of the alternatives" (CEQA Guidelines Section 15126.6). As discussed in Chapter 4 of this EIR, implementation of the Bradley West Project is anticipated to result in significant impacts related to construction activities, particularly as related to traffic, air quality, and global climate change (i.e., greenhouse gas emissions). Chapter 6 of this EIR addresses several alternatives including an alternative site, an alternative construction approach, alternative designs, an alternative construction staging/parking approach, and a "no project" alternative.

2.6 Intended Uses of This 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 Bradley West Project in taking action on the project. Certification of the Bradley West Project would complete the project-level CEQA compliance review for the Bradley West Project as described in this 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.

In addition to use of this EIR by the City of Los Angeles, implementation of the proposed Bradley West Project may require various federal, state, and local approvals, for which the approving agencies may use this EIR in their respective decision-making and approval processes. Provided below is an overview of the actions and permits anticipated to be required for the project.

2.6.1 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 Bradley West Project 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 Bradley West Project are included in the unconditional approval of the ALP.
- A determination that the airport development is reasonably necessary for use in air commerce or in the interests of national defense.
- Airport improvements included under Alternative D, including the reconfiguration of TBIT and associated improvements, as addressed in this project-level EIR.
- 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 Bradley West Project.
- 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 Bradley West Project would 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 an FAA Notice of Construction or Alteration, to ensure safe and efficient operations during the construction of the Bradley West Project. LAWA and its selected contractor would 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 requests for federal funding. In order for federal funding to be used for the Bradley West Project, 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 Bradley West Project 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 Bradley West Project are 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 Bradley West Project to which such revenue can be applied.

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. Other than the FAA approvals described above, no other federal agency approvals are anticipated to be required for the Bradley West Project.

2.6.2 State and Regional Actions

California Department of Transportation (Caltrans)

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

- Amended/Corrected Airport Permit. In accordance with California Code of Regulations, Title 21 § 3530, LAWA must submit to Caltrans an Amended/Corrected Airport Permit Application (DOA-0103 [Rev. 04/01]) for approval. The airfield improvements associated with the Bradley West Project would be reflected on the application.

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 Bradley West Project 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 RWQCBs administer regulations regarding water quality in the State. Permits or approvals required from the SWRCB and/or RWQCB for the Bradley West Project include, but may not be limited to:

- General Construction Storm Water Permit
- Standard Urban Stormwater Mitigation Plan

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. As described above in Section 2.4.1.6 above, the proposed project includes provisions for building heating and cooling systems that would involve the installation of several boilers fueled by natural gas. Although boilers typically require a permit from the SCAQMD, the use of low-NO_X (oxides of nitrogen). boilers that are less than two million British thermal units (BTU) in size, such as is the case for the currently proposed system, do not require a permit from the SCAQMD.[21] No other new permanent operational stationary sources are currently anticipated to be added as a result of the Bradley West Project; therefore no permits for permanent operational facilities are expected to be required. 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. LAWA will coordinate with SCAQMD to determine the applicable permitting requirements.

2.6.3 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, as well as 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 Bradley West Project include, but may not be limited to the following:

- LAX Plan Compliance Review in accordance with Section 7 of the Los Angeles International Airport Specific Plan.
- Certification of the project-level tiered Final EIR for the Bradley West Project.
- Submittal of the following to the FAA:
  - Form 7460-1 "Notice of Proposed Construction or Alteration" for FAA approval. (The selected contractor would 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.
  - Plans and specifications for the Bradley West Project 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.

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21 South Coast Air Quality Management District, Available: http://www.aqmd.gov/rules/reg/reg02/r222.pdf, accessed April 6, 2009.

- 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.

2.6.4 Miscellaneous Actions and Permits

A number of other actions and permits may be required for the implementation of the Bradley West Project. 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
- Possible modification or condemnation of certain existing on-airport leases

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3. OVERVIEW OF PROJECT SETTING

This chapter provides an overview of the existing land use and environmental setting relevant to the Bradley West Project. More detailed descriptions of the existing setting in the project vicinity related to specific environmental issues are provided in Chapters 4 and 5. In addition to providing an overview of the existing physical setting at and around the project site, this chapter describes other projects proposed in the nearby area that may, in conjunction with the Bradley West Project, result in cumulative impacts on that setting. The description of those other projects focuses, in particular, on other development projects proposed at LAX and explains the relationship between the Bradley West Project and each project in order to provide the basis for the evaluation of cumulative impacts. Additionally, the subject discussion addresses how the projects proposed at LAX, including the Bradley West Project, relate to the LAX Master Plan.

3.1 Land Use Setting

As indicated in Chapters 1 and 2, and depicted in Figure 1-2, the Bradley West Project site is located near the center of LAX, near the midfield portion of the airport. The subject area is, and has long been, actively used for airport operations and is completely occupied and surrounded by airport facilities. On-site land uses include the existing TBIT and adjacent taxiways to the west, a commuter terminal, aircraft parking areas, aircraft hangars, maintenance facilities, and various airport/airfield operations buildings.

Surrounding land uses include the following:

- The north runway complex to the north;
- The Central Terminal Area (CTA) to the east;
- The south runway complex to the south; and
- A variety of airport/airfield buildings and facilities to the west.

The closest land uses in the project vicinity that are not airport-related include the following:

- The community of Westchester north of LAX (over 0.45 mile between the northern end of the Bradley West Project site and the nearest point in Westchester);
- A mix of commercial, hotel, office, and residential uses east of LAX (over 0.75 mile between the eastern edge of the Bradley West Project site and the nearest hotel on Century Boulevard and over 1.75 miles to the western edge of Inglewood);
- Residential, commercial, office, and institutional uses to the south (approximately 0.75 mile between the southern end of the Bradley West Project site and the northern edge of El Segundo); and
- Dockweiler State Beach and Santa Monica Bay to the west (over 1.75 miles between the western edge of the Bradley West Project site and Vista Del Mar).

Compatibility and consistency with applicable federal, state, and local regulations, plans and policies from operation of the airport after completion of the Bradley West Project was addressed as part of the LAX Master Plan Final EIR (see Chapter 4 of LAX Master Plan Final EIR, particularly Section 4.2, *Land Use*).

3.2 Environmental Setting

The following provides an overview of the existing environmental setting at the project site, noting the environmental issues most relevant to the site. Additional information regarding the environmental setting is provided in the discussion of each resource area in Chapters 4 and 5.

- <u>Noise</u> - Being located near the center of the very active midfield area, the existing noise setting is dominated by aircraft activities, primarily commercial jets, occurring throughout the day and evening. This includes noise from aircraft arriving and departing on the north and south runway complexes at each end of the project site, from crossfield aircraft movements on Taxiways S and Q, and from aircraft undergoing maintenance activities to the west that require engine testing (i.e., engine "run-ups"). Average daily noise levels, characterized in terms of Community Noise Equivalent Level (CNEL), at the construction site and main (western) staging area range from 70 to 75 dBA CNEL. There are no noise sensitive receptors at or near the project site; the closest receptors are located in the communities described in the Land Use Setting above and in Section 5.1.2 of this EIR.

- Air Quality - Similar to the noise setting, the existing air quality setting immediate to the project site is dominated by the aircraft activities described above. Other sources of existing air pollutants near the project site include ground support equipment (GSE) operations and maintenance, and vehicle traffic on and off the airfield; however, those pollutant sources are relatively minor compared to the aircraft emissions. There are no sensitive receptors at or near the project site; the closest receptors are located in the communities described in the Land Use Setting above and in Section 5.1.2 of this EIR.
- Traffic - The existing traffic setting at the project site is characterized on the airside by vehicles permitted within the Airfield Operations Area (AOA) and on the landside by vehicles on World Way North and World Way South within the CTA. Operation of vehicles on the AOA is strictly regulated and only drivers that have satisfactorily completed specialized training and have the appropriate clearances from LAWA are allowed to operate vehicles on the airfield. Traffic within the CTA is characterized primarily by a mix of private vehicles, buses, shuttles, taxis, limousines, and LAWA vehicles. Traffic levels and operating conditions vary throughout the day and week, ranging from good to poor.
- Hydrology/Water Quality - The project site consists primarily of impervious surfaces including buildings, airfield apron area, taxiways, roads, and the like, with the only notable exception being an unpaved strip of land between Taxiways S and Q. The site is relatively flat and surface stormwater runoff drains to an existing storm drain system that flows to Santa Monica Bay. Dry weather flows from the project site, as well as the first surge from a storm event, are captured by a retention basin and pumped to the Hyperion Treatment Plant. Due to its largely impervious nature, the project site provides a negligible amount of recharge to the regional groundwater basin. Existing surface water pollutants typically include total suspended solids, oil and grease, metals, and fuel hydrocarbons, as associated with airfield activities and aircraft maintenance.
- Historical/Archaeological Resources - The only building in the general vicinity of the Bradley West Project that meets the typical criteria for historic structures (i.e., 50 years old, possessing significance in American history and culture, architecture, or archaeology at the national, state or local level) is the LAX Theme Building, located approximately one-third mile east of TBIT. The project site is developed and the underlying materials are primarily artificial fill and some alluvium. It is not expected that significant archaeological resources underlie the site.
- Biotic Resources - The Bradley West Project site is extensively developed. With the exception of limited ornamental landscaping on the east side of TBIT and the unpaved strip of land between Taxiways S and Q, the area is largely devoid of vegetation and related biotic resources. However, one special status plant species, southern tarplant (*Centromadia parryi ssp. australis*), a California Native Plant Society List 1B.1 species, was observed on the proposed East Contractor Employee Parking Area and the Southeast Construction Staging/Parking Area.
- Visual/Aesthetic Resources - As noted above, the Bradley West Project site is located within the midfield area of the airport and is characterized by a variety of airport-related facilities and uses. The subject area is not considered to be a scenic resource and is not amidst any designated scenic corridors.

3.3 Development Setting

This section identifies past, present, and reasonably foreseeable related projects, including LAX development projects (LAX Master Plan projects and other LAX projects with independent utility) and non-LAX development projects, that could, in conjunction with the Bradley West Project, result in cumulative impacts to the environment.

3.3.1 LAX Master Plan Development Projects

As described earlier in Chapters 1 and 2, the LAX Master Plan provides a comprehensive plan for a number of improvement projects planned to be implemented over many years throughout the airport. The LAX Master Plan Final EIR addresses the overall effects of all of the improvements, essentially providing a cumulative impacts analysis of all the improvements that comprise the LAX Master Plan, while also identifying the more notable impacts that are attributable to specific components, where appropriate.

The following describes the LAX Master Plan improvement projects that, similar to the Bradley West Project, have been, or are being, advanced into implementation and for which specific design and construction details were completed or are currently being developed or contemplated.

- **South Airfield Improvement Project (SAIP)**: This project provided for the relocation of Runway 7R/25L approximately 55 feet to the south and construction of a new 75-foot wide parallel taxiway between Runways 7R/25L and 7L/25R. Construction of the SAIP began in March 2006 and was completed in June 2008.
- **LAX Crossfield Taxiway Project (CFTP)**: This project includes development of a new taxiway, Taxiway C13, extending north-south between the north airfield complex and the south airfield complex, and the extension of existing Taxiway D. Also included as part of the CFTP are the construction of a new fire station/Aircraft Rescue and Firefighting Facility (ARFF), relocation of an existing aircraft Remain Overnight (RON) area, and development of a new vehicle parking lot to replace an existing lot displaced by development of Taxiway C13 and new RON area. An EIR was completed for the CFTP and the project was approved in early 2009. Construction of the CFTP is anticipated to occur between spring 2009 and summer 2010.
- **Midfield Satellite Concourse Project**: The Midfield Satellite Concourse was identified in the approved LAX Master Plan, along with the associated connector between the Midfield Satellite Concourse, TBIT, and the CTA, as well as construction of Taxiway C12, and a new Central Terminal Processor (CTP) in the CTA. LAWA and the consultant team responsible for the more detailed planning, design, engineering, and management of development projects in the midfield area are in the early stages of preparing plans for the Midfield Satellite Concourse Project. Once the project is proposed, a project-level EIR tiered from the LAX Master Plan EIR will be completed. Construction of this project, if approved, would not occur until after completion of the Bradley West Project.
- **Consolidated Rental Car (RAC) Facility**: This project would provide for the consolidation and centralization of rental car operations at LAX, as contemplated in the approved LAX Master Plan. LAWA has selected a consultant team to help develop the detailed planning, engineering, and design information necessary to implement this project. It is anticipated that a focused EIR tiered from the LAX Master Plan EIR will be completed for this project; however, specific project details have not yet been determined. Construction of this project is not anticipated to begin until after completion of the Bradley West Project.

As indicated above, only the CFTP would be under construction at LAX during construction of the Bradley West Project; hence, the SAIP, the Midfield Satellite Concourse Project, and the Consolidated Rental Car Facility would not contribute to cumulative construction-related impacts. Construction of the CFTP (spring 2009 to summer 2010) would result in a several month overlap with the Bradley West Project, which is projected to begin in late-2009. The resultant potential cumulative impacts are addressed in this EIR.

To the extent implementation of each of the above projects may follow implementation of the Bradley West Project, the combined impacts of these projects, along with other Master Plan projects, have already been addressed and disclosed in the LAX Master Plan Final EIR.

3.3.2 LAX Specific Plan Amendment Study

The LAX Master Plan, approved by the Los Angeles City Council in December 2004, is the strategic framework for future development at LAX. The LAX Specific Plan, approved in December 2004 as part of the LAX Master Plan Program, establishes procedures for approval of all projects defined in the LAX

Master Plan Program. The approval procedures are different for a subset of the LAX Master Plan projects. These projects are commonly referred to as the Yellow Light Projects. Such projects, as delineated in Section 7.H of the LAX Specific Plan, include the following:[22]

- Ground Transportation Center (GTC);
- Automated People Mover (APM) 2 from the GTC to the CTA;
- Demolition of CTA Terminals 1, 2, and 3;
- North Runway re-configuration, including center taxiways; and
- On-site road improvements associated with the GTC and APM 2.

In January 2005, a number of lawsuits challenging the approval of the LAX Master Plan Program were filed. In early 2006, the City of Los Angeles and plaintiffs gave final approval to a settlement of the subject lawsuits. As part of the Stipulated Settlement, LAWA is proceeding with the SPAS process to identify potential alternative designs, technologies, and configurations for the LAX Master Plan Program that would provide solutions to the problems that the Yellow Light Projects were designed to address, consistent with a practical capacity of LAX at 78.9 million annual passengers, the same practical capacity as included in the approved LAX Master Plan. The outcome of the SPAS process is a potential amendment to the approved LAX Specific Plan. LAWA is in the process of preparing a Draft EIR for the SPAS, including giving further consideration to the range of alternatives to be addressed in the Draft EIR. The nature and characteristics of the potential airfield improvement alternatives presented in the Notice of Preparation (NOP) for the SPAS Draft EIR are being reviewed in light of the current status and anticipated completion schedule for the LAX North Airfield Study currently being conducted by the NASA Ames Research Center. The nature and characteristics of the potential ground access system alternatives presented in the NOP are being reviewed to determine if there are other potential system options that would broaden the diversity and range of alternatives.

Section V.F of the Stipulated Settlement provides that, while the LAX SPAS is being processed, LAWA may continue to process and develop projects that are not Yellow Light Projects, consistent with the LAX Specific Plan Compliance Review procedures. The Bradley West Project is not a Yellow Light Project as identified in the LAX Specific Plan. Additionally, the location and design of the Bradley West Project as currently proposed are not dependent on implementation of any of the Yellow Light projects or alternatives to the Yellow Light projects that will be evaluated in the SPAS. Construction of the Bradley West Project does not commit LAWA to proceeding with any of the projects that are currently being evaluated for SPAS. The Bradley West Project provides for the construction of new concourses at TBIT, with the northernmost point of the new north concourse being compatible with the potential relocation of Runway 6R/24L 340 feet south of its current location, as contemplated in the approved LAX Master Plan. The SPAS will evaluate several alternatives for the relocation of Runway 6R/24L; however, it is not anticipated that any of the alternatives to be evaluated would propose moving Runway 6R/24L more than 340 feet to the south. With regard to the proposed relocation of Taxiways Q and S as part of the Bradley West Project, those existing north-south taxiway connections between the north runway complex and the south runway complex would simply be shifted to the west by approximately 500 feet. The points of connection for the relocated taxiways with the north runway complex are based on the current location of Runway 6R/24L; however, those points of connection could be moved to coincide with any potential relocation of that runway, based on the outcome of the SPAS, without any material change to the basic purpose and function of the subject taxiways.

As indicated above, the SPAS process, including completion of the EIR for SPAS, will identify and evaluate potential alternative designs, technologies, and configurations for the Yellow Light Projects. The SPAS process has not yet reached a point where the nature and implementation timing of the Yellow

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22 Section 7.H of the LAX Specific Plan as approved in December 2004 also included the West Satellite Concourse and associated APM segments; however, those improvements were later removed from that section of the Specific Plan through a Specific Plan Amendment. As such, they are not considered to be Yellow Light Projects, which is consistent with Section V.D.1 of the Stipulated Settlement described herein.

Light Project improvements can be delineated with reasonable accuracy and certainty. It is possible that some of the improvements coming out of the SPAS process would receive the necessary federal, state, and local approvals, undergo the appropriate design, engineering, and construction plans/specifications in time to start construction while development of the Bradley West Project is still underway. It is premature and speculative at this time, however, to say what those improvements would be and when, where, and how they would be constructed in relation to the Bradley West Project. As the SPAS alternatives are refined and advanced through the Draft EIR analysis, a reasonable assessment of the potential cumulative impacts of those improvements, along with the Bradley West Project improvements and other related projects, can be completed.

3.3.3 LAX Development Projects Independent of the Master Plan

It is anticipated that a number of other, stand-alone construction activities at LAX that were not part of the LAX Master Plan would likely be underway concurrent with the construction of the Bradley West Project, including both LAWA and tenant projects. These projects include:

- **Tom Bradley International Terminal (TBIT) Interior Improvements Program**: This project provides for the renovation of interior public spaces within TBIT including the departure lobby, departure concourse, arrival concourse, bus hold room, "meeter-greeter" area, in-transit lounge, in-bound and out-bound baggage systems; upgrade of the building's paging system and Information Technology (IT) systems; and upgrade of the existing elevators, escalators, and moving walks. Construction activities for this project began in February 2007 and are anticipated to be complete by February 2010.
- **Security Program - In-Line Baggage Screening Systems**: This project calls for the construction of in-line baggage screening systems in the CTA terminals pursuant to the requirements of the federal Transportation Security Administration (TSA). The project includes replacement of the existing airline baggage handling spaces, construction of new baggage screening rooms, replacement of the outbound baggage conveyor systems, and installation/integration of TSA-provided Explosion Detection System machines. The project also includes Explosive Trace Detection work stations, On-Screen Resolution Control Rooms and Closed-Circuit Television systems. Construction activities for the installation of in-line baggage screening systems within Terminal 3 began in January 2008 and are anticipated to be complete by January 2010. Similar projects within Terminal 6 will also be implemented between June 2010 and September 2011.
- **Airfield Operating Area (AOA) Perimeter Fence Enhancements -- Phase III (World Way West)**: This project is a continuation of the LAX Perimeter Security Enhancement Program and includes enhancing approximately 6 miles of AOA perimeter fence along World Way West. Fence improvements include the construction/placement of a concrete "K-rail" at the fence base, above which is a green tight-mesh metal section for a minimum height of eight feet, with a V-shaped barbed-wire top. Construction activities for this project are anticipated to occur between February 2009 and February 2010. Similar to the airfield intersection improvements described above, the nature of this project substantially limits the intensity and location of construction activity typical for any given day during the 1-year construction duration. This is due to the fact construction and placement of the new fence sections will occur directly adjacent to the existing fence, which limits the area of active construction and requires certain measures be taken at the beginning and end of each day's construction activities in order to constantly maintain TSA security requirements for LAX.
- **Terminals Improvements Projects**: These projects include various improvements to terminals within the CTA and, to a more limited degree, the west remote gates (i.e., passenger boarding bridge replacements). Provisions for interior design concepts and theme design at individual passenger terminals within Terminal 1 are planned to be implemented between September 2009 and June 2010. More extensive upgrades and renovations are contemplated to occur in Terminals 3 and 6 between December 2011 and December 2012. Additionally, concessions area upgrades are planned for Terminals 2, 4, 5, 7, and 8 to enhance the passenger experience by increasing the variety and choices of concessions available to passengers and by upgrading the adjacent public areas. Completion of the concessions upgrades would occur between November 2009 and April 2010. Also,

passenger boarding bridges would be replaced in select terminals (T1, T3, T6, Remotes) between January 2009 and March 2010, and the baggage claim devices in Terminal 3 would be replaced between June 2009 and June 2011.

- **Airfield Improvement Program (Taxiway/Taxilane/Service Roads)**: This project will reconstruct various taxiways and taxilanes with Portland Cement Concrete (PCC), and includes the removal of existing deteriorated Asphalt Concrete (AC) pavement, subgrade preparation, and construction of new pavement, pavement markings, and signage. The work on this project is anticipated to occur between June 2010 and December 2012.
- **Replacement of Elevators and Escalators**: This project provides for the replacement of existing elevators and escalators within parking structures and terminals. It is anticipated to occur between February 2010 and February 2013.
- **Miscellaneous Improvement within Central Terminal Area**: These projects within the CTA include activities related to Americans with Disabilities Act (ADA) improvements, seismic retrofit of pedestrian and vehicle bridges, expansion joint repair, roadway improvements, security barriers, and sewer line replacement. The ADA improvements are anticipated to occur between February 2009 and February 2013, seismic retrofits between March 2011 and September 2012, and the other improvements occurring between September 2009 and December 2010.
- **Airport Operations Center (AOC)/Emergency Operation Center (EOC)**: This project is to build out, within the existing Telecom building located east of Terminal 8 at LAX, a new AOC/EOC to consolidate LAWA's various operations centers into one location and to serve as a centralized emergency management location during an incident. The new AOC/EOC will house state-of-the-art facilities and will have increased robust operational and emergency management capabilities for resources coordination, data collection, and information processing. Project design has not yet been completed, but it is anticipated that the project will require the configuration of the existing building and could involve the construction of up to 10,000 square feet of additional building space. Construction is anticipated to commence in November 2009 and take approximately one year.
- **Central Utilities Plant (CUP) Replacement Program**: This project would replace the existing, dilapidated CUP with new systems to provide heat/steam and chilled water for space conditioning in terminal and concourse areas at the airport, and would also include a new cogeneration system that would use heat/steam from the CUP to generate electricity. The project would include a new Leadership in Energy and Environmental Design (LEED®)-certified building located just east of the existing facility and state-of-the-art equipment to provide an economic, energy efficient heating and cooling supply to the terminals and other facilities. The project also includes new cooling towers and a new underground thermal energy storage tank, relocation of a Los Angeles Department of Water and Power (LADWP) electrical vault, a new Facility Management System (FMS) and Fire Life Safety System (FLSS) to provide master controls for the terminals and other facilities in the CTA, and demolition of the existing CUP facilities. In conjunction with replacement of the CUP, this project includes the construction of a utility tunnel between the new CUP building and the existing tunnel sections at each terminal, as well as the replacement of both chilled and hot water piping including isolation valves, maintenance access structures, and insulated piping, among others. The project also includes replacement of fans, coils, duct cleaning, enclosures, condensate pans, dampers, motors, UV lighting within fan enclosures, and mechanical equipment including all pumps, motors, compressors, piping and valves within mechanical rooms in the terminal buildings. Construction of these improvements is anticipated to occur between May 2010 and April 2013.
- **Terminal/Apron Electrical Service Capacity Upgrades**: This project adds a new LADWP Substation and associated switchgear outside Terminals 2 through 8 on the apron to accommodate all GSE, including facilitation of systems to accommodate electric GSE consistent with Master Plan requirements; increases electrical capacity in Terminal 4 by a total of 3000 ampere (A) including upgrading the LADWP transformers from two 2500 kilovolt-ampere (KVA) to two 3750 KVA transformers that can deliver a total of 9000A; and, provides an accessible hatch to bring equipment

from the apron to the basement LADWP vault or main electrical room. Construction of these improvements is anticipated to occur between December 2010 and June December 2011.

- **K-9 Training Facility**: This project builds a new facility capable of handling 26 Airport Police dogs and an additional 10 dogs from the Los Angeles Police Department (LAPD), along with handlers and supervisory staff. This new facility will include office space, locker room facilities for the handlers and supervisors, 20-kennel runs, open space for dog training, including a section of simulated tarmac, and a grooming area. Construction of the new facility is anticipated to begin in March 2013 and take approximately one year.
- **Bus Wash Rack Facility**: This facility will provide a bus wash facility for LAWA buses, including the buses that transport passengers and crews to and from the west remote aircraft gates. Construction of this facility is anticipated to occur between December 2009 and December 2010.
- **Renovation of Former United Airlines Commuter Facility**: Various interior and exterior improvements are proposed for the existing commuter terminal formerly operated by United Express located just east of Terminal 8. Such improvements include: (1) installation of a new electrical transformer and/or switchgear to upgrade the existing 800 AMP (amperes) service to 4,000 AMP service, which, among other things, would allow preconditioned air and electricity to be provided to parked aircraft instead of having to rely on the use of aircraft on-board auxiliary power units/generators, and would also support new charging stations for electric ground service equipment (eGSE); (2) upgrading of building electrical, plumbing, and mechanical systems to meet applicable code requirements; new carpet, paint, and other interior renovations; (3) installation of jetways (i.e., enclosed corridors) that will convert seven of the 18 existing aircraft hard-stand gates (i.e., aircraft parking positions that passengers and crew reach by walking across the apron area) to contact gates; and, (4) the installation of a large outdoor metal canopy to provide shading and weather protection for the baggage claim area and for eGSE parking/charging. The development of seven contact gates, as replacements for seven hard-stand gates, at the subject facility would not change the existing number of commuter gates (18) assigned to that area. It is anticipated that renovation of the subject facility would begin around June 2009 and take approximately 3-6 months to complete.
- **GSE Fuel Station**: This project proposes the installation of a new fuel facility that will serve GSE, providing unleaded gasoline, #2 diesel fuel oil, and propane fuels. The exact location for the subject facility has not yet been determined, although consideration is being given to potential locations in the vicinity of the United Airlines cargo complex in the eastern portion of the airport. It is anticipated that installation of the new facility would occur in the latter half of 2009.
- **Westchester Golf Course Three-Hole Expansion Project**: LAWA is planning to add three holes to the existing 15-hole Westchester Golf Course, located in the northern portion of the airport property within the area known as LAX Northside. Construction of the proposed improvements will take approximately six months from the start of construction to opening of the holes. The most notable construction activities, including demolition of existing pavement and rough grading and trenching, would occur within the first two weeks of construction. This would be followed by approximately nine weeks of fine grading. The balance of the construction period for the Westchester Golf Course Three-Hole Expansion Project will be used for hydroseeding and placement of sod, growth and maturation of the course, and for finish work, such as lighting installation. Although construction of the golf course improvements may be complete, or substantially complete, before Bradley West Project construction begins, in order to provide a conservative cumulative analysis, it was assumed that construction of the Westchester Golf Course would be initiated in fall 2009.
- **Korean Air Cargo Terminal Improvement Project**: This project includes additional warehouse and office space, as well as a more efficient truck loading and docking area at the existing Korean Air facility at LAX, which is located on West Imperial Highway within the South Cargo Complex East. Specific improvements include the addition of 16,350 square feet of warehouse space, the addition of 8,800 new square feet of office space, and the conversion of 6,657 square feet of existing office space to warehouse space, for a total net increase in warehouse square footage of 23,007 and in office space of 2,143 square feet. Upon completion, the facility would have a square footage of 183,506, a net increase of 25,150 square feet. In addition, the project includes the remodel of the

existing truck docking area. At this time, it is estimated that construction would begin in early 2010 and take approximately one year to complete.

- **West Aircraft Maintenance/Aircraft Parking Area**: With the advent of the Airbus A380, which was put into commercial service at LAX in late 2008, and the pending release of the Boeing 747-8 and 787, there is growing market interest by airlines and aircraft maintenance/service providers in the development of areas at major airports where service and maintenance of new large aircraft (i.e., Airplane Design Group "ADG" VI aircraft) can occur. One such area of interest at LAX is an area at the west end of the airfield, between Pershing Drive and Taxiway AA south of World Way West. LAWA is currently formulating plans for the development of the 60-acre site to include a 200,000-square-foot maintenance hangar sized to accommodate (fully enclose) an A380, an aircraft parking/apron area of 50 acres with sufficient thickness to bear the weight of an A380, a 1.5-acre employee parking lot with 200 vehicle parking spaces, a 29,000-square-foot maintenance shop, and a 121,000-square-foot ground run-up enclosure (GRE)[23] sized to accommodate an A380. Construction of the project, if approved, would occur between October 2013 and February 2015.
- **Miscellaneous Construction and Maintenance Activities**: As part of ongoing construction and maintenance at LAX, and in accordance with its Capital Improvement Program, LAWA expects to undertake a number of projects within the CTA, the airfield, and other portions of the airport. These projects consist of routine upgrades and enhancements to existing facilities, and are generally smaller in scale than the other projects identified in this section.

In addition to the projects identified above, there are several projects in the planning stages that may occur on LAX property but are not related to the airport and are being undertaken by independent agencies or parties. These projects are described below.

- **Westchester Rainwater Improvement Project**: This project would treat urban runoff from the 2,400-acre watershed that currently flows into the Argo Drain and ultimately to Dockweiler State Beach and coastal waters. The project would add stormwater treatment facilities on LAX property near the intersection of Pershing Drive and Westchester Parkway. Project components would include stormwater flow diversion structures, debris removal, and underground detention and infiltration facilities that would remove bacteria and other pollutants, such as trash, oil and grease, metals and pesticides, from urban runoff. Construction of the project is anticipated to begin in May 2009 and extend until approximately March 2010.
- **Metro Bus Maintenance and Operations Facility**: The development of a Metro bus maintenance and operations facility is being considered for a 24-acre parcel located on the west side of La Cienega Boulevard near Lennox Boulevard. Should the project move forward, the facility would house a bus division with approximately 234 standard and 106 articulated buses, a dispatch center and maintenance shop. It would also support bus storage, fueling and related routine maintenance operations activity. In addition, approximately 525 parking spaces would be provided for employees, non-revenue vehicles and visitors. Construction of the project, if advanced to implementation, would begin in spring 2011 and extend through the end of 2012.

In addition to these projects, there is a project currently being considered by LAWA that, while not involving any construction activity at LAX or elsewhere, could indirectly affect LAX in a way that could result in cumulative impacts when combined with the Bradley West Project. Specifically, the Van Nuys Airport Noisier Aircraft Phaseout Project proposes to prohibit certain operations at Van Nuys Airport by aircraft that exceed specified takeoff noise levels. Van Nuys Airport is a general aviation municipal airport located approximately 22 miles north of LAX. It is anticipated that the phased implementation of that project, if approved, would result in the affected aircraft operators choosing to utilize other airports in the region including, but not limited to, LAX. Based on a survey of the potentially affected operators regarding which other regional airports would they likely use instead of Van Nuys Airport, it is estimated

[23] A "ground run-up enclosure" is a walled structure within which an aircraft is placed following certain maintenance activities, and the engines of the aircraft are operated at various thrust settings to confirm that they meet appropriate specifications. The walled enclosure serves to shield surrounding areas from the high noise levels of the engines during testing.

that a total of approximately 31 flights, representing 31 landing and takeoff operations (LTOs) or 62 total operations, would go to LAX per year. This equates to a daily average of approximately 0.2 additional flights at LAX. As noted above, the Van Nuys Airport Noisier Aircraft Phaseout Project does not involve any construction activities; hence, it does not pose the potential to contribute to cumulative construction-related impacts when combined with the Bradley West Project and the other projects described above. It does, however, present the potential for cumulative operations-related impacts at LAX that may relate to those of the Bradley West Project, specifically as related to aircraft operations. As described in Section 4.4 of this EIR, implementation of the proposed Bradley West Project would have a negligible impact to the overall aircraft ground movement operations at LAX. The potential addition of 0.2 flights per day at LAX due to the Van Nuys Airport Noisier Aircraft Phaseout Project would not materially affect the overall aircraft ground movement operations at LAX. The two subject projects, individually or combined, would not result in any notable change in the overall aircraft ground movement operations at LAX.

3.3.4 Non-LAX Planned Development

A list of other development projects in the City of Los Angeles and neighboring communities within the vicinity of the study area is presented in **Table 3-1**. The list was prepared to document and describe all known local area development projects that may contribute traffic to the Bradley West 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 construction schedules and specific dates of occupancy for most of the developments were not provided.

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
1	Baldwin Hills Scenic Overlook Park	Hetzler Road	10,300 sq. ft. visitor center, passive recreation area	CC	Completed per City of Culver City
2	Baldwin Site	12803 W. Washington Boulevard	New 3-story mixed use development totaling 37,308 sq. ft.	CC	Empty lot per field visit of 1/14/2009
3	Brentwood Site Mixed Use	8810/8840/8850 Washington Boulevard	New mixed use development w/preliminary concept of up to (approx.) 133 residential units and 17,084 sq. ft. retail	CC	Existing closed auto dealership per field check of 1/15/2009
4	Brooke Kaufman	4227 Ince Boulevard	6 condo units on 3 lots	CC	Existing homes
5	Child Care Center	4024/4026 Wade St.	Conversion of a 1,371 sq. ft. duplex into a day care; no new square footage	CC	Completed per City of Culver City
6	Condominiums	3846 Bentley Avenue	4 units	CC	Existing single family home per field visit of 1/14/2009
7	Condominiums	3873 Bentley Avenue	2 units	CC	Construction complete per field visit of 1/14/2009
8	Condominiums	3862 Huron Avenue	5 units	CC	Building permit; existing home per field visit of 1/14/2009
9	Condominiums	4048 Lincoln Avenue	3 townhome condominiums	CC	In construction per field visit of 1/14/2009
10	Condominiums	9650 Lucerne Avenue	5 townhome condominiums	CC	Existing apartments per field visit of 1/14/2009
11	Condominiums	4058 Madison Ave.	4 units	CC	Existing home. Notice of pending development per field check of 1/14/2009
12	Condominiums	4228 Madison Avenue	2 units	CC	Building permit; no such address per field visit 1/14/2009
13	Condominiums	3972 Tilden Avenue	4 units	CC	Under construction per field visit of 1/14/2009
14	Condominiums	4014 Van Buren Place	4 units	CC	In construction per City of Culver City

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
15	Condominiums	4025 Wade Street	4 units	CC	Under construction per field visit of 1/14/2009
16	Condominiums (Former Burger King site)	13340 Washington Boulevard	41 unit condominium development with 6 live/work condominium units in Culver City and 35 units in LA	CC/LA	Fenced empty lot per field of 1/14/2009
17	Czuker Site Mixed Use	8770 Washington Boulevard	New mixed use development w/preliminary concept of up to (approx.) 115 residential units, 41,600 sq. ft. retail; 1,400 sq. ft. cafe; 53,500 sq. ft. office	CC	Pre-application stage
18	Distribution & Warehouse	3434 Wesley Street	10,500 sq. ft. office, warehouse and distribution	CC	Empty fenced lot per field check of 1/14/2009
19	Dr. Brenord Dutt	5800 Uplander Way	Add 3 stories; 57,050 sq. ft. to a 2-story office	CC	Notice of pending development posted per field check of 1/14/2009
20	Radisson Office Tower	6161 Centinela Avenue	342,409 sq. ft. office tower and 9-level parking structure	CC	Entitlements pending
21	FAYNSOD Family Trust	11501-11509 Washington Blvd.	Mixed Use: 3 Retail (2,359 sq. ft.), 1 Office (937 sq. ft.), & 2 Apts. (1,867 sq. ft.)	CC	Parking lot with fenced storage area per field check of 1/14/2009
22	Fire Station No. 3	6030 Bristol Pkwy	Two-story, 12,156 sq. ft. fire station	CC	Under construction per field check of 1/14/2009
23	Glencoe/Washington Mixed Use	13365 Washington Blvd.	4,183 sq. ft. retail and 19 condominium units	CC	Building permit; existing closed restaurant per field visit 1/14/2009
24	Greg Reitz	8665 Hayden Place	63,679 sq. ft. of office	CC	Existing storage warehouse per field check of 1/14/2009
25	Hampton Inn	3954 Sepulveda Blvd.	77-unit hotel	CC	Building permit
26	Huron Townhouses	3823-3833 Huron Avenue	15 new townhouses; 3 existing units to be removed	CC	Completed per City of Culver City
27	Irving Residential/Office	4043 Irving Place	Four story; 26 residential units and 3 office units	CC	Entitlements pending
28	Live/Work Lofts	10839 Washington Blvd.	3 Live/Work units and 12 parking spaces	CC	Appeared to be completed per field visit of 1/14/2009

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
29	Lux @ 9910 Mixed Use	9901 Washington Boulevard	14,112 sq. ft. mixed use development with 131 dwelling units; 12,178 sq. ft. of retail and three levels of subterranean parking with 244 parking spaces	CC/LA	Entitlement stage
30	New vehicle repair shop	11167 Washington Place	Construction of a new vehicle repair shop with 1,196 sq. ft. of repair area with two service bays and 191 sq. ft. of office	CC	Entitlement stage
31	Office Building	9919 Jefferson Boulevard	113,467 sq. ft. 3-story office building	CC	Empty lot per field check of 1/14/2009
32	Office & Retail Bldg.	700-701 Corporate Pointe	240,612 sq. ft. of office and 4,242 sq. ft. of retail	CC	Vacant lot per field visit of 1/14/2009
33	Parcel B	9300 Culver Boulevard	74,600 sq. ft. of office, 21,700 sq. ft. of restaurant and 21,700 sq. ft. of retail	CC	Surface parking lot per field visit of 1/14/2009
34	Modification to CUP, expanding school	12095-12101 Washington Boulevard	Conversion of a 28,000 sq. ft. office building into classrooms and administrative offices; addition of 2,000 sq. ft.	CC	No construction per field visit of 1/14/2009
35	Sony	10202 Washington Blvd.	Approved to build net new 100,000 sq. ft. of office, post-production, stage, and support uses	CC	Under construction per field visit of 1/14/2009
36	Southbay Ventures	4139/4145 Duquesne Avenue	6 units on 2 lots	CC	Fenced lot per field visit of 1/14/2009
37	Triangle Site - Washington/National Transit Oriented Development	NW corner of Washington and National Boulevards	New transit oriented development to include light rail station and mixed use development (preliminary concept includes up to 290 dwelling units; 149 room hotel; 70,000 sq. ft. office; 31,500 sq. ft. retail and 10,000 sq. ft. restaurant	CC	Empty lot per field visit of 1/15/2009
38	Turning Point School (K through 8)	8794 National Boulevard	Addition/remodel of net 9,000 sq. ft.	CC	Closed school; no construction per field visit of 1/14/2009
39	Union 76	10638 Culver Boulevard	Gas station and convenience store with new car wash; 2,500 sq. ft.	CC	Existing gas station (no car wash) per field visit of 1/14/2009
40	Uptown Lofts	9900 Culver Boulevard	5,457 sq. ft. of office and 18 condominium units	CC	Under construction per field visit of 1/14/2009

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
41	Warner Parking Structure	8511 Warner Drive	51,520 sq. ft. retail/restaurant; 784 parking spaces on 5 levels	CC	Surface parking lot per field visit of 1/14/2009
42	11957 Washington Boulevard Office Project	11957 Washington Boulevard	73,569 sq. ft., 4-story office building	CC	Empty lot per field visit of 1/14/2009
43	Washington Place Office Condos	12402 Washington Place	42,000 sq. ft. 4-story office and retail building; 9,300 sq. ft. of retail; 30,400 sq. ft. of office	CC	Closed auto repair per field visit of 1/14/2009
44	Westfield Fox Hills Mall Expansion	200 Fox Hills Mall	293,786 sq. ft. of retail and 427 parking spaces	CC	Under construction; Completion 10/2009
45	West Los Angeles Community College Master Plan	Overland Avenue at Freshman Drive	Approx. 291,300 sq. ft. of new building and renovation. Anticipate future student population of approx. 18,904 students and 1,248 employees by Fall 2022. Project includes second access road, parking structures, landscaping and development of athletic facilities	CC/CO	Parking lot completed; math/science bldg. under construction per field check 1/2009
46	Best Western Jamaica Bay Inn (Parcel 27R)	4175 Admiralty Way	Renovation & expansion 42-room hotel by an additional 69 rooms	CO	No construction per field visit of 1/9/2009
47	Boat Central (Parcels 52 and GG)	13501 Fiji Way	Dry-stack boat storage of 345 parking spaces; boat trailer storage of 24 parking spaces; mast-up sail boat storage of 30 parking spaces	CO	No construction per field visit of 1/9/2009
48	Del Rey Shores Apartments (Parcels 100 and 101)	4247-4275 Via Marina	544 apartments (202 existing units to be removed)	CO	No construction per field visit of 1/9/2009
49	Diner (Parcel 33)	4211 Admiralty Way	351 apartments; 24,500 sq. ft. retail; 10,000 sq. ft. restaurant (existing restaurant to be removed)	CO	Existing Panifico's Restaurant per field visit of 1/9/2009
50	Fisherman's Village (Parcels 55, 56 & W)	13715 Fiji Way	26,570 sq. ft. of specialty retail; 785-seat restaurant; 132-room hotel; 9 boat slips	CO	No construction per field visit of 1/9/2009

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
51	Gateway Marina Del Rey (Parcel 95)	404-514 Washington Boulevard	16,350 sq. ft. specialty retail center; 9,160 sq. ft. high turn-over, sit-down restaurant with 240 seats; 7,890 sq. ft. of general office building, 6,100 sq. ft. walk-in bank 72 apartments; 337 Parking Spaces (removal of 7,500 sq. ft. drive-up bank)	CO	No construction per field visit of 1/9/2009; Existing Islands restaurant and Caldwell Bank
52	Government Office Building	Panay Way and Via Marina	26,000 sq. ft.	CO	No construction per field visit of 1/9/2009
53	Villas Apartments	4170 Admiralty Way (Admiralty Way and Palawan Way, NW Corner)	Congregate Care Facility 114 Occupied DU's, 5,000 sq. ft. of specialty retail; parking lot with 94 parking spaces, 6,000 sq. ft. of general office/commercial; parking structure with 447 parking spaces; removal of 6,000 sq. ft. health club	CO	Construction completed per field visit of 1/9/2009
54	Legacy Partners Neptune Marina Apartments/Woodfin Suites Hotel (Parcels 10R, FF & 9U)	Marquesas Way and Via Marina	526 apartments (removal of 136 apartments); 288-room hotel; 1.47-acre public park	CO	No construction per field visit of 1/9/2009
55	Lincoln Boulevard Mixed Use Project	4363 Lincoln Boulevard	158 high-rise residential condominium units; 3,178 sq. ft. of specialty retail; parking structure with 409 parking spaces. Beverly Hills Rent-a car facility (48,000 sq. ft.) to be removed	CO	Existing rent-a-car facility per field visit of 1/9/2009
56	Lloyd Taber Marina del Rey Library (Parcel 40)	4533 Admiralty Way	Library	CO	Existing Library. No construction per field visit of 1/9/2009
57	Marina City Club Towers Marina del Rey	4333 Admiralty Way	600 units	CO	No construction per field visit of 1/9/2009
58	Marina del Rey Apartment Community (Parcels 12 & 15)	Panay Way and Via Marina	940 apartments; 82 units senior apartments; 4,000 sq. ft. retail; 6,000 sq. ft. commercial	CO	No construction per field visit 1/9/2009
59	Marina Del Rey Center (Parcel 97)	514-586 Washington Boulevard	Replace two 1-story commercial structures with two larger 1-story structures (+486 sq. ft.)	CO	Existing strip mall. No construction per field visit of 1/9/2009

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
60	Marina del Rey Residential Project (Parcels 12, 15 and FF)	Panay Way and Via Marina	1201 residential units on 2 parcels on the west side of Marina Del Rey	CO	No construction per field visit of 1/9/2009
61	Marina Expressway Homes	Marina Expressway Eastbound & Mindanao Way	28 Single family condominiums	CO	No construction per field visit of 1/9/2009
62	Marriott Residence Inn (Parcel IR)	Admiralty Way and Via Marina	149-room hotel. Existing Marriott hotel on NE corner	CO	No construction per field visit of 1/9/2009
63	Sea Glass Town Homes	6719 Pacific Av	36 condominiums	CO	No construction per field visit of 1/9/2009
64	Villa Venetia Residential (Parcel 64)	13900-13910 Fiji Way	478 mid-rise apartments (removal of 224 existing apartments); 34 boat slips; 5,000 sq. ft. restaurant	CO	No construction per field visit of 1/9/2009
65	Waterside Shopping Center (Parcels 50 and 83)	13555 Fiji Way	4,880 sq. ft. of specialty retail, with removal of 2,400 sq. ft.	CO	Existing West Marine Boats appears to be a new facility
66	The Aerospace Corp. (Office and Laboratory)	2350 E El Segundo Boulevard	150,000 sq. ft. office and 15,000 sq. ft. lab	ES	Final stages of construction
67	Commercial Buildings	126, 130, 134 & 138 Lomita St	4 new commercial buildings	ES	Nearing end of construction per field visit of 1/7/2009
68	Condominiums	347 Concord Street	3 units	ES	Existing apartments (project not begun) per field visit of 1/7/2009
69	Condominiums	425 & 429 Indiana Street	8 units	ES	Empty lot per field visit of 1/7/2009
70	Condominiums	1700 Mariposa Avenue	11 units	ES	Empty lot per field visit of 1/7/2009
71	Condominiums	412 Richmond Street	4 units	ES	Existing apartments (project not begun) per field visit of 1/7/2009
72	Condominiums	203 Whiting Street	4 units	ES	Under construction per field visit of 1/7/2009
73	Corporate Headquarters Office	455/475 Continental Boulevard	330,000 sq. ft. office; 22,500 sq. ft. research and development	ES	Existing office building (project not begun) per field visit of 1/8/2009

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
74	El Segundo Corporate Campus	700-800 N Nash Street	1,740,000 sq. ft. office; 75,000 sq. ft. retail; 7,000 sq. ft. child care; 7,000 sq. ft. medical office; 19,000 sq. ft. health club; 75,000 sq. ft. restaurant; 100-room hotel; 25,000 sq. ft. light industrial, 75,000 sq. ft. research & development; 65,000 sq. ft. technology/telecommunications	ES	Partially completed. Health club and hotel components are on hold
75	Electronics Superstore	Aviation Boulevard and Utah Ave/ 135th St	152,504 sq. ft. electronics superstore in place of 90,243 sq. ft. R&D, 51,209 sq. ft. office, and 11,502 sq. ft. warehouse	ES	Existing office building (project not begun) per field visit of 1/8/2009
76	High Bay Lab	901 N Nash St	55,772 sq. ft.	ES	Construction close to completion
77	Northrup-Grumman	SE corner of Mariposa Ave and Douglas Street	190,000 sq. ft. industrial uses	ES	Under construction
78	Office	888 N Sepulveda Boulevard	120,000 sq. ft.	ES	Empty lot per field visit of 1/8/2009
79	Office	141 Main Street	commercial	ES	Existing closed restaurant per field visit of 1/7/2009
80	Plaza El Segundo Phase 2A	NE Corner of Sepulveda Blvd and Rosecrans Ave	commercial	ES	Empty lot per field visit of 1/8/2009. Project on hold
81	Segundo Business Park	222 Kansas Street (at Grand Avenue)	commercial	ES	Demolition permit only received by the City
82	Xerox Phase IV	1951-1961 El Segundo Blvd	255,242 sq. ft. office; 350-room hotel	ES	Existing office building and surface lot per field visit 1/8/2009; Project on hold
83	Condominiums	13429-31 Kornblum Avenue	6 units	HA	Existing single family home per field visit of 1/7/2009
84	Condominiums	14629 Lemoli Avenue	3 units	HA	Construction completed per field visit of 1/7/2009
85	Condominiums	11533 Freeman Avenue	5 unit conversion	HA	Project completed per field visit of 1/7/2009
86	Condominiums	11975 Manor Drive	3 units	HA	Vacant lot per field visit of 1/7/2009

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
87	Condominiums/Office	13806 Hawthorne Blvd	171 units and 32,500 sq. ft. of office space	HA	Closed mortuary per field visit of 1/7/2009
88	Condominiums	11418 Grevillea Avenue	7 units	HA	Existing lawn mower business per field visit of 1/7/2009
89	Hotel Extensions	4334 W. Imperial Highway	165 rooms	HA	Under construction, per field check of 1/7/2009
90	L.A. Air Force Base - Lawndale Annex	East of Aviation Blvd and South of Rosecrans Avenue	285 condominium units	HA	Fusion Development at Aviation Blvd and 149th Place is completed. No other condominium projects seen per field visit of 1/7/2009
91	LA Air Force Base - Area A	SE corner of El Segundo Bl and Aviation Bl	625 condominiums	HA	Under construction per field visit of 1/8/2009
92	LA Air Force Base - Area B	NW corner of El Segundo Bl and Aviation Bl	63,000 sq. ft. warehouse; 560,000 sq. ft. office park; 93,750 sq. ft. base exchange; 43,125 sq. ft. health club; 34,463 sq. ft. medical office	HA	Existing surface parking lot per field visit of 1/8/2009
93	Prestige Villas	4500 116th Street	116 condominium units	HA	Existing closed RFK Medical Center per field visit of 1/7/2009
94	Recycling Center at Ralph's Grocery Store	11873 Hawthorne Blvd	Recycling center	HA	No construction per field visit 1/7/2009
95	Single Family Homes	14000 Yukon Avenue	6 units	HA	Four existing single family homes per field visit of 1/7/2009
96	Wiseburn School District	5403 W. 138th St and 5309 W. 135th St and 13500 Aviation Blvd	School Renovation. Existing Peter Burnett School at 5403 W. 138th Street	HA	Construction at Juan Cabrillo Elementary School (5309 W. 135th Street) completed per field visit 1/7/2009
97	Adult School and Day Care	106 East Manchester Blvd.	27,477 sq. ft.; office conversion	IN	Construction completed per field visit of 1/9/2009
98	Auto Sales and Retail	Prairie Avenue and Imperial Highway, NE Cor	49,000 sq. ft.	IN	Under construction per field visit of 1/9/2009

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
99	Commercial Building Addition	234 W. Manchester Boulevard	12,029 sq. ft.	IN	Construction completed per field visit of 1/9/2009
100	Condominiums	501 East 99th Street	12 units	IN	Existing home per field visit of 1/9/2009
101	Condominiums	940 North Cedar Street	14 units	IN	Existing apartments per field visit 1/9/2009
102	Condominiums	448 North Edgewood Street	6 units	IN	Existing home per field visit of 1/9/2009
103	Condominium	417- 420 N. Market Street	12 units	IN	Fenced lot per field visit of 1/9/2009
104	Condominiums	450 N. Market Street	12 units	IN	Existing abandoned building per field visit of 1/9/2009
105	Condominiums	912 S. Myrtle Avenue	7 units	IN	Existing apartments per field visit of 1/9/2009
106	Condominiums	927 South Osage Avenue	7 units	IN	Existing home per field visit of 1/9/2009
107	Condominium	222 W. Spruce Avenue	10 units	IN	Vacant lot per field visit of 1/9/2009
108	Hollywood Park Mixed-Use Development	1050 South Prairie Avenue	2,995 dwelling units; 300-room hotel; 620,000 sq. ft. retail; 75,000 sq. ft. office/commercial; 10,000 sq. ft. of civic use; 300-room hotel with 20,000 sq. ft. of meeting space. Pavilion/casino would be maintained on the project site.	IN	Draft EIR released fall 2008
109	Mixed retail/restaurant	Florence Avenue and La Brea Avenue, SE corner	49,800 sq. ft.	IN	Vacant lot per field visit of 1/9/2009
110	Mixed retail/restaurant	Southwest corner of Century/Prairie (Haagen)	97,490 sq. ft.	IN	Existing Taco Bell per field visit of 1/9/2009
111	Residential	704 N. Market Street	6 units	IN	Vacant lot per field visit of 1/12/2009
112	Retail and Office	10318 S. Prairie Avenue	10,000 sq. ft.	IN	Under construction per field visit of 1/12/2009
113	Senior Center and Housing	111 N. Locust Street	95,188 sq. ft.	IN	Vacant lot per field visit of 1/12/2009

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
114	Shopping Center	11441 S. Crenshaw Boulevard	101,323 sq. ft.	IN	Burlington Coat Factory store completed; further construction pending per field visit of 1/12/2009
115	Shopping Center	433 North Centinela Avenue	7,384 sq. ft.	IN	Vacant lot per field visit of 1/12/2009
116	Shopping Center	10922 South Prairie Avenue	8,416 sq. ft.	IN	Vacant paved lot per field visit of 1/12/2009
117	Single Family Homes	11901 S. Yukon Avenue	9 units	IN	In construction per field visit of 1/12/2009
118	Transitional Housing	733 Hindry Avenue	232,966 sq. ft.	IN	Existing transitional housing per field visit of 1/12/2009
119	Transitional Housing	812 S. Osage Avenue	20 units	IN	Vacant lot per field visit of 1/12/2009
120	Ambrose Hotel	901 Abbot Kinney Boulevard	57-room hotel, 1,200 sq. ft. of retail and 4,300 sq. ft. restaurant	LA	No construction. Existing building for lease per field check of 1/14/09
121	Animo High School	841 California Avenue	420-student Charter School	LA	Under construction per field visit of 1/14/09
122	Bank of America	7215 W. Manchester Avenue	Walk-in bank	LA	Empty lot per field visit of 3/23/2009
123	Car Wash	9204 Airport Boulevard	15,251 sq. ft. of car rental facility to be removed	LA	No construction per field check of 1/12/2009
124	Central Region Elementary School	Teale Street E/O Lincoln Boulevard	650 students	LA	Empty lot per field visit of 1/14/2009
125	Chevron Gas Station	6101 W. Manchester Avenue	1,000 sq. ft. gas station with a drive through Starbucks; 2,000 sq. ft. 24-hour convenience store	LA	Under construction
126	Condominiums	7430 Arizona Avenue	43 units	LA	Under construction
127	Daycare Center	7900 S. Loyola Boulevard	16 student daycare center	LA	Daycare construction complete. William H. Hannon Library under construction per field visit of 1/14/2009
128	Grosvernor Court	5550 Grosvenor Boulevard	208 condo units	LA	Existing surface parking lot per field visit of 1/14/2009

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
129	Lincoln Boulevard Mixed Use	4004 S. Lincoln Boulevard	98 unit condos & 6,020 sq. ft. retail	LA	Existing strip mall per field visit of 1/14/2009
130	Lincoln Boulevard/ Manchester Avenue	7280 - 7298 W. Manchester Avenue	Apartments to replace specialty retail	LA	Existing realtor and other structure per field check of 1/12/2009
131	Metro Bus Facility	La Cienega Boulevard at Lennox Boulevard	Metro bus maintenance facility with approx. 234 standard and 106 articulated buses, a dispatch center and maintenance shop	LA	Environmental review
132	Office Building	5901 Center Drive (at Howard Hughes Pkwy)	249,020 sq. ft., five-story office building	LA	Building permit application in review but no start date. Will be built to suit
133	Private School	5401 Beethoven Street	420 students	LA	Construction completed per field visit of 1/14/2009
134	Radisson Hotel	6225 W. Century Blvd	340 room hotel; 2,544-space parking structure w/1,733 spaces for airport parking	LA	Project buildout year is 2012
135	Residential Mixed Use Project	8601 Lincoln Boulevard (at Manchester Avenue)	527 apartments, 12 live/work units, 22,600 sq. ft. of ground retail uses and 8,000 sq. ft. of restaurant.	LA	Construction nearing completion per field visit of 3/23/09
136	Villa Allegra	Sepulveda Blvd, W/S, south of Howard Hughes	Townhomes	LA	Under construction per field visit of 1/13/2009; Spring 2009 opening
137	The Village at Playa Vista (Playa Vista Phase II)	Jefferson Boulevard between McConnell Drive and Centinela Avenue	2,600 residential units; 175,000 sq. ft. office; 150,000 sq. ft. retail; 40,000 sq. ft. community serving	LA	Three office buildings in construction per field visit of 1/14/2009
138	Warehouse and Office	12700 Braddock Drive	134,557 sq. ft. warehouse; 1,357 sq. ft. office; 58,323 sq. ft. of University of CA laundry building to be removed	LA	Existing storage facility per field visit of 1/14/2009
139	Washington Square	300 Washington Blvd (at Via Dolce)	123 unit condominiums; 6,000 sq. ft. office space. (Existing 176,671 sq. ft. office building to be removed)	LA	Under construction per field visit of 1/14/2009
140	Westchester Lutheran School Expansion	7831 Sepulveda Boulevard	600 students	LA	Under construction per field visit of 1/14/2009

Table 3-1

List of Other Related Projects

No.	Project Name	Address	Description	City[1,2]	Comments
141	Bank and Retail	1129 N. Sepulveda Boulevard	4,000 sq. ft. bank and 2,000 sq. ft. retail; demolition of existing gas station	MB	Fenced structure per field visit of 1/7/2009
142	Mixed-Use Project (former Good Stuff restaurant)	1300 Highland Avenue	15,000 sq. ft. commercial/office/condominium	MB	Under construction per field visit of 1/7/2009
143	Medical Plaza	222 Sepulveda Blvd (NE Corner of Sepulveda Blvd and 2nd St)	12,000 sq. ft. medical office building and 1,000 sq. ft. retail. (Existing 5,000 sq. ft. auto repair shop to be removed)	MB	Existing limousine detailing business per field visit of 1/7/2009
144	Retail	1727 Artesia Boulevard	5,800 sq. ft. retail	MB	Construction nearing completion per field visit of 1/7/2009
145	Retail	1700 Rosecrans Avenue	10,000 sq. ft. retail (from warehouse)	MB	Construction complete per field visit of 1/7/2009
146	Rite Aid Store	1100 Manhattan Beach Blvd	13,000 sq. ft. retail (Existing 8,600 sq. ft. gas station to be removed)	MB	Fenced empty lot per field visit of 1/7/2009
147	Walgreens	2400 Sepulveda Boulevard	15,000 sq. ft. retail (demolition of vacant Albertsons store)	MB	Not started per field visit of 1/7/2009

1 CC = Culver City; CO = County of Los Angeles; ES = El Segundo; HA = Hawthorne; IN = Inglewood; LA = City of Los Angeles; MB = Manhattan Beach

2 Projects in Culver City from "Culver City Related Projects List" dated November 6, 2008 and sent by Ms. Diana Chang, Sr. Management Analyst/Transportation Planner, City of Culver City staff to LAWA. Projects in the City of Los Angeles updated via e-mail from Mr. Eddie Guerrero, Transportation Engineer, LADOT on March 25, 2009. Projects in County of Los Angeles from "Related Projects List," dated April 3, 2008, developed and prepared by Suen Fei Lau, Associate Civil Engineer, Los Angeles County Department of Public Works. Updates to projects in El Segundo provided by Maryam Jonas, El Segundo Public Works Department, on January 21, 2009 via e-mail to LAWA staff. Projects in City of Hawthorne were based on the the City's website: http://www.cityofhawthorne.com/depts/planningcommdev/pending_applications/default.asp dated January 15, 2009 and updated via an e-mail from Mr. Christopher Palmer, Planning Assistant, City of Hawthorne, on January 20, 2009 to LAWA staff. Projects in Inglewood from "Related Projects" list dated 3/27/08. Projects in Manhattan Beach sent from Manhattan Beach City staff to LAWA in May 2008.

Source: Fehr & Peers, 2009.

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4. SETTING, ENVIRONMENTAL IMPACTS, AND MITIGATION MEASURES

This chapter describes the analytical framework for the environmental review of the Bradley West Project, including a description of (1) program level versus project level environmental review, (2) the baseline for determining whether the potential impacts of the Bradley West Project 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 Bradley West Project, including potentially significant impacts, and (4) the cumulative impacts analysis conducted for the Bradley West Project.

Program Level versus Project Level Environmental Review

As described in Chapter 1, 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 Bradley West Project as an implementing project of the Plan, and thus the Master Plan EIR analyzed the potential impacts of the Bradley West Project 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 Bradley West Project was analyzed in the Master Plan EIR, this EIR is "tiered" from, and incorporates by reference, the LAX Master Plan Final EIR.[24] This EIR provides project-specific information on the development of the Bradley West Project, focusing on potentially significant environmental effects that may not have been fully addressed in the prior EIR at the project level of detail. This methodology is consistent with CEQA Guidelines Section 15168, which is discussed in greater detail in Section 1.2.3 of this EIR. As identified in the Notice of Preparation (NOP) published on December 17, 2008 for this project-level EIR, LAWA initially determined, based on an preliminary review of the Bradley West Project, that five categories of environmental resources could potentially be affected by construction of the project and require additional review that was not otherwise provided in the LAX Master Plan Final EIR. These five categories of environmental resources included traffic, air quality (including human

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

health risks), noise, surface water quality, and biological resources. Additional review conducted in conjunction with the preparation of this EIR determined that minimal additional analysis was required for the topic of surface water quality, beyond that provided in the LAX Master Plan Final EIR. This determination is confirmed by the assessment of the Bradley West Project's impacts to hydrology/water quality provided in Chapter 5 of this EIR.

An assessment of impacts to surface transportation, air quality, human health risk, global climate change, biotic resources, and noise from implementation of the Bradley West Project is provided in Sections 4.1 through 4.8 of this chapter, respectively.

In accordance with Sections 15152(a) and 15168 of the CEQA Guidelines, Chapter 5 of this EIR addresses environmental resources for which further review confirms that the impacts of the Bradley West Project were accounted for and addressed in the LAX Master Plan Final EIR and Addenda to the Final EIR. Resource categories addressed in Chapter 5 include land use, socioeconomics, hydrology/water quality, cultural resources, endangered and threatened species, wetlands, energy supply and natural resources, solid waste, aesthetics, earth and geology, hazards and hazardous materials, public utilities, public services, and schools.

Baseline for Determining Significant Environmental Impacts

For this EIR, the environmental baseline used for determining significant impacts normally consists of the physical conditions that existed when the NOP for the Bradley West Project (formerly called the TBIT Reconfiguration Project) Draft EIR was published in December 2008.[25] Although these environmental baseline conditions described in this 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 2008.

In conjunction with evaluating the significance of impacts associated with the proposed project, the EIR analysis also accounts for the fact that the improvements proposed by the project would not be completed for several years, at a future point in time when the affected physical conditions would be materially different from those in 2008. This is particularly true relative to evaluating project impacts to the on-airport surface transportation network and the off-airport surface transportation network. It is anticipated that the most notable operations-related elements of the Bradley West Project, including the addition of new contact gates on the west side of TBIT, development of the new (replacement) concourses, and passenger processing improvements within the Bradley Central Core, would be completed sometime in 2013. Between 2008 and 2013, traffic volumes on on-airport and off-airport roads are projected to increase due to background ambient growth and future (2013) traffic conditions would change from existing, independent of the proposed project. As such, an "adjusted baseline" is used for the evaluation of project-related operational traffic impacts to the on-airport surface transportation network and the off-airport surface transportation network. Additional details regarding the applicability of an adjusted baseline for the analysis of on-airport traffic and off-airport traffic are provided in Sections 4.1 and 4.2, respectively.

As described in Section 2.5.4 of this EIR, the projected increase in passenger activity levels assumed in the Bradley West Project EIR impacts analysis is based on an aviation activity forecast for LAX that was developed in mid-2008. That forecast projected a substantial (30 percent) increase in passenger levels at TBIT between 2008 and 2013. This activity level forecast is based on 2008 data, and is considered conservative in light of the current economic recession and the expected decrease in aviation activity worldwide that would likely occur as a result.

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[25] 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."

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 Mitigation Monitoring and Reporting Program (MMRP) to ensure that mitigation measures and LAX Master Plan commitments identified in the Final EIR are implemented.[26]

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. This EIR describes the mitigation measures and Master Plan commitments that are applicable to the Bradley West Project and provides project level information when necessary to evaluate the potentially significant environmental effects of this project.

All MMRP mitigation measures and Master Plan commitments that are applicable to the Bradley West Project 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 Bradley West Project as required in the MMRP. To the extent that these measures would not reduce significant 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 reasonably foreseeable 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 Bradley West Project 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 for most environmental topics.[27] Pursuant to sections 15130(d) and 15152(f) of the CEQA Guidelines, no further evaluation of these topics is required. However, because adequate construction-level information was unavailable at the time, the LAX Master Plan did not include a construction-level analysis of human

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[26] *See* Cal. Pub. Res. Code Section 21081.6; *see also* Cal. Code Regs. Title 14, Sections 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.

[27] 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.

health risks, including a cumulative analysis of construction-related human health risks. Such an analysis is included in this EIR. Additionally, this EIR provides an analysis of cumulative surface transportation impacts associated with construction of the Bradley West Project in conjunction with other nearby construction projects for which relevant detailed project information was not available at the time of the LAX Master Plan EIR analysis. In addition to evaluating cumulative impacts associated with human health risk and surface transportation, this EIR also includes information related to past, present, and reasonably foreseeable future projects in its analysis of construction impacts related to air quality, global climate change, biotic communities, and noise.

As described in Chapter 3 of this EIR, construction of several non-Master Plan LAX development projects and two non-LAWA projects on airport property are likely to occur simultaneously with the Bradley West Project construction. These projects, considered in this EIR's cumulative impact analysis, include the TBIT Interior Improvements Program, In-Line Baggage Screening Systems, Airfield Improvement Program - Taxiway/Taxilane Pavement Upgrades, the Airfield Operating Area (AOA) Perimeter Fence Replacements - Phase III, Airport Operations Center/Emergency Operation Center, Korean Air Cargo Terminal Improvement Project, K-9 Training Facility, Central Utility Plant (CUP) Replacement Program, Terminals Improvement Projects including Miscellaneous Improvements within the Central Terminal Area, Replacement of Elevators and Escalators, Bus Wash Rack Facility, Renovation of Former United Airlines Commuter Facility, GSE Fuel Station, Westchester Golf Course Three-Hole Expansion Project, Terminal/Apron Electrical Service Capacity Upgrades, West Aircraft Maintenance/Aircraft Parking Area, miscellaneous routine construction and maintenance projects, the Bureau of Engineering's Westchester Rainwater (Stormwater) Improvement Project and the Los Angeles County Metropolitan Transportation Authority's Bus Maintenance and Operation Facility. These projects are described in Section 3.3.3 of this EIR. Non-LAX planned development, including projects specifically identified above as well as other past, present, and reasonably foreseeable projects located in the general vicinity of LAX, is identified in Section 3.3.4 of this EIR.

As described in Chapter 3 of this EIR, in addition to the Bradley West Project, several LAX Master Plan improvement projects have recently been approved or are currently undergoing project design. These projects include the Crossfield Taxiway Project, which was approved in March 2009, and the Midfield Satellite Concourse Project and the Consolidated Rental Car (RAC) Facility, which are both currently in the design process. As indicated in Chapter 3, neither the Midfield Satellite Concourse Project nor the Consolidated RAC Facility is expected to be under construction at LAX during the Bradley West Project construction period, which is anticipated to start around late 2009. Hence, these projects are not expected to contribute to cumulative construction-related impacts. The only LAX Master Plan project that is anticipated to be under construction concurrent with construction of the Bradley West Project is the Crossfield Taxiway Project. The resultant potential cumulative impacts are addressed in this chapter.

As described in Section 3.3.2, certain LAX Master Plan projects are currently undergoing review as part of the LAX Specific Plan Amendment Study Process. These projects include the Ground Transportation Center (GTC), Demolition of Central Terminal Area (CTA) Terminal 1, 2, and 3, the Automated People Mover (APM) 2 between the GTC and CTA, the North Runway Reconfiguration, and On-site Road Improvements Associated with the GTC and APM2. Alternatives to these projects will be evaluated as part of the LAX SPAS EIR, currently underway.

4.1 On-Airport Surface Transportation

4.1.1 Introduction

As described in Chapter 2 of this EIR, the Bradley West Project would result in terminal building, aircraft apron, and taxiway improvements at LAX to accommodate new aircraft contact gates on the west side of TBIT. These contact gates would provide a more efficient and desirable option to the existing "hardstand" aircraft parking positions where aircraft park remotely and passengers are bused to and from the terminal building. In addition, the federal inspection services (FIS) facilities, such as U.S. Customs and Border Protection services, within TBIT would be improved as part of the project to provide increased and more efficient processing of arriving international passengers.

This section documents the on-airport traffic analyses of the departures (upper) and arrivals (lower) level roadways and curbsides prepared to assess potential traffic-related impacts associated with future operation of the new facilities being constructed as part of the Bradley West Project. Section 4.3 of this EIR addresses construction-related impacts of construction vehicle traffic (i.e., construction employees and delivery vehicles) using the off-airport intersections that are anticipated to be potentially impacted by construction-related traffic activity. Construction employee parking and construction delivery vehicles are not anticipated to access the CTA roadway system. Therefore, on-airport traffic impacts from construction would not be expected and are not addressed in this EIR. Section 4.2 of this EIR addresses the project's operations-related impacts to the off-airport transportation network.

This on-airport surface transportation analysis was conducted to estimate the impacts on operation of the TBIT curbsides and Central Terminal Area (CTA) intersections and roadway links that would result from anticipated changes in traffic accompanying the changes in passenger demand and peaking characteristics following construction of the contact gates that would accommodate New Large Aircraft (NLA) such as the Airbus A380 and improved FIS processing. The CEQA basis for identifying and evaluating project impacts is a comparison between Future (2013) With Project traffic conditions and Future (2013) Without Project traffic conditions. While the physical environmental setting that exists when starting the preparation of an EIR (i.e., 2008 for this EIR) is normally the "baseline" used to determine significant impacts, it is not appropriate for assessing the on-airport surface transportation impacts of the Bradley West Project. A 2008 baseline would not capture the aviation activity levels and on-airport traffic levels that would be present when the proposed Bradley West Project improvements are anticipated to be in place. As such, an "adjusted" baseline is used as the basis for evaluating on-airport surface transportation impacts. The adjusted baseline assumes: (1) the existing (2008) physical conditions and configuration of TBIT (i.e., TBIT without any of the proposed Bradley West Project improvements); (2) the international passenger levels and daily flight schedules projected to occur in 2013 independent of the proposed Bradley West Project (i.e., ambient growth in international travel projected to occur between 2008 and 2013); and (3) the on-airport traffic levels projected for 2013, which include the additional traffic from increased domestic and international aviation activity levels at LAX independent of the Bradley West Project. The analysis of impacts to that adjusted baseline accounts for the project-related improvements to TBIT, including addition of contact gates, construction of new concourses, and improvement of the central core, which are expected to be completed in 2013.

Based on the airline schedule analysis prepared to support this EIR, it is anticipated that the aircraft arrivals and departures schedules for the TBIT and other CTA terminals for the Future (2013) With Project and Future (2013) Without Project conditions would be essentially the same, with minor variations. As further described in Section 2.4.5 of this EIR, it is anticipated that the Bradley West Project improvements described above would have minimal effect on the number of daily airline passengers that would access TBIT or any of the other terminal buildings in the CTA in 2013, given that the airline schedules are comparable. It is also anticipated that the daily airline passenger volumes in 2013 for the With Project conditions would be essentially the same as the Without Project conditions, with an approximately 30 percent increase in the number of international passengers at LAX projected to occur between 2008 and 2013 for both conditions. In light of those considerations, it is estimated that the 2008 to 2013 increase in daily roadway traffic volumes for TBIT would be approximately the same for the two future scenarios.

The anticipated differences between the With Project and Without Project conditions as they relate to CTA roadway and curbside traffic activity are summarized below:

- TBIT Arriving Passengers - As described previously, the Bradley West Project includes new contact gates that would allow passengers to process off the aircraft at a faster rate than is possible when passengers are required to be bused from a remotely parked aircraft to TBIT. Furthermore, it is anticipated that the improved arrivals process would allow more efficient passenger processing through the reconfigured TBIT compared with the existing FIS facilities. Although the improved processing rate at TBIT would not affect daily passenger activity, it is anticipated that the more rapid processing rate as passengers are offloaded from aircraft and processed through the TBIT FIS facilities could affect the rate at which airline passengers and associated vehicles transporting these passengers access the TBIT curbside and circulate within the CTA roadway system.
- TBIT Employees - TBIT is being reconfigured to include more building square footage, which would result in an increase in employee activity at TBIT. Although additional employee traffic would be generated as a result of the reconfiguration, it is anticipated that parking for these employees would be accommodated in remote facilities such as the LAWA-operated Lot D North and Lot E from which employees use the existing shuttle bus system to access the terminal building. It is anticipated that changes in TBIT employment would be accommodated within the future 2013 shuttle bus fleet analyzed for this study.

As described above, it is anticipated that implementation of the Bradley West Project would affect only the peaking characteristics of airline passenger activity and would not affect the overall number of passengers accessing the airport. As such, other landside facilities, such as the capacity of public parking facilities, would not be affected by the Bradley West Project and were, therefore, not analyzed as part of this EIR.

4.1.2 Methodology

As noted above, this section focuses on the project-related impacts to the TBIT curbsides and CTA intersections and roadway links engendered by the improved off-loading of aircraft accessing the terminal via contact gates and the anticipated increase in FIS processing rates based on simulation results that could allow more passengers to reach the curbside sooner and in a more "peaked" condition as compared to the traffic conditions that would be experienced if these facilities were not improved. Improved TBIT FIS processing rates were assumed based on a simulation of TBIT arrivals activity performed as part of this study.[28] Although the anticipated passenger and traffic patterns may be different under the 2013 With Project and 2013 Without Project conditions, the daily passenger volumes would remain essentially the same.

The traffic demand estimates prepared for this study were developed using a trip-generation and trip distribution model that provides traffic volume estimates for all roadway links and curbside links within the CTA roadway system for multiple peak hour conditions for Existing (2008) conditions and for Future (2013) With Project and Without Project conditions. These traffic volume estimates were then imported into a micro-simulation model that has been developed to simulate the operation of these traffic volumes throughout the airport roadway and curbside system. For purposes of consistency with the types of on-airport traffic analyses conducted for the LAX Master Plan, the following general analyses were conducted:

- **Curbside Capacity Analysis**--Airport curbside facilities serve as the primary destination for vehicular traffic accessing the CTA departures (upper) and arrivals (lower) level roadways. As such, the linear length of these curbside facilities to accommodate stopped vehicles and provide adequate room to maneuver into and out of a stopping position is a critical measure in assessing the capacity of the airport roadway system. Curbside capacity at the TBIT arrivals (lower level) and departures (upper level) curbsides was directly assessed for this analysis. The methodology for assessment of these curbside facilities is unique to the airport environment and requires the use of analytical

28 Jacobs Consultancy, TBIT Terminal Simulation of TBIT Arrivals Activity, October 2008.

methodologies that differ from the standard intersection and roadway capacity analysis used for the off-airport analysis (see Section 4.2 of this EIR). For this study, the simulation model was used to determine the number of vehicles that would access the curbside which were then summed on a minute-by-minute basis. The total vehicles at curbside were then compared to the length of the curbside in order to assess the operation of the curbside. This curbside analysis technique provides a direct measure of the ability of the curbside to accommodate the anticipated vehicular demand.

- **CTA Intersection Analysis--**CTA intersections were analyzed to assess the potential implication of changes in TBIT activity throughout the terminal area. It is critical to analyze vehicular intersections given these facilities meter traffic throughout the CTA roadway system and are a key limiting factor for vehicle throughput on the on-airport roadways. Intersections with two or more directions of travel were evaluated for this analysis. For the purpose of this discussion, intersection movements are defined as through, left or right turn movements.
- **CTA Roadway Link Analysis--**Key CTA roadway links were also analyzed to assess the potential implication that changes in TBIT activity would have on overall terminal area throughput. Key roadway links were analyzed to assess potential congestion on both the upper level and departures level of the CTA roadway system.

For purposes of quantifying levels of service and potential impacts associated with curbside, intersection and roadway links, this study uses the impact thresholds used for the LAX Master Plan Final EIR surface transportation analysis[29] which is also consistent with the thresholds defined in Los Angeles Department of Transportation (LADOT) Traffic Study Policies and Procedures.[30]

4.1.2.1 Delineation of Existing (2008) Traffic Conditions

The delineation of Existing (2008) on-airport traffic conditions was based primarily on CTA traffic volume and intersection turning movement volume inventories collected in August 2008, which represent the most current comprehensive set of traffic counts completed by LAWA. August also represents the peak month for roadway traffic accessing the CTA. The following methodology and data were used to determine the Existing (2008) traffic conditions:

Determine TBIT and Overall Airport Peak Hours - Passenger early arrival and late departure profiles were determined based on historical data and were applied to the airport domestic and international air passengers schedules for August 2008 to predict when passengers arrive on the curbside. This data was reviewed to determine the TBIT and overall airport peak departure and arrival hours based on air passenger activity. The peak CTA vehicle traffic hours were assumed to coincide with the peak air passenger activity hours.

On-Airport Traffic Data Collected in 2008 - The in-pavement vehicle loop detector system and the Automatic Vehicle Identification (AVI) system which uses transponders on commercial vehicles were used to obtain roadway traffic counts within the CTA. These counts representing Existing (2008) conditions were collected by LAWA for Fridays in August 2008. Fridays are typically the busiest day of the week for the airport roadway system. The intersection turning movement counts were collected during a.m. and p.m. peak commuter hours as well as the airport peak hour in August 2008, which is considered to be the peak month for airport-related passenger and traffic activity at LAX; therefore, additional seasonal adjustments were not required to convert volumes to peak month conditions. Video from August 2008 obtained at the entrance to the CTA and at the departure level roadway in front of TBIT from the airport's Closed Circuit Television (CCTV) system was also provided to serve as a source for traffic counts and vehicle classification.

Determine Existing (2008) Balanced Roadway Traffic Volumes - Traffic volumes for the peak hours identified from the air passenger activity data were reviewed for this study. To estimate the balanced CTA roadway traffic for a typical Friday during August 2008, the intersection turning movement, loop

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29 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.3.

30 Los Angeles Department of Transportation, Traffic Study Policies and Procedures, Revised March 2002.

detector, and AVI counts provided by LAWA were used to create the balanced traffic volumes for the CTA roadway network. The balanced roadway network included estimated vehicle volumes for all individual roadway links as well as each intersection within the CTA. Balanced roadway volumes were used to provide a snapshot of traffic activity within the CTA and a measure to calibrate the existing conditions Trip Distribution and VISSIM modes. For a more detailed discussion of the balanced roadway traffic volumes see Section 4.1.3.6 below.

Prepare Model of Study Area Roadways and Intersections - A traffic model of study area roadways and intersections was developed to assist with curbside, intersection, and roadway link capacity analysis. The roadway model provides a quantitative representation of the traffic operations associated with the CTA curbsides, roadways, and intersections as needed to assess the potential effects of project traffic. The airport roadway model was developed using VISSIM,[31] a commercially available micro-simulation time step and behavior based model developed to analyze urban traffic and public transit operations. However, with the addition of new logic modules, such as vehicle parking and vehicle pedestrian interaction, the software capabilities have been expanded to include assessment of airport curbside operations. VISSIM simulation outputs were post-processed to calculate curbside levels of service (LOS) for each peak period. This process involved obtaining model output providing the number of vehicles stopped at the curbside on a minute-by-minute basis. The linear distance representing these stopped vehicles was then divided by the linear curbside length to calculate a ratio that is used to define curbside LOS which is further discussed in Section 4.1.3.7 below. The CTA intersections were analyzed using TRAFFIX,[32] a commercially available traffic analysis program designed for preparing traffic forecasts and analyzing intersection and roadway capacity. The model uses widely accepted traffic engineering methodologies and procedures, including the Transportation Research Board Critical Movement Analysis (CMA) Circular 212 Planning Method,[33] to calculate intersection LOS which is the required intersection analysis methodology for traffic impact studies conducted within the City of Los Angeles.

4.1.2.2 Delineation of Future (2013) Traffic Conditions

For this study, future traffic conditions were analyzed to address the impact of additional future traffic from TBIT, as well as potential changes in peak traffic characteristics, in 2013 combined with on-airport traffic increases from natural growth predicted to occur by 2013 from the other terminals within the CTA. In light of essentially all on-airport traffic being associated with TBIT and the other terminals within the CTA, the increases in future traffic volumes would be cumulative in nature. Cumulative traffic conditions are defined as, pursuant to Section 15355 of the CEQA Guidelines, "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." For this traffic study, cumulative traffic conditions are accounted for at the TBIT curbsides and CTA intersections relative to four time periods during the course of a day, as follows:

- **Future (2013) Traffic During the TBIT Departures Peak** - This scenario represents the anticipated traffic activity during the peak period for TBIT passenger departures. This scenario also includes growth from background traffic generated by the other CTA terminals based on changes to the airline passenger schedule.
- **Future (2013) Traffic During the TBIT Arrivals Peak** - This scenario represents the anticipated traffic activity during the peak period for TBIT passenger arrivals. This scenario also includes growth from background traffic based on changes to the airline passenger schedule.

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31 PTV America, Inc., VISSIM Version 5.0, 2008.

32 Dowling Associates, TRAFFIX Version 7.7. Based on information provided by Dowling Associates in May 2, 2008, over 425 site TRAFFIX licenses are owned by public and private entities, including licenses owned by 44 cities, 5 countries, and Caltrans within the state of California.

33 Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

- **Future (2013) Traffic During the Overall Airport Departures Peak** - This scenario represents the anticipated traffic activity during the overall airport peak for passenger departures. This scenario also includes growth from background traffic based on changes to the airline passenger schedule.
- **Future (2013) Traffic During the Overall Airport Arrivals Peak** - This scenario represents the anticipated traffic activity during the overall airport peak for passenger arrivals. This scenario also includes growth from background traffic based on changes to the airline passenger schedule.

The reason for these four analysis perspectives is that the timing of the peak period for TBIT departures is different from the timing of the peak period for TBIT arrivals, and the timing of each of those two peak periods is different from the timing of the departures peak and arrivals peak for the overall airport (i.e., TBIT and other terminals in the CTA combined). In other words, the cumulative traffic impacts analysis conducted for the project reflects four points in time during a projected typical Friday in August 2013.

The analysis of project-related traffic impacts in 2013 addresses impacts associated with the project, based on changes to passenger processing characteristics and increased trips that are directly attributable to the proposed improvements, as well as cumulative impacts by accounting from ambient growth at TBIT and the other terminals within the CTA.

4.1.2.3 Delineation of Impacts and Mitigation Measures

The following steps were conducted to calculate curbside and intersection levels of service for existing and future conditions, and identify impacts, as well as identify potential mitigation measures, if necessary:

Prepare TBIT Curbside Level of Service Analysis - Level of service analyses for the TBIT curbsides were prepared using VISSIM and post processing the simulation output to calculate a curbside utilization factor. Curbside utilization factor is the calculated ratio of curbside demand in linear feet divided by the existing curbside length. The utilization factor provides an indication of the amount of double and triple parking that would result for a given space demand, and the level of service associated with a given utilization rate recognizes that drivers do not park vehicles uniformly along the curbside. Curbside level of service was analyzed for the following conditions:

- Existing (2008) TBIT Departures Peak Hour
- Existing (2008) TBIT Arrivals Peak Hour
- Existing (2008) Overall Airport Departures Peak Hour
- Existing (2008) Overall Airport Arrivals Peak Hour
- 2013 With Project TBIT Departures Peak Hour
- 2013 With Project TBIT Arrivals Peak Hour
- 2013 With Project Overall Airport Departures Peak Hour
- 2013 With Project Overall Airport Arrivals Peak Hour
- 2013 Without Project TBIT Departures Peak Hour
- 2013 Without Project TBIT Arrivals Peak Hour
- 2013 Without Project Overall Airport Departures Peak Hour
- 2013 Without Project Overall Airport Arrivals Peak Hour

Prepare CTA Intersection Level of Service Analysis - Level of service analyses for the CTA intersections 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,[34] in accordance with LADOT Traffic Studies Policies and Procedures guidelines,[35] and the

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34 Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

35 Los Angeles Department of Transportation, Traffic Study Policies and Procedures, Revised March 2002.

L.A. CEQA Thresholds Guide.[36] Intersection level of service was analyzed for the same peak hour conditions described above in the TBIT Curbside analysis section.

Prepare CTA Roadway Link Level of Service Analysis - Level of service analyses for the key roadway links within the CTA were prepared by calculating the ratio of roadway volume to capacity. Traffic volumes were determined from the roadway model described previously. CTA roadway capacities are consistent with the assumptions used for the on-airport roadway link analysis prepared for the LAX Master Plan Final EIR. Roadway links were analyzed for the same peak hour conditions described above in the TBIT Curbside analysis section.

Identify Project Impacts - Project-related impacts associated with construction of the Bradley West Project were identified. Intersections that were anticipated to be significantly impacted by the project were identified according to the criteria established in the L.A. CEQA Thresholds Guide.[37] Impacts were determined based on a comparison between Future (2013) With Project Conditions and Future (2013) Without Project Conditions.

Identify Potential Mitigation Measures - For impacts determined to be significant, mitigation measures to avoid or reduce such impacts were considered, including measures that may call for operational and physical modifications to the on-airport roadway network.

4.1.3 Existing (2008) Conditions

The Existing (2008) conditions are characterized by the facilities and general conditions that existed at the start of the EIR preparation.

4.1.3.1 Traffic Analysis Study Area

The on-airport traffic analysis study area is depicted in **Figure 4.1-1**. The CTA curbside and roadway system consists of a two level roadway; the upper level is dedicated to departing passenger activities, and the lower level is primarily dedicated to arriving passenger activities.[38] The CTA roadway network provides access to the airport's CTA public parking garages, which are intended to accommodate the short-term and daily parking customers.

4.1.3.2 On-Airport Landside Facilities

The on-airport landside facilities are comprised of the curbsides, roadways, and public parking facilities. The two-level on-airport curbside and roadway network is accessed from the following three off-airport roadways:

- Century Boulevard
- Sepulveda Boulevard
- 96th Street Bridge/Sky Way

Each of these roadways provides vehicular access to both the departures (upper) level or the arrivals (lower) level curbsides and roadways. On-airport access from the departures level to the arrivals level is provided via a recirculation ramp located at the eastern end of the CTA and a ramp at the western end of Center Way, connecting to West Way. Access from the arrivals level to the departures level is provided via the ramp at the western end of Center Way, connecting to West Way (upper level). The departures level and arrivals level outer roadways are both signed for a speed limit of 25 miles per hour.

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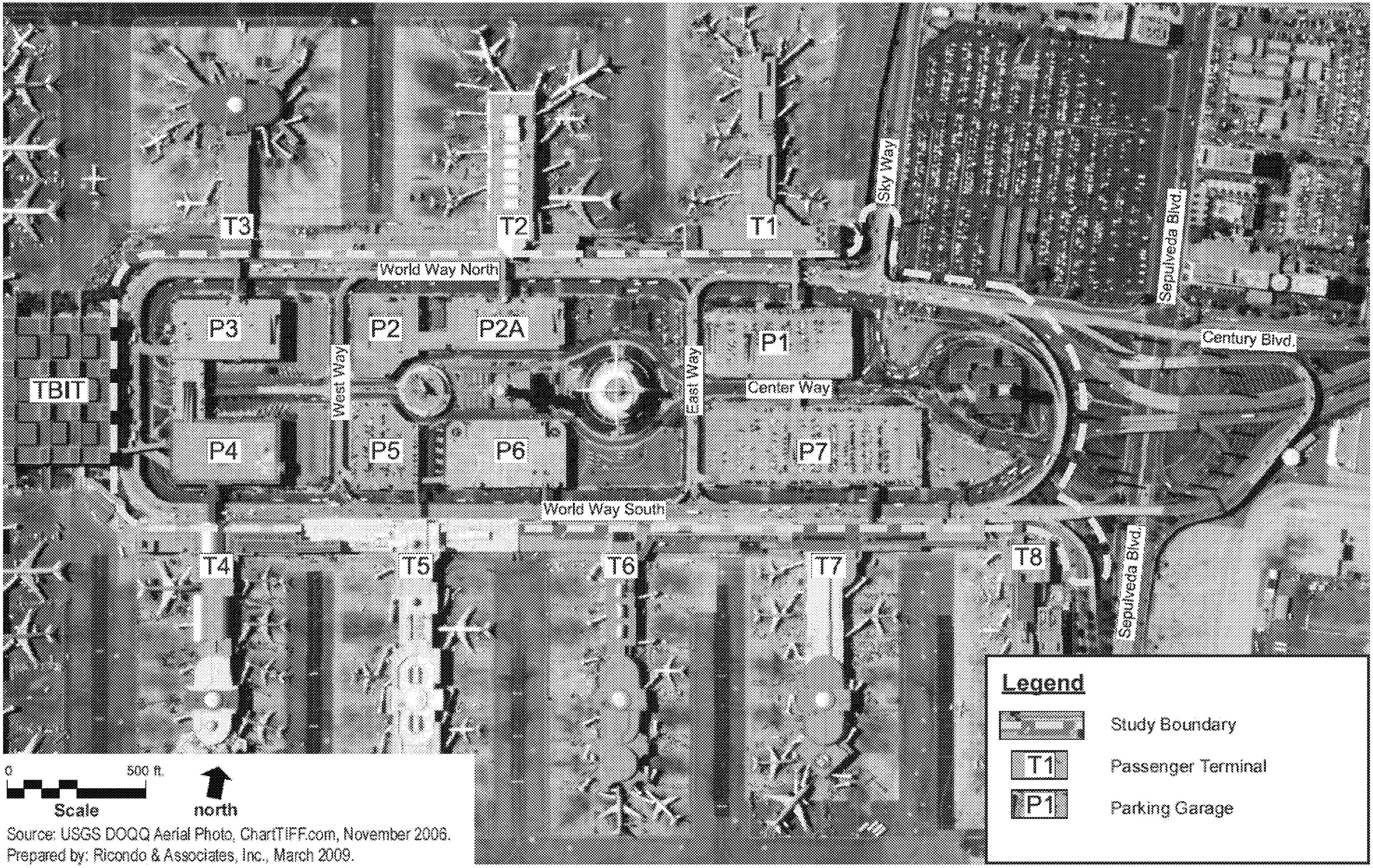
36 City of Los Angeles, Department of City Planning, L.A. CEQA Thresholds Guide, Your Resource for Preparing CEQA Analysis in Los Angeles, 2006.

37 City of Los Angeles, Department of City Planning, L.A. CEQA Thresholds Guide, Your Resource for Preparing CEQA Analysis in Los Angeles, 2006.

38 As the result of construction activities at LAX at the time this analysis was conducted, Mexicana de Aviacion's departing passenger operations at TBIT were being conducted on the lower (arrivals) level.



Source: USGS DOQQ Aerial Photo, ChartTIFF.com, November 2006.
Prepared by: Ricondo & Associates, Inc., March 2009.

LAX Bradley West Project Draft EIR	On-Airport Traffic Analysis Study Area	Figure 4.1-1

Departures Level Curbsides and Roadways

The departures level roadway curbside consists of a striped 22-foot-wide stopping lane for vehicles dropping off passengers, and three 10-foot-wide travel lanes for bypass vehicles. There are five traffic signals on the departures level roadways, the first is at the intersection of World Way North and Sky Way, the second is on World Way North between TBIT and Public Parking Structure Three (P3), the third is on World Way South between TBIT and Public Parking Structure Four (P4), and the fourth and fifth signals are at the intersections of World Way South with West Way and East Way, respectively. The second and third traffic signals are pedestrian signals used to stop traffic in front of TBIT and allow pedestrians to cross between TBIT and the public parking structures. TBIT is the only terminal at LAX where pedestrians are allowed to walk between the terminal building and the public parking facilities on the upper level. At all other airport terminals, overhead walkways provide a grade-separated travel path between the terminals and the respective parking structures.

Direct access to the departures level of the CTA roadway network from the off-airport roadway network is provided by northbound Sepulveda Boulevard, southbound Sepulveda Boulevard (via Sky Way), and Century Boulevard. Direct access from the departures level roadway to southbound Sepulveda Boulevard and eastbound Century Boulevard is available, but northbound Sepulveda Boulevard traffic must use the ramp to Center Way and exit the airport with arrivals level traffic to access the northbound Sepulveda Boulevard ramp.

Arrivals Level Curbsides and Roadways

The arrivals level is served by two curbside and roadway systems, separated by a 10-foot-wide concrete pedestrian median. The inner curbside and roadway are reserved for private vehicle and taxicab pick up, and the outer curbside and roadway are reserved for commercial vehicle passenger pick up and for use by other vehicles bypassing a terminal. The inner curbside roadway consists of a single 10-foot-wide loading lane and two 10-foot-wide travel lanes. The outer roadway consists of a 20-foot-wide lane adjacent to the commercial loading median and three to five additional travel lanes. There are five traffic signals and 16 pedestrian crossing signals on the outer roadway connecting the terminal buildings with the parking facilities.

Direct access to the arrivals level of the CTA roadway network from the off-airport roadway network is provided by northbound and southbound Sepulveda Boulevard, and westbound Century Boulevard. Direct access from the arrivals level roadway to northbound and southbound Sepulveda Boulevard, as well as eastbound Century Boulevard, is also provided.

Curbside Allocation

While the departures level curbside is signed with the names of the airlines located in each of the respective terminals, vehicles are permitted to drop off passengers at any point along the curbside. There are six designated employee bus stop locations on the departures level.

On the arrivals level, space along the inner or outer curbside is allocated by vehicle mode. The inner curbside is allocated to private vehicles and taxicabs picking up passengers, while the outer curbside is allocated to commercial vehicles (e.g., parking shuttles, hotel and rental car shuttles, shared ride vans,[39] LAX shuttles, and FlyAway and long-distance buses). **Figure 4.1-2** illustrates the vehicle mode allocations along both the inner and outer arrivals level curbsides at LAX.

Parking Facilities

The airport currently provides a total of 16,992 public parking spaces. Eight parking structures are located within the CTA, providing a total of 8,577 spaces. Outside the CTA, Lots B and C provide approximately 8,415 parking spaces. In addition, LAWA owns and operates the 1,900-stall parking

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[39] The shared ride van stop for Terminal 1 was relocated from the outer curbside to the inner curbside in February 2009 on a trial basis to evaluate the operational impact on the Terminal 1 curbsides and roadways.

structure at the southeast corner of Avion Drive and Century Boulevard. Currently, LAWA leases monthly parking at this facility. **Table 4.1-1** presents the number of public parking spaces in each facility.

Table 4.1-1

LAX Public Parking Capacities

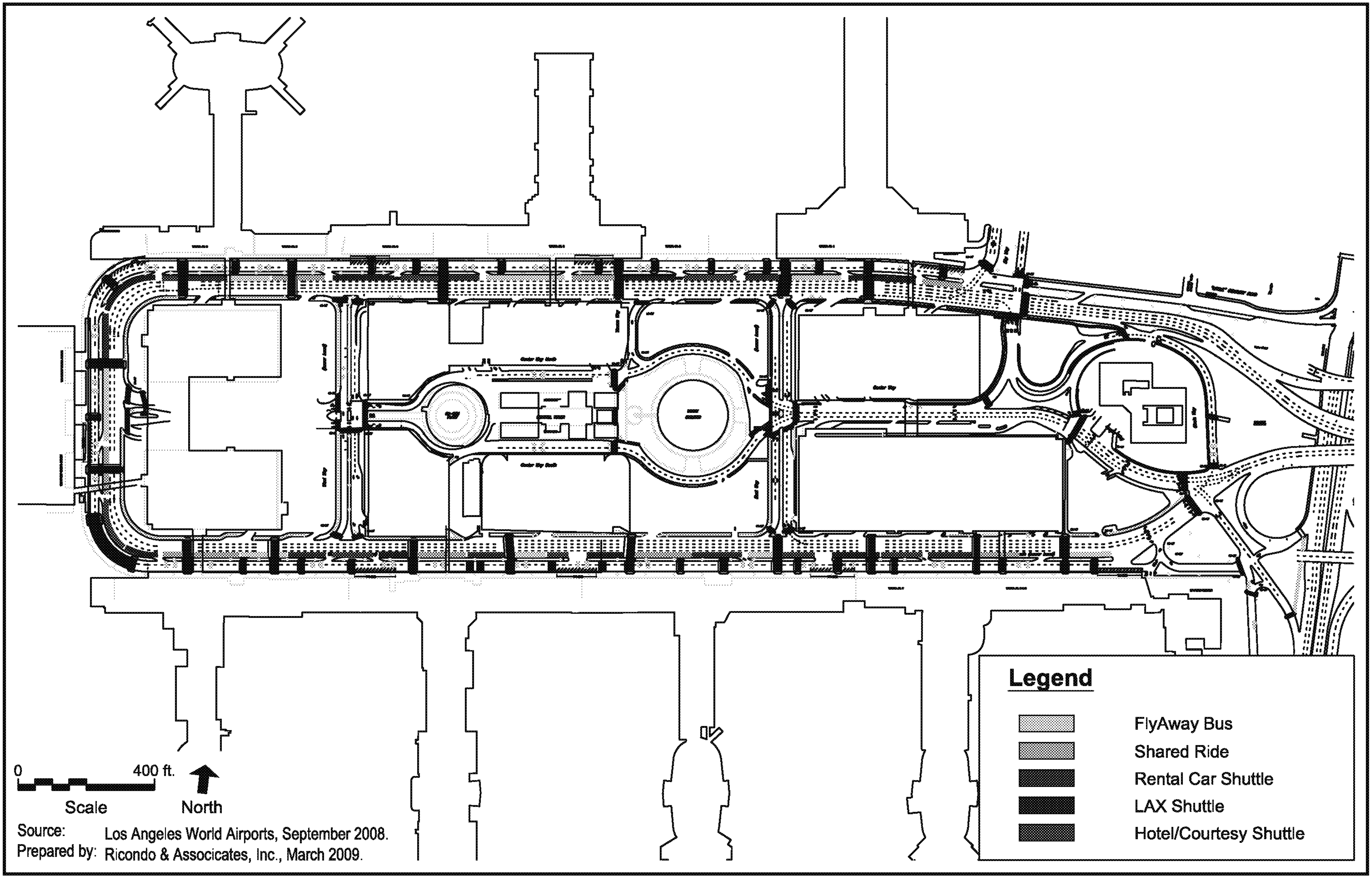
Facility	Spaces
CTA Parking Structure	
P1	1,491
P2	790
P2A	658
P3	1,170
P4	1,057
P5	878
P6	746
P7	1,787
CTA Total	**8,577**
Lot B	3,092
Lot C	5,323
Grand Total	**16,992**

Source: Los Angeles World Airports, 2009.

Vehicular access from the departures level roadways to six of the eight CTA public parking structures is provided from either East Way or West Way. Access to parking structures P3 and P4 is provided from World Way, across from TBIT. Vehicular access from the arrivals level roadways to the CTA public parking structures is provided from North Way, South Way, East Way, and West Way. Egress from the CTA public parking structures is provided primarily via Center Way. A currently unused exit is also located from parking structure P2 onto West Way.

4.1.3.3 Peak Month Activity

Monthly traffic data in the vicinity of LAX over the past 9 years were reviewed to identify the typical peak month of traffic activity associated with airport operations. The average daily traffic (ADT) volumes accessing the CTA by month for January 2000 through December 2008 are provided in **Table 4.1-2**. As shown, CTA traffic reached peak activity during the summer months of July and August. August is typically the peak month for airport roadway traffic followed closely by July. For the purpose of this analysis, August 2008 was used as the peak month for traffic data.



LAX Bradley West Project Draft EIR	Curbside Vehicle Allocation - Arrivals Level	Figure 4.1-2

Table 4.1-2

CTA Average Daily Traffic Volumes

Monthly Traffic	2000	2001	2002	2003	2004	2005	2006	2007	2008
January	82,136	90,683	65,135	66,039	61,775	69,554	67,727	66,999	67,483
February	79,791	87,509	61,148	60,808	59,802	60,930	63,715	65,339	64,924
March	86,627	93,186	66,794	59,921	64,431	63,748	69,034	68,380	69,819
April	92,863	96,566	68,164	60,434	68,164	64,771	69,230	70,268	69,184
May	98,052	96,341	70,867	64,306	68,155	68,982	70,303	71,599	72,022
June	102,392	101,585	72,282	65,903	74,650	75,699	72,647	73,669	75,118
July	106,445	**105,842**	75,433	74,047	**78,674**	75,635	75,895	78,342	75,640
August	**108,871**	103,308	**79,427**	**76,556**	77,986	**79,046**	**78,236**	**82,193**	**76,434**
September	95,917	59,987	66,630	60,762	66,276	68,151	67,171	68,316	65,227
October	92,169	42,370	65,166	59,904	66,395	66,607	66,981	68,152	64,260
November	96,308	56,579	62,264	59,944	65,525	68,200	70,326	72,098	64,128
December	94,551	60,649	71,845	68,666	73,107	70,700	71,978	71,900	70,972
Total Annual	**1,136,122**	**994,605**	**825,155**	**777,290**	**824,940**	**832,023**	**843,243**	**857,255**	**835,211**
Average Daily Traffic	94,692	82,884	68,763	64,774	68,901	69,335	70,270	71,438	69,601
% Annual Change	--	-12.5%	-17.0%	-5.8%	6.4%	0.6%	1.3%	1.7%	-2.6%
Million Annual Passengers	67.3	61.6	56.2	55.0	60.7	61.5	61.0	61.9	59.8
% Annual Change	--	-8.5%	-8.8%	-2.1%	10.4%	1.3%	-0.8%	1.5%	-3.4%

Source: City of Los Angeles, Los Angeles World Airports, Ground Transportation Report, Ground Transportation Planning and Design, February 2009.

4.1.3.4 Data Collection and Data Sources

LAWA was the primary source of the traffic data, facility drawings, and traffic signal timing plans for this study. To supplement this data, detailed field surveys of both the departures and arrivals level curbsides and roadway systems were conducted to ensure a clear understanding of the Existing (2008) conditions and commercial vehicle, private vehicle, and passenger operations. The data provided by LAWA staff for this project were used to create a snapshot of vehicle and passenger activity for a typical Friday in August 2008. LAWA provided the following data for this project:

- August 2008 Airline Passenger Schedule
- Passenger Load Factors
- 2006 Air Passenger Survey
- CTA Vehicle Counts
- CTA Vehicle Classification which includes other category counts comprised of private vehicles, rental cars, service vehicles, and any other vehicle not equipped with an AVI transmitter.
- Parking Structure Vehicle Count Data
- Closed Circuit Television (CCTV) Footage

Figures 4.1-3 and **4.1-4** identify the locations where the traffic data were collected around the CTA.

4.1.3.5 Determination of Traffic Analysis Peak Hours

The August 2008 airline schedule was used to estimate a rolling hour[40] of originating (i.e., outbound flight) and terminating (i.e., inbound flight with LAX as the final destination) passenger volumes for each

40 A "rolling hour" is a 60-minute duration that is not based on a specific start or end time such as at the top of the hour (12:00).

terminal. Originating passenger volumes throughout each hour of the day were adjusted to account for the time passengers arrived at the curbside prior to the departure time of their flight. These adjustments were made based on "early arrivals curves" used in airport facilities planning. These curves took into account the differences in domestic and international passenger early arrival characteristics. Similarly, terminating passenger volumes from the airline schedule were adjusted to represent the time passengers arrived at the curbside following the arrival of their flight. Terminating passenger arrivals curves were used to reflect domestic passenger arrivals characteristics at LAX. The international terminating passenger arrival data used for this analysis was generated as direct output from passenger simulations prepared for TBIT based on (a) the geometric configuration and operational conditions in place in 2008 and (b) future configurations and operational conditions that would be in place after the completion of the Bradley West Project.[41] Originating and terminating passenger volumes at the curbside were calculated for domestic and international passengers for a 24-hour period in 10-minute increments. Each six successive 10-minute passenger counts were added to generate a rolling hourly passenger count total. From these data, the departures, arrivals, and overall airport peak hour passenger volumes by time of day were determined. **Figures 4.1-5** and **4.1-6** depict rolling hourly originating and terminating passenger volumes in 2008 for the curbside at TBIT and for the total curbsides at all terminals, respectively. **Table 4.1-3** summarizes the 2008 peak hour passenger arrivals and departures data presented in **Figures 4.1-5** and **4.1-6**.

Table 4.1-3

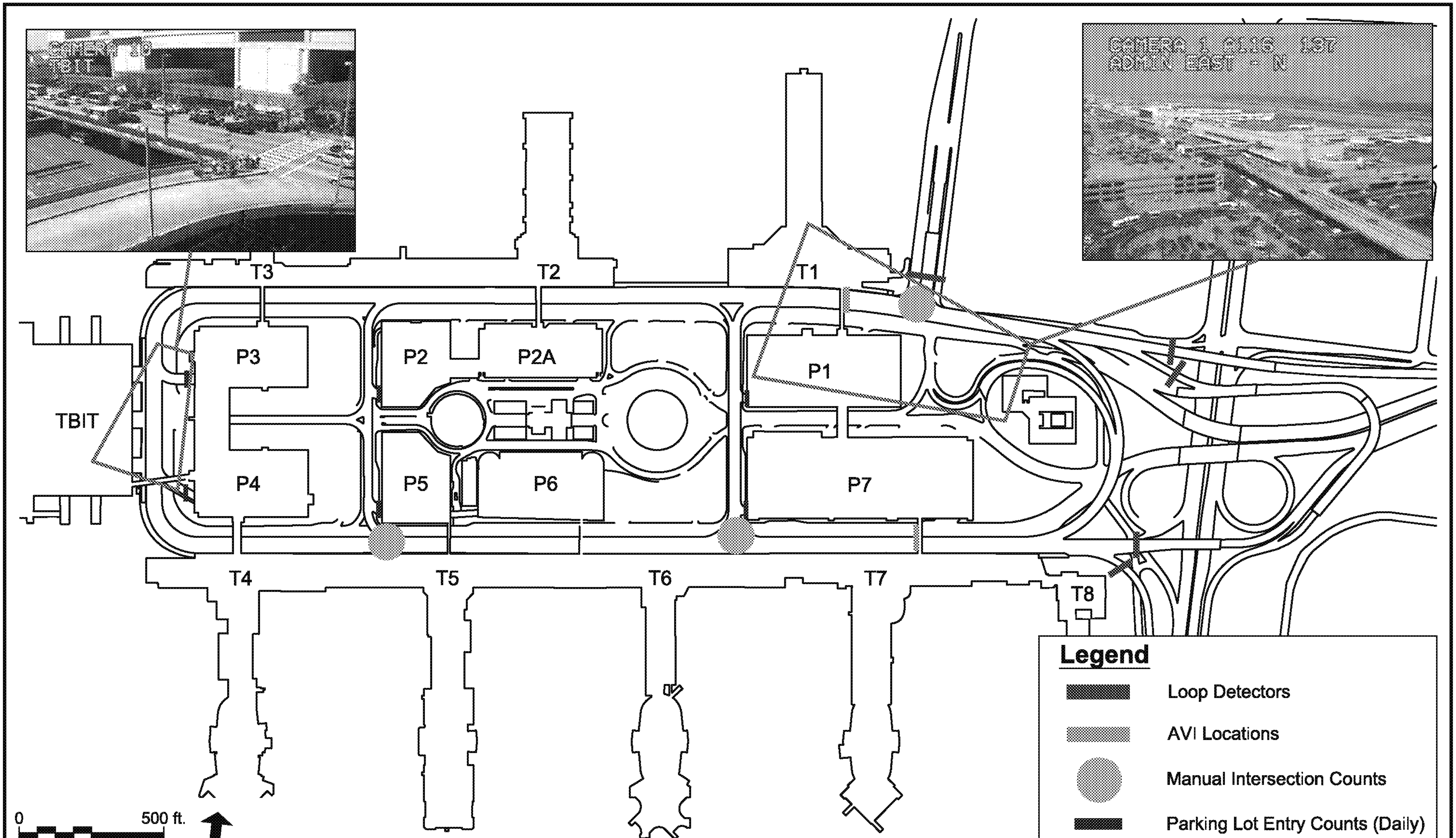
Existing (2008) Peak Period Conditions Based on Airline Passenger Activity

	TBIT		Overall Airport	
Existing (2008)	**Peak Hour**	**TBIT Passengers**	**Peak Hour**	**Total Passengers**
Arrivals	17:00 - 18:00	1,487	21:00 - 22:00	6,461
Departures[1]	11:00 - 12:00	1,341	11:10 - 12:10	5,976

1 Peak periods determined based on passenger volumes at the curbside. Absolute 2008 peak passenger departures activity (1,343) occurred between 21:20 p.m. and 22:20 p.m., but 11:00 a.m. to 12:00 p.m. passenger activity (1,341) was essentially the same and was used for the analysis because of the availability of traffic data for this time period. Intersection turning movements were not available for the evening hours.

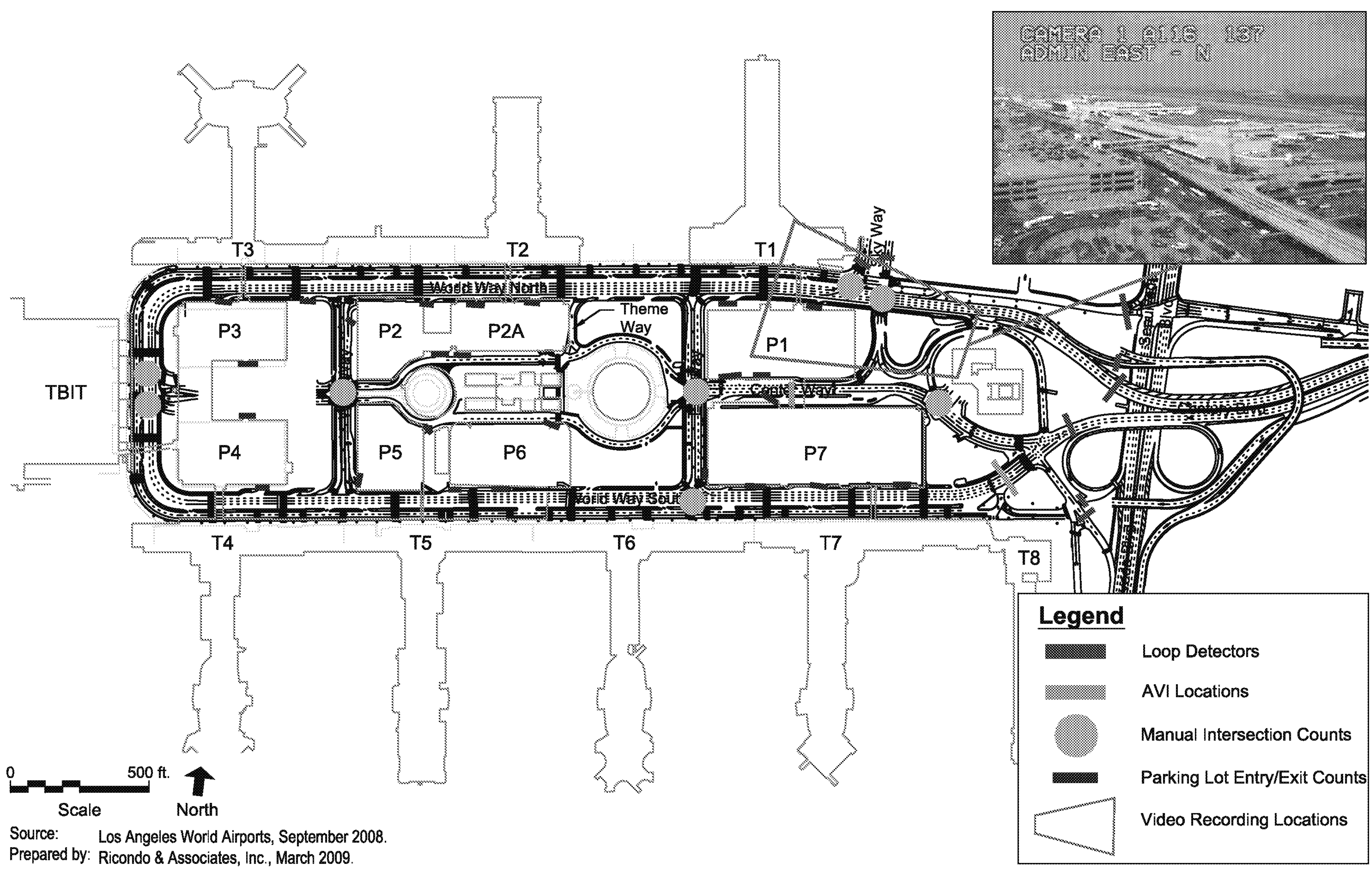
Sources: Jacobs Consultancy, TBIT Terminal Simulation of TBIT Arrivals Activity, October 2008; Ricondo & Associates, Inc., Passenger Schedule Analysis for TBIT Departures and All Other CTA Terminals, October 2008.

41 TBIT simulation model outputs were provided by Jacobs Consultancy, 2008.



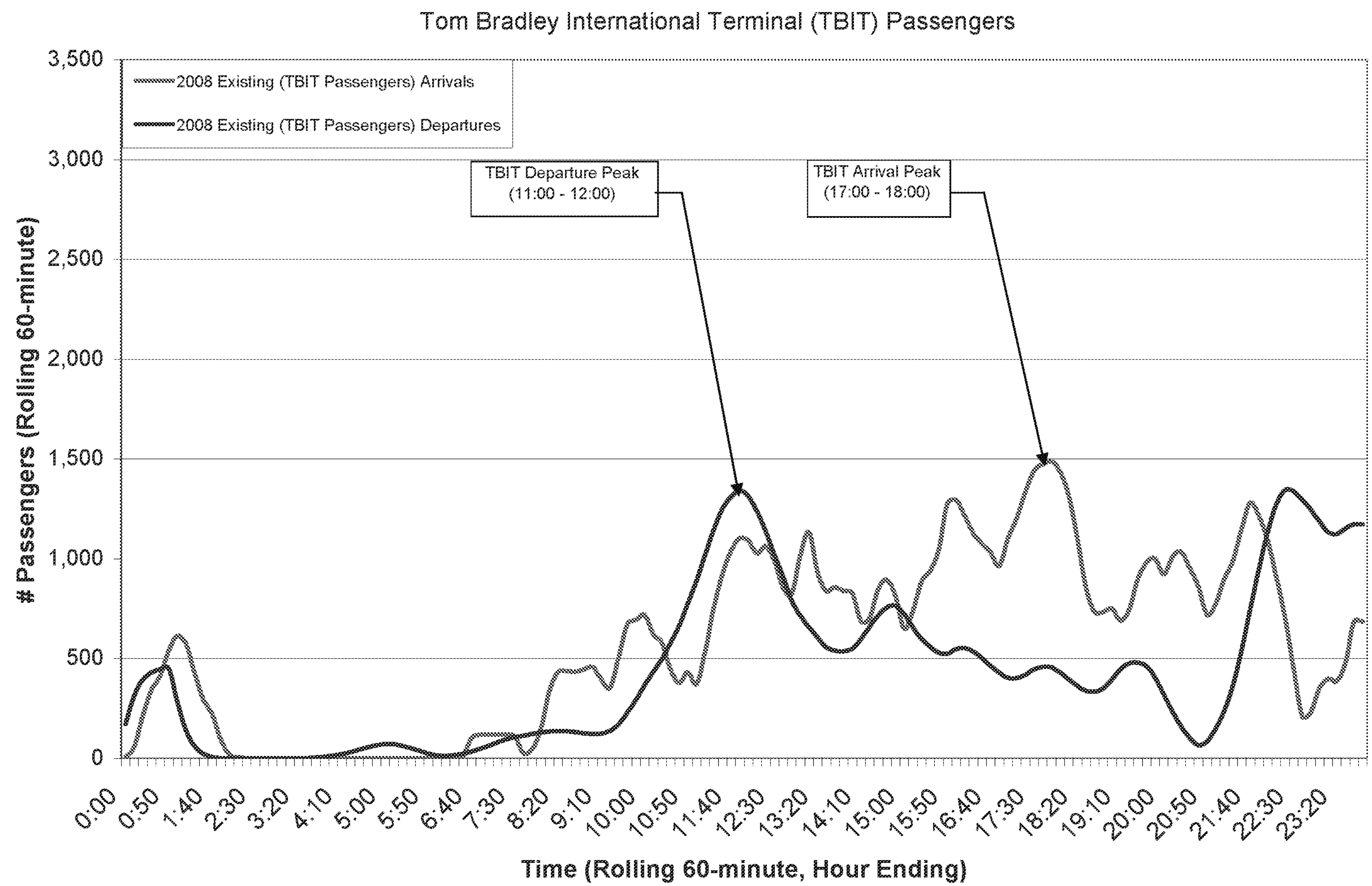
Source: Los Angeles World Airports, September 2008.
Prepared by: Ricondo & Associates, Inc., March 2009.

LAX Bradley West Project Draft EIR	Data Collection Locations - Departures Level	Figure 4.1-3



Source: Los Angeles World Airports, September 2008.
Prepared by: Ricondo & Associates, Inc., March 2009.

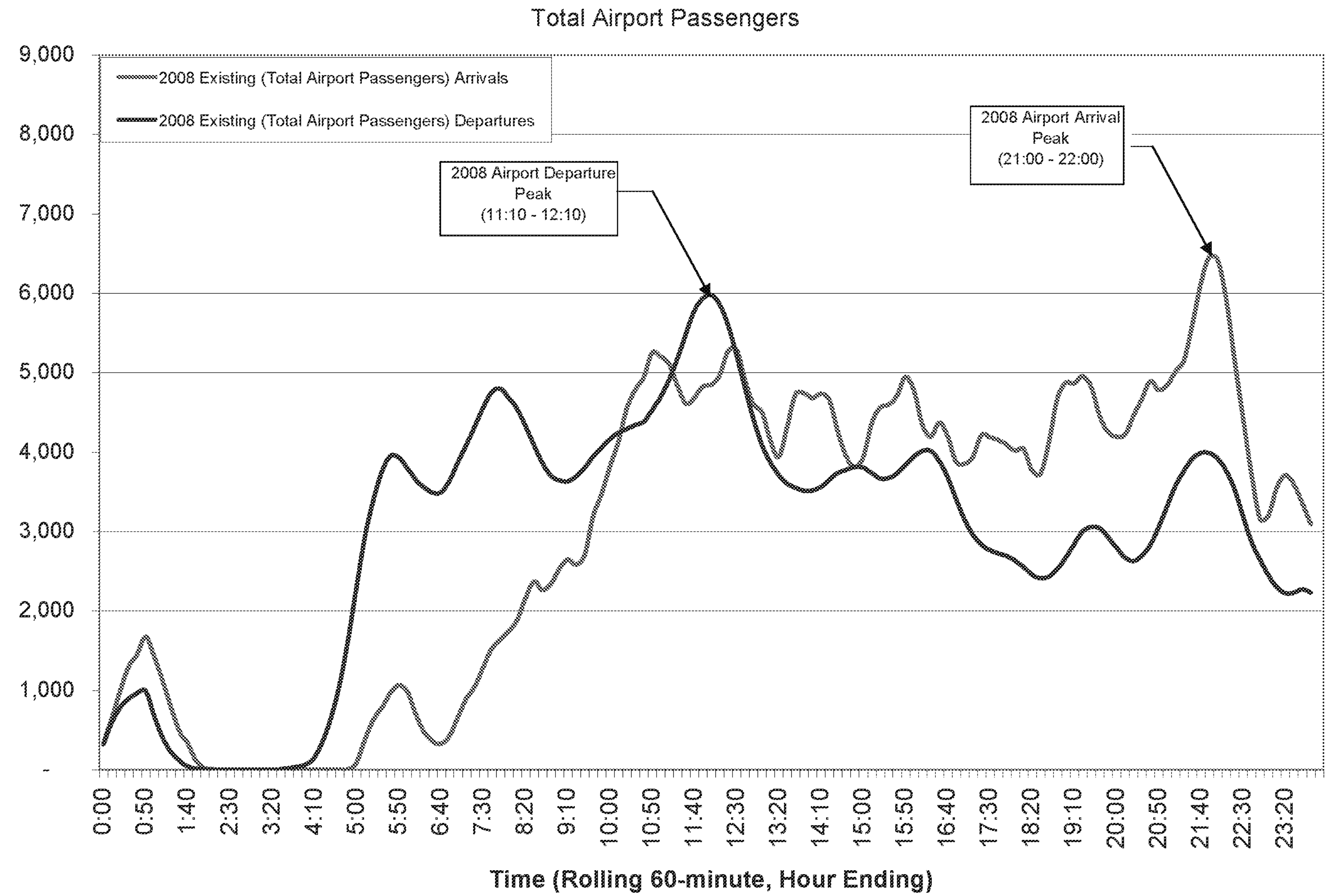
LAX Bradley West Project Draft EIR	Data Collection Locations - Arrivals Level	Figure 4.1-4



Sources: Jacobs Consultancy (Terminal Simulation); Ricondo & Associates, Inc., February 2009 (Passenger Schedules).
Prepared by: Ricondo & Associates, Inc., March 2009.

TBIT Passenger Flow at Curbside – Existing (2008)

Figure 4.1-5



Sources: Jacobs Consultancy (TBIT Simulation); Ricondo & Associates, Inc., February 2009 (Passenger Schedules).
Prepared by: Ricondo & Associates, Inc., March 2009.

LAX Bradley West Project Draft EIR	Total Airport Passenger Flow at Curbside Existing (2008)	Figure 4.1-6

4.1.3.6 Determination of Existing (2008) Traffic Volumes

Data collected and discussed in the previous section were compiled, reviewed, and analyzed. Given the multiple sources of data, it is necessary to compile these sources and conduct detailed analysis in order to prepare a "balanced" network of traffic activity during the Existing (2008) peak hours. A balanced network is simply a composite snapshot view of traffic activity throughout the CTA such that the addition or subtraction of traffic volumes as lanes merge and diverge remains in balance throughout the roadway system. In other words, there is an accounting and reconciliation of vehicles turning onto different routes within the CTA and arriving at and departing from the various curbside areas within the CTA. To estimate the balanced Existing (2008) CTA roadway traffic for a typical Friday during August 2008, the intersection turning movement, loop detector, and AVI counts provided by LAWA were compiled and analyzed to create the balanced traffic volumes for the CTA roadway network.

To estimate balanced Existing (2008) traffic volumes for the CTA roadway network on a typical Friday in August 2008, the peak hours for traffic using the TBIT departures curbside and the TBIT arrivals curbside were identified in order to represent the peak period for curbside activity at TBIT. For purposes of summarizing these data for analysis, both the departures and arrivals level roadways were subdivided and defined by individual links as depicted in **Figures 4.1-7** and **4.1-8**. The TBIT peak hour departures and arrivals Existing (2008) traffic volumes for each roadway link are presented in **Table 4.1-4**. The traffic volumes for roadway links on the upper level represent activity during the TBIT departures peak hour (11:00 to 12:00) and the traffic volumes for roadway links on the lower level represent activity during the TBIT arrivals peak hour (17:00 to 18:00). A similar table representing Existing (2008) traffic activity during the overall airport peak arrivals period is provided in Appendix B of this EIR. The overall airport peak departures period coincides with the TBIT peak departures period.

Table 4.1-4

Existing (2008) Peak CTA Traffic Volumes During the TBIT Peak Hours

Roadway Link[1]	Description	Volumes[2] (number of vehicles)
UA	Westbound World Way North, east of East Way (upper level roadway entrance)	2,596
UB	Southbound East Way, exiting from World Way	382
UC	Southbound East Way, south of P1 entrance	330
UD	Southbound East Way, south of P7 entrance	264
UE	Westbound World Way North, west of East Way intersection	2,348
UF	Southbound West Way, exiting from World Way	462
UG	Southbound West Way, south of P2 entrance	389
UH	Westbound exit ramp from West Way to Center Way	10
UI	Eastbound entrance ramp from Center Way to West Way	85
UJ	Southbound West Way, south of Center Way ramp	464
UK	Southbound West Way, south of P5 entrance - entering World Way South	389
UL	Westbound World Way, west of southbound West Way exit	1,886
UM	Southbound World Way, south of P3 entrance	1,766
UN	Southbound World Way, south of P4 entrance	1,646
UO	Eastbound World Way South, east of West Way	2,035
UP	Northbound East Way - exit from World Way South, entrance to World Way North	134
UQ	Eastbound World Way South, east of East Way	2,165
UR	Upper level exit (south and east)	1,651
US	Upper level recirculation/exit (north)	514
UT	Transfer to lower level and exit (north)	430
UU	Upper level recirculation	84
UV	Upper level recirculation and entrance	1,841
UW	Entrance from Sky Way	755
UX	Entrance from east/south	1,787
EP1	Upper level entrance to P1	52
EP2	Upper level entrance to P2/P2A	73
EP3	Upper level entrance to P3	120

Table 4.1-4

Existing (2008) Peak CTA Traffic Volumes During the TBIT Peak Hours

Roadway Link[1]	Description	Volumes[2] (number of vehicles)
EP4	Upper level entrance to P4	120
EP5	Upper level entrance to P5/P6	75
EP7	Upper level entrance to P7	66
CA	Entrance from lower level north	118
CB	Ramp from upper level	n/a
CC	Ramp to upper level	n/a
CD	Entrance from lower level south	n/a
CE	Center Way North, east of P4 exit	358
CF	Center Way South, east of P6 exit	233
CG	Northbound West Way, south of Center Way	55
CH	Northbound West Way, north of Center Way	55
CI	Southbound West Way, south of lower level roadway	300
CJ	Southbound West Way, south of P4 exit	330
CK	Southbound West Way, south of Center Way	260
CL	Southbound West Way, south of P16 exit	230
CM	Center Way North, east of West Way intersection	428
CN	Center Way South, east of West Way intersection	233
CO	Center Way North, east of P3 exit	468
CP	Center Way South, east of P7 exit	262
CQ	Center Way North, east of P2 exit	548
CR	Theme Way from outer curb	n/a
CS	Theme Way to Center Way South	n/a
CT	Theme Way to Center Way North	n/a
CU	Center Way North, east of Theme Way intersection	548
CV	Center Way South, east of P8 exit	330
CW	East Way northbound, north of Center Way	150
CX	East Way northbound, south of Center Way	150
CY	East Way southbound, north of Center Way	170
CZ	East Way southbound, south of Center Way	160
CAA	East Way southbound, south of P19 exit	160
CAB	Center Way, east of East Way intersection	888
CAC	Center Way, east of P1 exit	1,051
CAD	Center Way, east of P10 exit	1,051
CAE	Return/exit roadway, north of Center Way	n/a
CAF	Center Way, east of exit to return/exit	1,051
CAG	Center Way, east of P11 exit	1,219
CAH	Center Way, east surface public parking lot P22 exit	1,219
CAI	Center Way, east of upper level ramp	1,440
CAJ	Center Way, east P12 exit	1,440
CAK	Return/exit roadway, north of Center Way	493
CAL	Return/exit roadway, west of Century Boulevard entrance/exit	118
CAM	Upper level ramp to eastbound Center Way	221
CAN	Upper level ramp to return/exit	379
CAO	Return/exit roadway, south of lower level roadway	497
CAP	Exit to Sky Way	200
EP8	Lower level entrance to P1 (entrance 1)	40
EP9	Lower level entrance to P1 (entrance 2)	45
EP10	Lower level entrance to P2A	40
EP11	Lower level entrance to P2	35
EP12	Lower level entrance to surface lot	n/a
EP13	Lower level entrance to P3	165
EP14	Lower level entrance to P4	160
EP15	Lower level entrance to surface lot	n/a
EP16	Lower level entrance to P5	30
EP17	Lower level entrance to P6	70
EP18	Lower level entrance to surface lot	n/a
EP19	Lower level entrance to P7 (entrance 1)	n/a
EP20	Lower level entrance to P7 (entrance 2)	40
EP21	Lower level entrance to P7 (entrance 3)	40

Table 4.1-4

Existing (2008) Peak CTA Traffic Volumes During the TBIT Peak Hours

Roadway Link[1]	Description	Volumes[2] (number of vehicles)
EP22	Lower level entrance to surface lot	n/a
XP1	Exit from P1 to Center Way	163
XP2	Exit from P2A to Center Way	80
XP3	Exit from P2 to Center Way	40
XP4	Exit from P2 to southbound West Way	30
XP5	Exit from P3/surface lot to Center Way	240
XP6	Exit from P4/surface lot to Center Way	233
XP7	Exit from P5 to Center Way	29
XP8	Exit from P6/surface lot to Center Way	68
XP9	Exit from surface lot to lower level roadway	n/a
XP10	Exit from P7 to Center Way (entrance 1)	n/a
XP11	Exit from P7 to Center Way (entrance 2)	168
XP12	Exit from surface lot to Center Way	n/a
LA	Lower level roadway entrance	2,664
LB	Terminal 1 outer curb, west of P8 exit	2,624
LC	Terminal 1 outer curb, after inner curb exit 1	2,520
LD	Terminal 1 outer curb, west of P9 exit and inner curb exit 2	2,371
LE	Terminal 1 outer curb, west of East Way intersection	2,351
LF	Outer curb, west of inner curb entrance from Terminal 1	2,599
LG	Terminal 2 outer curb, west of exit to inner curb	2,569
LH	Terminal 2 outer curb, west of Theme Way	2,569
LI	Terminal 2 outer curb, west of P10 exit	2,529
LJ	Terminal 2 outer curb, west of inner curb entrance from Terminal 2	2,559
LK	Terminal 2 outer curb, west of exit to inner curb	2,524
LL	Terminal 2 outer curb, west of P11 exit	2,489
LM	Terminal 2 outer curb, west of inner curb entrance from Terminal 2	2,524
LO	Terminal 2 outer curb, west of West Way intersection	2,279
LP	Terminal 2 outer curb, west of exit to inner curb	2,214
LQ	Terminal 3 outer curb, west of P12 exit	2,214
LR	Terminal 3 outer curb, west of P13 exit	2,049
LS	Terminal 3 outer curb, west of entrance from inner curb	2,114
LT	TBIT outer curb, south of exit to inner curb	1,611
LU	TBIT outer curb, south of Center Way intersection	1,493
LV	TBIT outer curb, south of exit to inner curb	1,421
LW	TBIT outer curb, south of entrance from inner curb	1,924
LX	Terminal 4 outer curb, east of exit to inner curb	1,674
LY	Terminal 4 outer curb, east of P14 exit	1,514
LAA	Terminal 4 outer curb, east of P15 exit	1,514
LAB	Terminal 4 outer curb, after entrance from inner curb	1,836
LAC	Outer curb, east of West Way intersection	2,011
LAD	Terminal 5 outer curb, after exit to inner curb	1,939
LAE	Terminal 5 outer curb, east of P17 exit	1,869
LAF	Terminal 5 outer curb, east of inner curb entrance/exit	1,616
LAG	Terminal 6 outer curb, east of P18 exit	1,616
LAH	Terminal 6 outer curb, east of P9 exit	1,616
LAI	Terminal 6 outer curb, east of exit to inner curb	1,435
LAJ	Outer curb, east of East Way intersection	1,595
LAK	Terminal 7 outer curb, east of inner curb entrance/exit	1,813
LAL	Terminal 7 outer curb, east of P20 exit	1,773
LAM	Terminal 7 outer curb, east of exit to inner curb	1,773
LAN	Terminal 7 outer curb, after P21 exit	1,733
LAO	Terminal 7 outer curb, after entrance from inner curb	1,833
LAP	Terminal 7 outer curb, after P13 exit	1,833
LAQ	Terminal 8 outer curb, east of inner curb entrance/exit	1,871
LAR	Terminal 8 outer curb, after inner curb entrance	1,871
LAS	Lower level exit 1 (south)	1,155
LAT	Lower level exit 2 (east)	1,663
LAU	Entrance from Sky Way	506
IA	Terminal 1 inner curb, east	40

Table 4.1-4

Existing (2008) Peak CTA Traffic Volumes During the TBIT Peak Hours

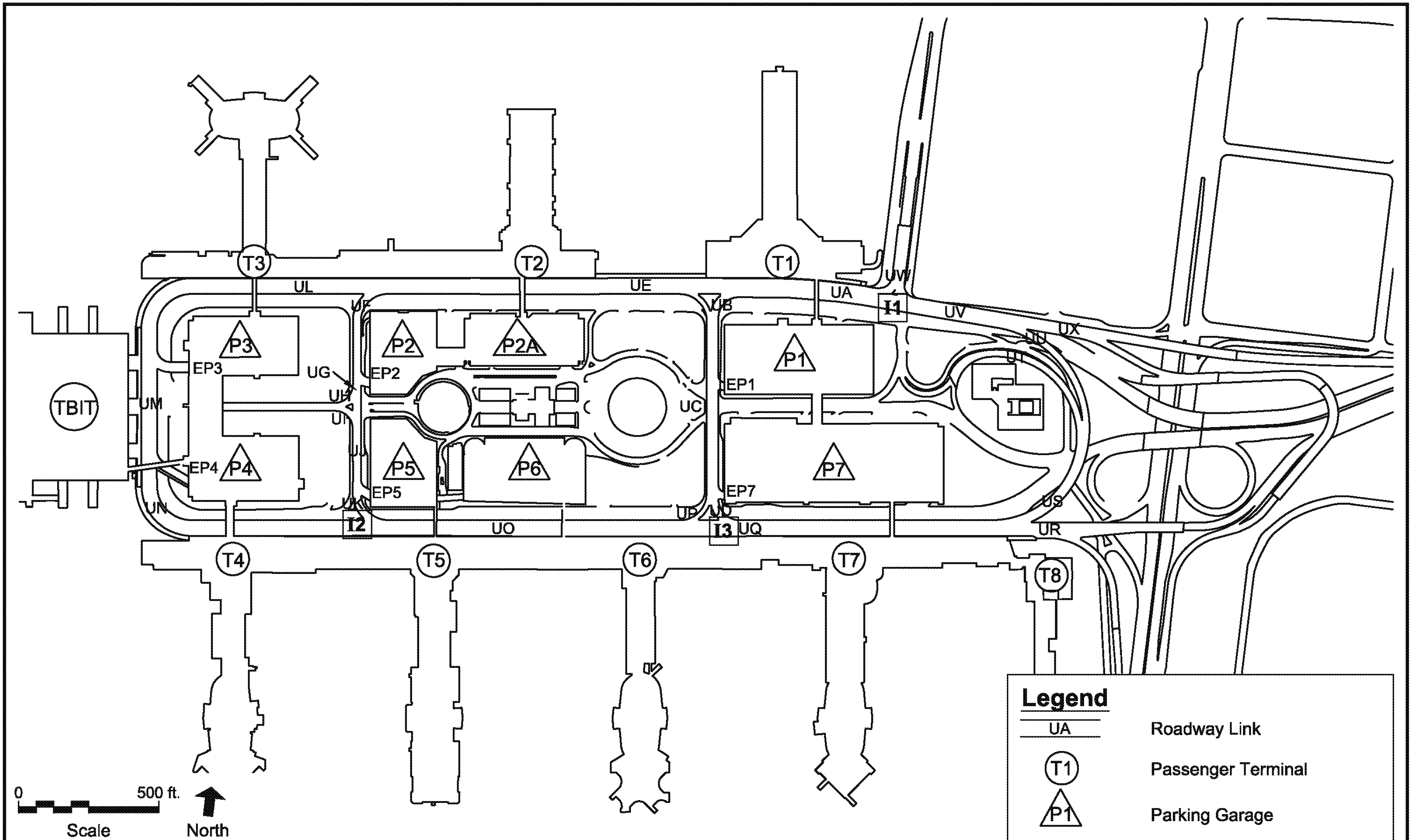
Roadway Link[1]	Description	Volumes[2] (number of vehicles)
IB	Terminal 1 inner curb, center	144
IC	Terminal 1 inner curb, west	248
ID	Inner curb between Terminal 1 and Terminal 2	n/a
IE	Terminal 2 inner curb, east	30
IF	Terminal 2 inner curb, center	n/a
IG	Terminal 2 inner curb, center west	35
IH	Terminal 2 inner curb, west	n/a
II	Terminal 3 inner curb, center	65
IJ	Terminal 3 inner curb, west	n/a
IK	TBIT inner curb, center	503
IL	TBIT inner curb, south	575
IM	Inner curb between TBIT and Terminal 4	75
IN	Terminal 4 inner curb	322
IO	Terminal 5 inner curb, west	n/a
IP	Terminal 5 inner curb, center	72
IQ	Terminal 6 inner curb, center	325
IR	Terminal 6 inner curb, east	356
IS	Terminal 7 inner curb, west	138
IT	Terminal 7 inner curb, center	138
IU	Terminal 8 inner curb	38
IV	Connection to outer curb, east of Terminal 8	n/a
IW	Connection to outer curb, east of exit to parking	n/a
IX	Connection to outer curb, east of entrance from service road	n/a

1 As identified in Figures 4.1-7 and 4.1-8.
2 Traffic volumes on the upper level links represent activity during the TBIT departures peak hour (11:00 to 12:00) and volumes on the lower level links represent activity during the TBIT arrivals peak hour (17:00 to 18:00); both periods represent activity during a typical busy Friday in August 2008.

Source: Ricondo & Associates, Inc., 2009.

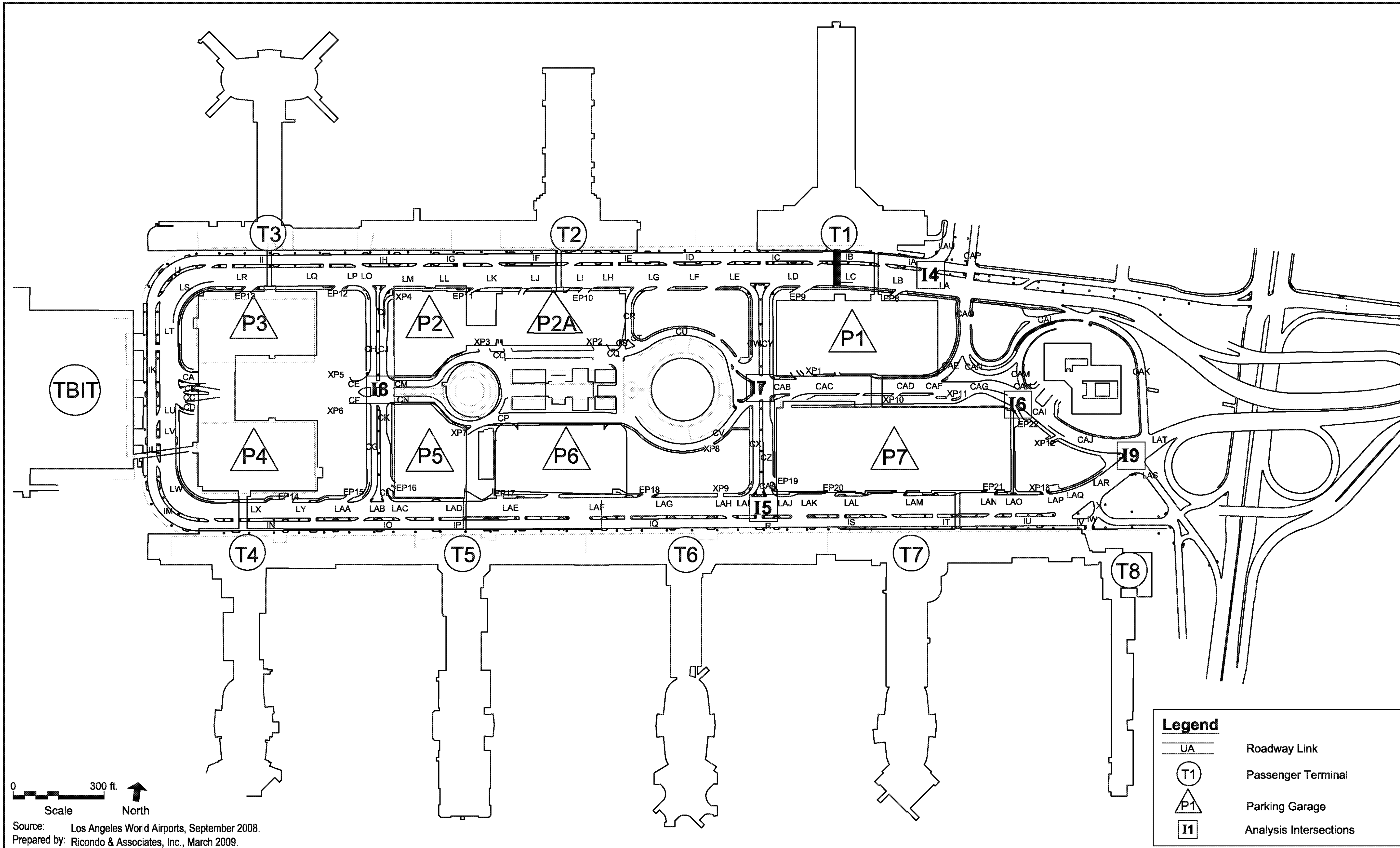
VISSIM Model

A simulation model was developed using VISSIM to provide a more detailed assessment of the curbside and roadway operations associated with Existing (2008) conditions and future scenarios (2013 With Project and 2013 Without Project). The VISSIM model used in this analysis was initiated by LAWA for other airport-related purposes and provided for use in analyzing the Bradley West Project. This initial model included much of the existing physical geometry of the CTA roadway system (roadway configurations, lanes, and intersections); however, the model was refined for use in the Bradley West Project analysis. As part of this process, the model was evaluated and expanded to provide a complete physical representation of the CTA roadway system through field verification, as well as detailed review of video, photographs, and scaled drawings of the existing CTA roadway system depicting lanes and other physical features. Key physical characteristics, including lane width, design speed, slope, and horizontal curvature, among other features, were incorporated in the model. The model was refined to include new vehicle types, assignments, routes, volumes, and public parking trip distributions based on passenger activity at each of the terminals. The location and configuration of vehicle curbside parking spaces adjacent to each terminal building in the CTA were also assigned within the model, with varying levels of desirability depending upon the location of parking spaces relative to doorways, baggage check-in locations, and other features.



Source: Los Angeles World Airports, September 2008.
Prepared by: Ricondo & Associates, Inc., March 2009.

LAX Bradley West Project Draft EIR	CTA Roadway Links and Key Intersections - Departures Level	Figure 4.1-7



Source: Los Angeles World Airports, September 2008.
Prepared by: Ricondo & Associates, Inc., March 2009.

LAX Bradley West Project Draft EIR	CTA Roadway Links and Key Intersections - Arrivals Level	Figure 4.1-8

Additional information, such as signal timing and phasing for signalized intersections provided by LAWA, was included in the model. Pedestrian counts recorded during a site visit as well as from CCTV videos provided by LAWA were used to estimate the number of pedestrians crossing the CTA roadways at TBIT. Pedestrian volumes at the arrivals level crosswalks at the other seven terminals in the CTA were estimated using passenger allocation percentages for each terminal and crosswalk data from the previously mentioned data collection efforts. Pedestrian arrival rates at the signalized crosswalks were based on a normal distribution used to arrive at the pedestrian crossing and activate the pedestrian crossing signal.

To define the vehicle characteristics and trip assignments to be input into the VISSIM model, the assumptions developed for the spreadsheet-based vehicle trip generation model described previously were used to ensure consistency between the analyses. These assumptions related to the types of vehicles accessing each terminal, the total number of vehicles by mode, and the associated paths used by each vehicle mode for the peak arrivals and peak departures conditions. These individual trip assignments were coded into the VISSIM model for each vehicle mode representing each destination along the travel path. For example, a typical path may consist of a vehicle entering the CTA roadway system, followed by a stop at one of the terminal curbsides to drop off a passenger, and then proceeding to that terminal's parking garage. For each vehicle type, characteristics such as average dwell time, driver aggressiveness characteristics, and desired curbside stopping locations were defined.

The passenger volumes associated with each peak hour condition considered in this analysis were input to the trip generation model, from which hourly vehicle volumes for each roadway link were generated. These hourly vehicle volumes were distributed into 10-minute equivalent volumes based on the 10-minute airline passenger volume distributions at each terminal to account for passenger peaking within the analysis peak hour. This approach provided a more realistic arrival rate for passengers and vehicles to the curbside throughout the hour. These hourly vehicle volumes were then used as input for the existing conditions VISSIM model. This calibration was necessary to ensure that the VISSIM model was generating the proper number and type of vehicle trips throughout the CTA roadway network because this model would serve as the basis for developing the VISSIM models for future conditions.

VISSIM Model Calibration

The calibration process involved running the VISSIM model, observing the simulation's animation to visually confirm that the model was performing as expected, and comparing the output statistics to the balanced roadway volumes at numerous locations throughout the roadway network. Comparing the model's roadway traffic output to the balanced roadway traffic volumes using the same locations to confirm that the model is generating the correct traffic volumes is a key step in the calibration process. Similar to the vehicle trip generation and distribution modeling process, key model inputs were adjusted to obtain volumes within the desired Root Mean Square Test (RMST) tolerance of the balanced roadway traffic volumes. The visual output of the model was also reviewed and compared to actual video and field observations to confirm that modeled and actual congestion points and levels of vehicle queuing were of similar magnitude. Upon satisfactory calibration of the model, it was determined that the model had been validated for use in developing future year analyses. This process was completed for TBIT and for overall airport peak arrivals and peak departures models.

Vehicle Trip Generation and Distribution Model

A vehicle trip generation and distribution model was developed to project future traffic volumes on the airport's roadway system based on future passenger activities. The model was calibrated to the balanced Existing (2008) CTA roadway vehicle volumes to ensure the model is accurately replicating the Existing (2008) conditions. The trip generation models outputs were compared to Existing (2008) values to determine if the model generated values are within an acceptable range. The trip generation model uses factors such as passenger arrival characteristics, vehicle volumes, mode split (i.e., the proportion of traffic volume comprised of various modes including private vehicles, taxicabs, limousines, etc.), and vehicle occupancy characteristics to develop relationships between each of these factors to project vehicle volumes from a passenger volume input. The estimated mode choice percentages and vehicle occupancies used in the vehicle trip generation model for both the passenger arrivals and departures peak periods were developed from data collected as part of this project and the 2006 Air Passenger Survey. The estimated mode choice percentages and vehicle occupancies are provided in **Table 4.1-5**.

Table 4.1-5

Existing (2008) Conditions Mode Share

	Upper Level[1]		Lower Level[2]	
Mode Split	**Mode Split**	**Vehicle Occupancy (no. of people)**	**Mode Split**	**Vehicle Occupancy (no. of people)**
Private Vehicles				
Departures Curb Only	36.2		23.9	
Departures Curb and Parking	8.1		0.0	
Central Parking Only	5.6		27.0	
Subtotal	**49.9**	**1.6**	**50.9**	**1.2**
Rental Cars (to Departures Curb)	0.7	2.3	1.1	1.2
Taxicabs	8.5	1.7	7.9	1.4
Limousines	1.9	2.1	3.6	1.4
FlyAway Bus/Long Distance Vans (Green)	5.5	16.0	3.8	8.0
Shared Ride Vans	6.9	5.0	6.4	4.0
Rental Car Shuttle	11.9	9.0	10.8	4.0
LAX Shuttle	2.7	7.3	1.7	4.0
Hotel/Courtesy Shuttle	5.5	10.3	3.4	4.0
Private Parking Shuttle	6.5	5.0	10.4	3.4
Total	**100.0%**		**100.0%**	

1 Represents the assumed mode split and vehicle occupancy during the departures peak period.
2 Represents the assumed mode split and vehicle occupancy during the arrivals peak period.

Source: Ricondo & Associates based on information obtained from the (1) AVI data and (2) Applied Management & Planning Group, 2006 Air Passenger Survey Final Report Los Angeles International Airport, December 2007.

The model assigns each vehicle an origin, a route through the CTA, and a destination. The model estimates vehicle volumes on each roadway link within the CTA to allow spot checks, which ensure that the appropriate volume and type of vehicles are assigned to each link. Once the model is calibrated to existing conditions for TBIT's departures and arrivals peak hours, future passenger activity levels can be input into the model to project traffic volumes and vehicle composition on each link of the CTA roadway network.

Vehicle Trip Generation and Distribution Model Calibration

The purpose of developing the vehicle trip generation and distribution model is to have a tool that accurately projects future vehicle volumes based on a future passenger volume. Before the model can be used to project future peak hour traffic volumes, it was necessary to calibrate the model to ensure that the results would reliably predict actual observed traffic conditions as represented by the balanced roadway volumes. This process involved comparing model output for the TBIT and overall airport departures peak hour and the TBIT and overall airport arrivals peak hours with roadway and curbside traffic data from the balanced roadway network. A review of the passenger data for August 2008 indicated that, for model validation purposes, the TBIT departures peak hour occurred between 11:00 a.m. and 12:00 p.m., and the TBIT arrivals peak hour occurred between 5:00 p.m. and 6:00 p.m.

Mode split data and drop off/parking information for the TBIT and overall airport departures peak hour, as well as the TBIT and overall airport arrivals peak hours, were developed using data from both the 2006 Air Passenger Survey and data collected as part of this analysis. Both models also included originating/terminating passenger splits by arrival mode based on the estimated percentages of vehicles entering/exiting the airport via the upper level and lower level roadways.

The CTA roadway links used to compare the model results to the balanced roadway volumes are as follows:

- Gateway links (model entrance and exit links)
- Parking facility entry links
- Entrance and exit volumes to both departures and arrivals levels
- Multiple locations around the CTA based on balanced CTA roadway volumes

The calibration process required a series of iterative adjustments to mode splits, passenger drop off versus direct to parking percentages, originating-terminating passenger splits, and passenger occupancies to further refine the model output relative to the actual counts and to improve the calibration. A comparison of the projected trips from the model compared with the balanced roadway network traffic volumes is provided in Appendix B.

4.1.3.7 Analysis of Existing Conditions

This section describes how the results from the vehicle trip generation and VISSIM models were used to characterize Existing (2008) traffic conditions for the CTA roadway system. Analysis of the on-airport roadway system can be summarized into three functional areas consisting of an evaluation of (a) TBIT curbside capacity, (b) intersection capacity of the key CTA intersections, and (c) roadway link capacity at key locations within the CTA.

TBIT Curbside Analysis

Airport curbside facilities serve as the primary destination for vehicular traffic accessing the CTA departures (upper) and arrivals (lower) level roadways. As such, the linear length of these curbside facilities to accommodate stopped vehicles and provide adequate room to maneuver into and out of a stopping position is a critical measure in assessing the capacity of the airport roadway system. The TBIT curbside analysis is a measure of vehicle demand at the curbside compared to available curbside frontage. Curbside frontage demand is a theoretical measurement of the peak accumulation of vehicles waiting at the curbside if they were aligned nose-to-tail in a single queue. For existing conditions, a "utilization" factor can be derived, which is the calculated ratio of curbside demand in linear feet divided by the existing curbside length. The utilization factor provides an indication of the amount of double and triple parking that would result for a given space demand, and the level of service associated with a given utilization rate recognizes that drivers do not park vehicles uniformly along the curbside.

The curbside utilization factor is an indicator of the amount of congestion at the curbside, as well as the resulting level of service provided. This study analyzed curbsides where curbside pick up and drop off activity is discouraged but occurs in multiple lanes (arrivals inner curbside) and curbsides which restrict vehicle activity to a single lane (commercial vehicle zones using the arrivals outer curbside). Multi-lane activity typically occurs along curbsides accommodating private vehicle passenger loading/unloading, while curbsides accommodating commercial vehicle passenger loading/unloading is frequently restricted to allowing passenger pick up and drop off only at the curbside sidewalk. Assumed utilization ranges for each type of curbside facility are different based on the number of functional curbside loading/unloading lanes. **Tables 4.1-6** and **4.1-7** provide the utilization ranges and levels of service for curbsides where passengers load/unload from multiple lanes and curbsides where passenger loading/unloading is restricted to a single lane. In the case of curbsides where multiple lane loading/unloading occurs, a very low utilization indicates that vehicles are easily accommodated along the inner curbside lane without the need to double park. This level of utilization would equate to an excellent level of service (e.g., LOS A). Conversely, very high utilization equates to double and triple parking along the entire curbside, restricting vehicle movements and resulting in a poor level of service (e.g., LOS E). The same is true for curbsides with single lane passenger loading/unloading where a very low utilization indicates vehicles can easily access and depart a curbside equating to an excellent level of service (e.g., LOS A). Curbsides with single lane loading/unloading are not considered to be operating at a poor level of service when all of their available curbside length is being used (100 percent utilization). This is because when a single lane curbside is 100 percent utilized, parked vehicles may still depart and access the curbside, and are not blocked by vehicles stopped in a second parking lane. For curbsides with single lane passenger loading/unloading, double parking or queuing along 30 percent of the adjacent travel lane constitutes a failing level of service (e.g., LOS F). Curbside level of service is a qualitative measure that describes traffic operating conditions along a curbside (e.g., delay, curbside utilization, congestion).

Table 4.1-6

Curbside Demand Levels of Service and Utilization Ranges for Curbsides with Multiple-Lane Passenger Loading/Unloading

Level of Service (LOS)	Utilization Range[1]	Equivalent Volume/ Capacity Ratio[2]	Description
A	0% - 90%	0 - 0.45	EXCELLENT: Drivers experience no interference from pedestrians or other motorists
B	91% - 110%	0.46 - 0.55	VERY GOOD: Relatively free flow conditions with limited double parking
C	111% - 130%	0.56 - 0.65	GOOD: Double parking near doors is common with some intermittent triple parking
D	131% - 170%	0.66 - 0.85	FAIR: Vehicle maneuverability restricted due to frequent double/triple parking
E	171% - 200%	0.86 - 1.0	POOR: Significant delays and queues; double/triple parking throughout curbside
F	> 200%	>1	FAILURE: Motorists unable to access/depart curbside; significant queuing along entry road

1 Utilization is the ratio of curbside space demand in linear feet divided by available curbside length.
2 The equivalent V/C ratio is calculated as the utilization for a given LOS range divided by the maximum utilization at capacity, or LOS E. The equivalent V/C ratio is calculated for purposes of providing a compatible threshold measure for determining potential project impacts in accordance with LADOT significance thresholds.

Source: Ricondo & Associates, Inc., based on information published by the Transportation Research Board and Federal Aviation Administration Advisory Circular 150/5360-13, Planning and Design Guidelines, January 19, 1994.

Table 4.1-7

Curbside Demand Levels of Service and Utilization Ranges for Curbsides with Single Lane Passenger Loading/Unloading

Level of Service (LOS)	Utilization Range[1]	Equivalent Volume/ Capacity Ratio[2]	Description
A	0% - 70%	0 - 0.54	EXCELLENT: Drivers experience no interference from pedestrians or other motorists
B	71% - 85%	0.55 - 0.65	VERY GOOD: Relatively free flow conditions with limited double parking
C	86% - 100%	0.66 - 0.77	GOOD: Double parking near doors is common with some intermittent triple parking
D	101% - 115%	0.78 - 0.88	FAIR: Vehicle maneuverability restricted due to frequent double/triple parking
E	116% - 130%	0.89 - 1.00	POOR: Significant delays and queues; double/triple parking throughout curbside
F	> 130%	>1	FAILURE: Motorists unable to access/depart curbside; significant queuing along entry road

1 Utilization is the ratio of curbside space demand in linear feet divided by available curbside length.
2 The equivalent V/C ratio is calculated as the utilization for a given LOS range divided by the maximum utilization at capacity, or LOS E. The equivalent V/C ratio is calculated for purposes of providing a compatible threshold measure for determining potential project impacts in accordance with LADOT significance thresholds.

Source: Ricondo & Associates, Inc., based on information published by the Transportation Research Board and Federal Aviation Administration Advisory Circular 150/5360-13, Planning and Design Guidelines, January 19, 1994.

For curbsides that permit either single or multi-lane passenger loading/unloading, LOS C is generally a desirable condition for peak period operations at major airports for most days of the year. LOS D conditions may be acceptable during peak seasonal periods.

The VISSIM model provides a simulation of the anticipated traffic volumes accessing the curbside and the effects of the interaction of vehicles stopping and maneuvering within the terminal area curbside pick up and drop off zones during the peak hour conditions analyzed. The model simulates the anticipated congestion and traffic operations that would be expected considering the effects of peaking around terminal building doorways, curbside check-in counters, traffic signal control occurring near the curbsides, and other physical features of the curbside.

Curbside operations were assessed to quantify the existing and future curbside levels of service. The assessment was based on a minute-by-minute count of the number of vehicles by mode that would be stopped at the curbside during the peak hour periods analyzed. For each count, the number of vehicles by mode were multiplied by the average length of the vehicles by vehicle type and then summed to provide an equivalent linear total on a minute-by-minute basis. The vehicle lengths used for the analysis include an allowance of space to account for normal separation of vehicles stopped at the curbside and parking inefficiencies observed at curbsides which will tend to provide a conservative assessment of total linear demand. The total linear demand was then divided by the available curbside length to provide a numerical calculation of the curbside utilization percentage. The curbside utilization percentage calculation presented in this analysis does not include the first 900 seconds (15 minutes) of simulation results. This is the seeding time which allows the model to reach an equilibrium condition before the analysis begins. The simulations were run three times and the results were averaged to provide an estimate of curbside utilization on a minute-by-minute basis. These calculated utilization percentages were then compared to the curbside LOS utilization ranges defined previously in this section to provide an assessment of curbside level of service per minute during the peak hours analyzed for the Existing (2008) condition, as well as for the future conditions that are described later in this section.

Table 4.1-8 summarizes the simulation results for the Existing (2008) conditions for the TBIT curbsides. **Figure 4.1-9** provides a detailed allocation of commercial vehicle parking locations along the arrivals level outer curbside. The TBIT departures level curbsides were analyzed using the departures level peak hour volumes, while the TBIT arrivals level curbsides were analyzed using the arrivals level peak hour volumes. Because the TBIT departures level curbside does not provide dedicated curbside for specific vehicle types, the LOS calculation for the overall departures curbside is presented. The TBIT arrivals level curbside, however, is comprised of dedicated zones serving specific vehicle modes. Therefore, the results are reported both on an overall average basis and for specific commercial vehicle zones at TBIT to provide a more thorough assessment of the operations along this curbside. This curbside analysis is conservative for the following reasons:

1. Commercial vehicle shuttle buses, (i.e., hotel/motel, rental car, parking, inter-terminal circulation bus, shared ride vans) were assumed to stop at each terminal on both the departures and arrivals levels. In particular, this is a conservative approach as commercial vehicles typically will not stop at a given terminal on the departure level if no passengers are destined for that terminal.
2. VISSIM parking logic used to simulate vehicle behavior at the curbside is conservative as the model may force drivers to increase the time they wait to access a specific curbside space. In reality, drivers may chose to drop off or pick up their party further down the curbside or in a lane farther from the curbside but adjacent to their desired terminal access location.
3. The curbside utilization calculation provides a conservative assessment of linear demand given that the assumed vehicle length includes a large proportion of distance that represents gaps between vehicles and non-uniform parking at the curbside. For example, passenger cars are typically on the order of 16.5 feet in length, which is the length used to simulate passenger cars. An additional 1.5 feet is assumed in the VISSIM model to represent the space between the adjacent vehicle in front or behind the parking vehicle which results in a total of 19.5 feet to complete the parking movement. However, to provide an additional level of conservatism and to

address additional operational inefficiencies that occur in the curbside environment, the assumed equivalent vehicle length used to calculate the curbside utilization factor and equivalent volume/capacity ratio is based on an assumed 25 feet per vehicle.

Table 4.1-8

Existing (2008) TBIT and Airport Peak Period Curbside Analysis Results

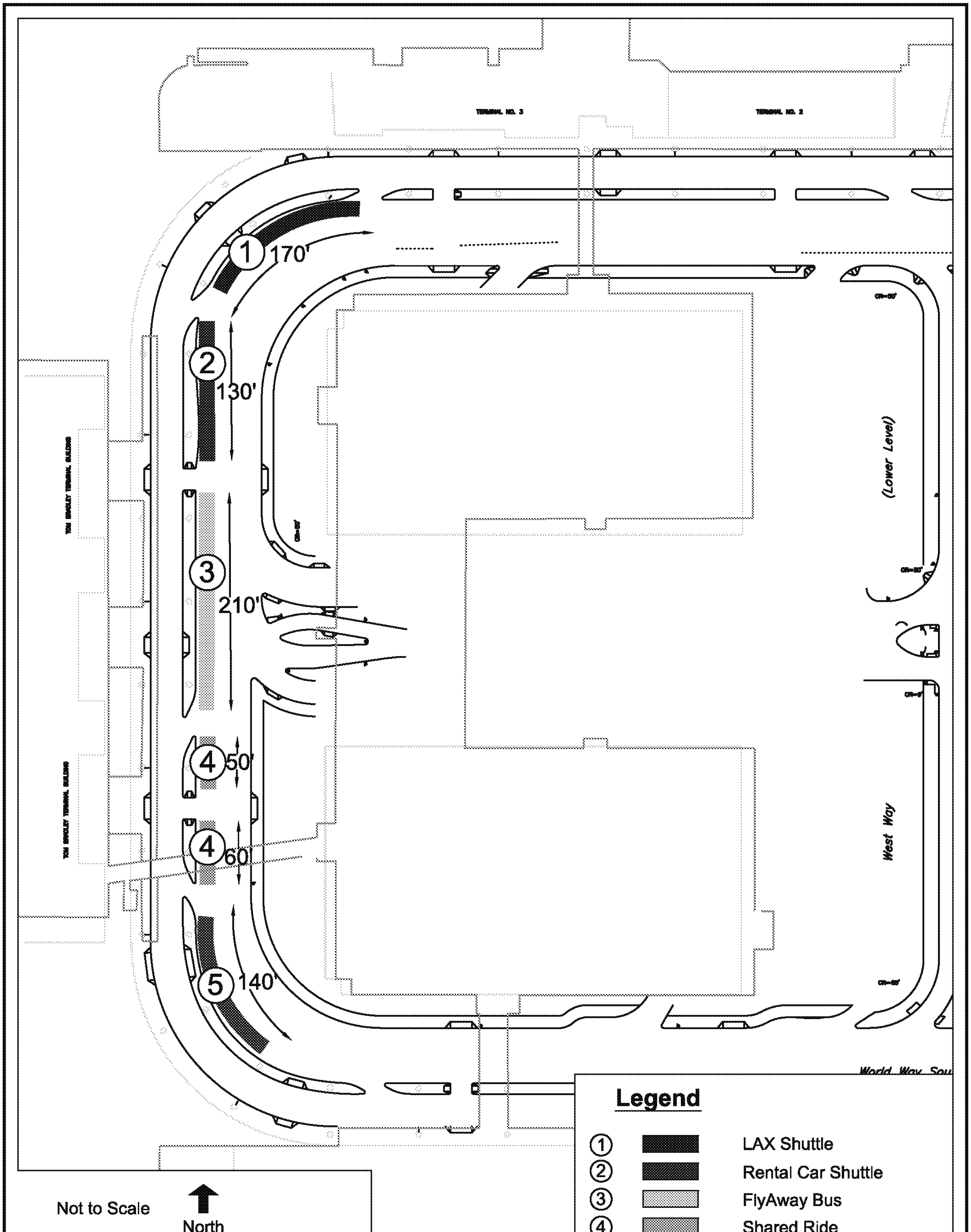
Roadway Level	Peak Period	Curbside	Zone[1]	Utilization Rate	Equivalent Volume to Capacity	Level of Service
Departures	TBIT	-	-	161%	0.804	D
	Overall Airport	-	-	161%	0.804	D
Arrivals	TBIT	Inner	-	141%	0.707	D
	TBIT	Outer	Average (all modes)	80%	0.613	B
			LAX Shuttle (Z-1)	39%	0.298	A
			Rental Car Shuttle (Z-2)	82%	0.627	B
			FlyAway Bus (Z-3)	29%	0.222	A
			Shared Ride Van (Z-4)	48%	0.367	A
			Hotel/Parking Shuttle (Z-5)	176%	1.35	F
	Overall Airport	Inner	-	130%	0.648	C
	Overall Airport	Outer	Average (all modes)	72%	0.554	B
			LAX Shuttle (Z-1)	28%	0.212	A
			Rental Car Shuttle (Z-2)	60%	0.461	A
			FlyAway Bus (Z-3)	30%	0.232	A
			Shared Ride Van (Z-4)	51%	0.395	A
			Hotel/Parking Shuttle (Z-5)	174%	1.34	F

[1] Parking Zones defined in Figure 4.1-9.

Source: Ricondo & Associates, Inc., 2009.

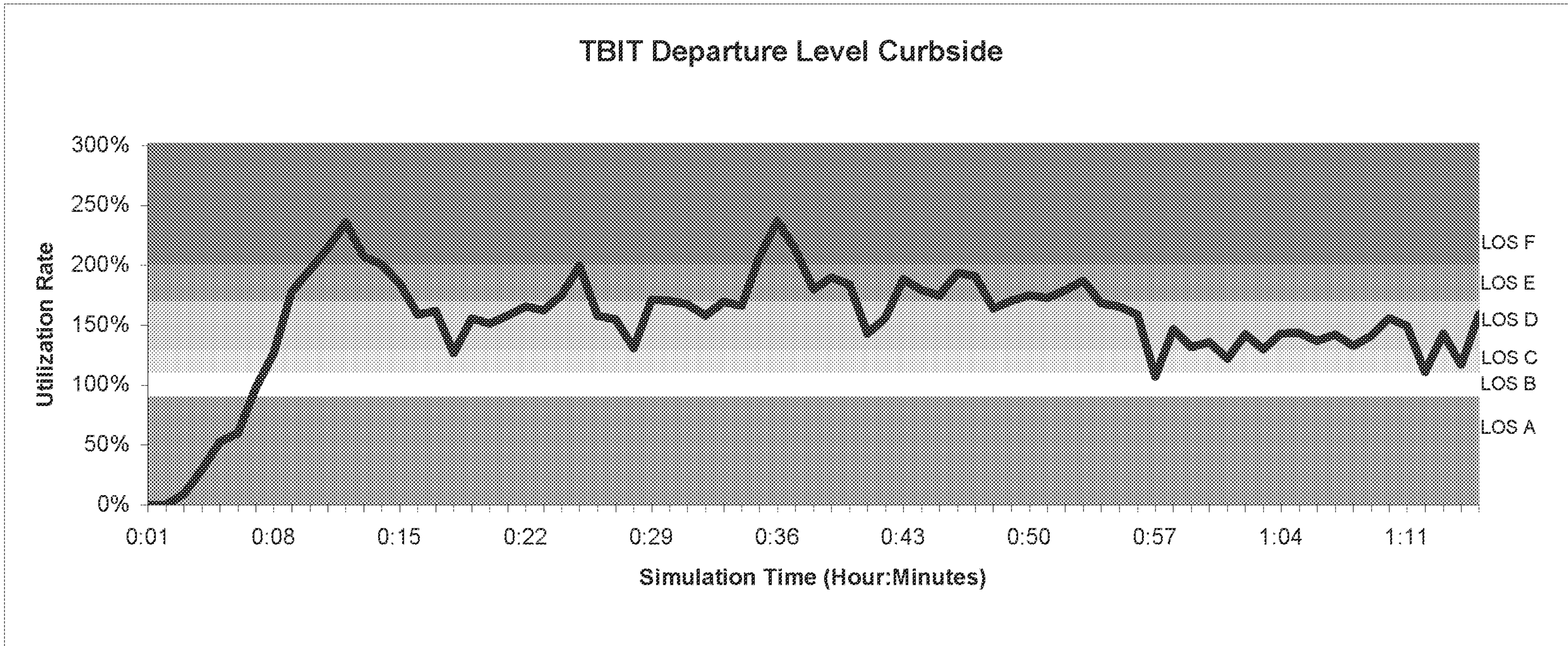
Figure 4.1-10 provides the detailed minute-by-minute assessment of the existing TBIT departures level curbside LOS during the Existing (2008) TBIT peak departures period (11:00 to 12:00). This peak period also generally corresponded with the overall airport peak departures period. Based on the analysis shown in **Figure 4.1-10**, it is estimated that the curbside operated at an average LOS D; however, surges in curbside activity during the peak hour generated two brief periods during which congestion along the curbside reached LOS F. It should also be noted that the two traffic signals at the pedestrian crosswalks along the TBIT departures curb affect curbside operations, especially during busier periods. The first signal generally increases congestion along the section of curb prior to the first traffic signal as vehicles entering or departing this section of curbside are impeded from doing so by vehicles queued at the traffic signal. The next section of the TBIT curbside (between the traffic signals) tends to perform at a slightly better overall level of service as a result of the first signal metering traffic to this section of the curbside.

Figure 4.1-11 depicts the level of service conditions on the TBIT arrivals level inner and outer curbsides during the Existing (2008) TBIT arrivals peak hour (17:00 to 18:00). It is estimated that the arrivals level inner curbside operated at an average LOS of D during the TBIT arrivals peak hour, with two brief periods where the curbside level of service reached LOS F conditions. The arrivals level outer curbside during the TBIT peak operated mostly at an average LOS of B, with two very short periods when curbside operations reached LOS E. Refer to **Table 4.1-8** for detailed level of service estimates summarized for individual curbside zones serving specific vehicle modes.



Source: Ricondo & Associates, Inc.
Prepared by: Ricondo & Associates, Inc., March 2009.

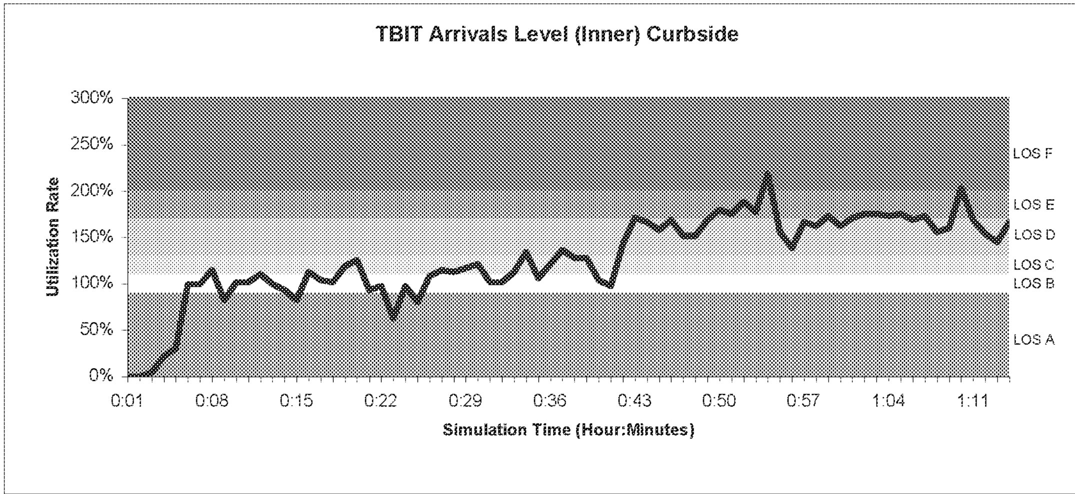
LAX Bradley West Project Draft EIR	TBIT Arrivals Level Outer Curbside Allocation	Figure 4.1-9

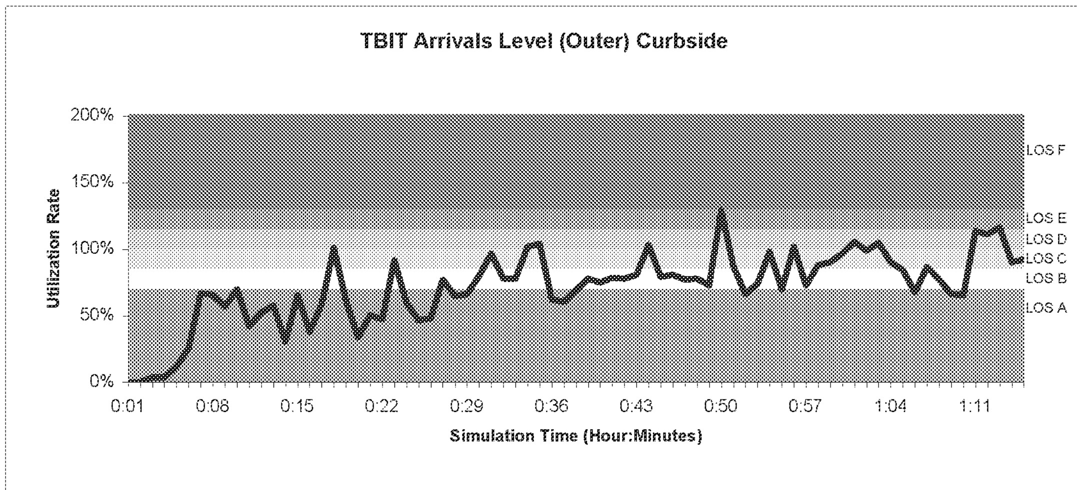


Note: Represents activity during the TBIT departures peak hour from 11:00 to 12:00

Source: Ricondo & Associates, Inc., February 2009.
Prepared by: Ricondo & Associates, Inc., March 2009.

LAX Bradley West Project Draft EIR	TBIT Departures Level Curbside Level of Service – Existing (2008), TBIT Departures Peak Hour	Figure 4.1-10





Note: Represents activity during the TBIT arrivals peak period from 17:00 to 18:00

Source: Ricondo & Associates, Inc., February 2009.
Prepared by: Ricondo & Associates, Inc., March 2009.

LAX Bradley West Project Draft EIR

TBIT Arrivals Level Curbside Level of Service – Existing (2008), TBIT Arrivals Peak Hour

Figure
4.1-11

Figure 4.1-12 depicts the level of service conditions experienced on the TBIT arrivals level inner and outer curbsides during the overall airport peak arrivals hour (21:00 to 22:00). It is estimated that the arrivals operated at an average LOS of C during that period, although there were several times during the peak hour when curbside operations reach LOS D. The outer curbside operated at an average LOS of B, although there are several brief periods during the hour when curbside operations reached LOS D or E conditions. Neither the inner or outer curbside reached an average LOS F condition throughout the peak hour. However, as shown in **Table 4.1-8**, it was estimated that the curbside zone accommodating hotel and parking shuttle buses did experience congestion characterized as LOS F.

CTA Intersection Analysis

The Bradley West Project would not have an effect on the traffic volumes that directly access and stop at the other CTA terminal curbsides; thus, a detailed assessment of the linear capacity of these other terminal curbsides was not conducted. However, because TBIT-related traffic would bypass these other terminals, the key CTA roadway intersections were assessed to measure the effect that changes in the TBIT component of these intersection volumes could have on intersection traffic operations.

This section provides an assessment of the CTA intersection operations based on the vehicle trip generation and distribution model outputs for the Existing (2008) conditions. As indicated in Section 4.1.2.1 above, the intersections were analyzed using TRAFFIX,[42] a commercially available traffic analysis program designed for developing traffic forecasts and analyzing intersection and roadway capacities. The model uses widely accepted traffic engineering methodologies and procedures, including the Transportation Research Board's Circular 212 CMA planning method,[43] which is the required intersection analysis methodology for traffic impact studies conducted for the City of Los Angeles.

For the purpose of this EIR, the balanced CTA roadway traffic volumes developed from the intersection turning movements collected in August 2008, which represent the most current comprehensive set of traffic counts collected by LAWA, were used as a basis for preparing the traffic analysis and assessing potential project-related traffic impacts, in accordance with CEQA requirements. In addition, a visual review of the simulation animation was conducted to identify significant curbside congestion and queuing within the CTA roadway network that may not have been identified as part of the detailed intersection operations analysis described previously.

Intersection level of service is a qualitative measure that describes traffic operating conditions at an intersection (e.g., delay, queue lengths, congestion). Intersection levels of service range from A (i.e., excellent conditions with little or no vehicle delay) to F (i.e., excessive vehicle delays and queue lengths). Levels of service definitions for the CMA methodology are presented in **Table 4.1-9**.

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[42] Dowling Associates, TRAFFIX Version 7.7. Based on information provided by Dowling Associates on May 2, 2008, over 425 site TRAFFIX licenses are owned by public and private entities, including 44 cities, 5 countries, and Caltrans within the State of California.

[43] Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

Table 4.1-9

Level of Service Thresholds and Definitions for Signalized Intersections

Level of Service (LOS)	Volume/Capacity Ratio Threshold	Definition
A	0 - 0.6	EXCELLENT: No vehicle waits longer than one red light and no approach phase is fully used.
B	0.601 - 0.7	VERY GOOD: An occasional approach phase is fully used; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 - 0.8	GOOD: Occasionally, drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 - 0.9	FAIR: Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 - 1.0	POOR: Represents the most vehicles that intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	>1.0	FAILURE: Backups from nearby intersections or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

The analysis evaluated the intersection's volume to capacity and level of service conditions using the CTA roadway traffic volumes for the Existing (2008) conditions, as provided in **Table 4.1-10** for the TBIT and overall airport peak departures and arrivals hours.

CTA Roadway Analysis

In addition to the intersection analysis described above, an analysis of the capacity of the airport roadway system was conducted to provide a basis for measuring the effect that changes in the TBIT component of the airport roadway traffic volumes would have on the CTA roadway system. In order to analyze the future operating conditions along the airport roadway system, the calculated volume using each roadway link is compared to the capacity of the roadway at that particular location. The capacities of the roadway links are determined based on the characteristics of the roadway link and the number of travel lanes provided. Based on the Highway Capacity Manual, Special Report 209,[44] the theoretical capacity of a roadway is the maximum hourly flow rate per lane under "ideal" conditions comprised of (a) uninterrupted flow, (b) all passenger cars comprised of drivers that are frequent users of the roadway, (c) 12-foot minimum lane width, (d) relatively flat grades with minor curvature, and (e) optimal lateral clearance between the edge of lane and from nearby obstacles and walls.

For airport roadways, however, capacities are significantly lower as many of the "ideal" conditions listed above cannot be attained. For example, drivers are often unfamiliar with the roadway system. Also, increased interaction and impedances between vehicles usually results in drivers slowing to change lanes or maneuver in response to signage describing multiple on-airport destinations occurring over relatively short distances. Because airport curbsides accommodate relatively intense activity occurring over a relatively compact area, curbside roadway throughput capacities are much lower than provided on non-airport roadway systems. The stopping lane adjacent to the curbside is assumed to have no throughput capacity. The through lane capacities are assumed to range from 300 vehicles per hour in the adjacent maneuvering lane up to 850 vehicles per hour in the outermost lanes.[45]

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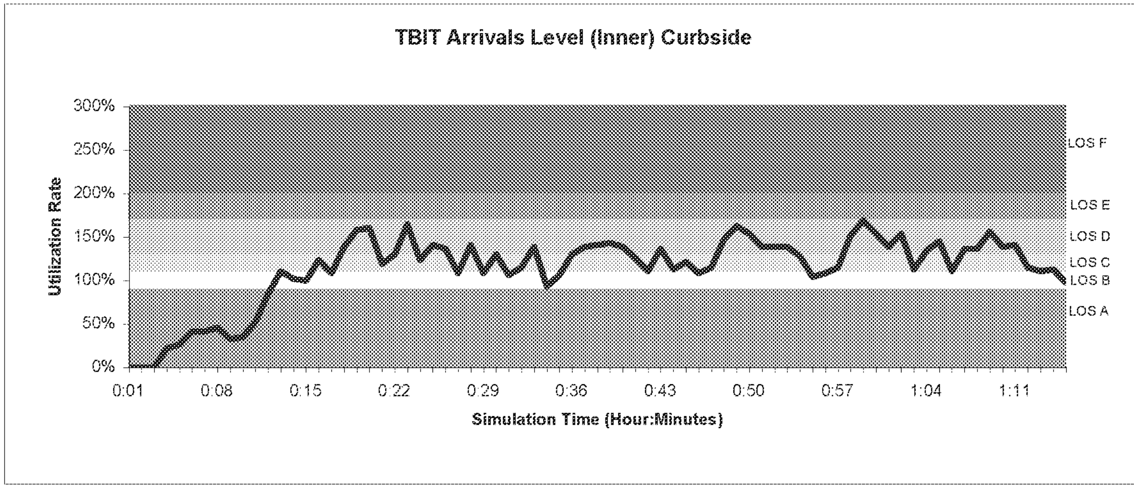
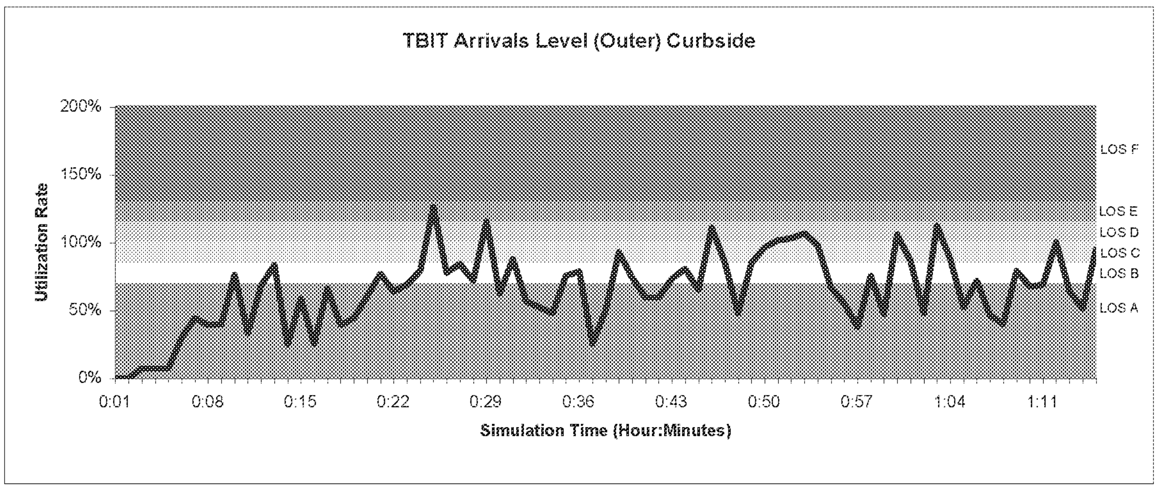
44 Transportation Research Board, Highway Capacity Manual, Special Report 209, 2000.

45 Airport curbside roadway throughput capacity assumptions were obtained from the LAX Master Plan Final EIR, Table F4.3.1-1, and Federal Aviation Administration Advisory Circular 150/5360-13, Planning and Design Guidelines, January 19, 1994.





Note: Represents activity during the overall airport peak arrivals period from 21:00 to 22:00

Source: Ricondo & Associates, Inc., February 2009.
Prepared by: Ricondo & Associates, Inc., March 2009.

TBIT Arrivals Level Curbside Level of Service – Existing (2008), Overall Airport Arrivals Peak Hour

Figure
4.1-12

Table 4.1-10

CTA Signalized Intersection Turning Movement Volumes and Level of Service Analysis - Existing (2008) Conditions

		Existing (2008)													
		Northbound			Southbound			Eastbound			Westbound				
Intersection	**Peak Hour[1]**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**V/C[2]**	**LOS[3]**
1. World Way North and Sky Way (Upper Level)	TBIT/Overall Departures						755					1841		0.518	A
2. World Way South and West Way (Upper Level)	TBIT/Overall Departures				389				1646					0.555	A
3. World Way South and East Way (Upper Level)	TBIT/Overall Departures				264			134	1901					0.203	A
4. World Way North and Sky Way (Lower Level)	TBIT Arrivals	300	197				506					1898	3	0.473	A
	Overall Arrivals	369	203				663					3000	3	0.672	B
5. East Way and World Way South (Lower Level)	TBIT Arrivals				160			150	1435					0.173	A
	Overall Arrivals				605			177	2005					0.371	A
6. Center Way and ramp from upper level roadway near Administration Building (Lower Level)	TBIT Arrivals				221				1219					0.384	A
	Overall Arrivals				337				1990					0.617	B
7. Center Way and East Way (Lower Level)	TBIT Arrivals		150			160	10	25	878					0.080	A
	Overall Arrivals		177			605		80	1358					0.278	A
8. Center Way and West Way (Lower Level)	TBIT Arrivals		55			260	70	25	591					0.207	A
	Overall Arrivals		67			549	116		953					0.573	A
9. Center Way and World Way South (Lower Level)	TBIT Arrivals	444	842	585				49	821	570				0.652	B
	Overall Arrivals	671	1157	848				75	1299	953				0.943	E

[1] The overall airport peak hour and TBIT peak hour for the departures level occurred in the same time period.
[2] Volume to capacity ratio.
[3] Level of Service range: A (excellent) to F (failure).

Source: Ricondo & Associates, Inc., using TRAFFIX, March 2009.

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To assess the ability of the airport roadway system to accommodate future traffic volumes, the Level of Service (LOS) of each roadway section was determined. **Table 4.1-11** shows the ratio of roadway volume to capacity (V/C) thresholds used to determine a roadway link's LOS. The LOS describes the operating performance of a roadway, measured quantitatively and reported on a scale of "A" to "F." LOS A represents the optimal operating condition, characterized by uninterrupted free flow operations. At the other end of the scale, LOS F represents the worst operating condition, characterized by severe roadway congestion and delay. LOS C is generally a desirable operating condition for design of new facilities; however, some larger airports may accept LOS D conditions during peak conditions.

Table 4.1-11

Roadway Level of Service and Volume to Capacity (V/C) Ratio Ranges

LOS	V/C Ratio	Conditions	Description
A	less than 0.60	EXCELLENT	Traffic is free flow, with low volumes and high speeds
B	0.61 - 0.70	VERY GOOD	Drivers have reasonable freedom to select their speed and lane of operation
C	0.71 - 0.80	GOOD	Drivers are becoming restricted in their ability to select their speed or to change lanes
D	0.81 - 0.90	FAIR	Drivers have little freedom to maneuver and driving comfort levels are low
E	0.91 - 1.00	POOR	Roadway is operating at or near capacity
F	greater than 1.00	FAILURE	Forced flow operation where excessive roadway queuing develops

Source: Transportation Research Board, Highway Capacity Manual 2000, 2000.

The level of service estimates for key CTA roadway links during the Existing (2008) peak periods are summarized in **Table 4.1-12**. As shown in **Table 4.1-12**, the upper level roadway immediately in front of Terminal 1 during both the TBIT/overall airport peak hour was estimated to operate at LOS F at Terminal 1, LOS C at TBIT and LOS D at Terminal 7/8. The lower level, during the overall airport peak hour, was estimated to operate at LOS F at Terminal 1 and at TBIT, and LOS C at Terminal 7/8.

Table 4.1-12

CTA Roadway Link Analysis - Existing (2008) Conditions

		Existing (2008) [A]			
Level/Link Location	**Peak Period**	**Capacity**	**Volume**	**V/C**	**LOS**
Departures					
World Way North At Terminal 1 (Entry)	TBIT	2,470	2,596	1.051	F
World Way North At Terminal 1 (Entry)	Overall Airport	2,470	2,596	1.051	F
World Way South at TBIT	TBIT	2,470	1,886	0.764	C
World Way South at TBIT	Overall Airport	2,470	1,886	0.764	C
World Way South at Terminal 7/8 (Exit)	TBIT	2,470	2,165	0.877	D
World Way South at Terminal 7/8 (Exit)	Overall Airport	2,470	2,165	0.877	D
Arrivals					
World Way North At Terminal 1 (Entry)	TBIT	3,320	2,664	0.802	C
World Way North At Terminal 1 (Entry)	Overall Airport	3,320	3,962	1.193	F
World Way South at TBIT	TBIT	2,470	2,114	0.856	D
World Way South at TBIT	Overall Airport	2,470	2,634	1.066	F
World Way South at Terminal 7/8 (Exit)	TBIT	3,320	1,871	0.564	A
World Way South at Terminal 7/8 (Exit)	Overall Airport	3,320	2,621	0.789	C

Source: Ricondo & Associates, Inc., 2009.

4.1.4 Project Traffic

As described previously in Section 4.1.2, trip generation for the on-airport roadway system is inherently different than trip generation for most off-airport developments where the development of new facilities directly equates to the generation of new vehicle trips. In those cases, the traffic volumes generated by the "project" serve as inputs that are directly added to the external roadway network to estimate future traffic volumes and assess impacts.

For purposes of estimating project traffic associated with the Bradley West Project, it is necessary to calculate the Future (2013) With Project volumes accessing the CTA roadways. This Future (2013) With Project condition is generated from a future airline schedule which produces a "cumulative" estimate that includes traffic volumes generated by the other CTA terminals.

4.1.5 Future (2013) Traffic Conditions

This section describes the methodology used to define and analyze future traffic conditions.

4.1.5.1 Determination of Analysis Peak Hours

To determine the peak hours for the 2013 With and Without Project scenarios, the 2013 design day flight schedules for LAX were developed. The 2013 LAX planning forecasts were converted to peak month average day (PMAD) levels to determine activity that could be reasonably expected on an average day in the busiest month of the year at the airport, such as a Friday in August. Growth factors were developed from year 2008 data required to reach the forecast demand levels. These growth factors were applied to passenger levels to determine changes in aircraft type or number of aircraft operations that would be required to meet the 2013 demand between the airport and the markets served from the airport.

Subsequent to the development of the annual passenger forecasts, several major airlines announced significant schedule reductions for fall 2008 and winter 2009, which would not have been captured in the August 2008 *Official Airline Guide* (OAG) data. To develop a base schedule for 2013 that would account for these reductions, the initial base schedule was compared with the summer 2009 published schedules.[46] The base schedule was then adjusted to reflect the markets and number of flights added or cancelled by the airlines. Forecast growth factors were then applied to adjust the base schedule at the individual market level. The resulting growth in numbers of passengers was converted into a target number of seats required and larger aircraft or new flights were added to each market where load factors exceeded target limits. Finally, domestic originating and terminating passenger percentages were calculated based on data from the third quarter 2007. International originating and terminating passenger percentages were derived from calculations based on fiscal year (FY) 2007 passenger statistics. It is anticipated that these assumptions would be valid for 2008 given that the ratio of originating/terminating passengers to connecting passengers does not typically change substantially from year to year.

Two 2013 design day flight schedules were prepared based on different gate availability assumptions: 2013 Without Project (Existing (2008) terminal conditions), and 2013 With Project (assuming completion of the Bradley West Project). Where FAA Airplane Design Group (ADG) VI aircraft could not be accommodated at terminal contact gates under the 2013 Without Project scenario, the flight schedule was revised to accommodate as many passengers as possible on ADG V aircraft.

Figure 4.1-13 depicts the rolling hourly terminating passenger flows at the TBIT curbside for the 2013 With Project and 2013 Without Project conditions. The Existing (2008) volumes are also shown for reference. As shown, the 2013 With Project condition would produce a pronounced peak hour from 13:30 to 14:30. The peak is higher and slightly in advance of the peak that would occur under the 2013 Without Project condition. It is likely that the peak is a result of the more rapid processing capability of the TBIT facility that allows passengers to reach the curbside at a faster rate and at an earlier time than would occur had the project not been constructed.

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[46] Official Airline Guide Database for June 17, 2009, Available: www.oag.com, accessed: August 11, 2008.

Figure 4.1-14 depicts the rolling hourly terminating passenger flows for total passengers comprised of TBIT passengers and passengers arriving from the other terminal facilities. The With Project peak hour volume is also higher than the Without Project condition.

Figure 4.1-15 depicts the rolling hourly departing passenger flows at the TBIT curbside during the 2013 With and Without Project conditions. As shown, the curves are very similar, which is expected given that the implementation of the project (which is limited to the improvement of arrivals facilities and processes) would not be anticipated to affect the time that a person would arrive at the airport to board a flight. **Figure 4.1-16** depicts the 2013 departures profiles for total passenger flows, which are also very similar under the With and Without Project conditions.

Table 4.1-13 summarizes the respective peak hour passenger volumes from the information depicted in **Figures 4.1-13** through **4.1-16**. In the cases where the peak TBIT and peak overall airport passenger activities occur during different time periods, it was found that these two periods would occur within a maximum of 40-minutes of each and the difference in total passenger volumes would be less than 3.5 percent. Since the difference in passenger volumes was determined to be minimal, the peak TBIT period (when TBIT volumes were higher) was used in the analysis to represent roadway conditions during both the TBIT peak hour and the overall airport peak hour.

Table 4.1-13

Summary of Originating and Terminating Passenger Activity During Traffic Analysis Periods

	TBIT Peak Hour				Overall Airport Peak Hour[1]			
Activity	**Peak Hour**	**TBIT**	**Other**	**Total**	**Peak Hour**	**TBIT**	**Other**	**Total**
Existing (2008)								
Departures	11:00 - 12:00	1,341	4,595	5,936	*11:10 - 12:10*	*1,311*	*4,666*	*5,976*
Arrivals	17:00 - 18:00	1,487	2,606	4,093	21:00-22:00	1,213	5,248	6,461
2013 With Project								
Departures	11:50 - 12:50	2,108	4,038	6,146	*11:20-12:20*	*1,925*	*4,430*	*6,355*
Arrivals	13:30 - 14:30	2,723	4,138	6,861	13:30-14:30	2,723	4,138	6,861
2013 Without Project								
Departures	11:50 - 12:50	2,045	4,038	6,083	*11:20-12:20*	*1,871*	*4,430*	*6,301*
Arrivals	13:40 - 14:40	2,223	4,070	6,293	*13:00-14:00*	*1,846*	*4,612*	*6,458*

[1] Overall airport peak hour volumes in italics were not simulated given that the TBIT volumes were greater during the TBIT peak hour and the total volumes during the overall peak hour were not materially different than during the TBIT peak hour (i.e., volumes were within 3.5% of the total volume during the TBIT peak hour).

Source: Ricondo & Associates, Inc., 2009.

Figure 4.1-17 provides a graphic representation of the peak hour passenger volumes that comprise the various Existing (2008) conditions as well as the 2013 With and Without Project conditions described above. The bar chart is intended to illustrate the relative differences in magnitude between the passenger volumes that are used to generate future roadway traffic volumes.

4.1.5.2 Determination of Future (2013) Traffic Volumes

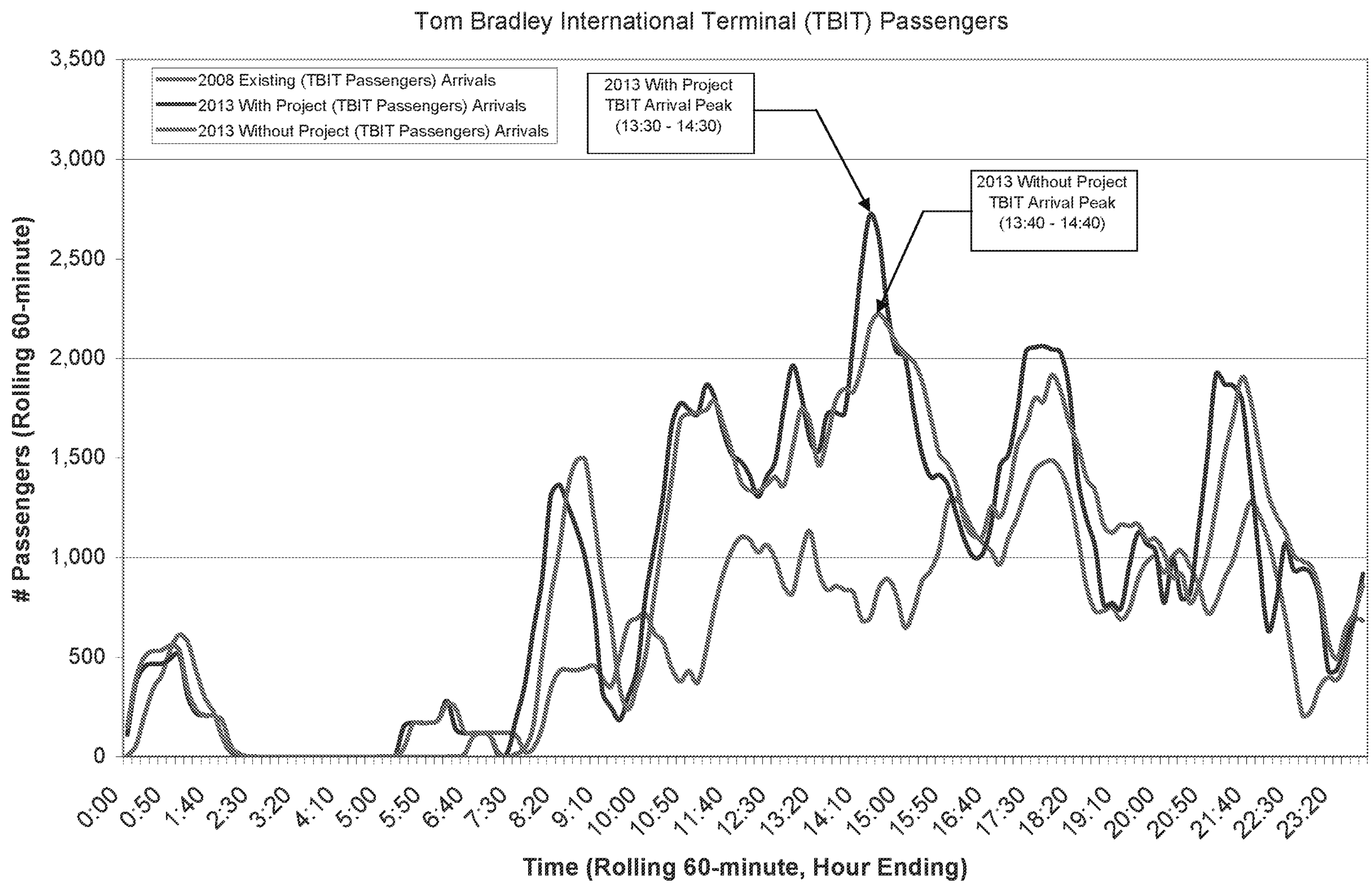
Using the calibrated roadway traffic models for the departures and arrivals peak hours developed for the Existing (2008) condition, estimated traffic volumes were generated for the two future conditions: 2013 With Project and 2013 Without Project using the peak hour passenger volumes identified in Section 4.1.5.1 above.

The projected originating and terminating passenger volumes derived from the airline passenger schedules were input into the model for the 2013 With and Without Project conditions to generate future roadway volumes during the TBIT and overall airport departures and arrivals peak hours. Generating future vehicle volumes using passenger schedules accounts only for passenger-related vehicle trips. Although passenger-related trips account for the overwhelming majority of vehicle trips on the CTA roadway network, other trips also occur during peak periods. These "other" trips include employee vehicles, public safety vehicles, and other not specified vehicle categories that are not directly attributed to airline passenger activity. These non-airline passenger trips, which are estimated to comprise a minor component of the overall CTA traffic activity (approximately 1.4 percent on the arrivals level and 2.5 percent on the departures level of the peak hour CTA traffic volumes), were accounted for and included as part of the calibrated roadway traffic model for both the TBIT and overall airport departures and arrivals peak hours. As traffic associated with these non-airline passenger components would not be expected to increase at the same rate as passenger trips, it was assumed that these "other" vehicle trips would remain constant through 2013. The "other" vehicle trips generated in the models were assigned unique travel routes through the terminal area access and circulation roadways, similar to the process used for passenger-related vehicle trips.

Estimated traffic volumes for each CTA roadway link for both the TBIT and overall airport departures and arrivals peak hours were generated for the 2013 With and Without Project conditions and are included in Appendix B of this EIR. It should be noted that, in addition to using the future conditions passenger volumes in the roadway models, the terminal and parking distributions were also updated in the model to reflect the new passenger distributions based on the future 2013 With and Without Project passenger schedules.

4.1.5.3 Determination of Future (2013) Traffic Impacts

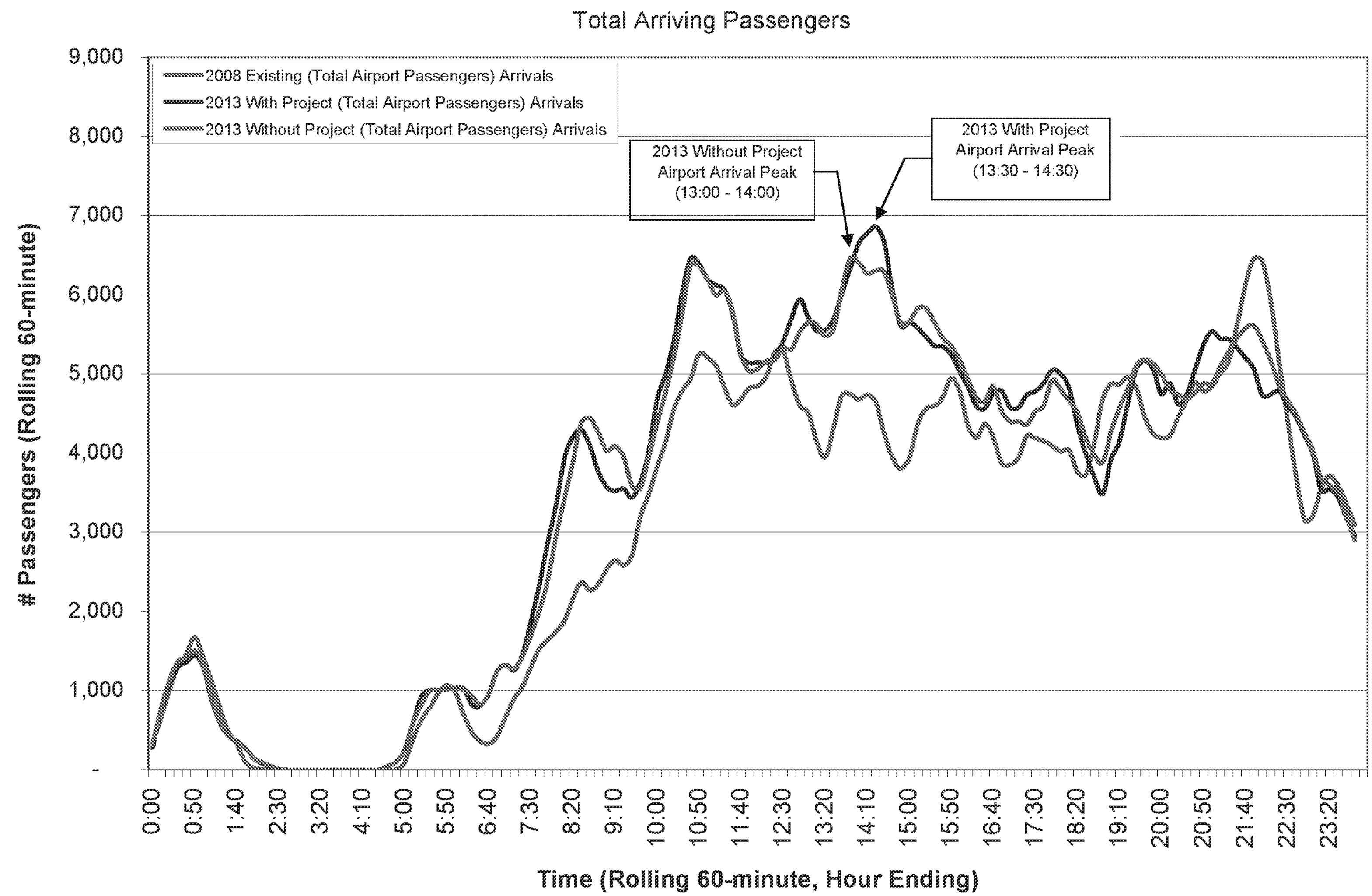
Similar to the Existing (2008) condition, the projected CTA roadway traffic volumes were used as inputs to the 2013 With and Without Project VISSIM model. This section describes how the results from the vehicle trip generation and VISSIM models were used to assess traffic conditions at the TBIT curbsides and at key CTA intersections and roadways for the 2013 With Project and Without Project conditions.



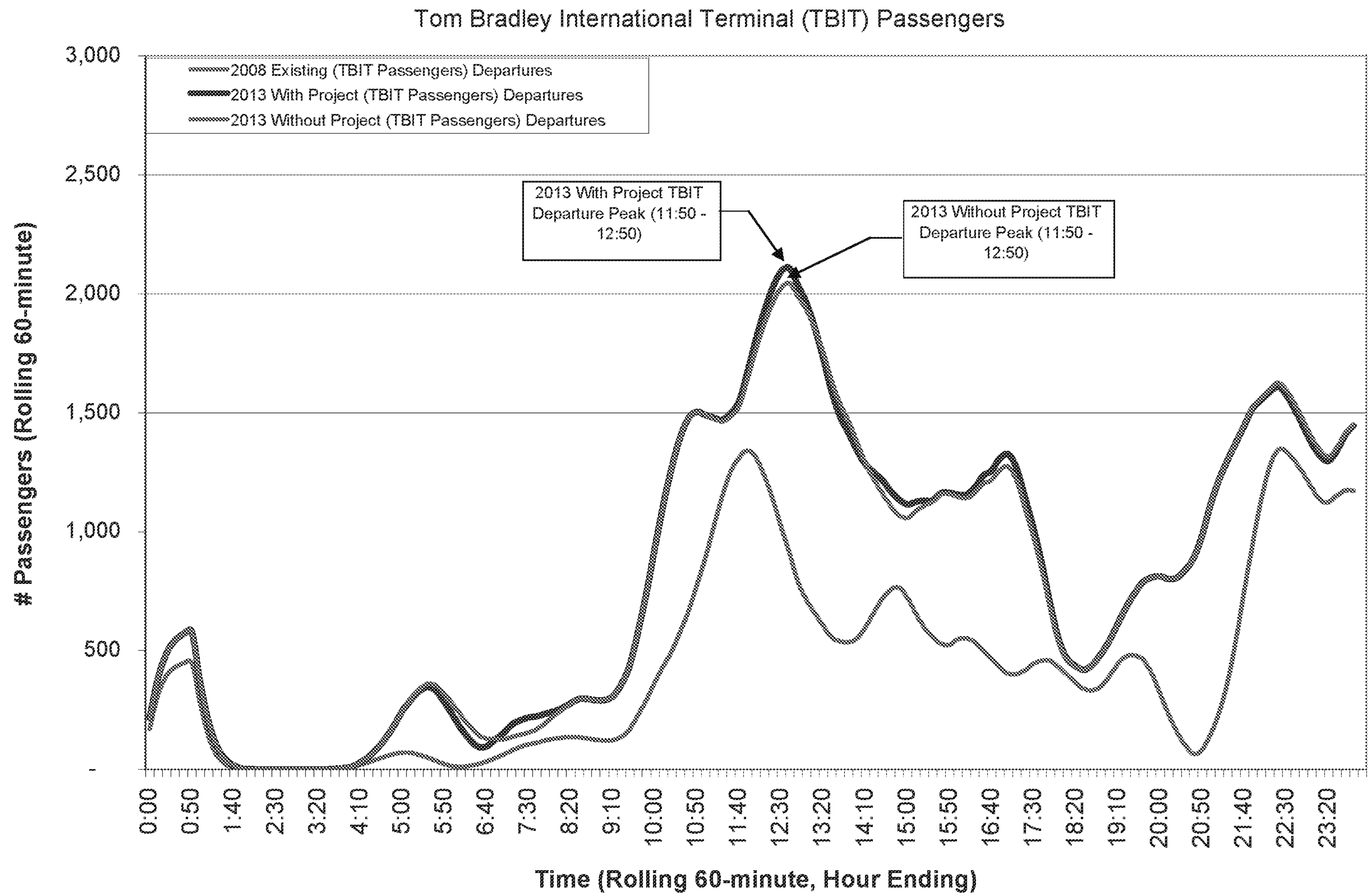
Sources: Jacobs Consultancy (Terminal Simulation); Ricondo & Associates, Inc., February 2009 (Passenger Schedules).
Prepared by: Ricondo & Associates, Inc., March 2009.

TBIT Terminating Passenger Flow at Curbside

Figure 4.1-13



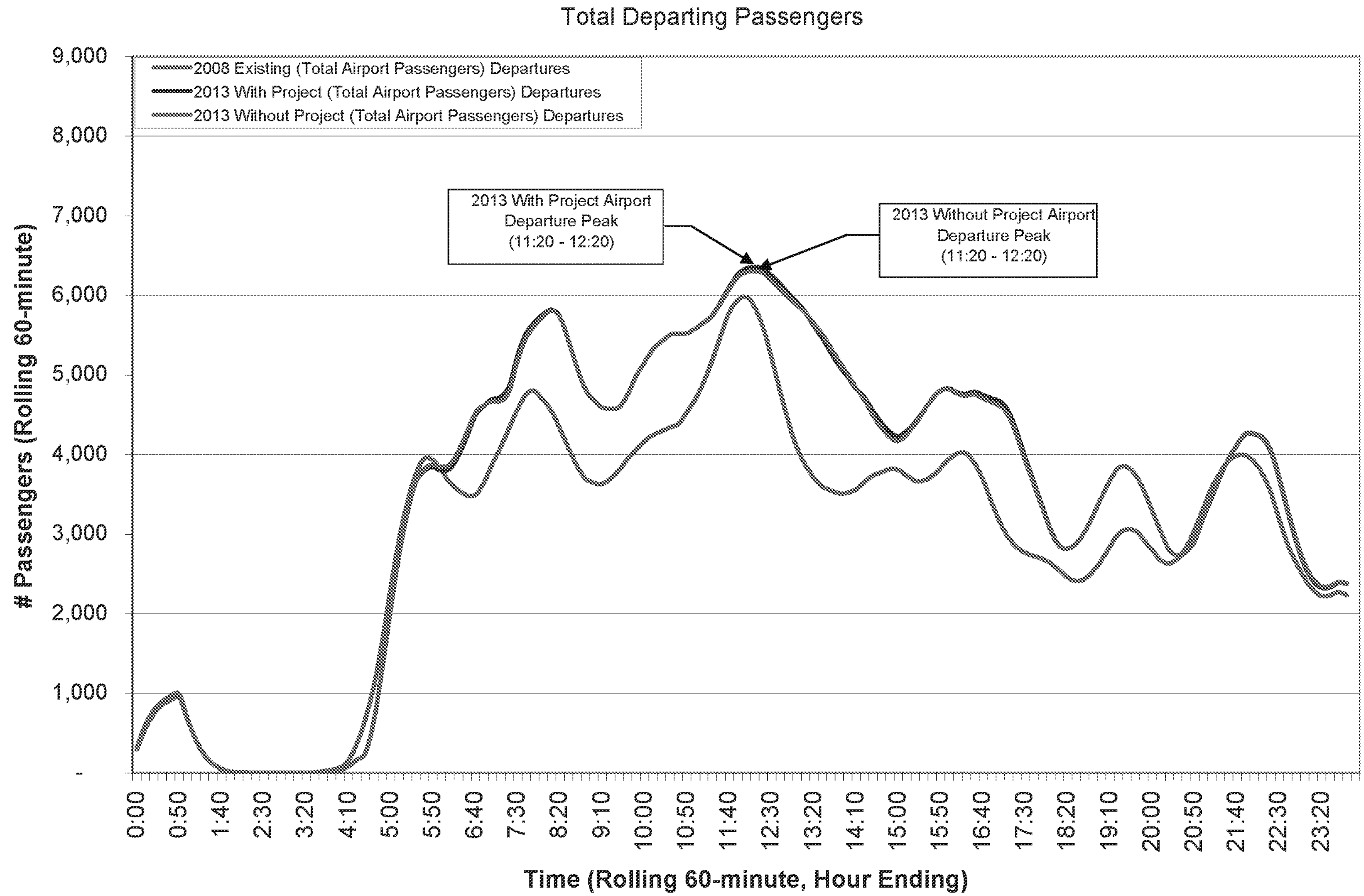
Sources: Jacobs Consultancy (TBIT Simulation); Ricondo & Associates, Inc., February 2009 (Passenger Schedules).
Prepared by: Ricondo & Associates, Inc., March 2009.



Sources: Jacobs Consultancy (Terminal Simulation); Ricondo & Associates, Inc., February 2009 (Passenger Schedules).
Prepared by: Ricondo & Associates, Inc., March 2009.

TBIT Departing Passenger Flow at Curbside

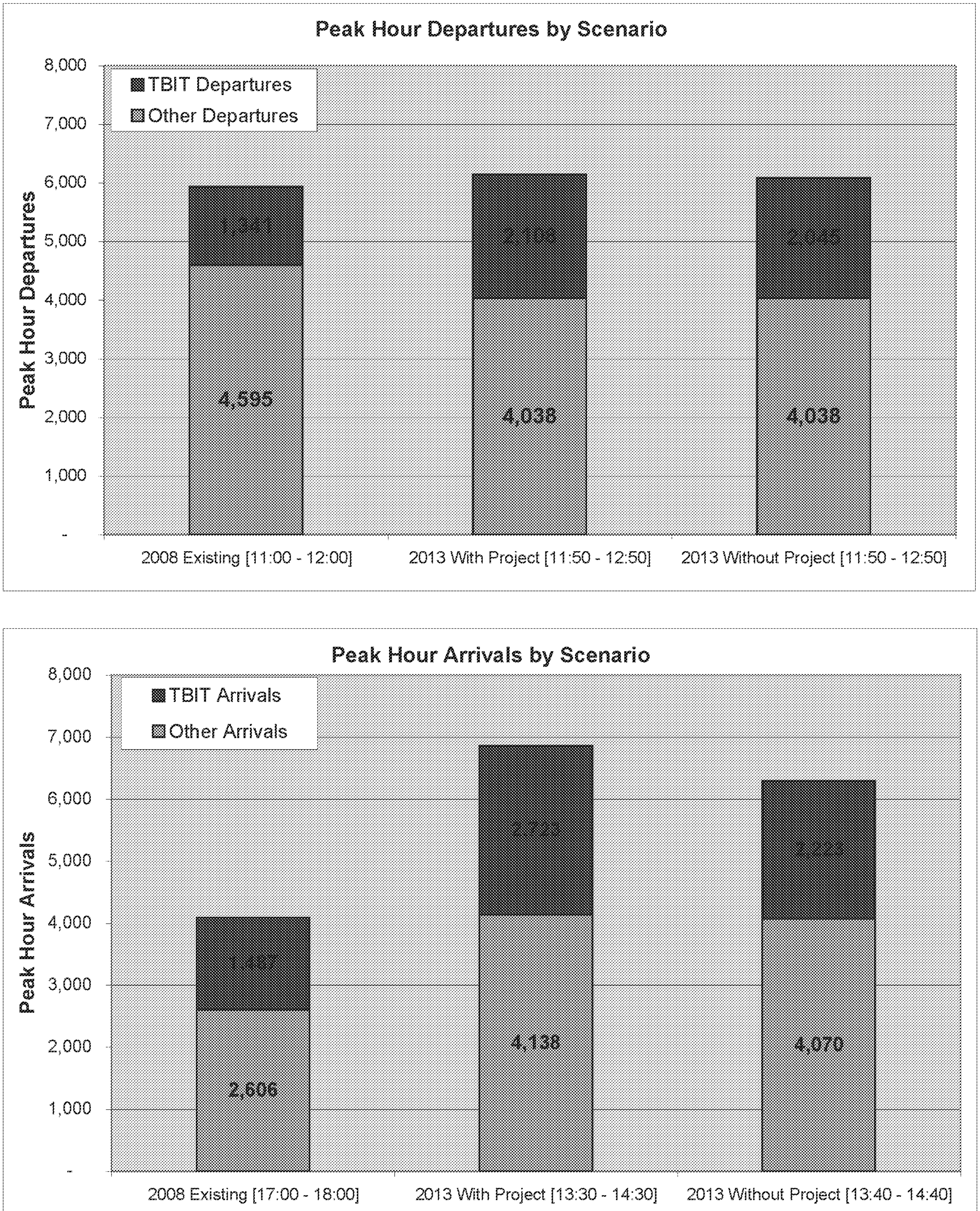
Figure
4.1-15



Source: Ricondo & Associates, Inc., February 2009.
Prepared by: Ricondo & Associates, Inc., March 2009.

Total Airport Departing Passenger Flow at Curbside

Figure 4.1-16



Source: Ricondo & Associates, Inc., March 2009.
Prepared by: Ricondo & Associates, Inc., March 2009.

LAX Bradley West Project Draft EIR	Departure and Arrival Peak Hour Volumes by Scenario	Figure 4.1-17

VISSIM Curbside Analysis

As discussed in Section 4.1.3.7, the VISSIM model provides a simulation of the anticipated traffic volumes accessing the curbside and the effects of the interaction of vehicles stopping and maneuvering within the terminal area curbside pick up and drop off zones during the peak hour conditions analyzed. The model simulates the anticipated congestion and traffic operations that would be expected considering the effects of peaking around terminal building doorways, curbside check-in counters, and other physical features of the curbside that affect driver decisions and resulting traffic operations.

Figure 4.1-18 provides a summary of the simulation results for the TBIT departures level curbside for the 2013 With Project condition during the TBIT departures peak hour (11:50 to 12:50). As shown, the curbside would operate within the LOS F range throughout the hour.

Figure 4.1-19 depicts the simulation results for the TBIT arrivals level curbsides for the 2013 With Project condition during the TBIT arrivals level peak hour (13:30 to 14:30). As shown, the inner curbside would operate within the LOS E to F range throughout the hour. The outer curbside, on average, would operate generally in the LOS A to B range.

Figure 4.1-20 depicts the simulation results for the TBIT departures level curbside for the 2013 Without Project condition during the TBIT departures peak hour (11:50 to 12:50). As shown, the curbside would operate within the LOS F range throughout the hour.

Figure 4.1-21 depicts the simulation results for the TBIT arrivals level curbsides for the 2013 Without Project condition during the TBIT arrivals level peak hour (13:40 to 14:40). As shown, the inner curbside would generally operate within the LOS E to F range throughout the hour. The outer curbside, on average, would operate generally in the LOS B to D range throughout the hour.

The average curbside utilization rates and corresponding level of service calculations for the scenarios listed above are summarized in **Table 4.1-14**.

Table 4.1-14

Curbside Analysis Results - 2013 With and Without Project

Roadway Level	Peak Period	Curbside Zone[1]	Utilization Rate	Volume/ Capacity	Level of Service
Future 2013 With Project					
Departures	TBIT	-	258%	1.289	F
	Overall Airport[2]	-	258%	1.289	F
Arrivals	TBIT	Inner	192%	0.962	E
		Outer (Average of all Modes)	56%	0.433	A
		LAX Shuttles (Z-1)	53%	0.408	A
		Rental car shuttles (Z-2)	70%	0.538	A
		FlyAway buses (Z-3)	17%	0.131	A
		Shared Ride vans (Z-4)	16%	0.123	A
		Hotel & parking courtesy shuttles (Z-5)	96%	0.738	C
	Overall Airport[2]	Inner	192%	0.962	E
		Outer (Average of all Modes)	56%	0.433	A
		LAX Shuttles (Z-1)	53%	0.408	A
		Rental car shuttles (Z-2)	70%	0.538	A
		FlyAway buses (Z-3)	17%	0.131	A
		Shared Ride vans (Z-4)	16%	0.123	A
		Hotel & parking courtesy shuttles (Z-5)	96%	0.738	C

Table 4.1-14

Curbside Analysis Results - 2013 With and Without Project

Roadway Level	Peak Period	Curbside Zone[1]	Utilization Rate	Volume/ Capacity	Level of Service
Future 2013 Without Project					
Departures	TBIT	-	258%	1.289	F
	Overall Airport[2]	-	258%	1.289	F
Arrivals	TBIT	Inner	198%	0.988	E
		Outer (Average of all Modes)	93%	0.712	C
		LAX Shuttles (Z-1)	69%	0.531	A
		Rental car shuttles (Z-2)	77%	0.592	B
		FlyAway buses (Z-3)	24%	0.185	A
		Shared Ride vans (Z-4)	58%	0.446	A
		Hotel & parking courtesy shuttles (Z-5)	219%	1.685	F
	Overall Airport[2]	Inner	198%	0.988	E
		Outer (Average of all Modes)	93%	0.712	C
		LAX Shuttles (Z-1)	69%	0.531	A
		Rental car shuttles (Z-2)	77%	0.592	B
		FlyAway buses (Z-3)	24%	0.185	A
		Shared Ride vans (Z-4)	58%	0.446	A
		Hotel & parking courtesy shuttles (Z-5)	219%	1.685	F

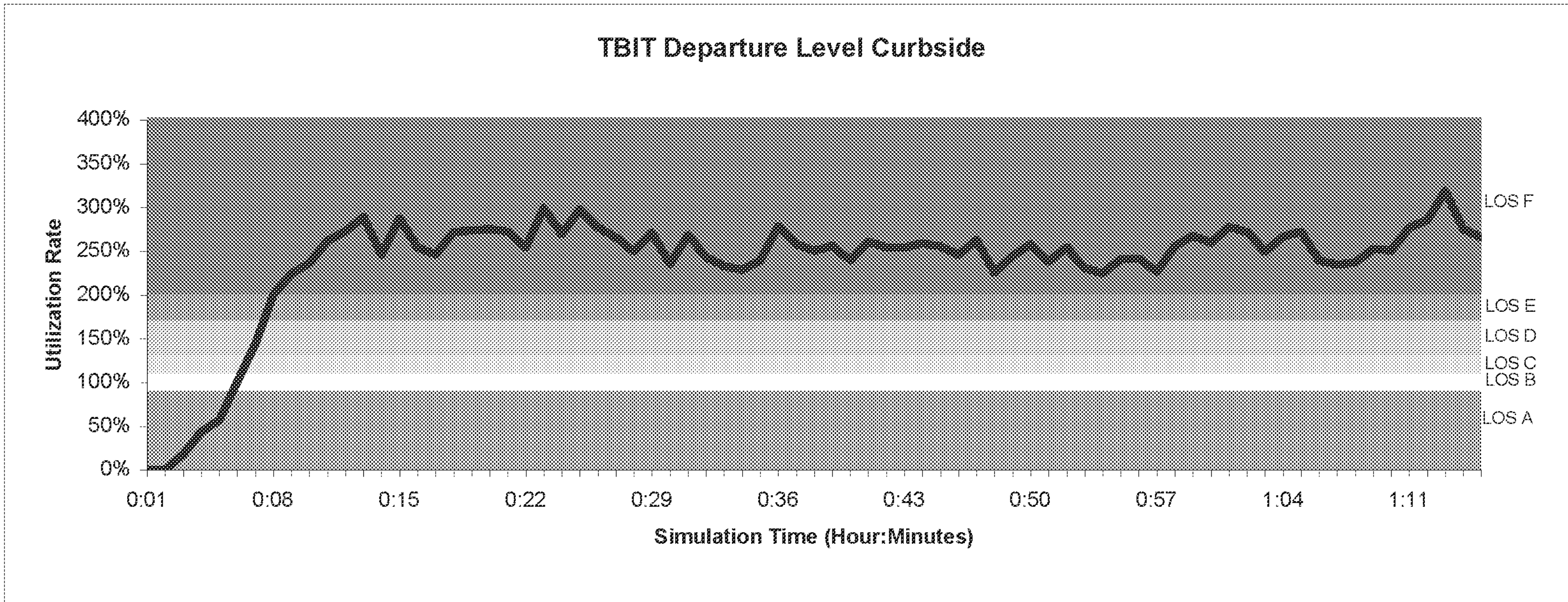
1 Parking Zones defined in Figure 4.1-9.
2 Total combined airport peak hour for all terminals.

Source: Ricondo & Associates, Inc., 2009.

For both the 2013 With and Without Project conditions for the TBIT departures peak hour, **Figures 4.1-18** and **4.1-20** show that the departures curbside would generally operate at an average LOS F. As discussed in Section 4.1.3.7, the two traffic signals at the pedestrian crosswalks along the TBIT departures curb affect curbside operations by restricting the ability for vehicles to depart the curbside zone, especially during busier periods.

For both the With and Without Project conditions for the TBIT arrivals peak hour, **Figures 4.1-19** and **4.1-21** show that the inner curbsides generally operate at a LOS E with peak periods in the LOS F range. In both the With and Without Project scenarios, the simulation indicated increased congestion along the arrivals level roadways. The simulation also indicated the congestion along the arrivals level roadways would be greater for the With Project condition than for the Without Project condition. A review of the simulation concluded the higher number or vehicles attempting to access the TBIT curbside in the With Project condition generated the increased congestion both immediately prior to TBIT and in front of Terminals 2 and 3 along the outer roadway.

The simulation revealed the congestion in front of TBIT was a function of vehicles attempting to access the inner TBIT curbside being delayed due to congestion from the inner curbside roadway which generated "spill back" onto the outer curbside roadway. Access to the inner curbside at TBIT is limited to a single lane connector roadway between the inner and outer curbsides. This simulation indicated the connector roadway was unable to process a number of vehicles trying to access the inner curbside, even with the assumption that a proportion of the TBIT vehicles would use an "upstream" connector roadway to access the inner curbside at Terminal 3. Congestion along the outer curbside roadway prior to the median opening was compounded by the interaction of weaving vehicles attempting to access the inner TBIT curbside and commercial vehicles operating along the outer curbside between Terminal 3 and TBIT. The increased congestion on the outer curbside roadway which extends from the TBIT back to Terminal 2 resulted in fewer vehicles being able to access TBIT during the peak hour. As a result, the volume to capacity ratio for the With Project condition was calculated to be slightly better (.962 versus .988) compared to the Without Project condition as shown in **Table 4.1-14**.

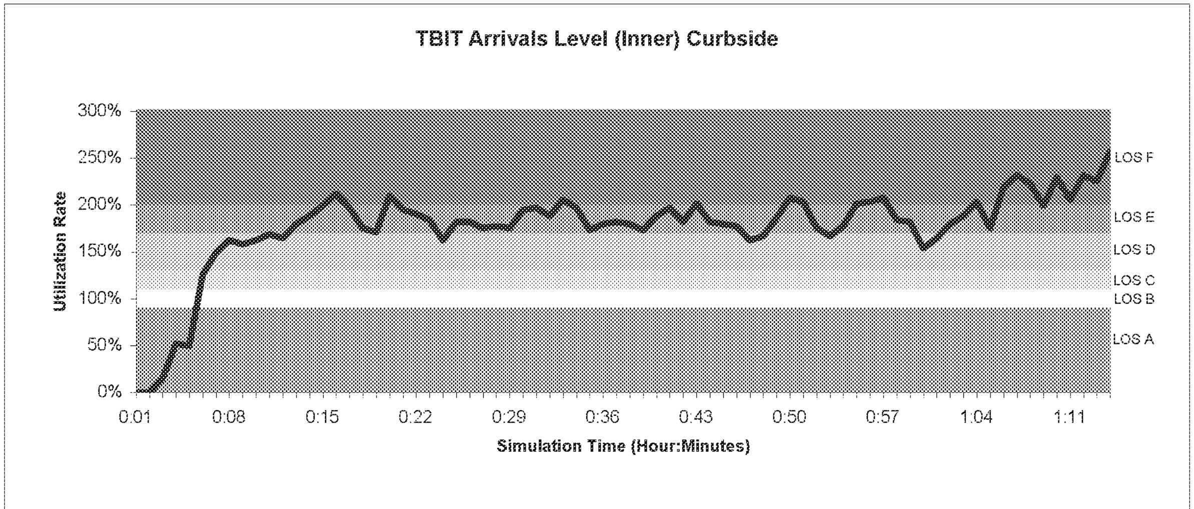


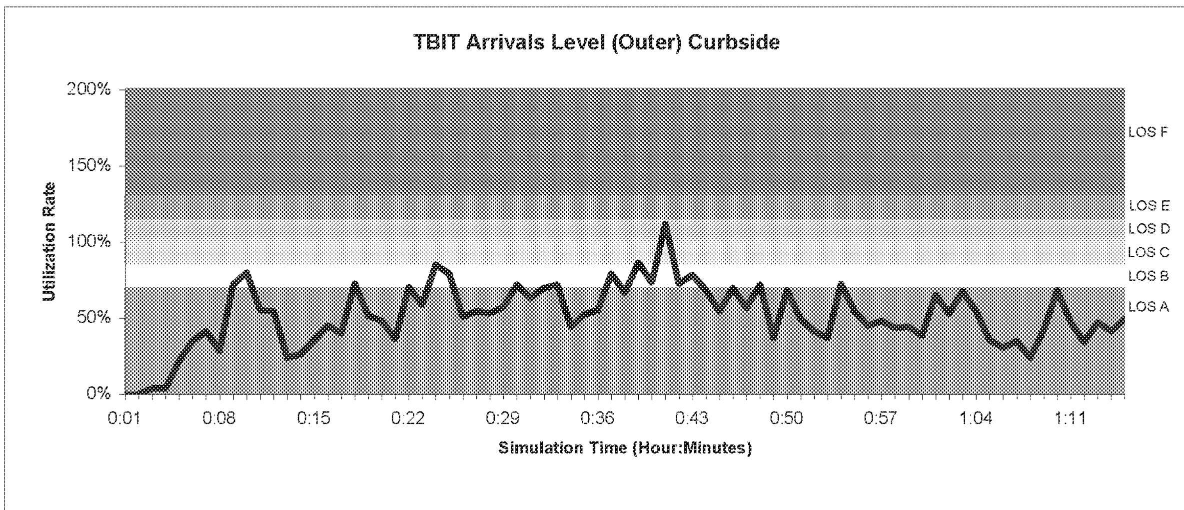
Note: Represents activity during the TBIT departures peak hour from 11:50 to 12:50

Source: Ricondo & Associates, Inc., February 2009.
Prepared by: Ricondo & Associates, Inc., March 2009.

TBIT Departures Level Curbside Level of Service – 2013 With Project

Figure
4.1-18





Note: Represents activity during the TBIT arrivals peak hour from 13:30 to 14:30

Source: Ricondo & Associates, Inc., February 2009.
Prepared by: Ricondo & Associates, Inc., March 2009.

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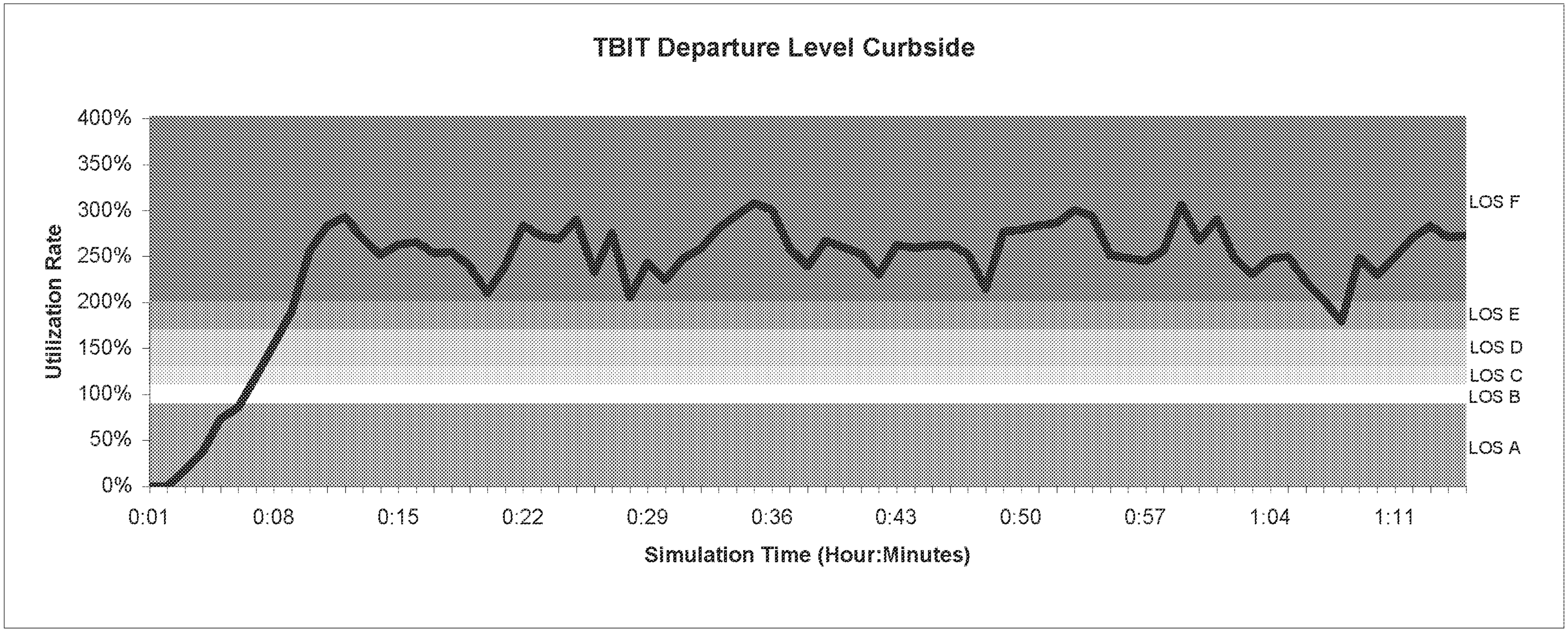
TBIT Arrivals Level Curbside Level of Service – 2013 With Project

Figure 4.1-19

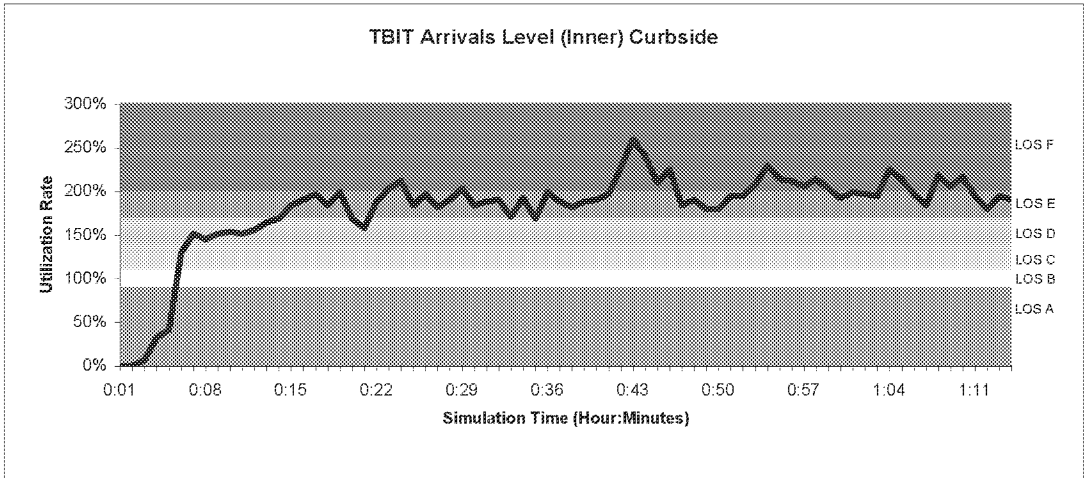


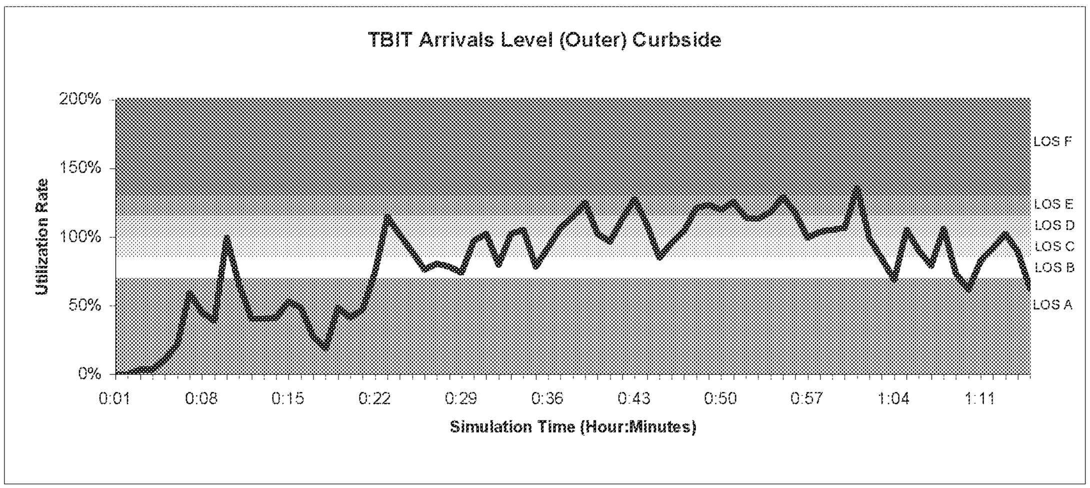
Note: Represents activity during the TBIT departures peak hour from 11:50 to 12:50

Source: Ricondo & Associates, Inc., February 2009.
Prepared by: Ricondo & Associates, Inc., March 2009.

TBIT Departures Level Curbside Level of Service – 2013 Without Project

Figure
4.1-20





Note: Represents activity during the TBIT arrivals peak hour from 13:40 to 14:40

Source: Ricondo & Associates, Inc., February 2009.
Prepared by: Ricondo & Associates, Inc., March 2009.

TBIT Arrivals Level Curbside Level of Service – 2013 Without Project

Figure 4.1-21

Table 4.1-15

CTA Signalized Intersection Turning Movement Volumes and Level of Service Analysis - 2013 With and Without Project

		Northbound			Southbound			Eastbound			Westbound				
Intersection	**Peak Hour[3]**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**V/C[1]**	**LOS[2]**
2013 With Project															
1. World Way North and Sky Way (Upper Level)	TBIT/Overall Departures						780					1903		0.535	A
2. World Way South and West Way (Upper Level)	TBIT/Overall Departures				325				1923					0.596	A
3. World Way South and East Way (Upper Level)	TBIT/Overall Departures				130			133	2102					0.149	A
4. World Way North and Sky Way (Lower Level)	TBIT/Overall Arrivals	372	214				696					3054		0.688	B
5. East Way and World Way South (Lower Level)	TBIT/Overall Arrivals				266			294	2428					0.320	A
6. Center Way and ramp from upper level roadway near Administration Building (Lower Level)	TBIT/Overall Arrivals				378				2037					0.645	B
7. Center Way and East Way (Lower Level)	TBIT/Overall Arrivals		294			266		91	1635					0.173	A
8. Center Way and West Way (Lower Level)	TBIT/Overall Arrivals		92			404	112		1191					0.510	A
9. Center Way and World Way South (Lower Level)	TBIT/Overall Arrivals	589	1270	927				65	1370	1000				1.058	F
2013 Without Project															
1. World Way North and Sky Way (Upper Level)	TBIT/Overall Departures						773					1884		0.530	A
2. World Way South and West Way (Upper Level)	TBIT/Overall Departures				325				1900					0.591	A
3. World Way South and East Way (Upper Level)	TBIT/Overall Departures				130			132	2081					0.148	A
4. World Way North and Sky Way (Lower Level)	TBIT/Overall Arrivals	366	211				649					2801		0.643	B
5. East Way and World Way South (Lower Level)	TBIT/Overall Arrivals				249			267	2201					0.294	A
6. Center Way and ramp from upper level roadway near Administration Building (Lower Level)	TBIT/Overall Arrivals				380				1872					0.606	B
7. Center Way and East Way (Lower Level)	TBIT/Overall Arrivals		267			249		75	1473					0.152	A
8. Center Way and West Way (Lower Level)	TBIT/Overall Arrivals		81			404	95		1049					0.484	A
9. Center Way and World Way South (Lower Level)	TBIT/Overall Arrivals	559	1186	851				62	1274	915				0.978	E

1 Volume to capacity ratio.
2 Level of Service range: A (excellent) to F (failure).
3 The overall airport peak hour was not analyzed given that the TBIT component of the volume was greater and the overall volumes were of similar magnitude (within 3.5% of the TBIT peak hour volume).

Source: Ricondo & Associates, Inc., using TRAFFIX, January 2009.

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CTA Intersection Analysis

As discussed in the Section 4.1.3.7, key CTA roadway intersections were analyzed using the Circular 212 Critical Movement Analysis methodology. The analysis evaluated the projected operating conditions using the CTA roadway traffic volumes for 2013 With and Without Project conditions, as provided in **Table 4.1-15** for the TBIT and overall airport peak departures and arrivals hours. The vehicle turning movement volumes were projected using the vehicle trip generation and distribution models for each scenario.

As was the case with the Existing (2008) intersection analysis, the levels of service definitions for the CMA methodology presented in **Table 4.1-9** were used and the results are provided in **Table 4.1-15**. With the exception of the intersection of Center Way and World Way South, which is projected to operate at LOS F and E, all other intersections for both the With Project and the Without Project conditions are anticipated to operate at LOS B or better.

CTA Roadway Link Analysis

Key CTA roadway links were analyzed to identify potential points of congestion along the CTA roadway network. The results of the analysis are summarized in **Table 4.1-16**. As shown in **4.1-16**, World Way North at Terminal 1 is anticipated to operate at LOS F conditions on both the upper and lower level roadways during either the With or Without Project conditions. In addition, World Way South at TBIT is anticipated to operate at LOS F conditions on the lower level roadway during either the With or Without Project conditions.

Table 4.1-16

Level of Service Results (CTA Roadway Links) - 2013 With and Without Project

			2013 Without Project			2013 With Project		
Level/Link Location	**Peak Period**	**Capacity**	**Volume**	**V/C**	**LOS**	**Volume**	**V/C**	**LOS**
Departures								
World Way North At Terminal 1 (Entry)	TBIT	2,470	2,657	1.076	F	2,683	1.086	F
World Way North At Terminal 1 (Entry)	Overall Airport	2,470	2,657	1.076	F	2,683	1.086	F
World Way South at TBIT	TBIT	2,470	2,171	0.879	D	2,199	0.890	D
World Way South at TBIT	Overall Airport	2,470	2,171	0.879	D	2,199	0.890	D
World Way South at Terminal 7/8 (Exit)	TBIT	2,470	2,219	0.898	D	2,240	0.907	E
World Way South at Terminal 7/8 (Exit)	Overall Airport	2,470	2,219	0.898	D	2,240	0.907	E
Arrivals								
World Way North At Terminal 1 (Entry)	TBIT	3,320	3,757	1.132	F	4,063	1.224	F
World Way North At Terminal 1 (Entry)	Overall Airport	3,320	3,757	1.132	F	4,063	1.224	F
World Way South at TBIT	TBIT	2,470	3,017	1.221	F	3,263	1.321	F
World Way South at TBIT	Overall Airport	2,470	3,017	1.221	F	3,263	1.321	F
World Way South at Terminal 7/8 (Exit)	TBIT	3,320	2,597	0.782	C	2,786	0.839	D
World Way South at Terminal 7/8 (Exit)	Overall Airport	3,320	2,597	0.782	C	2,786	0.839	D

Source Ricondo & Associates, Inc., 2009.

4.1.6 CEQA Thresholds of Significance

To assess impacts at the TBIT curbsides and CTA intersections and roadway links, LOS thresholds defined within the LADOT Traffic Study Policy and Procedures[47] were used to determine if an impact was generated by the project.

[47] Los Angeles Department of Transportation, Traffic Study Policies and Procedures, Revised March 2002.

However, because thresholds of significance are not defined for airport curbsides, for the purpose of this analysis, these thresholds were adapted for use in assessing on-airport curbside impacts. Based on the LADOT definition, an impact is considered to be significant if one of the following thresholds is met or exceeded:

- The LOS is C, its final V/C ratio is 0.701 to 0.800, and the project-related increase in V/C is 0.040 or greater, or
- The LOS is D, its final V/C ratio is 0.801 to 0.900, and the project-related increase in V/C is 0.020 or greater, or
- The LOS is E or F, its final V/C ratio is 0.901 or greater, and the project-related increase in V/C is 0.010 or greater.

The "final V/C ratio" as defined by LADOT consists of the future V/C ratio at an intersection that includes volume from the project, existing (2008) traffic, ambient background growth,[48] and other related projects, but without proposed traffic mitigation as potentially required for the project. The project-related increase is defined as the change in V/C between the future V/C ratio with project, ambient and related project growth but without proposed traffic mitigation and the future V/C ratio with ambient and related project growth but without project and proposed traffic mitigation. (i.e., the change in the unmitigated LOS condition between [a] the V/C for Future (2013) With Project conditions, and [b] the V/C for Future (2013) Without Project conditions).

The LADOT thresholds listed above are designed for assessing impacts associated with intersections and roadways where the V/C ranges are based on an established scale between 0.000 and 1.000 (i.e., capacity), with the interim LOS ranges (e.g., LOS B to C, LOS C to D) increasing in increments of 0.1. LADOT does not have a defined methodology for analyzing airport curbsides. In addition, curbside level of service ranges are based on utilization factors (not V/C ranges) that do not increase at the same incremental rates as V/C rates for roadways and intersections. However, to maintain consistency with the LADOT impact criteria, an equivalent V/C scale was developed to present the results of the curbside analysis. **Table 4.1-17** provides the level of service impact thresholds for curbsides and their comparison to the V/C ranges for intersections and roadway links. As shown in **Table 4.1-17**, the V/C for curbside operations within a specific LOS range is lower than the V/C for intersections and roadway links. This is a conservative measure in that potential curbside impacts would be realized at a lower V/C level as compared with intersections and roadway links.

48 As discussed above, all growth in TBIT-related traffic activity anticipated to occur from 2008 to 2013 is assumed to be related to the Bradley West Project for the purposes of determining the project specific impacts and the proposed project's contribution to cumulative impacts. The non-project component of the cumulative traffic condition only includes traffic generated from the other passenger terminals as no other "projects" would contribute traffic to the CTA roadway system.

Table 4.1-17

Level of Service Impact Thresholds for On-Airport Curbside Operations

LOS	Intersection and roadway link V/C		Multi-lane passenger loading/unloading allowed		Single lane passenger loading/unloading	
Curbside Utilization (Linear curbside demand/available length)						
A			0.00	0.90	0.00	0.70
B			0.91	1.10	0.71	0.85
C			1.11	1.30	0.86	1.00
D			1.31	1.70	1.01	1.15
E			1.71	2.00	1.16	1.30
F			2.10	or greater	1.31	or greater
Curbside equivalent V/C ratios						
A	0.000	0.600	0.00	0.45	0.00	0.54
B	0.601	0.700	0.46	0.55	0.55	0.65
C	0.701	0.800	0.56	0.65	0.66	0.77
D	0.801	0.900	0.66	0.85	0.78	0.88
E	0.901	1.000	0.86	1.00	0.89	1.00
F	1.001	or greater	1.01	or greater	1.01	or greater

Source: Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980; Ricondo & Associates, Inc. developed based on information published by the Transportation Research Board and Federal Aviation Administration Advisory Circular 150/5360-13, Planning and Design Guidelines, January 19, 1994.

For the purpose of this study, project impacts were determined for both the TBIT curbside and the CTA intersections and roadway links by comparing the level of service results for Future (2013) With Project conditions and Future (2013) Without Project conditions.

4.1.7 LAX Master Plan Commitments and Mitigation Measures

The following transportation-related Master Plan mitigation measure identified in the LAX Master Plan Mitigation Monitoring and Report Program is applicable to the Bradley West Project and thus is included as part of the project for the purposes of environmental review:

- **MM-AQ-3. Transportation-Related Mitigation Measure**: The primary feature of the transportation-related air quality 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 currently operated by LAWA. The intent of these FlyAway sites is to reduce the quantity of traffic going to and from LAX by providing regional locations where LAX employees and passengers can pick up an LAX-dedicated, clean-fueled bus that will transport them from a FlyAway closer to their home or office into LAX and back.

  Since publication of the LAX Master Plan Final EIR (2004), LAWA has developed two additional FlyAway sites: one at Union Station in downtown Los Angeles which opened in March 2006; and, one at Westwood Village/UCLA which opened in June 2007.

4.1.8 Impact Analysis

In accordance with CEQA Guidelines and as described previously in Section 4.1.2, potential traffic-related impacts pertaining to the development and operation of the Bradley West Project were assessed by conducting the impact comparison described in the following section.

4.1.8.1 Future (2013) With Project Conditions Measured Against Future (2013) Without Project Conditions

This comparison focuses on the change in traffic conditions in 2013 when the proposed TBIT improvements are completed, as measured against the conditions that would occur in 2013 without the proposed project. A significant impact is realized when the thresholds of significance defined in Section 4.1.6 above are met or exceeded.

TBIT Curbside Impacts

The impact comparison for the TBIT curbside under this condition is depicted in **Table 4.1-18**. The associated level of service worksheets for the intersection analysis are provided in Appendix B of this EIR.

Table 4.1-18

Level of Service Results (TBIT Curbside) - Future (2013) Conditions

Level/ Peak Period	Curbside	Shuttle	2013 Without Project V/C	2013 Without Project LOS[1]	2013 With Project V/C	2013 With Project LOS[1]	Change in V/C	Significant Impact?
Departures								
TBIT			1.289	F	1.289	F	0.000	No
Overall Airport			1.289	F	1.289	F	0.000	No
Arrivals								
TBIT	Inner		0.988	E	0.962	E	(0.026)	No
	Outer	LAX Shuttles	0.531	A	0.408	A	(0.123)	No[2]
		Rental Car Shuttles	0.592	B	0.538	A	(0.054)	No[2]
		FlyAway Buses	0.185	A	0.131	A	(0.054)	No[2]
		Shared Ride Vans	0.446	A	0.123	A	(0.323)	No[2]
		Hotel/Parking Shuttles	1.685	F	0.738	C	(0.947)	No[2]
Overall Airport	Inner		0.988	E	0.962	E	(0.026)	No[2]
	Outer	LAX Shuttles	0.531	A	0.408	A	(0.123)	No[2]
		Rental Car Shuttles	0.592	B	0.538	A	(0.054)	No[2]
		FlyAway Buses	0.185	A	0.131	A	(0.054)	No[2]
		Shared Ride Vans	0.446	A	0.123	A	(0.323)	No[2]
		Hotel/Parking Shuttles	1.685	F	0.738	C	(0.947)	No[2]

[1] Level of Service range: A (excellent) to F (failure).
[2] Congestion upstream of TBIT produces a metering effect that results in a better With Project level of service as compared to Without Project conditions.

Source: Ricondo & Associates, Inc., 2009.

As shown in **Table 4.1-18**, the Future (2013) With Project traffic conditions compared to the Future (2013) Without Project traffic conditions would not result in a significant impact to TBIT curbside operations.

On the departures level, both the With and Without Project conditions would result in the same LOS; therefore, the anticipated effect of the project under this analysis would not be significant. On the arrivals level, curbside LOS With Project would be generally better than the Without Project condition. This is because the increased traffic volume associated with the project in combination with traffic from the other terminals results in increased congestion "upstream" of TBIT. This congestion creates a metering effect that reduces traffic congestion at the TBIT curbside.

CTA Intersection Impacts

As shown in **Table 4.1-19**, it is anticipated that the Future (2013) With Project traffic conditions compared to Future (2013) Without Project traffic conditions would produce significant impacts at the following intersection:

- Center Way and World Way South during the TBIT arrivals peak period and the overall airport arrivals peak period.

Table 4.1-19

Level of Service Results (CTA Intersections) - Future (2013) Conditions

Level/Intersection	Peak Period	2013 Without Project V/C[1]	2013 Without Project LOS[2]	2013 With Project V/C[1]	2013 With Project LOS[2]	Change in V/C	Significant Impact?
Departures							
World Way North and Sky Way	TBIT	0.53	A	0.535	A	0.005	No
	Overall Airport	0.53	A	0.535	A	0.005	No
World Way South and West Way	TBIT	0.591	A	0.596	A	0.005	No
	Overall Airport	0.591	A	0.596	A	0.005	No
World Way South and East Way	TBIT	0.148	A	0.149	A	0.001	No
	Overall Airport	0.148	A	0.149	A	0.001	No
Arrivals							
World Way North and Sky Way	TBIT	0.643	B	0.688	B	0.045	No
	Overall Airport	0.643	B	0.688	B	0.045	No
East Way and World Way South	TBIT	0.294	A	0.32	A	0.026	No
	Overall Airport	0.294	A	0.32	A	0.026	No
Center Way & ramp from upper	TBIT	0.606	B	0.645	B	0.039	No
level rdwy. near Admin. Bldg	Overall Airport	0.606	B	0.645	B	0.039	No
Center Way and East Way	TBIT	0.152	A	0.173	A	0.021	No
	Overall Airport	0.152	A	0.173	A	0.021	No
Center Way and West Way	TBIT	0.484	A	0.51	A	0.026	No
	Overall Airport	0.484	A	0.51	A	0.026	No
Center Way and World Way South	TBIT	0.978	E	1.058	F	0.080	Yes
	Overall Airport	0.978	E	1.058	F	0.080	Yes

1 V/C (Volume/Capacity) calculations performed using TRAFFIX.
2 Level of Service range: A (excellent) to F (failure).

Source: Ricondo & Associates, Inc., 2009.

CTA Roadway Link Impacts

As shown in **Table 4.1-20** it is anticipated that the Future (2013) With Project traffic conditions, compared to Future (2013) Without Project traffic conditions, would produce significant traffic impacts on the following roadway links:

- World Way North at Terminal 1 on the departures level during both the TBIT and overall airport peak hours
- World Way North at Terminal 1 on the arrivals level during both the TBIT and overall airport peak hours
- World Way South at TBIT on the arrivals level roadway during both the TBIT and overall airport peak periods.
- World Way South at Terminal 7/8 on the arrivals level roadway during both the TBIT and overall airport peak periods.

Table 4.1-20

Level of Service Results (CTA Roadway Links) - Future (2013) Conditions

Level/Link Location	Peak Period	Capacity	LOS	2013 Without Project Volume	2013 Without Project V/C	2013 Without Project LOS	2013 With Project Volume	2013 With Project V/C	2013 With Project LOS	Change in V/C	Significant Impact?
Departures											
World Way North At Terminal 1 (Entry)	TBIT	2,470	F	2,657	1.076	F	2,683	1.086	F	0.011	Yes
World Way North At Terminal 1 (Entry)	Overall Airport	2,470	F	2,657	1.076	F	2,683	1.086	F	0.011	Yes
World Way South at TBIT	TBIT	2,470	C	2,171	0.879	D	2,199	0.890	D	0.011	No
World Way South at TBIT	Overall Airport	2,470	C	2,171	0.879	D	2,199	0.890	D	0.011	No
World Way South at Terminal 7/8 (Exit)	TBIT	2,470	D	2,219	0.898	D	2,240	0.907	E	0.009	No
World Way South at Terminal 7/8 (Exit)	Overall Airport	2,470	D	2,219	0.898	D	2,240	0.907	E	0.009	No
Arrivals											
World Way North At Terminal 1 (Entry)	TBIT	3,320	D	3,757	1.132	F	4,063	1.224	F	0.092	Yes
World Way North At Terminal 1 (Entry)	Overall Airport	3,320	F	3,757	1.132	F	4,063	1.224	F	0.092	Yes
World Way South at TBIT	TBIT	2,470	D	3,017	1.221	F	3,263	1.321	F	0.100	Yes
World Way South at TBIT	Overall Airport	2,470	F	3,017	1.221	F	3,263	1.321	F	0.100	Yes
World Way South at Terminal 7/8 (Exit)	TBIT	3,320	A	2,597	0.782	C	2,786	0.839	D	0.057	Yes
World Way South at Terminal 7/8 (Exit)	Overall Airport	3,320	C	2,597	0.782	C	2,786	0.839	D	0.057	Yes

Source: Ricondo & Associates, Inc., 2009.

4.1.9 Mitigation Measures

As described above, the Bradley West Project would produce significant project-related impacts at one of the key CTA intersections (Center Way and World Way South) and along each of the roadway links analyzed. The following mitigation measures comprised of physical and operational enhancements are proposed to address estimated significant project-related intersection and roadway link impacts.

- **MM-ST (BWP)-1. Trip Reduction Measures.**

  LAWA will implement the following trip reduction measures:

  (a) Continue to promote and expand the FlyAway services in accordance with LAX Master Plan Mitigation Measure MM-AQ-3. It is anticipated that the continued expansion of the FlyAway service will promote a shift in mode-share away from the private vehicle mode which would reduce traffic volume using the CTA roadway system.

  (b) Continue to promote the consolidation of shuttle services (e.g., hotel/motel, off-airport parking, rental cars) or programs to reduce trips associated with these modes.

- **MM-ST (BWP)-2. Improve the Intersection of Center Way and World Way South.**

  Widen World Way South approach on the east side of the roadway to provide an additional right turn lane. The resulting configuration would be a single left turn lane, one through-left turn lane, two through lanes, and two right turn lanes.

  As noted in **Table 4.1-19**, during the Future (2013) Without Project overall airport peak hour the intersection of Center Way and World Way South operates at a V/C of 0.978 which is LOS E. As described in Section 4.1.6, with an intersection operating at a LOS E condition, the volume to capacity ratio can be increased by 0.01 without generating an impact. This equates to an increase in the intersection's V/C ratio from 0.978 to 0.988, or approximately 1.1 percent (i.e., 0.988/0.978) in the critical movement traffic volume without triggering an impact. LAWA will monitor traffic conditions at this intersection to determine when an estimated impact has been "triggered" in accordance with the LOS thresholds described above. Specifically, LAWA will monitor future CTA average daily traffic volumes (refer to **Table 4.1-2**) in August to determine when CTA average daily traffic volumes have increased by more than 1.1 percent relative to the Future (2013) Without Project average daily traffic volumes. In addition, LAWA will record turning movement volumes at this intersection annually during the airport's peak month (August). When the August average daily CTA volumes have increased by 1.1 percent as compared to the Future (2013) Without Project estimated volume, LAWA will complete a V/C analysis using the same intersection methodology described in Section 4.1.3.7 of this section to determine if an impact has occurred. The mitigation measure would be constructed once both (a) the CTA average daily traffic volumes are 1.1 percent greater than the Future (2013) Without Project and (b) the V/C for the intersection meets or exceeds 0.988. The intersection analysis would be subject to approval by LADOT regarding timing of the mitigation measure.

- **MM-ST (BWP)-3. Widen World Way Across from TBIT.**

  Widen the arrivals-level outer roadway across from TBIT by changing the left-most lane that currently terminates at Center Way to a through/left lane and extending this lane to World Way South. This improvement will result in increased capacity on the outer roadway and reduced delay for vehicles that experience upstream CTA roadway congestion as defined previously in Section 4.1.5.3.

4.1.10 Level of Significance After Mitigation

The potential mitigation measures and resulting level of service based on the improved conditions are presented in **Table 4.1-21**. As shown in **Table 4.1-21**, it is anticipated that the proposed mitigation measures described above would result in the following operational benefits:

Table 4.1-21

Summary of Proposed Measures to Mitigate Potentially Significant Impacts

Estimated Impacts	Mitigation Measures	Peak Period	Project (Un-mitigated) Significant?	LOS[2]	Project (Un-mitigated) V/C[1]	LOS[2]	Project (Mitigated) V/C[1]	LOS[2]	Reduced to Less than Significant
Intersection									
Center Way & World Way South	MM-ST (BWP)-2	TBIT	0.978	E	1.058	F	0.869	D	Yes
		Overall Airport	0.978	E	1.058		0.869	D	Yes
Roadways Links									
Departures Level									
World Way North At Terminal 1 (Entry)	MM-ST (BWP)-1	TBIT	1.051	F	1.086	F	[3]	[3]	[3]
World Way North At Terminal 1 (Entry)	MM-ST (BWP)-1	Overall Airport	1.051	F	1.086	F	[3]	[3]	[3]
World Way South at TBIT	MM-ST (BWP)-1	TBIT	0.764	C	0.890	D	[3]	[3]	[3]
World Way South at TBIT	MM-ST (BWP)-1	Overall Airport	0.764	C	0.890	D	[3]	[3]	[3]
World Way South at Terminal 7/8 (Exit)	MM-ST (BWP)-1	TBIT	0.877	D	0.907	E	[3]	[3]	[3]
World Way South at Terminal 7/8 (Exit)	MM-ST (BWP)-1	Overall Airport	0.877	D	0.907	E	[3]	[3]	[3]
Arrivals Level									
World Way North At Terminal 1 (Entry)	MM-ST (BWP)-1,3	TBIT	0.802	D	1.224	F	[3]	[3]	[3]
World Way North At Terminal 1 (Entry)	MM-ST (BWP)-1,3	Overall Airport	1.193	F	1.224	F	[3]	[3]	[3]
World Way South at TBIT	MM-ST (BWP)-1,3	TBIT	0.856	D	1.321	F	[3]	[3]	[3]
World Way South at TBIT	MM-ST (BWP)-1,3	Overall Airport	1.066	F	1.321	F	[3]	[3]	[3]
World Way South at Terminal 7/8 (Exit)	MM-ST (BWP)-1	TBIT	0.564	A	0.839	D	[3]	[3]	[3]
World Way South at Terminal 7/8 (Exit)	MM-ST (BWP)-1	Overall Airport	0.789	C	0.839	D	[3]	[3]	[3]

1 V/C (Volume/Capacity) calculations performed using TRAFFIX.
2 Level of Service range: A (excellent) to F (failure).
3 It is anticipated that the proposed measures listed in the report would benefit the operations; however the effects have not been quantified. It is anticipated that the impact would remain significant and unavoidable.

Source: Ricondo & Associates, Inc., March 2009.

Intersections

- Intersection of Center Way and World Way South - It is anticipated that the improvement as described in Mitigation Measure MM-ST (BWP)-2 would reduce both project specific and cumulative impacts to less than significant during both the TBIT and overall airport peak analysis periods.

Roadway Links

- All Roadway Links Analyzed - It is anticipated that the expansion of the FlyAway Bus services and further consolidation of shuttle bus services or trip reduction programs as described in Mitigation Measure MM-ST (BWP)-1 would result a reduction in traffic volumes on the on-airport roadway links; however, it is not anticipated that the potential benefit derived from these measures would reduce the impacts on roadway links to a less than significant level.
- It is anticipated that the widening of the arrivals level outer roadway across from TBIT and south of Center Way as described in Mitigation Measure MM-ST (BWP)-3, would reduce overall CTA travel times and delay for vehicles that experience upstream CTA roadway congestion as defined previously in Section 4.1.5.3. Although travel delay would be reduced for certain users, the benefits from this improvement would not improve traffic conditions at the direct location of the impact. As a result, this improvement is not expected to reduce the impacts on roadway links to a less than significant level.

Based on the above, implementation of the recommended mitigation measures would reduce intersection impacts to a level that is less than significant. All of the roadway link impacts summarized in Section 4.1.8 above would remain significant and unavoidable after mitigation.

4.2 Off-Airport Surface Transportation

4.2.1 Introduction

This section analyzes the off-airport traffic impacts on intersections and County of Los Angeles Congestion Management Plan arterial and freeway monitoring stations in the study area associated with the operation of the Bradley West Project. Impacts to off-airport surface transportation associated with construction of the Bradley West Project are addressed in Section 4.3, *Construction Surface Transportation*, of this EIR. Impacts to on-airport surface transportation associated with operation of the Bradley West Project are addressed in Section 4.1, *On-Airport Surface Transportation*, of this EIR.

The off-airport surface transportation analysis was developed in conjunction with the City of Los Angeles Department of Transportation (LADOT) and is consistent with their methodologies and guidelines. The base assumptions, technical methodologies, and geographic coverage of the study were all identified during the LADOT Memorandum of Understanding (MOU) process, which is required when conducting traffic studies in order to agree/confirm on the key assumptions of the traffic study for their approval. The following scenarios were analyzed as part of the Bradley West Project off-airport surface transportation study:

- Existing (2008) Conditions
- Future (2013) Conditions
  - Future-Adjusted (2013) Without Project Conditions
  - Future (2013) With Project Conditions

4.2.2 Methodology

4.2.2.1 Description of Traffic Model

The traffic forecasting process that provides the basis for addressing operational traffic impacts at completion of the project in 2013 was performed using a travel demand model developed from the Southern California Association of Governments (SCAG) regional travel demand model. The SCAG model focuses on estimating regional travel for the entire southern California region. Since the proposed Bradley West Project is located in a localized area of the region, it was necessary to supplement the SCAG model with a more detailed sub-area model.

Sub-Area Model Validation

The model sub-area encompasses the Bradley West Project traffic analysis study area which, as further described in Section 4.2.3.1 below, is bounded by Rose Avenue to the north, Manhattan Beach Boulevard to the south, Western Avenue to the east, and Pershing Drive to the west. A detailed review of the model roadway network and land use assumptions was performed in the model sub-area, revealing the need to increase the detail of the coarse traffic analysis zone (TAZ)[49] structure to more accurately model traffic flows on arterials and freeway facilities. Therefore, model TAZs were split proportionally, especially those representing the airport. The numbers of vehicle trips originating and terminating at the airport TAZs were then adjusted to match data published in the Los Angeles International Airport 2006 Air Passenger Survey,[50] followed by a comparison of the model-wide distribution of airport trips to annual data published in the aforementioned document.

A preliminary sub-area model validation was performed on the resulting base year SCAG model. Forecasting models are typically calibrated by adjusting model parameters such as speed and capacity until they are validated by applying a set of criteria that compare model link volumes to actual counts. In

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49 Traffic analysis zones are non-overlapping, statistical areas used to tabulate traffic-related data for use in regional transportation models.

50 Applied Management & Planning Group, 2006 Air Passenger Survey Los Angeles International Airport, December 2007.

this case, land use and roadway network modifications were made to the SCAG model and the resulting modeled link volumes were compared to roughly 1,015 intersection approach and departure volumes derived from turning movement counts collected in 2008. Additionally, the sub-area model was validated to roughly 39 counts on freeway facilities. Caltrans has established guidelines for determining whether a model is valid and acceptable for forecasting future year traffic volumes as described in Travel Forecasting Guidelines.[51] The SCAG base year model was validated within Caltrans' thresholds for acceptable performance. The SCAG model link validation results are presented in Appendix C-1.

In addition to the Caltrans validation tests, dynamic validation tests were conducted to test the sensitivity of the model to changes in land uses or the transportation system. The dynamic validation results presented in Appendix C-2 indicate that the model performed acceptably.

Modeling of Future (2013) Conditions

The off-airport surface transportation analysis focused on impacts projected to occur at completion of improvements at TBIT as proposed by the Bradley West Project. Such improvements, which include the addition of new contact gates and improvement of passenger processing facilities, are expected to occur by 2013. Section 15125 of the CEQA Guidelines indicates that the environmental setting present at the time the Notice of Preparation (NOP) was published normally constitutes the baseline physical conditions by which a lead agency determines whether an impact is significant. That approach would not, however, provide an accurate or meaningful delineation of the proposed project's operational impacts because any material changes in the operational characteristics of TBIT, as may affect off-airport traffic, would not occur until the proposed improvements are completed. The local traffic conditions present at the time the Bradley West Project EIR NOP was published, in December 2008, would not be the same as the traffic conditions in 2013, the latter of which would include increases in background traffic volumes due to ambient area wide growth between 2008 and 2013, as well as changes in the transportation network (i.e., roads and intersections) during that period. As such, 2013 is used as the baseline year for evaluating project-related operational impacts. In order to provide a conservative (i.e., worst-case) impacts analysis, an "adjusted" 2013 baseline condition is utilized, as described in greater detail below. While 2013 is the focus for evaluating project impacts, information related to existing 2008 conditions was used in the analysis to help validate and calibrate the traffic model, as well as provide a description of the existing environmental setting.

Traffic volume forecasts for two future (2013) scenarios evaluated for the project were based on linear interpolation of vehicle trips from the 2020 SCAG model. This method accounts for growth in the study area as well as growth outside the study area that may utilize study area roadways. Additionally, the SCAG model accounts for a portion of induced travel such as changes in route, but will not be sensitive to changes in trip generation or time-of-day travel.

TAZ splits performed for existing (2008) conditions were applied to the 2020 model prior to the subtraction of vehicle trips from the validated base year model. Growth at airport TAZs was eliminated to preserve existing airport trip generation and distribution patterns. Linear interpolation was then used to develop non-airport background growth from 2008 to 2013. Vehicle trips were then developed to match trip generation data from entitled development projects. The annual growth rate for the area was then calculated and used to determine whether the amount of land use development assumed to occur from 2008 to 2013 was reasonable.

The roadway network was modified to include funded roadway improvement projects to be constructed by 2013, along with roadway improvements that occurred since the counts were collected. Mitigation measures associated with entitled development projects were not assumed unless they were already under construction at the time of the counts. Since the future year SCAG model was developed from the base year SCAG model, the same roadway network modifications made to calibrate the base year model were incorporated into the model.

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51 California Department of Transportation, Travel Forecasting Guidelines, November 1992.

As further described below in Section 4.2.2.5, traffic generation in terms of new vehicle trips associated with the proposed project would be limited to those resulting from additional employment within TBIT due to expanded building floor area (i.e., additional concessions, security/inspection areas, janitorial/maintenance requirements, etc.). Over the course of the five years between 2008 conditions and 2013 completion of the TBIT improvements, the volume of passengers traveling through TBIT is expected to increase substantially, irrespective of whether the proposed improvements are implemented. Completion of the proposed improvements at TBIT would not cause an increase in the overall daily passenger activity levels at TBIT, but would affect the nature and timing of how passengers are processed through TBIT during the course of the day. The proposed improvements would enable TBIT to better accommodate and process international flights, including those that utilize new large aircraft capable of carrying more passengers than most other aircraft. While the overall daily passenger activity level in 2013 would be about the same with or without the project, completion of the proposed improvements would result in larger surges of passengers being processed through TBIT during certain times of the day. This, in turn, would affect the number of vehicle trips occurring during the three peak hours (i.e., a.m. commuter peak, mid-day airport peak, and p.m. commuter peak) evaluated in the on-airport surface transportation analysis in Section 4.1 of this EIR. Such changes would only be evident upon completion of the proposed improvements in 2013, by which time there would be a natural increase in passenger activity levels at TBIT independent of the improvements. In other words, the ongoing growth in passenger activity at TBIT that would occur over time while the proposed project is under construction is included in the "project traffic" used in the 2013 impacts analysis. This approach is considered to be very conservative in delineating the off-airport traffic impacts of the Bradley West Project, because the vehicle trips associated with natural growth at TBIT that would occur regardless of whether the project is implemented are included in the project's traffic generation estimate.

Future-Adjusted (2013) Without Project Conditions

The future (2013) without project scenario assumed growth in vehicle trips at the adjacent terminals (i.e., Central Terminal Area (CTA) Terminals 1 through 8) anticipated to occur by 2013, but held trip generation levels at TBIT to those of 2008. Therefore, vehicle trips originating or terminating at airport TAZs were developed to match trip generation estimates for the adjacent terminals. The resulting 2013 vehicle trips were then assigned to the 2013 roadway network to forecast "Future-Adjusted (2013) Without Project" traffic volumes. This analysis scenario is consistent with the traffic analysis guidelines of LADOT in assuming a future baseline condition that includes existing traffic plus traffic from ambient growth and related projects, but no traffic from the proposed project.[52] This type of scenario is sometimes referred to as an "adjusted baseline." By using this scenario as the basis of comparison for evaluating Future (2013) With Project conditions, the project's contribution to traffic impacts at the time of project completion resulting from the number and timing of passengers at TBIT curbside during the three analysis peak hours along with ambient growth[53] at TBIT from 2008 to 2013 can be identified.

Future (2013) With Project Conditions

This scenario was compared to the Future-Adjusted (2013) Without Project scenario described above to determine project impacts. Therefore, this scenario assumed the natural growth expected to occur between 2008 and 2013 at all airport terminals due to the reconfigured TBIT, while also accounting for traffic from ambient growth and related projects throughout the off-airport roadway network study area. Vehicle trips originating or terminating at airport TAZs were developed to match trip generation estimates with the implementation of the proposed project. The resulting 2013 vehicle trips were then assigned to the 2013 roadway network to forecast Future (2013) With Project traffic volumes.

52 Los Angeles Department of Transportation, Traffic Study Policies and Procedures, Revised March 2002.

53 As discussed above, ongoing growth in passenger activity at TBIT that would occur over time while the proposed project is under construction is included in the "project traffic."

Development of Forecasts

Traffic forecasts for the Future (2013) With Project scenario and the Future-Adjusted (2013) Without Project scenario were developed by adding the difference between the forecasted traffic volume and the validated base year traffic volume to the 2008 count. The resulting forecasts were then balanced[54] where appropriate. The balanced forecasts for each scenario were compared to existing counts as well as one another to ensure the reasonableness of the forecasts.

4.2.2.2 Determination of Existing (2008) Traffic Conditions

Intersection turning movement volumes collected in July and August 2008, which represent the most current comprehensive traffic counts completed by LAWA, were used for characterizing the existing environmental setting (i.e., existing traffic conditions) within the study area. The following steps were taken to develop the Existing (2008) traffic conditions information.

The intersection analysis was performed using the CalcaDB intersection analysis software for intersections within the City of Los Angeles. This software, developed by LADOT, is based on the analysis methods described in Circular 212.[55] Intersections outside the City of Los Angeles were analyzed using the Intersection Capacity Utilization (ICU) methodology, as required by all neighboring cities and Los Angeles County. Both analysis methodologies use intersection geometries, phasing, and traffic counts to determine the volume-to-capacity (V/C) ratio of critical turning movements at the intersection.

4.2.2.3 Determination of Future-Adjusted (2013) Traffic Conditions

For purposes of delineating project-related impacts when the proposed TBIT improvements are completed in 2013, a traffic scenario was developed consisting of the 2013 traffic conditions including all traffic that would be generated by the rest of the airport and other projects in the study area. The following steps were taken to develop the Future-Adjusted (2013) traffic conditions:

- Related projects were added to the traffic model in order to produce conservative estimates of background traffic in the study area.
- The trips generated by TBIT activity in 2013 were adjusted back to existing (2008) levels to provide a conservative impacts analysis (i.e., TBIT-related vehicle trips that would increase naturally between 2008 and 2013 were removed from the background traffic and ascribed to the project-related traffic generation used for the impacts analysis).

4.2.2.4 Determination of Congestion Management Program Conditions

Analyses were conducted to comply with Congestion Management Program (CMP) requirements. This analysis was conducted in accordance with the procedures outlined in the 2004 Congestion Management Program for Los Angeles County.[56] The CMP requires that when a traffic impact analysis is prepared for a project, traffic impact analyses be conducted for select regional facilities based on the quantity of project traffic expected to use those facilities.

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54 Traffic volumes, counted or forecasted, are balanced to ensure a reasonable amount of vehicles are either gained or lost between adjacent intersections.

55 Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

56 Los Angeles County Metropolitan Transportation Authority, 2004 Congestion Management Program for Los Angeles County, July 2004.

4.2.2.5 Determination of Project Trip Generation

Trip generation for the off-airport surface transportation analysis was determined based on passenger activity levels within TBIT estimated for 2008 existing conditions and projected for 2013 when the proposed TBIT improvements are anticipated to be complete. Trip generation for most development projects, such as a new residential community or a new commercial center, can be determined based on trip generation factors published by the Institute of Transportation Engineers (ITE). The application of such factors to the Bradley West Project is, however, not appropriate because of the unique nature of the subject facility and the role served in accommodating its users. While most facilities, such as homes, offices, shopping centers, restaurants, etc., are trip "generators" in terms of serving a specific purpose that drivers travel to and from, such is not the case for TBIT. Passengers traveling to and from TBIT do so in transit between their points of flight origin and destination. In other words, a business traveler may drive to LAX from his/her house in order to take a flight out of TBIT to conduct business in a foreign country, and a leisure traveler may arrive on an international flight at TBIT, rent a car at/near LAX, and drive to a Los Angeles vacation destination. In neither case is TBIT the reason or "generator" of the vehicle trips. Implementation of the proposed Bradley West Project would provide for development of new concourses to replace the existing TBIT concourses and improvement of the TBIT existing central core, which would include additional areas for new and improved passenger lounge areas, business centers, restaurants, retail stores, airline lounges, and various concessions. Although there are ITE trip generation rates for these, or similar type uses, the application of those rates to the Bradley West Project would not be appropriate. The improvements proposed at TBIT are intended and designed to improve the quality of service available to existing and future passengers that are traveling through TBIT for other reasons.

As described in Section 2.4.5 of this EIR, the passenger activity level at TBIT in 2013, when the proposed TBIT improvements are anticipated to be complete, is projected to reach a certain level with or without the proposed improvements. The increase in passenger activity levels between 2008 and 2013 would be driven primarily by projected increases in aircraft activity at LAX based on a flight schedule forecast that reflects the anticipated travel market demands. Based on an activity level forecast prepared in mid-2008, international passenger activity levels at LAX were projected to experience substantial growth from 16.7 million annual passengers (MAP) in 2008 to 21.8 in 2013, an approximately 30 percent increase. By comparison, domestic passenger activity at LAX is projected to grow from 44.3 in 2008 to 45.8 in 2013, an increase of approximately three percent. As indicated in Section 2.4.5, of this EIR, the activity level forecast is based on 2008 data, and is considered conservative in light of the current economic recession and the expected decrease in aviation activity worldwide that would likely occur as a result.

In conjunction with the aforementioned activity level forecasts, design day flight schedules (DDFSs) were developed for 2008 and 2013 conditions. A DDFS delineates every arriving and departing flight scheduled expected throughout a 24-hour day on an average day (Wednesday) during the busiest month (August) of the year. The DDFS accounts for the anticipated size and type of aircraft, as well as the projected number of seats occupied, for each flight in order to estimate the number of arriving and departing passengers occurring in each hour of the day. It also distinguishes "origin and destination" (O&D) activity from connecting flight activity, with the former accounting for passengers whose flight origin or destination is LAX (i.e., would have vehicle trips to/from LAX) and the latter accounting for passengers that simply change planes at LAX (i.e., would not have vehicle trips to/from LAX).

Based on the information above, it is possible to estimate the number of passengers arriving and departing during each hour of the day at TBIT, distinguishing between those passengers that would be associated with external vehicle trips (O&D passengers) and those passengers that remain at LAX (connecting flights). As indicated above, the increase in daily passenger activity levels at TBIT between 2008 and 2013 is projected to be approximately the same for with-project conditions and without-project conditions. There would, however, be a notable difference between with-project conditions and without-project conditions relative to the number and processing time of arriving passengers during the course of a day. With the combination of new contact gates, suitable to accommodate new large aircraft, being added on the west side of TBIT and the proposed improvements to the federal inspection systems (i.e., Customs and Border Protection), baggage claim systems, and other facilities related to the processing of arriving international flights, it is anticipated that a larger volume of arriving passengers could be processed more quickly through TBIT under with-project conditions in comparison to the without-project conditions due to improvements to the passenger processing system. Although the total number of passengers processed through the course of a day would not be notably different between the two scenarios, the number of arriving passengers reaching the TBIT curbside during the three analysis peak hours (i.e., a.m. commuter peak, mid-day airport peak, and p.m. commuter peak) would differ between the two scenarios (see Section 4.1.2 of this EIR for additional discussion of how the proposed project would affect passenger processing and associated vehicle trips). The project-related change in the volume and timing of passengers moving through TBIT is more relevant to arriving flights than departing flights, inasmuch as each arriving flight would introduce a particular number of passengers into TBIT at a specific time and the majority of the passengers with LAX as their destination would be moving through the processing steps at TBIT as a group to reach curbside at approximately the same time. For passengers taking a departing international flight from LAX, the time that each passenger arrives at curbside before their flight and the amount of time they take in moving through TBIT to get to their gate is much more individualized.

An analysis was completed to estimate the number of vehicle trips generated during the three peak hours, based on the DDFS, which provided information on the number of international passengers arriving or departing at each gate during each hour of the day, and the estimated passenger processing time between the gate and the TBIT curbside. This analysis is provided in Appendix C-7. The trip generation estimates for the peak hours also took into account the anticipated number of passengers per vehicle.

In addition to estimating trip generation associated with arriving and departing passengers during each of the three analysis peak hours, estimates were developed for project-related increases in the number of employees at TBIT. Whereas the projected increase in passenger activity levels at TBIT between 2008 and 2013 would occur with or without the proposed project, the projected increase in employees would be directly related to the project. Such increased employment is based on the additional building floor area proposed for expanded concession areas, airline functions, security personnel, and maintenance/janitorial needs. The employment-related trip generation was based on existing employee trips increased proportionally to the additional building floor area proposed for the Bradley West Project.

In integrating the information described above into the off-airport traffic analysis model, the trip generation data for the airport facilities were added to the travel demand models. The resulting vehicle trips were then assigned to the model roadway networks to forecast traffic volumes with and without the proposed Bradley West Project.

4.2.2.6 Delineation of Traffic Impacts

The direct project impacts were determined by calculating the difference in level of service (LOS) for (a) the Future (2013) With Project LOS and (b) the Future-Adjusted (2013) Without Project LOS. This is a comparison required to isolate the direct impacts of the project. With this comparison, the difference in LOS is compared to the thresholds defined by the jurisdiction in which the intersection is located to determine if the project results in a significant impact. As noted above, the Future (2013) With Project scenario includes growth in passenger activity levels at TBIT between 2008 and 2013 that is anticipated to occur irrespective of the proposed improvements; hence, it is considered to be a very conservative analysis accounting for traffic increase impacts that are not directly attributable to the Bradley West Project. Moreover, those impacts associated with ambient growth in activity levels at TBIT over the next five years are based on conservative growth projections in light of the current economic downturn.

With regard to cumulative impacts, the methodology used in the off-airport surface transportation analysis is cumulative by its nature. That is, it accounted for future regional, non-airport projects and their corresponding traffic growth as background traffic. The background traffic conditions used in the 2013 analysis also account for all funded roadway improvement projects that have been approved by local and regional transportation agencies.

4.2.2.7 Delineation of Mitigation Measures

The traffic analysis approach included provisions to identify mitigation measures for intersections determined to be significantly impacted by the addition of project-related traffic. Several types of improvements to the off-airport surface transportation system are recommended to mitigate the impacts of the Bradley West Project. Such improvements include the addition of, or improvements to, travel- and turn-lanes, traffic signal enhancements, and intersection restriping. Locations where additional right-of-way may be required are noted. In several cases, such additional right-of-way needs cannot be met due to existing improvements nearby, such as rail lines or major structures, which renders the potential intersection improvements infeasible. Those instances are discussed in the Section 4.2.9, *Mitigation Measures*, below.

4.2.3 Existing (2008) Conditions

This section contains details of the comprehensive data collected to develop a detailed description of the existing conditions in the study area. The assessment of conditions relevant to this study includes land use, the transit service in the study area, a description of street and highway systems, traffic volumes on these facilities, geometry and lane configurations at key intersections, and operating conditions at key intersections.

4.2.3.1 Traffic Analysis Study Area

The proposed project is located in the CTA. **Figure 4.2-1** illustrates the location of the Bradley West Project and the surrounding roadways. The project study area was determined through the use of the travel demand forecasting model and input from LADOT during the MOU process. Project trips were added to the model and assigned to the roadway network. The study intersections were then selected for analysis. These study intersections were then presented to LADOT for their approval. As shown in **Figure 4.2-2**, the Bradley West Project study area is bounded by Rose Avenue to the north, Manhattan Beach Boulevard to the south, Western Avenue to the east, and Pershing Drive to the west.

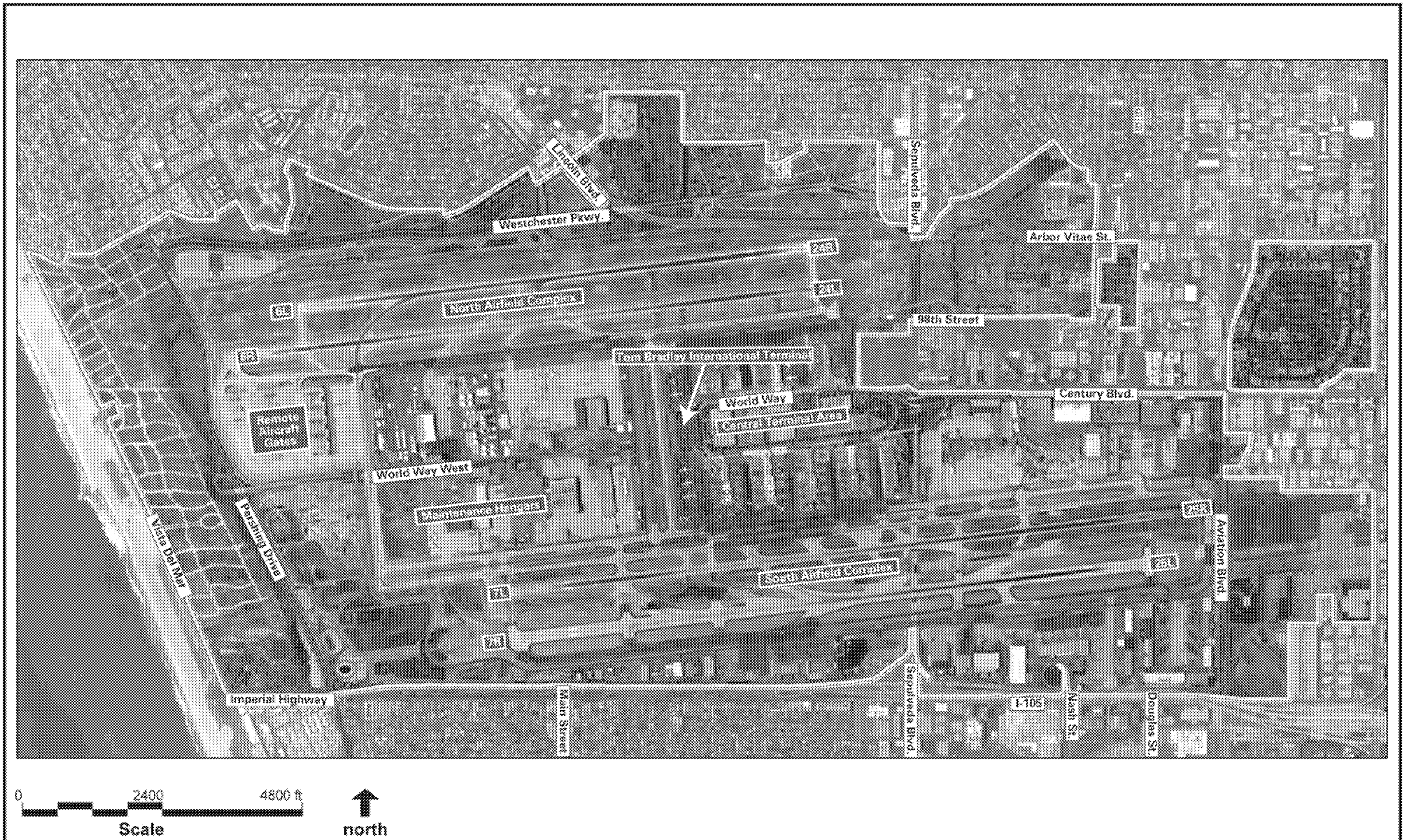
Primary regional access to the project is provided by the San Diego Freeway (I-405), which runs north-south, and the Glenn Anderson Freeway (I-105), which runs east-west. The main arterial streets serving the project are Century Boulevard and Sepulveda Boulevard, providing main entrances to the airport. Other key roadways providing access to the area are Airport Boulevard, Aviation Boulevard, La Cienega Boulevard, El Segundo Boulevard, Arbor Vitae Street/Westchester Parkway, Lincoln Boulevard, and Manchester Avenue.

Study Area Roadways

The key roadways providing access to the Bradley West Project include the following freeways and arterials:

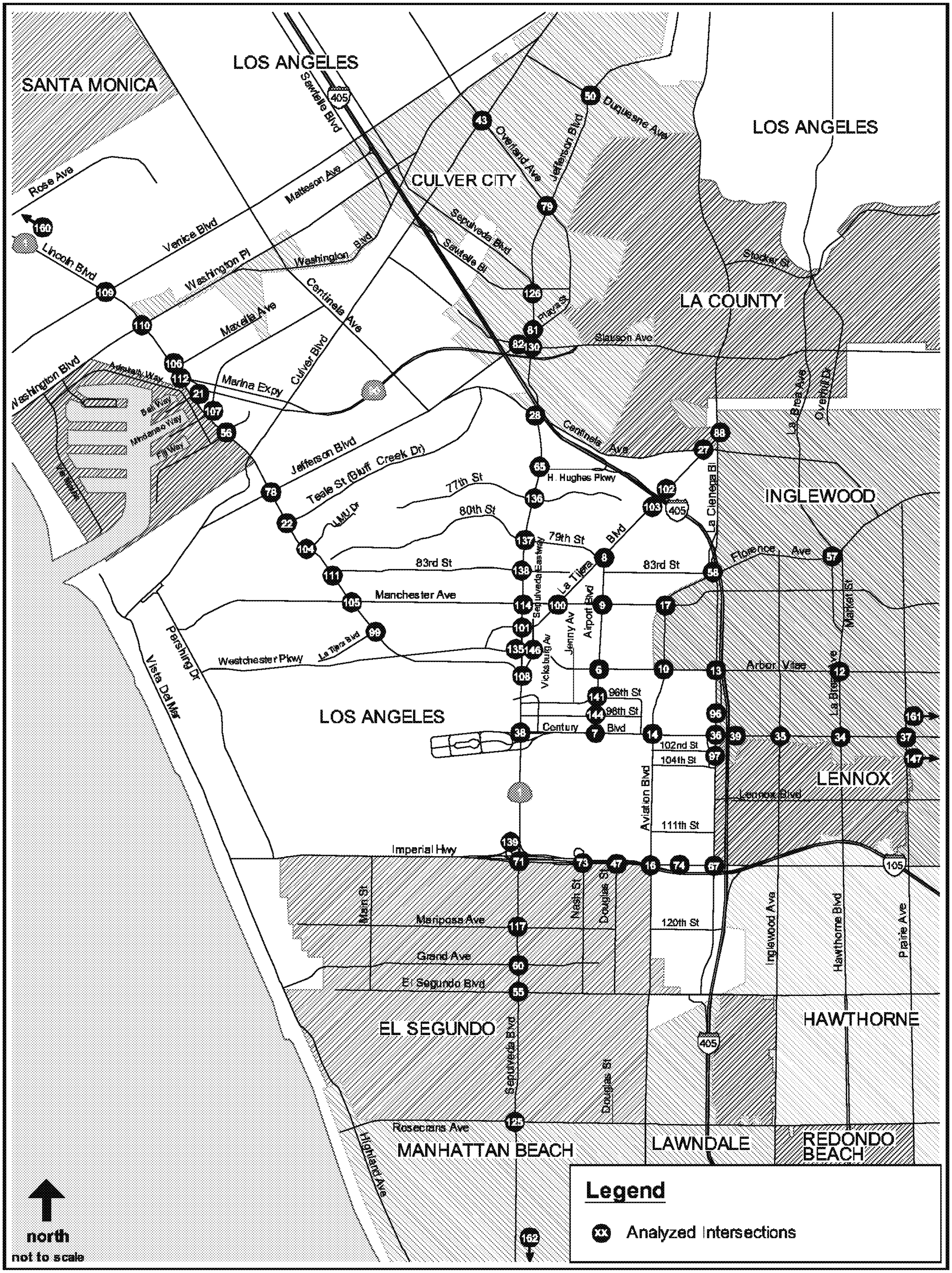
- **San Diego Freeway (I-405)** runs in a north-south direction east of LAX and extends from the San Fernando Valley to Orange County. The San Diego Freeway generally provides four lanes in each direction plus a carpool lane in certain segments. Ramps located in the study area provide access to/from Rosecrans Avenue, El Segundo Boulevard, Imperial Highway, Century Boulevard, Manchester Avenue/La Cienega Boulevard, La Tijera Boulevard, Howard Hughes Parkway, Sepulveda Boulevard, Jefferson Boulevard, Culver Boulevard, and Venice Boulevard/Washington Boulevard.
- **Glenn Anderson Freeway (I-105)** runs from its westerly terminus on Imperial Highway west of Sepulveda Boulevard to its easterly terminus at the San Gabriel Freeway (I-605) in the City of Norwalk. The Glenn Anderson Freeway generally provides four lanes in each direction, a carpool lane in each direction and a light rail line (the Green Line) down its center median. Ramps located in the study area include access to/from Imperial Highway, Sepulveda Boulevard/Imperial Highway, Nash Street, La Cienega Boulevard/Aviation Boulevard, Hawthorne Boulevard, Prairie Avenue, and Crenshaw Boulevard.

- **Marina Freeway (SR-90)** runs in an east-west direction and extends from Lincoln Boulevard in Marina Del Rey eastward to Slauson Avenue in southern Culver City. The Marina Freeway generally provides two lanes in each direction plus auxiliary lanes in certain segments. Ramps include Lincoln Boulevard, Mindanao Way, Culver Boulevard and Centinela Boulevard.
- **Airport Boulevard** is a Class II Major Highway that runs north-south with two to three lanes in each direction plus left-turn channelization at major intersections in the study area. Parking is generally prohibited on both sides of Airport Boulevard, and the posted speed limit is 35 miles per hour (MPH) in the study area.
- **Arbor Vitae Street** is a Class II Major Highway north of LAX that runs east-west with generally two lanes in each direction plus left-turn channelization at most major intersections through the study area. Restricted parking is allowed along certain segments of Arbor Vitae Street, and the posted speed limit is 35 MPH.
- **Aviation Boulevard** is a Class II Major Highway that runs north-south with two lanes in each direction plus left-turn channelization at major intersections in the study area. Parking is generally prohibited on both sides of Aviation Boulevard, and the posted speed limit is 40 MPH through the study area.
- **Century Boulevard** is a Class II Major Highway that runs east-west and directly feeds into the LAX CTA. It has three to four lanes in each direction plus left-turn channelization at major intersections through the study area. Parking is not allowed along Century Boulevard, and the posted speed limit is 35 MPH.
- **Crenshaw Boulevard** is a Major Arterial that runs north-south with two to three lanes in each direction plus left-turn channelization at major intersections through the study area. Parking is allowed on certain segments of Crenshaw Boulevard, and the posted speed limit ranges from 35 to 40 MPH.
- **Culver Boulevard** is a Class II Major Highway with two lanes in each direction plus left-turn channelization at major intersections in the study area. Parking is generally not allowed along Culver Boulevard but there are some segments with restricted parking. The posted speed limit is 40 MPH.
- **El Segundo Boulevard** is a Major Arterial south of LAX that runs east-west with one to three lanes in each direction plus left-turn channelization at major intersections through the study area. Parking is allowed on certain segments along El Segundo Boulevard, and the posted speed limit ranges from 35 to 40 MPH.
- **Hawthorne Boulevard/La Brea Avenue** is a Major Arterial that runs north-south with three to four lanes in each direction plus left-turn channelization at major intersections through the study area. Parking is generally allowed along most of Hawthorne Boulevard/La Brea Avenue, with some center median parking provided. The posted speed limit is 35 MPH.
- **Imperial Highway** is a Class II Major Highway directly south of LAX that runs east-west with two to three lanes in each direction plus left-turn channelization at major intersections through the study area. Parking is not allowed on Imperial Highway and the posted speed limit ranges from 40 to 50 MPH.
- **Inglewood Avenue** is a Minor Arterial that runs north-south with one to two lanes in each direction plus left-turn channelization at most major intersections through the study area. Parking is generally allowed on both sides of Inglewood Avenue, and the posted speed limit is 35 MPH.
- **Jefferson Boulevard** is a Class II Major Highway that runs east-west with two to three lanes in each direction plus left-turn channelization at most major intersections in the study area. With a few exceptions, parking is generally not allowed on either side of Jefferson Boulevard and the speed limit ranges from 35 to 45 MPH in the study area.
- **La Tijera Boulevard** is a Class II Major Highway north of LAX with two to three lanes in each direction plus left-turn channelization at major intersections. Parking is allowed on certain segments of La Tijera Boulevard, and it has a posted speed limit of 35 MPH.



Prepared by: CDM, 2009.

LAX Bradley West Project Draft EIR	Existing Airport	Figure 4.2-1



LAX Bradley West Project Draft EIR	Study Area With 71 Intersections	Figure 4.2-2

- **Lincoln Boulevard** is a Class I Major Highway northwest of LAX with two to four lanes in each direction plus left-turn channelization at major intersections through the study area. It begins at Sepulveda Boulevard just north of LAX and extends to the northwest. Parking is allowed on certain segments of Lincoln Boulevard, and the posted speed limit ranges from 40 to 55 MPH. Lincoln Boulevard is State Route 1 within the study area.
- **Manchester Avenue** is a Major Arterial north of LAX that runs east-west with generally two lanes in each direction plus left-turn channelization at major intersections through the study area. Parking is allowed along most of Manchester Avenue with some restricted segments. The posted speed limit along Manchester Avenue ranges from 25 to 35 MPH. This arterial is known as Manchester Boulevard in the City of Inglewood.
- **Overland Avenue** is a Class II Major Highway north of LAX that runs north-south with two lanes in each direction plus left-turn channelization at most major intersections through the study area. Restricted parking is allowed along most of Overland Avenue, and the posted speed limit is 35 MPH.
- **Pershing Drive** is a Major Arterial west of LAX that runs north-south with primarily two lanes in each direction plus left-turn channelization at major intersections through the study area. Parking is allowed on both sides of Pershing Drive between Westchester Parkway and its northerly terminus at Culver Boulevard. Although parking is prohibited between Imperial Highway and Westchester Parkway, there are bike lanes within these limits.
- **Prairie Avenue** is a Major Arterial east of LAX that runs north-south with three lanes in each direction plus left-turn channelization at most major intersections through the study area. Parking is generally allowed along both sides of Prairie Avenue and the posted speed limit is 35 MPH.
- **Rosecrans Avenue** is a Major Arterial south of LAX that runs east-west with two to three lanes in each direction plus left-turn channelization at most major intersections through the study area. Parking is not allowed along Rosecrans Avenue through the study area, except for limited restricted parking segments. The posted speed limit ranges from 40 to 45 MPH.
- **Sawtelle Boulevard** is a Secondary Highway north of LAX with one to two lanes in each direction. Parking is allowed along most of Sawtelle Boulevard on both sides and the posted speed limit ranges from 25 to 35 MPH.
- **Sepulveda Boulevard** is a Class I Major Highway with three to four lanes in each direction plus left-turn channelization at major intersections through the study area. It runs north-south and intersects with the main entrance and exit of the airport's CTA at Century Boulevard, providing direct access to LAX. Parking is generally prohibited on both sides of Sepulveda Boulevard in the study area with the exception of the stretch between Manchester Avenue and 92nd Street. The speed limit ranges from 30 and 45 MPH. Sepulveda Boulevard is State Route 1 south of its intersection with Lincoln Boulevard.
- **Slauson Boulevard** ranges from a Local Street to a Class II Major Highway in the study area. It ranges from one to three lanes in each direction plus left-turn channelization at major intersections in the study area. Parking is only allowed on Slauson Boulevard where it is a local street. The posted speed limit ranges from 25 to 40 MPH.
- **Venice Boulevard** is a Class II Major Highway that runs east-west with two to three lanes in each direction plus left-turn channelization at major intersections in the study area. Parking is generally allowed on both sides of Venice Boulevard, and the posted speed limit is 35 MPH.
- **Washington Boulevard** is a Class II Major Highway that runs east-west with two lanes in each direction plus left-turn channelization at major intersections in the study area. Restricted parking along Washington Boulevard is generally allowed, and the posted speed limit ranges from 30 to 35 MPH.
- **Westchester Parkway** is a Class II Major Highway just north of LAX that runs east-west with two lanes plus bike lanes in each direction. Its limits are Pershing Drive on the west and Airport Boulevard on the east. Except for a short stretch in Westchester Village, parking is not allowed along Westchester Parkway. The posted speed limit ranges from 30 to 50 MPH. The portion of

Westchester Parkway between Pershing Drive and Sepulveda Westway was built by Los Angeles World Airports.

4.2.3.2 Data Collection and Data Sources

This section discusses the data collected and data sources for key locations analyzed as part of this EIR.

Study Intersections

The analyzed intersections[57] were selected in conjunction with LADOT. A total of 71 intersections were selected for analysis. These locations are shown in **Figure 4.2-2** and are as follows:

- 6. Airport Boulevard and Arbor Vitae Street/Westchester Parkway
- 7. Airport Boulevard and Century Boulevard
- 8. Airport Boulevard and La Tijera Boulevard
- 9. Airport Boulevard and Manchester Avenue
- 10. Arbor Vitae Street and Aviation Boulevard
- 12. Arbor Vitae Street and La Brea Avenue
- 13. Arbor Vitae Street and La Cienega Boulevard
- 14. Aviation Boulevard and Century Boulevard
- 16. Aviation Boulevard and Imperial Highway
- 17. Aviation Boulevard/Florence Avenue and Manchester Boulevard
- 21. Bali Way and Lincoln Boulevard
- 22. Bluff Creek Drive and Lincoln Boulevard
- 27. Centinela Avenue and La Tijera Boulevard
- 28. Centinela Avenue and Sepulveda Boulevard
- 34. Century Boulevard and Hawthorne Boulevard/La Brea Avenue
- 35. Century Boulevard and Inglewood Avenue
- 36. Century Boulevard and La Cienega Boulevard
- 37. Century Boulevard and Prairie Avenue
- 38. Century Boulevard and Sepulveda Boulevard
- 39. Century Boulevard and I-405 NB On/Off Ramps
- 43. Culver Boulevard and Overland Avenue
- 47. Douglas Street and Imperial Highway
- 50. Duquesne Avenue and Jefferson Boulevard
- 55. El Segundo Boulevard and Sepulveda Boulevard
- 56. Fiji Way and Lincoln Boulevard
- 57. Florence Avenue and La Brea Avenue
- 58. Florence Avenue and La Cienega Boulevard
- 60. Grand Avenue and Sepulveda Boulevard
- 65. Howard Hughes Parkway and Sepulveda Boulevard
- 67. Imperial Highway and La Cienega Boulevard
- 71. Imperial Highway and Sepulveda Boulevard
- 73. Imperial Highway and Nash Street/I-105 WB Off-Ramp
- 74. Imperial Highway and I-105 Ramps E/O Aviation Boulevard
- 78. Jefferson Boulevard and Lincoln Boulevard
- 79. Jefferson Boulevard and Overland Avenue
- 81. Jefferson Boulevard/Playa Street and Sepulveda Boulevard
- 82. Jefferson Boulevard and Slauson Avenue
- 88. La Cienega Boulevard and La Tijera Boulevard

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[57] The intersection numbers correspond with the intersection number designations associated with the intersection traffic count database that has been collected to support analyses associated with the LAX Specific Plan Amendment Study.

- 96. La Cienega Boulevard and I-405 Ramps N/O Century Boulevard
- 97. La Cienega Boulevard and I-405 Ramps S/O Century Boulevard
- 99. La Tijera Boulevard and Lincoln Boulevard
- 100. La Tijera Boulevard and Manchester Avenue
- 101. La Tijera Boulevard and Sepulveda Boulevard
- 102. La Tijera Boulevard and I-405 NB Ramps
- 103. La Tijera Boulevard and I-405 SB Ramps
- 104. Lincoln Boulevard and LMU Drive
- 105. Lincoln Boulevard and Manchester Avenue
- 106. Lincoln Boulevard and Marina Pointe Drive/Maxella Avenue
- 107. Lincoln Boulevard and Mindanao Way
- 108. Lincoln Boulevard and Sepulveda Boulevard
- 109. Lincoln Boulevard and Venice Boulevard
- 110. Lincoln Boulevard and Washington Boulevard
- 111. Lincoln Boulevard and 83rd Street
- 112. Lincoln Boulevard and SR-90
- 114. Manchester Avenue and Sepulveda Boulevard
- 117. Mariposa Avenue and Sepulveda Boulevard
- 125. Rosecrans Avenue and Sepulveda Boulevard
- 126. Sawtelle Boulevard and Sepulveda Boulevard
- 130. Sepulveda Boulevard and Slauson Avenue
- 135. Sepulveda Boulevard and Westchester Parkway
- 136. Sepulveda Boulevard and 76th/77th Street
- 137. Sepulveda Boulevard and 79th/80th Street
- 138. Sepulveda Boulevard and 83rd Street
- 139. Sepulveda Boulevard and I-105 WB Ramp north of Imperial Highway
- 141. 96th Street and Airport Boulevard
- 144. 98th Street and Airport Boulevard
- 146. Sepulveda Eastway and Westchester Parkway
- 147. Century Boulevard and Crenshaw Boulevard
- 160. Lincoln Boulevard and Rose Avenue
- 161. Century Boulevard and Western Avenue
- 162. Sepulveda Boulevard and Rosecrans Avenue

The 71 intersections listed above are located in nine different jurisdictions/agencies, namely:

- Los Angeles
- State of California (Caltrans)
- Unincorporated Los Angeles County
- Culver City
- Inglewood
- El Segundo
- Manhattan Beach
- Lennox
- Hawthorne

Intersection Control and Geometry

All of the 71 study area intersections listed above and illustrated in **Figure 4.2-2** are signalized. Many of the intersections are included in LADOT's Automated Traffic Surveillance and Control (ATSAC) system, the exceptions being:

- 12. Arbor Vitae Street and La Brea Avenue
- 34. Century Boulevard and Hawthorne Boulevard/La Brea Avenue

- 35. Century Boulevard and Inglewood Avenue
- 37. Century Boulevard and Prairie Avenue
- 55. El Segundo Boulevard and Sepulveda Boulevard
- 57. Florence Avenue and La Brea Avenue
- 58. Florence Avenue and La Cienega Boulevard
- 60. Grand Avenue and Sepulveda Boulevard
- 117. Mariposa Avenue and Sepulveda Boulevard
- 125. Rosecrans Avenue and Sepulveda Boulevard
- 147. Century Boulevard and Crenshaw Boulevard
- 162. Sepulveda Boulevard and Manhattan Beach Boulevard

In addition, many of the intersections are included in LADOT's Adaptive Traffic Control System (ATCS) system, the exceptions being:

- 12. Arbor Vitae Street and La Brea Avenue
- 34. Century Boulevard and Hawthorne Boulevard/La Brea Avenue
- 35. Century Boulevard and Inglewood Avenue
- 37. Century Boulevard and Prairie Avenue
- 43. Culver Boulevard and Overland Avenue
- 50. Duquesne Avenue and Jefferson Boulevard
- 55. El Segundo Boulevard and Sepulveda Boulevard
- 57. Florence Avenue and La Brea Avenue
- 58. Florence Avenue and La Cienega Boulevard
- 60. Grand Avenue and Sepulveda Boulevard
- 79. Jefferson Boulevard and Overland Avenue
- 81. Jefferson Boulevard/Playa Street and Sepulveda Boulevard
- 82. Jefferson Boulevard and Slauson Avenue
- 117. Mariposa Avenue and Sepulveda Boulevard
- 125. Rosecrans Avenue and Sepulveda Boulevard
- 126. Sawtelle Boulevard and Sepulveda Boulevard
- 130. Sepulveda Boulevard and Slauson Avenue
- 147. Century Boulevard and Crenshaw Boulevard

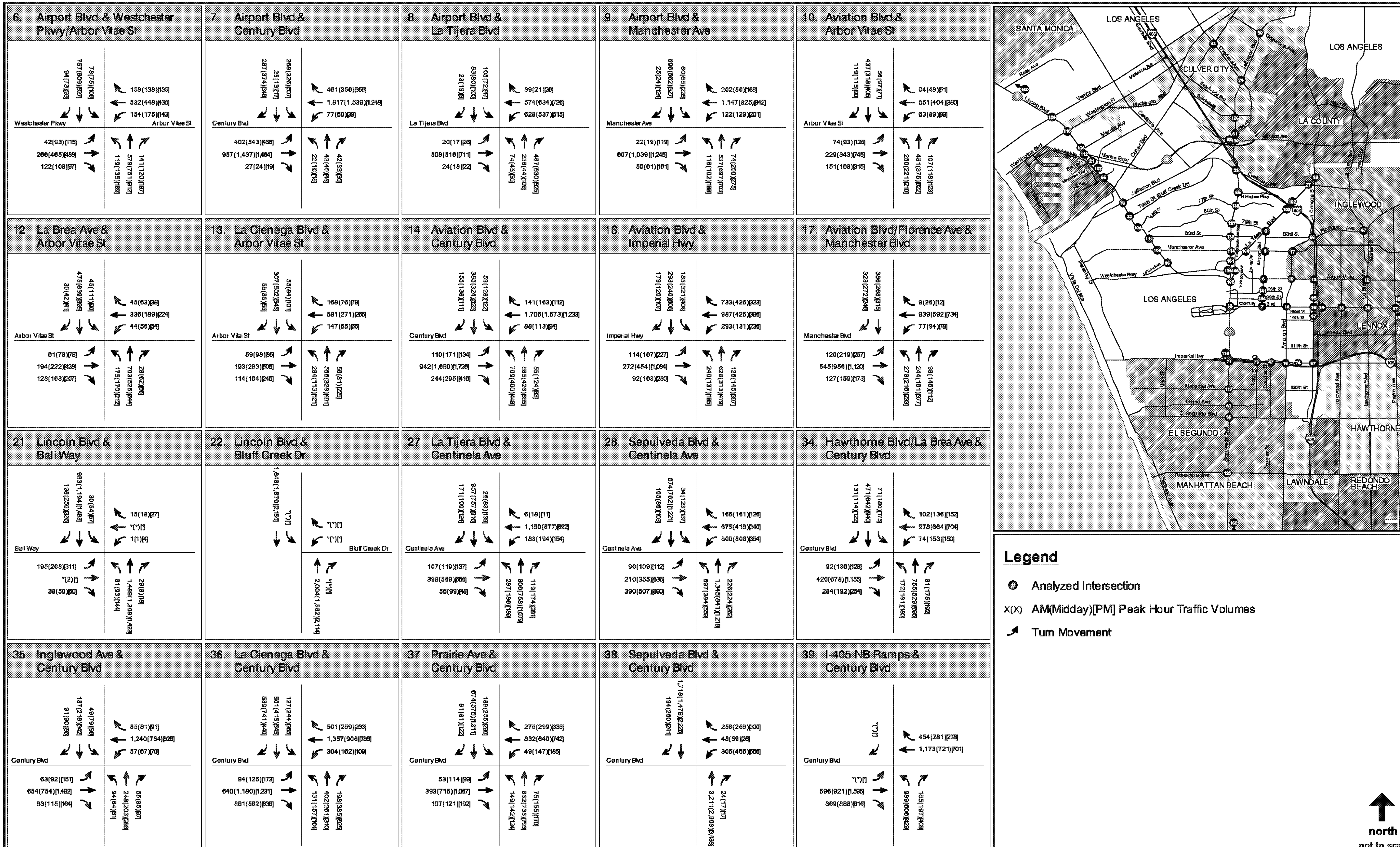
Information concerning signal controls was provided by LADOT, specifically whether the intersection was under the control of ATSAC/ATCS. The ATSAC system provides for monitoring of intersection traffic conditions and the flexibility to adjust traffic signal timing in response to current conditions. The ATCS system continuously detects vehicular traffic volumes and computes "optimal" signal timings based on the detected volumes that can then be implemented in the field.

In addition to the information regarding the signal control systems, detailed information was collected concerning the lane geometry/configurations and the signal phasing. This information is provided in Appendix C-3 of this EIR.

Traffic Count Data

Intersection turning movement counts were collected during the weekday morning, midday (MD) and afternoon time periods at the 71 aforementioned locations in July and August 2008. July and August are considered to be the peak months for airport-related traffic around LAX; therefore, additional seasonal adjustments were not required to convert the counts to peak month conditions. Collecting counts during the peak months for airport-related traffic provides for a more conservative analysis because as LOS gets progressively higher, the trigger for the significance threshold gets lower, as discussed in Section 4.2.5 below.

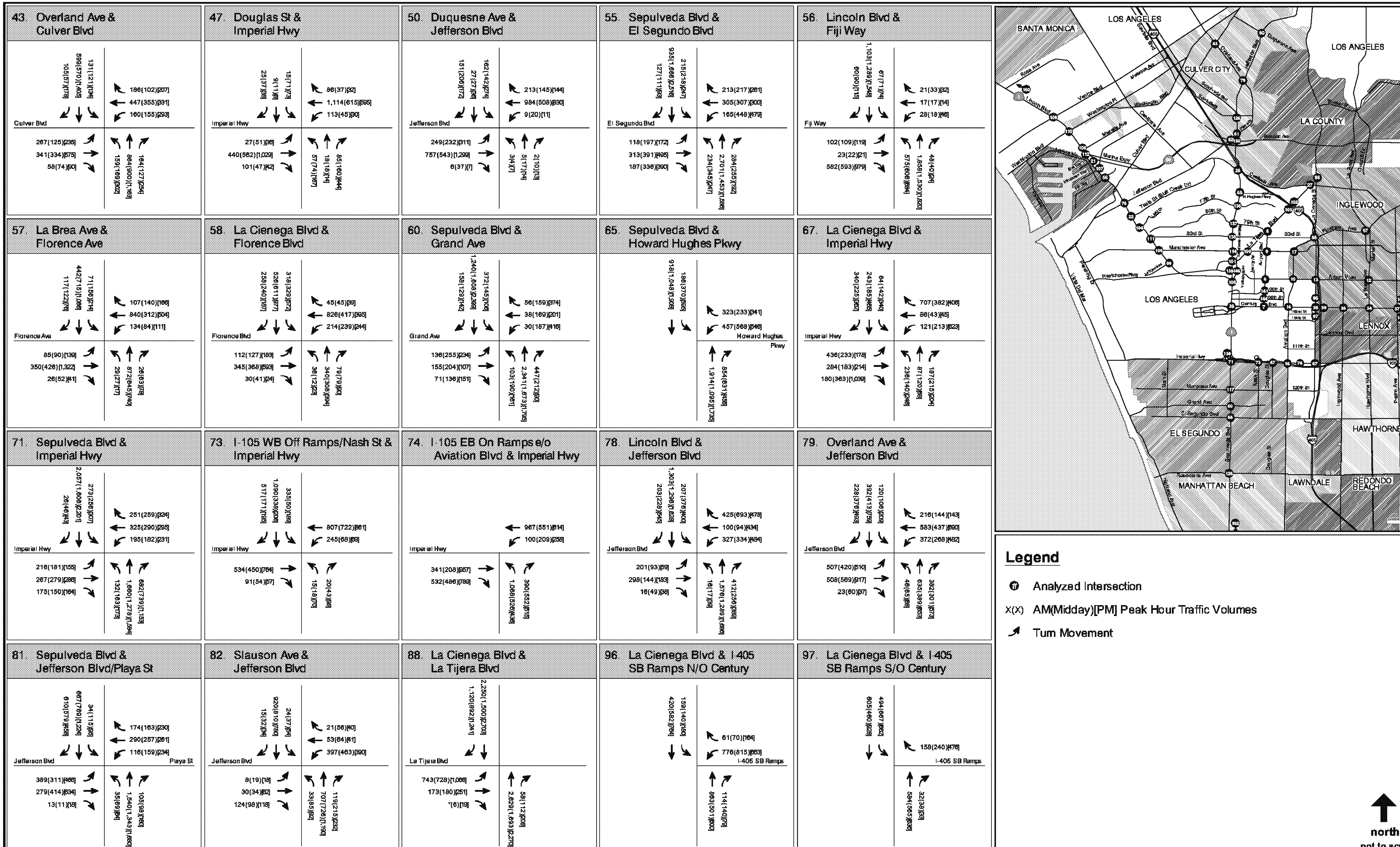
Traffic count data sheets are provided in Appendix C-4 and the existing traffic volumes are illustrated in **Figures 4.2-3a-d**. The AM peak hour represents the peak 60-minute period between 7:00 and 9:00 AM,



LAX Bradley West Project Draft EIR

Existing (2008) Traffic Volumes

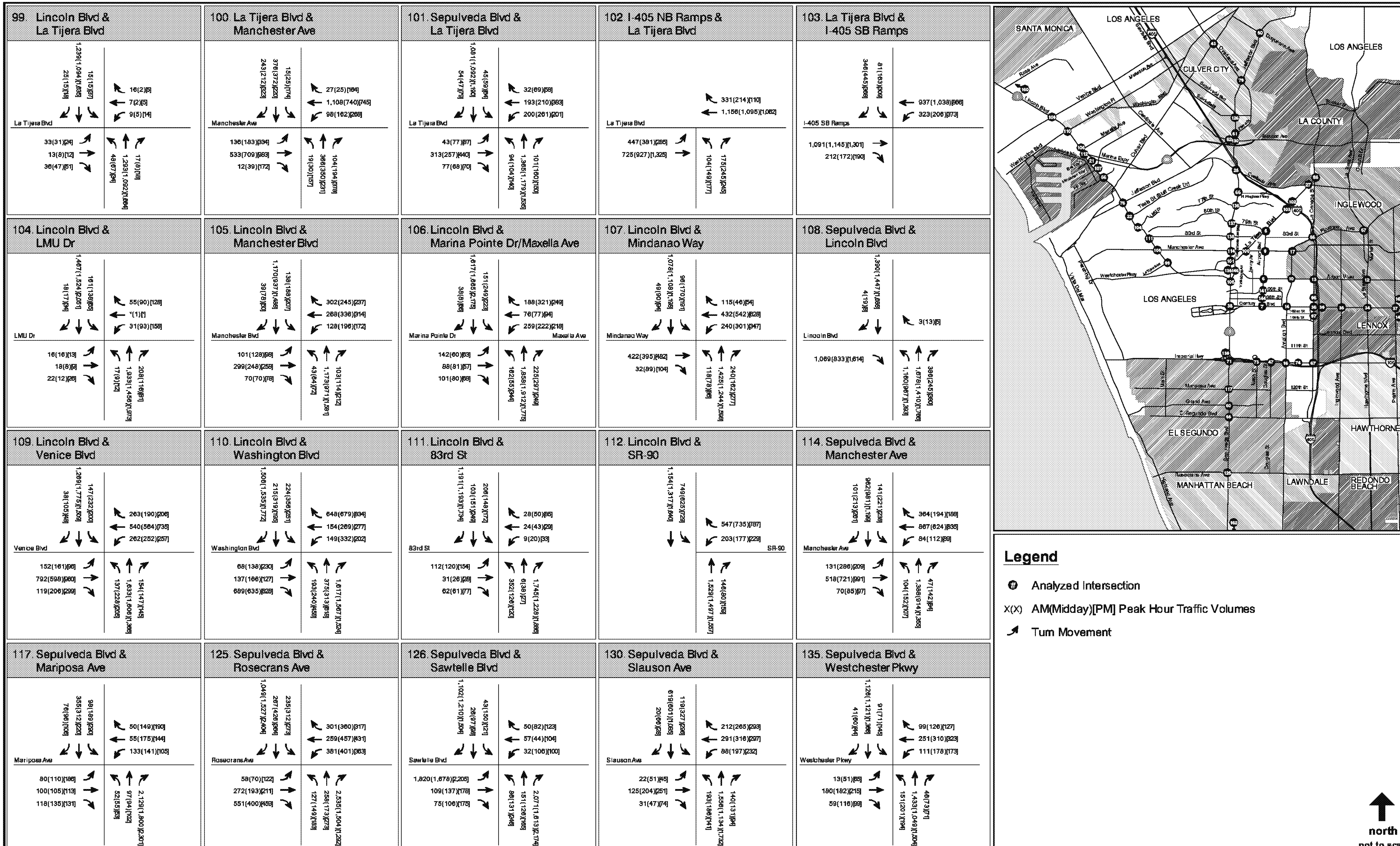
Figure 4.2-3a



LAX Bradley West Project Draft EIR

Existing (2008) Traffic Volumes

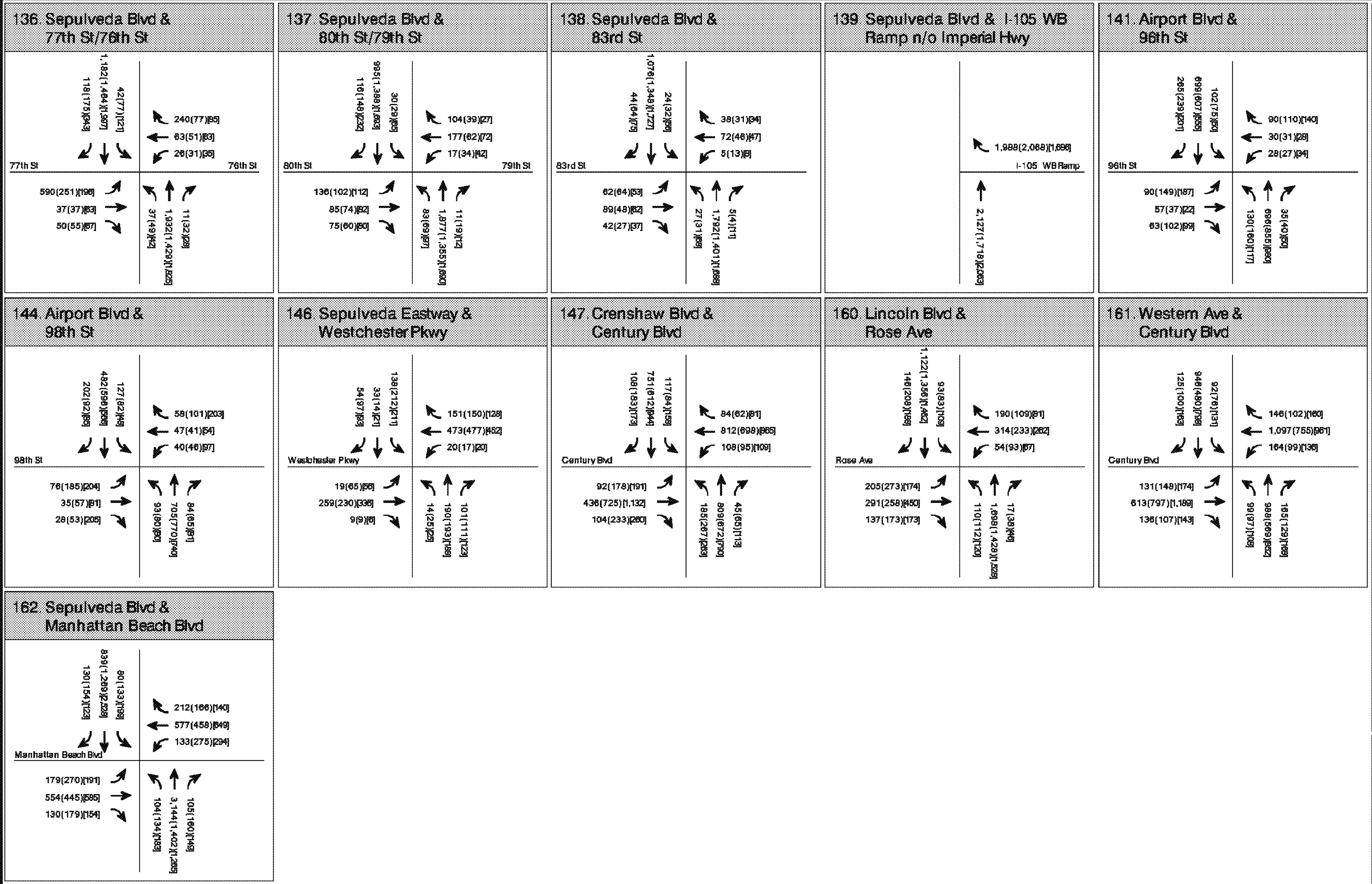
Figure 4.2-3b

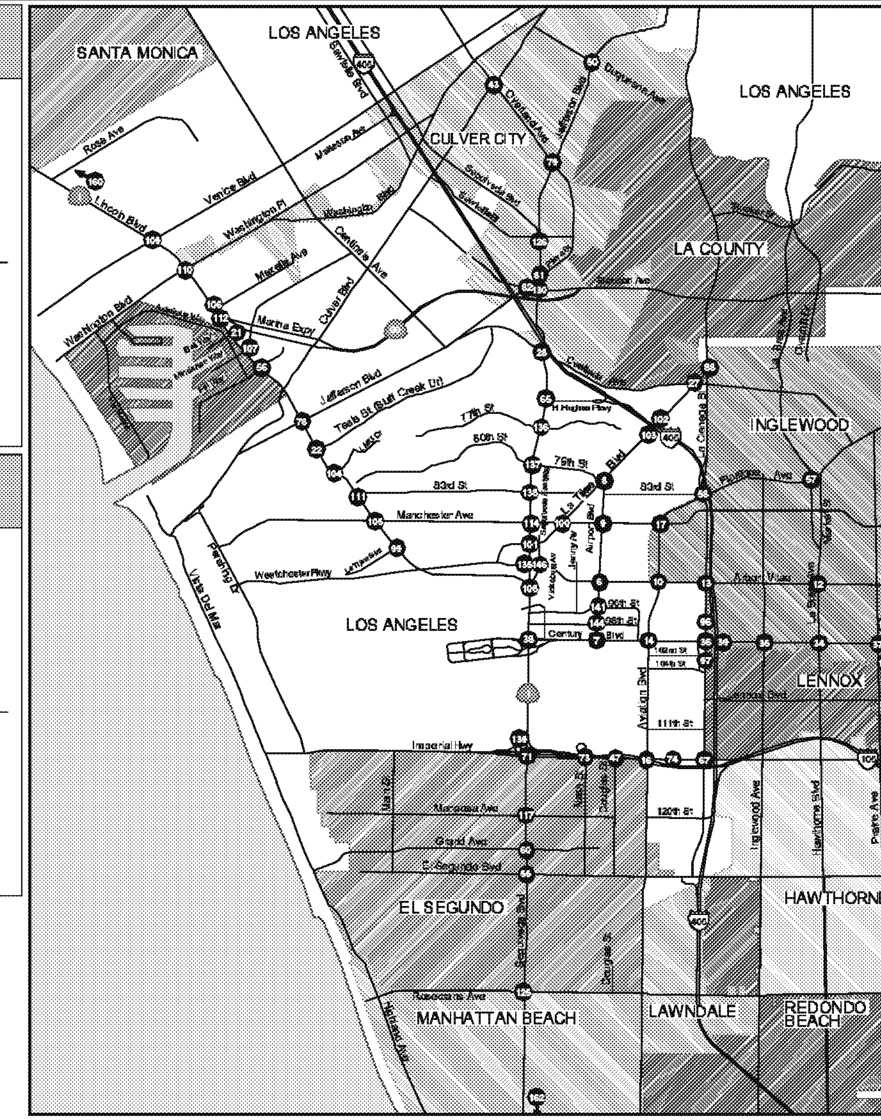


LAX Bradley West Project Draft EIR

Existing (2008) Traffic Volumes

Figure 4.2-3c





Legend

- Analyzed Intersection
- X(X) AM(Midday)[PM] Peak Hour Traffic Volumes
- Turn Movement

north
not to scale

LAX Bradley West Project Draft EIR

Existing (2008) Traffic Volumes

Figure 4.2-3d

the MD peak hour represents the peak 60-minute period between 11:00 AM and 1:00 PM, and the PM peak hour represents the peak 60-minute period between 4:00 and 6:00 PM.

Existing Public Transit Service

The proposed project area is currently being served by a total of 59 different transit lines. These transit lines are listed below and consist of Los Angeles County Metropolitan Transportation Authority (Metro) lines, LADOT Commuter Express lines, Culver City Bus lines, Santa Monica Big Blue Bus lines, a Beach Cities Transit line, a Torrance Transit line, and Municipal Area Express (MAX) lines.

Los Angeles County Metropolitan Transportation Authority

- Metro Rapid Lines: 705, 710, 711, 715, 740, and R3
- Metro Local & Limited Lines: 33, 37, 38, 40, 42, 42A, 105, 108, 110, 111, 115, 117, 120, 124, 125, 126, 210, 211, 212, 215, 220, 232, 312, 333, and 358
- Metro Express Lines: 439, 442, and 534
- Metro Shuttle & Circulator Lines: 607, 625, and 626
- Metro Rail Line: Green Line

Los Angeles Department of Transportation

- LADOT Commuter Express Lines: 437, 574, and 438

Culver City Bus

- Culver City Bus Lines: 1, 2, 3, 4, 5, 6, and 7

Santa Monica Big Blue Bus

- Big Blue Bus Lines: 1, 2, 6, 12, and 14

Beach Cities Transit

- Beach Cities Transit Line: 109

Torrance Transit

- Torrance Transit Line: 8

Municipal Area Express

- MAX Lines: 2, 3, and 3X

4.2.3.3 Existing (2008) Traffic Conditions

Intersection LOS was analyzed using either the Critical Movement Analysis (CMA) methodology[58] or the Intersection Capacity Utilization (ICU) methodology[59] to assess the estimated operating conditions during Existing (2008) conditions for the AM, MD and PM peak hours. Level of service is a qualitative measure used to describe the condition of traffic flow. Intersection level of service ranges from excellent conditions at LOS A to overloaded conditions at LOS F. LOS D is typically considered to be the minimum acceptable level of service in urban areas.

LADOT requires that the CMA methodology of intersection capacity analysis be used to determine the intersection V/C ratio and corresponding level of service for the given turning movements and intersection characteristics at signalized intersections within the City of Los Angeles. However, 24 of the 71 study intersections are located in neighboring cities or unincorporated County of Los Angeles boundaries

58 Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

59 Trafficware, Intersection Capacity Utilization, 2003.

adjacent to the City of Los Angeles. The traffic analysis for those intersections located outside the City of Los Angeles was conducted using the methodologies of the respective jurisdictions where the intersections are located. Specifically, the ICU methodology is required by all neighboring cities and Los Angeles County. Therefore, the 71 study intersections discussed in Section 4.2.3.2 were analyzed using either the CMA or ICU methodology. The CalcaDB software package developed by LADOT was used to implement the CMA methodology in this EIR. **Table 4.2-1** defines the ranges of V/C ratios and their corresponding levels of service using the CMA method.

Table 4.2-1

Level of Service Thresholds and Definitions for Signalized Intersections

Level of Service (LOS)	Volume/Capacity Ratio Threshold	Definition
A	0 - 0.6	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	0.601 - 0.7	VERY GOOD. An occasional approach phase is fully used; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 - 0.8	GOOD. Occasionally, drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 - 0.9	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 - 1.0	POOR. Represents the most vehicles that intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.0	FAILURE. Backups from nearby intersections or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

In accordance with LADOT analysis procedures, the V/C ratio calculated using the CMA or ICU methodology is further reduced by 0.07 for those intersections included in the ATSAC system and an additional 0.03 for ATCS, to account for the improved operation and increased efficiency from the ATSAC/ATCS system that is not captured as part of the CMA or ICU methodology. Application of the ATSAC reduction is described in Attachment D of LADOT's Traffic Study Policies and Procedures.[60]

Table 4.2-2 summarizes the AM, MD and PM peak hour V/C ratios and corresponding LOS at each of the study intersections. The results of this analysis indicate that 60 of the 71 study intersections are currently operating at acceptable levels of service (LOS D or better) during both the morning, midday and afternoon peak hours, and the remaining 11 intersections currently operate at LOS E or F during one or more of the peak hours. These locations are as follows:

- 9. Airport Boulevard & Manchester Avenue
- 43. Culver Boulevard and Overland Avenue
- 55. El Segundo Boulevard & Sepulveda Boulevard
- 57. Florence Avenue and La Brea Avenue
- 58. Florence Avenue and La Cienega Boulevard
- 60. Grand Avenue & Sepulveda Boulevard
- 71. Imperial Highway & Sepulveda Boulevard
- 78. Jefferson Boulevard and Lincoln Boulevard

[60] Los Angeles Department of Transportation, Traffic Study Policies and Procedures, Revised March 2002.

- 110. Lincoln Boulevard & Washington Boulevard
- 125. Rosecrans Avenue & Sepulveda Boulevard
- 162. Sepulveda Boulevard and Manhattan Beach Boulevard

Appendix C-5 contains the CalcaDB LOS worksheets (including signal phasing and lane geometry).

Table 4.2-2

Existing (2008) Conditions Intersection Analysis Results

	Intersection	Peak Hour[1]	V/C[2]	LOS[3]
6.	Airport Boulevard and Arbor Vitae Street/Westchester Parkway	AM	0.451	A
		MD	0.525	A
		PM	0.600	B
7.	Airport Boulevard and Century Boulevard	AM	0.535	A
		MD	0.576	A
		PM	0.488	A
8.	Airport Boulevard and La Tijera Boulevard	AM	0.582	A
		MD	0.381	A
		PM	0.487	A
9.	Airport Boulevard and Manchester Avenue	AM	0.680	B
		MD	0.673	B
		PM	0.921	E
10.	Arbor Vitae Street and Aviation Boulevard	AM	0.517	A
		MD	0.422	A
		PM	0.618	B
12.	Arbor Vitae Street and La Brea Avenue	AM	0.457	A
		MD	0.513	A
		PM	0.721	C
13.	Arbor Vitae Street and La Cienega Boulevard	AM	0.511	A
		MD	0.435	A
		PM	0.539	A
14.	Aviation Boulevard and Century Boulevard	AM	0.740	C
		MD	0.619	B
		PM	0.728	C
16.	Aviation Boulevard and Imperial Highway	AM	0.707	C
		MD	0.391	A
		PM	0.661	B
17.	Aviation Boulevard/Florence Avenue and Manchester Boulevard	AM	0.744	C
		MD	0.663	B
		PM	0.699	B
21.	Bali Way and Lincoln Boulevard	AM	0.373	A
		MD	0.429	A
		PM	0.581	A
22.	Bluff Creek Drive and Lincoln Boulevard	AM	N/A	N/A
		MD	N/A	N/A
		PM	N/A	N/A
27.	Centinela Avenue and La Tijera Boulevard	AM	0.653	B
		MD	0.490	A
		PM	0.613	B
28.	Centinela Avenue and Sepulveda Boulevard	AM	0.715	C
		MD	0.558	A
		PM	0.743	C
34.	Century Boulevard and Hawthorne Boulevard/La Brea Avenue	AM	0.589	A
		MD	0.624	B
		PM	0.797	C
35.	Century Boulevard and Inglewood Avenue	AM	0.601	B
		MD	0.508	A
		PM	0.741	C
36.	Century Boulevard and La Cienega Boulevard	AM	0.611	B
		MD	0.632	B
		PM	0.897	D

Table 4.2-2

Existing (2008) Conditions Intersection Analysis Results

	Intersection	Peak Hour[1]	V/C[2]	LOS[3]
37.	Century Boulevard and Prairie Avenue	AM	0.675	B
		MD	0.711	C
		PM	0.860	D
38.	Century Boulevard and Sepulveda Boulevard	AM	0.553	A
		MD	0.557	A
		PM	0.667	B
39.	Century Boulevard and I-405 NB On/Off Ramps	AM	0.725	C
		MD	0.520	A
		PM	0.600	A
43.	Culver Boulevard and Overland Avenue	AM	0.767	C
		MD	0.619	B
		PM	0.950	E
47.	Douglas Street and Imperial Highway	AM	0.264	A
		MD	0.179	A
		PM	0.368	A
50.	Duquesne Avenue and Jefferson Boulevard	AM	0.598	A
		MD	0.434	A
		PM	0.663	B
55.	El Segundo Boulevard and Sepulveda Boulevard	AM	0.819	D
		MD	0.813	D
		PM	0.972	E
56.	Fiji Way and Lincoln Boulevard	AM	0.492	A
		MD	0.568	A
		PM	0.668	B
57.	Florence Avenue and La Brea Avenue	AM	0.766	C
		MD	0.602	B
		PM	0.960	E
58.	Florence Avenue and La Cienega Boulevard	AM	0.793	C
		MD	0.743	C
		PM	1.000	E
60.	Grand Avenue and Sepulveda Boulevard	AM	0.805	D
		MD	0.718	C
		PM	0.927	E
65.	Howard Hughes Parkway and Sepulveda Boulevard	AM	0.569	A
		MD	0.569	A
		PM	0.569	A
67.	Imperial Highway and La Cienega Boulevard	AM	0.361	A
		MD	0.227	A
		PM	0.547	A
71.	Imperial Highway and Sepulveda Boulevard	AM	0.680	B
		MD	0.714	C
		PM	1.051	F
73.	Imperial Highway and Nash Street/I-105 WB Off-Ramp	AM	0.557	A
		MD	0.212	A
		PM	0.285	A
74.	Imperial Highway and I-105 Ramps E/O Aviation Boulevard	AM	0.652	B
		MD	0.296	A
		PM	0.475	A
78.	Jefferson Boulevard and Lincoln Boulevard	AM	0.801	D
		MD	0.724	C
		PM	0.947	E
79.	Jefferson Boulevard and Overland Avenue	AM	0.683	B
		MD	0.520	A
		PM	0.851	D
81.	Jefferson Boulevard/Playa Street and Sepulveda Boulevard	AM	0.655	B
		MD	0.625	B
		PM	0.798	C
82.	Jefferson Boulevard and Slauson Avenue	AM	0.468	A
		MD	0.474	A

Table 4.2-2

Existing (2008) Conditions Intersection Analysis Results

Intersection		Peak Hour[1]	V/C[2]	LOS[3]
		PM	0.509	A
88.	La Cienega Boulevard and La Tijera Boulevard	AM	0.681	B
		MD	0.481	A
		PM	0.820	D
96.	La Cienega Boulevard and I-405 Ramps N/O Century Boulevard	AM	0.635	B
		MD	0.507	A
		PM	0.550	A
97.	La Cienega Boulevard and I-405 Ramps S/O Century Boulevard	AM	0.322	A
		MD	0.387	A
		PM	0.408	A
99.	La Tijera Boulevard and Lincoln Boulevard	AM	0.268	A
		MD	0.227	A
		PM	0.349	A
100.	La Tijera Boulevard and Manchester Avenue	AM	0.529	A
		MD	0.440	A
		PM	0.727	C
101.	La Tijera Boulevard and Sepulveda Boulevard	AM	0.471	A
		MD	0.472	A
		PM	0.565	A
102.	La Tijera Boulevard and I-405 NB Ramps	AM	0.598	A
		MD	0.569	A
		PM	0.478	A
103.	La Tijera Boulevard and I-405 SB Ramps	AM	0.506	A
		MD	0.489	A
		PM	0.661	B
104.	Lincoln Boulevard and LMU Drive	AM	0.689	B
		MD	0.521	A
		PM	0.720	C
105.	Lincoln Boulevard and Manchester Avenue	AM	0.512	A
		MD	0.533	A
		PM	0.704	C
106.	Lincoln Boulevard and Marina Pointe Drive/Maxella Avenue	AM	0.610	B
		MD	0.614	B
		PM	0.579	A
107.	Lincoln Boulevard and Mindanao Way	AM	0.576	A
		MD	0.622	B
		PM	0.779	C
108.	Lincoln Boulevard and Sepulveda Boulevard	AM	0.325	A
		MD	0.303	A
		PM	0.451	A
109.	Lincoln Boulevard and Venice Boulevard	AM	0.850	D
		MD	0.890	D
		PM	0.867	D
110	Lincoln Boulevard and Washington Boulevard	AM	0.765	C
		MD	0.827	D
		PM	1.012	F
111.	Lincoln Boulevard and 83rd Street	AM	0.719	C
		MD	0.631	B
		PM	0.711	C
112	Lincoln Boulevard and SR-90	AM	0.691	B
		MD	0.625	B
		PM	0.698	B
114.	Manchester Avenue and Sepulveda Boulevard	AM	0.707	C
		MD	0.627	B
		PM	0.827	D
117.	Mariposa Avenue and Sepulveda Boulevard	AM	0.712	C
		MD	0.731	C
		PM	0.755	C
125.	Rosecrans Avenue and Sepulveda Boulevard	AM	0.948	E
		MD	0.841	D

Table 4.2-2

Existing (2008) Conditions Intersection Analysis Results

Intersection	Peak Hour[1]	V/C[2]	LOS[3]
	PM	0.972	E
126. Sawtelle Boulevard and Sepulveda Boulevard	AM	0.472	A
	MD	0.556	A
	PM	0.659	B
130. Sepulveda Boulevard and Slauson Avenue	AM	0.552	A
	MD	0.563	A
	PM	0.695	B
135. Sepulveda Boulevard and Westchester Parkway	AM	0.471	A
	MD	0.528	A
	PM	0.598	A
136. Sepulveda Boulevard and 76th/77th Street	AM	0.734	C
	MD	0.440	A
	PM	0.577	A
137. Sepulveda Boulevard and 79th/80th Street	AM	0.617	B
	MD	0.390	A
	PM	0.481	A
138. Sepulveda Boulevard and 83rd Street	AM	0.447	A
	MD	0.336	A
	PM	0.453	A
139. Sepulveda Boulevard and I-105 WB Ramp north of Imperial Highway	AM	0.863	D
	MD	0.792	C
	PM	0.775	C
141. 96th Street and Airport Boulevard	AM	0.329	A
	MD	0.405	A
	PM	0.469	A
144. 98th Street and Airport Boulevard	AM	0.341	A
	MD	0.429	A
	PM	0.486	A
146. Sepulveda Eastway and Westchester Parkway	AM	0.349	A
	MD	0.439	A
	PM	0.413	A
147. Century Boulevard and Crenshaw Boulevard	AM	0.640	B
	MD	0.702	C
	PM	0.855	D
160. Lincoln Boulevard and Rose Avenue	AM	0.874	D
	MD	0.769	C
	PM	0.827	D
161. Century Boulevard and Western Avenue	AM	0.758	C
	MD	0.497	A
	PM	0.750	C
162. Sepulveda Boulevard and Manhattan Beach Boulevard	AM	1.100	F
	MD	0.792	C
	PM	1.133	F

1 The AM peak hour represents the peak 60-minute period between 7:00 and 9:00 A.M., the MD peak hour represents the peak 60-minute period between 11:00 A.M. and 1:00 P.M., and the PM peak hour represents the peak 60-minute period between 4:00 and 6:00 p.m.
2 Volume to capacity ratio.
3 Level of Service range: A (excellent) to F (failure).

Source: Fehr & Peers, February 2009.

4.2.4 Project Traffic

4.2.4.1 Peak-Hour Project Trip Generation in 2013

Peak hour trip generation estimates were developed for 2013 conditions with the reconfigured terminal described in Section 4.2.2.1 above. Since the reconfiguration of the TBIT terminal would likely affect vehicle trip generation of other airport facilities, trip generation was estimated at the CTA, airport parking facilities, employee parking facilities, rental car facilities, and off-airport parking facilities.

The Future (2013) With Project trip generation estimates were compared to existing (2008) observed trip generation numbers to determine the number of TBIT-related trips during each of the three analysis peak hours, which accounts for the increase in passenger activity from 2008 to 2013 at the TBIT terminal as well as the reconfigured terminal described in Section 4.2.2.1. This approach reflects the fact that, as described in Section 4.2.2.1, the trip-generation for the off-airport surface transportation analysis was based on passenger activity levels, which, in this case, is very conservative by assuming all of the growth in TBIT-related vehicle trips between 2008 and 2013 is attributable to the project. Trip generation estimates were also developed for adjacent terminals. This information is provided in Appendix C-7. The peak hour project trip generation is shown in **Table 4.2-3**. As noted above in Section 4.2.2.5, the trip generation estimates developed for this analysis are based on an aviation activity level forecast that assumed substantial growth in passenger activity levels at LAX between 2008 and 2013, which is considered to be conservative (high) given current economic conditions and associated decreases in aviation activity worldwide.

Table 4.2-3

TBIT Trip Generation

	Future (2013) With Project Minus Existing (2008) Conditions		
Peak Hour/Location	**In**	**Out**	**Total**
AM Peak Hour			
CTA	522	685	1,207
Airport Parking	6	13	19
Employee Parking	158	47	205
Rental Car Facility	30	195	225
Off-Airport Parking	8	26	34
Total	**724**	**966**	**1,690**
MD Peak Hour			
CTA	713	804	1,517
Airport Parking	12	13	25
Employee Parking	61	33	94
Rental Car Facility	102	159	261
Off-Airport Parking	21	18	39
Total	**909**	**1,027**	**1,936**
PM Peak Hour			
CTA	593	470	1,063
Airport Parking	31	2	33
Employee Parking	87	122	209
Rental Car Facility	202	11	213
Off-Airport Parking	35	3	38
Total	**948**	**608**	**1,556**

Source: Fehr & Peers, 2009.

4.2.4.2 Trip Distribution

Vehicle trips generated by the proposed Bradley West Project were distributed to the regional roadway network by the LAX travel demand model. The model focuses on estimating regional travel for the entire southern California region supplemented by a more detailed sub-area model to better distribute trips in the study area. Additionally, the model-wide distribution pattern of airport-related trips in the validated base year model was compared to annual distribution percentages published in the Los Angeles

International Airport 2006 Air Passenger Survey.[61] The existing distribution patterns of airport-related trips were maintained throughout both analysis scenarios.

4.2.5 CEQA Thresholds of Significance

Each study intersection was evaluated for potential traffic impacts using the significant traffic impact criteria utilized in the jurisdiction of the intersection. Intersections lying on the boundary of multiple jurisdictions were evaluated using the more conservative criteria. Specifically, 47 intersections were evaluated using the City of Los Angeles significant traffic impact criteria, 10 intersections were evaluated using the City of Inglewood significant traffic impact criteria, 8 intersections were evaluated using the City of Culver City significant traffic impact criteria, 3 intersections were evaluated using the City of El Segundo significant traffic impact criteria, 2 intersections were evaluated using the City of Manhattan Beach significant traffic impact criteria, and 1 intersection was evaluated using the Los Angeles County significant impact criteria. A description of the significant impact criteria for each jurisdiction is presented below.

4.2.5.1 City of Culver City Impact Criteria

For the City of Culver City, an impact is considered to be significant if one of the following thresholds is exceeded:[62]

- The LOS is D, its final V/C ratio is 0.801 to 0.90, and the project-related increase in V/C is 0.040 or greater, or
- The LOS is E or F, its final V/C ratio is 0.901 or greater, and the project-related increase in V/C is 0.020 or greater.

4.2.5.2 City of El Segundo Impact Criteria

For the City of El Segundo, an impact is considered to be significant if one of the following thresholds is exceeded:[63]

- The LOS is E or F, its final V/C ratio is 0.901 or greater, and the project-related increase in V/C is 0.020 or greater.

4.2.5.3 City of Inglewood Impact Criteria

For the City of Inglewood, an impact is considered to be significant if one of the following thresholds is exceeded:[64]

- The LOS is F, its final V/C ratio is 1.001 or greater, and the project-related increase in V/C is 0.020 or greater.

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[61] Applied Management & Planning Group, 2006 Air Passenger Survey Los Angeles International Airport, December 2007.
[62] Paetzold, Max, City Traffic Engineering Manager, City of Culver City, Personal Communication, April 17, 2009
[63] Samaras, Paul, Principal Planner, City of El Segundo, Personal Communication, April 21, 2009.
[64] Mai, Alan, Associate Traffic Engineer, City of Inglewood, Personal Communication, January 6, 2009.

4.2.5.4 City of Los Angeles Impact Criteria

In accordance with LADOT criteria defined in their Traffic Study Policy and Procedures,[65] an impact is considered to be significant if one of the following thresholds is exceeded:

- The LOS is C, its final V/C ratio is 0.701 to 0.80, and the project-related increase in V/C is 0.040 or greater, or
- The LOS is D, its final V/C ratio is 0.801 to 0.90, and the project-related increase in V/C is 0.020 or greater, or
- The LOS is E or F, its final V/C ratio is 0.901 or greater, and the project-related increase in V/C is 0.010 or greater.

4.2.5.5 City of Manhattan Beach Impact Criteria

For the City of Manhattan Beach, an impact is considered to be significant if one of the following thresholds is exceeded:[66]

- The LOS is D, its final V/C ratio is 0.801 to 0.90, and the project-related increase in V/C is 0.020 or greater, or
- The LOS is E or F, its final V/C ratio is 0.901 or greater, and the project-related increase in V/C is 0.010 or greater.

4.2.5.6 Los Angeles County Impact Criteria

In accordance with Los Angeles County criteria defined in their Traffic Impact Analysis Report Guidelines,[67] an impact is considered to be significant if one of the following thresholds is exceeded:

- The LOS is C, its final V/C ratio is 0.701 to 0.80, and the project-related increase in V/C is 0.040 or greater, or
- The LOS is D, its final V/C ratio is 0.801 to 0.90, and the project-related increase in V/C is 0.020 or greater, or
- The LOS is E or F, its final V/C ratio is 0.901 or greater, and the project-related increase in V/C is 0.010 or greater.

The "final V/C ratio" as defined by all jurisdictions is comprised of the future V/C ratio at an intersection that includes volume from the project, existing traffic, ambient background growth, and other related projects, but without proposed traffic mitigation as potentially required by the project. The "project-related increase" is defined as the change in the unmitigated LOS condition between the (a) future V/C "with" project, existing traffic, ambient background growth, and other related project growth, and (b) the future V/C "without" the project but with existing traffic, ambient background growth, and other related project growth.

For purposes of this study, project impacts were determined by calculating the difference in LOS for (a) the Future (2013) With Project LOS and (b) the Future-Adjusted (2013) Without Project LOS.

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65 Los Angeles Department of Transportation, Traffic Study Policies and Procedures, Revised March 2002, Available: www.lacity.org/LADOT/TrafficStudyGuidelines.pdf

66 Zandvliet, Erik, Traffic Engineer, City of Manhattan Beach, Personal Communication, April 21, 2009.

67 Los Angeles County Department of Public Works, Traffic Impact Analysis Report Guidelines, January 1, 1997, Available: http://www.ladpw.org/Traffic/Traffic%20Impact%20Analysis%20Guidelines.pdf

CMP Thresholds of Significance

The guidelines set forth in the 2004 CMP for Los Angeles County,[68] indicate that if a proposed development project adds 150 or more trips in either direction during either the morning or evening peak hour to the mainline freeway monitoring location, then a CMP freeway analysis must be conducted. If a proposed project adds 50 or more peak hour trips in either the AM or PM peak hour (of adjacent street traffic) to a CMP arterial intersection, then a CMP arterial intersection analysis must be conducted.

For the purpose of a CMP Traffic Impact Analysis, a project impact is considered to be significant if the proposed project increases traffic demand, as determined by comparing Future (2013) With Project to Future-Adjusted (2013) Without Project, on a CMP facility by 2 percent of capacity ($V/C \geq 0.02$), causing or worsening LOS F ($V/C \geq 1.00$). Under these criteria, a project would not be considered to have a regionally significant impact if the analyzed facility is operating at LOS E or better after the addition of project traffic regardless of the increase in V/C ratio caused by the project. If the facility is operating at LOS F with project traffic, and the incremental change in the V/C ratio caused by the project is 0.02 or greater, the project would be considered to have a significant impact.

4.2.6 LAX Master Plan Commitments and Mitigation Measures

The transportation-related LAX Master Plan commitments and mitigation measures identified in the LAX Master Plan Mitigation Monitoring and Reporting Program address significant impacts associated with an airport access plan that is substantially different from existing conditions. The LAX Master Plan, as approved, would substantially alter existing circulation in and around the airport by limiting access by private vehicles to the main airport infrastructure. Under the LAX Master Plan, a new Ground Transportation Center (GTC) and an Intermodal Transportation Center (ITC) would be constructed east of Aviation Boulevard and would be the primary access points for all passenger drop off and pick up and vehicle parking. Additionally, an automated people mover (APM) system and a new roadway system linking the GTC, ITC, and CTA are key elements of the surface transportation system proposed under the LAX Master Plan. As described in Section 3.3.2, as part of the Stipulated Settlement, LAWA is proceeding with the Specific Plan Amendment Study (SPAS) process to identify potential alternative designs, technologies, and configurations for the LAX Master Plan Program that would provide solutions to the problems that the Yellow Light Projects were designed to address, The GTC and associated APM and roadway system are Yellow Light Projects, and as such, are being revisited and may be potentially replaced as part of the SPAS process. The LAX Master Plan traffic-related commitments and mitigation measures are not included as part of the Bradley West Project for the purposes of environmental review, nor are any associated additional roadway improvements. As such, the impacts analysis presented herein for the Bradley West Project is considered to be conservative, inasmuch as it does not take into account the traffic flow benefits provided by the types of traffic system improvements referenced above.

4.2.7 Transportation Network Improvements and Development Projects

The proposed transportation system changes that are projected to occur between the existing conditions in 2008 and Future (2013) scenarios are included in the future roadway networks used in the analysis. These improvements were collected through information provided by local jurisdictions and verified by LADOT. Improvements were only included if they were funded and would be constructed by 2013. The improvements are listed in detail in **Table 4.2-4**.

[68] Los Angeles County Metropolitan Transportation Authority, 2004 Congestion Management Program for Los Angeles County, July 2004.

Table 4.2-4

Major Transportation Network Improvements in Study Area

Street/Freeway	Limits	Improvement
Arbor Vitae St	Airport Blvd to La Cienega Blvd	Widen to provide continuous left-turn channelization
Bluff Creek Dr	Centinela Ave to Lincoln Blvd	New roadway to be built to Secondary Highway standards; easterly segment will be 3 lanes in each direction
Culver Blvd[1]	At Sawtelle Blvd and at Sepulveda Blvd	Intersectional improvements
Douglas St[1]	Imperial Highway to El Segundo Blvd	Convert from one-way to two-way; 3 lanes in each direction
La Cienega Blvd[1]	At Centinela Avenue	Add second northbound left-turn lane
La Tijera Boulevard	At I-405 Freeway	Widen the bridge structure over the freeway and add double left-turn lanes on La Tijera Blvd at the on-ramps
Lincoln Blvd[1]	La Tijera Blvd to LMU Dr	Widen to 7 total lanes (4 NB, 3 SB)
Lincoln Blvd[1]	LMU Dr to Jefferson Blvd	Widen to 4 lanes in each direction
Lincoln Blvd[1]	Ballona Creek Bridge to Fiji Way	Widen to 3 lanes in each direction
Nash St[1]	Imperial Highway to El Segundo Blvd	Convert to two-way traffic; 2 lanes in each direction
Sepulveda Blvd[2]	Manchester Avenue to Lincoln Blvd	Widen to provide 3 full-time lanes NB and SB
Sepulveda Blvd	Jefferson/Playa to Green Valley Circle	Widen to provide third southbound lane
I-105[2]	Westbound off-ramp at NB Sepulveda Blvd	Widen to provide three lanes on off-ramp
I-405[2]	SR-90 to I-10	HOV
I-405[2]	I-10 to SR-101; NB; portion of remaining SB	HOV

1 Completed since project Notice of Preparation in 2008.
2 Under construction as of March 2009.

Source: Fehr & Peers, 2009.

Planned development projects in the City of Los Angeles and neighboring communities within the vicinity of the study area are shown in **Table 4.2-5**. The list was prepared to document and describe all known local area development projects that may contribute traffic to the Bradley West Project study area. The list is based on consultation with representatives of LADOT, Culver City, El Segundo, Hawthorne, Inglewood, Los Angeles County, and Manhattan Beach. **Table 4.2-5** includes the estimated a.m. and p.m. peak hour trip generation associated with each project (if known) and includes information relating to project status. The peak hour trips presented in **Table 4.2-5** represent the development-related traffic generated during the peak commute periods analyzed for the Bradley West Project.

4.2.8 Impact Analysis

As described in Section 4.2.2, off-airport traffic-related impacts pertaining to operation of the Bradley West Project were assessed by comparing Future (2013) With Project Conditions against Future-Adjusted (2013) Without Project Conditions. The following presents the conclusions of that comparison.

4.2.8.1 Future (2013) With Project Conditions Measured Against Future-Adjusted (2013) Without Project Conditions

As discussed in Section 4.2.2.1, "Future-Adjusted (2013) Without Project" assumed growth in vehicle trips at the adjacent terminals (i.e., CTA Terminals 1 through 8) anticipated to occur by 2013, but held trip generation levels at TBIT to those of 2008. By comparing Future (2013) With Project Conditions to Future-Adjusted (2013) Without Project Conditions, the proposed project's impact is calculated. As indicated in Section 2.4.5 of this EIR, the activity level forecast is based on 2008 data, and is considered conservative in light of the current economic recession and the expected decrease in aviation activity worldwide that would likely occur as a result.

The impact comparison for this condition is depicted in **Table 4.2-6**. The associated level of service sheets are provided in Appendix C-5. The Future (2013) With Project traffic volumes are shown in **Figures 4.2-4a-d** and the Future-Adjusted (2013) Without Project traffic volumes are shown in **Figures 4.2-5a-d**.

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
1	Baldwin Hills Scenic Overlook Park	Hetzler Road	10,300 sq. ft. visitor center, passive recreation area	CC	3	12	Completed and opened to the public in April 2009
2	Baldwin Site	12803 W. Washington Boulevard	New 3-story mixed use development totaling 37,308 sq. ft.	CC			Empty lot per field visit of 1/14/2009
3	Brentwood Site Mixed Use	8810/8840/8850 Washington Boulevard	New mixed use development w/preliminary concept of up to (approx.) 133 residential units and 17,084 sq. ft. retail	CC			Existing closed auto dealership per field check of 1/15/2009
4	Brooke Kaufman	4227 Ince Boulevard	6 condo units on 3 lots	CC			Existing homes
5	Child Care Center	4024/4026 Wade St.	Conversion of a 1,371 sq. ft. duplex into a day care; no new square footage	CC			Completed per City of Culver City
6	Condominiums	3846 Bentley Avenue	4 units	CC	2	2	Existing single family home per field visit of 1/14/2009
7	Condominiums	3873 Bentley Avenue	2 units	CC	1	1	Construction complete per field visit of 1/14/2009
8	Condominiums	3862 Huron Avenue	5 units	CC	3	3	Building permit; existing home per field visit of 1/14/2009
9	Condominiums	4048 Lincoln Avenue	3 townhome condominiums	CC			In construction per field visit of 1/14/2009
10	Condominiums	9650 Lucerne Avenue	5 townhome condominiums	CC	3	3	Existing apartments per field visit of 1/14/2009
11	Condominiums	4058 Madison Ave.	4 units	CC	2	2	Existing home. Notice of pending development per field check of 1/14/2009
12	Condominiums	4228 Madison Avenue	2 units	CC	1	1	Building permit; no such address per field visit 1/14/2009
13	Condominiums	3972 Tilden Avenue	4 units	CC	2	2	Under construction per field visit of 1/14/2009

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
14	Condominiums	4014 Van Buren Place	4 units	CC	2	2	In construction per City of Culver City
15	Condominiums	4025 Wade Street	4 units	CC	2	2	Under construction per field visit of 1/14/2009
16	Condominiums (Former Burger King site)	13340 Washington Boulevard	41 unit condominium development with 6 live/work condominium units in Culver City and 35 Units in LA	CC/LA	18	21	Fenced empty lot per field of 1/14/2009
17	Czuker Site Mixed Use	8770 Washington Boulevard	New mixed use development w/preliminary concept of up to (approx.) 115 residential units, 41,600 sq. ft. retail; 1,400 sq. ft. cafe; 53,500 sq. ft. office	CC			Pre-application stage
18	Distribution & Warehouse	3434 Wesley Street	10,500 sq. ft. office, warehouse and distribution	CC	16	86	Empty fenced lot per field check of 1/14/2009
19	Dr. Brenord Dutt	5800 Uplander Way	Add 3 stories; 57,050 sq. ft. to a 2-story office	CC			Notice of pending development posted per field check of 1/14/2009
20	Radisson Office Tower	6161 Centinela Avenue	342,409 sq. ft. office tower and 9-level parking structure	CC	502	462	Entitlements pending
21	FAYNSOD Family Trust	11501-11509 Washington Blvd.	Mixed Use: 3 Retail (2,359 sq. ft.), 1 Office (937 sq. ft.), & 2 Apts. (1,867 sq. ft.)	CC	9	87	Parking lot with fenced storage area per field check of 1/14/2009
22	Fire Station No. 3	6030 Bristol Pkwy	Two-story, 12,156 sq. ft. fire station	CC	9	9	Under construction per field check of 1/14/2009
23	Glencoe/Washington Mixed Use	13365 Washington Blvd.	4,183 sq. ft. retail and 19 condominium units	CC	14	24	Building permit; existing closed restaurant per field visit 1/14/2009
24	Greg Reitz	8665 Hayden Place	63,679 sq. ft. of office	CC			Existing storage warehouse per field check of 1/14/2009
25	Hampton Inn	3954 Sepulveda Blvd.	77-unit hotel	CC	43	45	Building permit
26	Huron Townhouses	3823-3833 Huron Avenue	15 new townhouses; 3 existing units to be removed	CC	6	6	Completed per City of Culver City

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
27	Irving Residential/Office	4043 Irving Place	Four story; 26 residential units and 3 office units	CC			Entitlements pending
28	Live/Work Lofts	10839 Washington Blvd.	3 Live/Work units and 12 parking spaces	CC	5	4	Appeared to be completed per field visit of 1/14/2009
29	Lux @ 9910 Mixed Use	9901 Washington Boulevard	14,112 sq. ft. mixed use development with 131 dwelling units; 12,178 sq ft. of retail and three levels of subterranean parking with 244 parking spaces	CC/LA			Entitlement stage
30	New vehicle repair shop	11167 Washington Place	Construction of a new vehicle repair shop with 1,196 sq. ft. of repair area with two service bays and 191 sq. ft. of office	CC			Entitlement stage
31	Office Building	9919 Jefferson Boulevard	113,467 sq. ft., 3-story office building	CC			Empty lot per field check of 1/14/2009
32	Office & Retail Bldg.	700-701 Corporate Pointe	240,612 sq. ft. of office and 4,242 sq. ft. of retail	CC	384	359	Vacant lot per field visit of 1/14/2009
33	Parcel B	9300 Culver Boulevard	74,600 sq. ft. of office, 21,700 sq. ft of restaurant and 21,700 sq. ft. of retail	CC	461	627	Surface parking lot per field visit of 1/14/2009
34	Modification to CUP, expanding school	12095-12101 Washington Boulevard	Conversion of a 28,000 sq. ft. office building into classrooms and administrative offices; addition of 2,000 sq. ft.	CC			No construction per field visit of 1/14/2009
35	Sony	10202 Washington Blvd.	Approved to build net new 100,000 sq. ft. of office, post-production, stage, and support uses	CC			Under construction per field visit of 1/14/2009
36	Southbay Ventures	4139/4145 Duquesne Avenue	6 units on 2 lots	CC			Fenced lot per field visit of 1/14/2009
37	Triangle Site - Washington/National Transit Oriented Development	NW corner of Washington and National Boulevards	New transit oriented development to include light rail station and mixed use development (preliminary concept includes up to 290 dwelling units; 149 room hotel; 70,000 sq. ft. office; 31,500 sq. ft. retail and 10,000 sq. ft. restaurant	CC	1,235	2,071	Empty lot per field visit of 1/15/2009

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
38	Turning Point School (K through 8)	8794 National Boulevard	Addition/remodel of net 9,000 sq. ft.	CC	107	61	Closed school; no construction per field visit of 1/14/2009
39	Union 76	10638 Culver Boulevard	Gas station and convenience store with new car wash; 2,500 sq. ft.	CC			Existing gas station (no car wash) per field visit of 1/14/2009
40	Uptown Lofts	9900 Culver Boulevard	5,457 sq. ft. of office and 18 condominium units	CC	26	94	Under construction per field visit of 1/14/2009
41	Warner Parking Structure	8511 Warner Drive	51,520 sq. ft. retail/restaurant; 784 parking spaces on 5 levels	CC			Surface parking lot per field visit of 1/14/2009
42	11957 Washington Boulevard Office Project	11957 Washington Boulevard	73,569 sq. ft., 4-story office building	CC			Empty lot per field visit of 1/14/2009
43	Washington Place Office Condos	12402 Washington Place	42,000 sq. ft. 4-story office and retail building; 9,300 sq. ft. of retail; 30,400 sq. ft. of office	CC			Closed auto repair per field visit of 1/14/2009
44	Westfield Fox Hills Mall Expansion	200 Fox Hills Mall	293,786 sq. ft. of retail and 427 parking spaces	CC	299	1,275	Under construction; Completion 10/2009
45	West Los Angeles Community College Master Plan	Overland Avenue at Freshman Drive	Approx. 291,300 sq. ft. of new building and renovation. Anticipate future student population of approx. 18,904 students and 1,248 employees by Fall 2022. Project includes second access road, parking structures, landscaping and development of athletic facilities	CC/CO	669	664	Parking lot completed; math/science bldg. under construction per field check 1/2009
46	Best Western Jamaica Bay Inn (Parcel 27R)	4175 Admiralty Way	Renovation & Expansion 42-room hotel by an additional 69 rooms	CO	38	24	No construction per field visit of 1/9/2009
47	Boat Central (Parcels 52 and GG)	13501 Fiji Way	Dry-stack boat storage of 345 parking spaces; boat trailer storage of 24 parking spaces; mast-up sail boat storage of 30 parking spaces	CO	47	51	No construction per field visit of 1/9/2009
48	Del Rey Shores Apartments (Parcels 100 and 101)	4247-4275 Via Marina	544 apartments (202 existing units to be removed)	CO	120	111	No construction per field visit of 1/9/2009

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
49	Diner (Parcel 33)	4211 Admiralty Way	351 Apartments; 24,500 sq. ft. retail; 10,000 sq. ft restaurant (existing restaurant to be removed)	CO	184	22	Existing Panifico's Restaurant per field visit of 1/9/2009
50	Fisherman's Village (Parcels 55, 56 & W)	13715 Fiji Way	26,570 sq. ft. of specialty retail; 785-seat restaurant; 132-room hotel; 9 boat slips	CO	98	209	No construction per field visit of 1/9/2009
51	Gateway Marina Del Rey (Parcel 95)	404-514 Washington Boulevard	16,350 sq. ft. specialty retail center; 9,160 sq. ft. high turn-over, sit-down restaurant with 240 seats; 7,890 sq. ft. of general office building, 6,100 sq. ft. walk-in bank 72 Apartments; 337 Parking Spaces (removal of 7,500 sq. ft. drive-up bank)	CO	-36	128	No construction per field visit of 1/9/2009; Existing Islands restaurant and Caldwell Bank
52	Government Office Building	Panay Way and Via Marina	26,000 sq. ft.	CO	40	57	No construction per field visit of 1/9/2009
53	Villas Apartments	4170 Admiralty Way (Admiralty Way and Palawan Way, NW Corner)	Congregate Care Facility 114 Occupied DU's, 5,000 sq. ft. of specialty retail; parking lot with 94 parking spaces, 6,000 sq. ft. of general office/commercial; parking structure with 447 parking spaces; removal of 6,000 sq. ft health club	CO			Construction completed per field visit of 1/9/2009
54	Legacy Partners Neptune Marina Apartments/Woodfin Suites Hotel (Parcels 10R, FF & 9U)	Marquesas Way and Via Marina	526 apartments (removal of 136 apartments); 288-room hotel; 1.47-acre public park	CO	253	228	No construction per field visit of 1/9/2009
55	Lincoln Boulevard Mixed Use Project	4363 Lincoln Boulevard	158 high-rise residential condominium units; 3,178 sq. ft. of specialty retail; parking structure with 409 parking spaces. Beverly Hills Rent-a car facility (48,000 sf. ft.) to be removed	CO	47	71	Existing rent-a-car facility per field visit of 1/9/2009
56	Lloyd Taber Marina del Rey Library (Parcel 40)	4533 Admiralty Way	Library	CO			Existing Library. No construction per field visit of 1/9/2009
57	Marina City Club Towers Marina del Rey	4333 Admiralty Way	600 units	CO	264	196	No construction per field visit of 1/9/2009

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
58	Marina del Rey Apartment Community (Parcels 12 & 15)	Panay Way and Via Marina	940 apartments; 82 units senior apartments; 4,000 sq. ft. retail; 6,000 sq. ft. commercial	CO	171	152	No construction per field visit 1/9/2009
59	Marina Del Rey Center (Parcel 97)	514-586 Washington Boulevard	Replace two 1-story commercial structures with two larger 1-story structures (+486 sq. ft.)	CO	1	2	Existing strip mall. No construction per field visit of 1/9/2009
60	Marina del Rey Residential Project (Parcels 12, 15 and FF)	Panay Way and Via Marina	1201 residential units on 2 parcels on the west side of Marina Del Rey	CO			No construction per field visit of 1/9/2009
61	Marina Expressway Homes	Marina Expressway Eastbound & Mindanao Way	28 Single family condominiums	CO			No construction per field visit of 1/9/2009
62	Marriott Residence Inn (Parcel IR)	Admiralty Way and Via Marina	149-room hotel. Existing Marriott hotel on NE corner	CO	82	52	No construction per field visit of 1/9/2009
63	Sea Glass Town Homes	6719 Pacific Av	36 condominiums	CO			No construction per field visit of 1/9/2009
64	Villa Venetia Residential (Parcel 64)	13900-13910 Fiji Way	478 mid-rise apartments (removal of 224 existing apartments); 34 boat slips; 5,000 sq. ft. restaurant	CO	93	88	No construction per field visit of 1/9/2009
65	Waterside Shopping Center (Parcels 50 and 83)	13555 Fiji Way	4,880 sq. ft. of specialty retail, with removal of 2,400 sq. ft.	CO	6	21	Existing West Marine Boats appears to be a new facility
66	The Aerospace Corp. (Office and Laboratory)	2350 E El Segundo Boulevard	150,000 sq. ft. office and 15,000 sq. ft lab	ES			Final stages of construction
67	Commercial Buildings	126, 130, 134 & 138 Lomita St	4 new commercial buildings	ES			Nearing end of construction per field visit of 1/7/2009
68	Condominiums	347 Concord Street	3 units	ES	3	3	Existing apartments (project not begun) per field visit of 1/7/2009
69	Condominiums	425 & 429 Indiana Street	8 units	ES	8	8	Empty lot per field visit of 1/7/2009

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
70	Condominiums	1700 Mariposa Avenue	11 units	ES	11	11	Empty lot per field visit of 1/7/2009
71	Condominiums	412 Richmond Street	4 units	ES	4	4	Existing apartments (project not begun) per field visit of 1/7/2009
72	Condominiums	203 Whiting Street	4 units	ES	4	4	Under construction per field visit of 1/7/2009
73	Corporate Headquarters Office	455/475 Continental Boulevard	330,000 sq. ft. office; 22,500 sq. ft. research and development	ES	664	632	Existing office building (project not begun) per field visit of 1/8/2009
74	El Segundo Corporate Campus	700-800 N Nash Street	1,740,000 sq. ft. office; 75,000 sq. ft. retail; 7,000 sq. ft. child care; 7,000 sq. ft. medical office; 19,000 sq. ft. health club; 75,000 sq. ft. restaurant; 100-room hotel; 25,000 sq. ft. light industrial, 75,000 sq. ft. research & development; 65,000 sq. ft. technology/telecommunications	ES	2,267	2,795	Partially completed. Health club and hotel components are on hold
75	Electronics Superstore	Aviation Boulevard and Utah Ave/135th St	152,504 sq. ft. electronics superstore in place of 90,243 sq. ft. R&D, 51,209 sq. ft. office, and 11,502 sq. ft. Warehouse	ES			Existing office building (project not begun) per field visit of 1/8/2009
76	High Bay Lab	901 N Nash St	55,772 sq. ft.	ES	69	60	Construction close to completion
77	Northrup-Grumman	SE corner of Mariposa Ave and Douglas Street	190,000 sq ft. industrial uses	ES	175	186	Under construction
78	Office	888 N Sepulveda Boulevard	120,000 sq. ft.	ES	217	214	Empty lot per field visit of 1/8/2009
79	Office	141 Main Street	commercial	ES			Existing closed restaurant per field visit of 1/7/2009
80	Plaza El Segundo Phase 2A	NE Corner of Sepulveda Blvd and Rosecrans Ave	commercial	ES			Empty lot per field visit of 1/8/2009. Project on hold
81	Segundo Business Park	222 Kansas Street (at Grand Avenue)	commercial	ES			Demolition permit only received by the City

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
82	Xerox Phase IV	1951-1961 El Segundo Bl	255,242 sq. ft. office; 350-room hotel	ES	629	614	Existing office building and surface lot per field visit 1/8/2009; Project on hold
83	Condominiums	13429-31 Kornblum Avenue	6 units	HA			Existing single family home per field visit of 1/7/2009
84	Condominiums	14629 Lemoli Avenue	3 units	HA			Construction completed per field visit of 1/7/2009
85	Condominiums	11533 Freeman Avenue	5 unit conversion	HA			Project completed per field visit of 1/7/2009
86	Condominiums	11975 Manor Drive	3 units	HA			Vacant lot per field visit of 1/7/2009
87	Condominiums/Office	13806 Hawthorne Blvd	171 units and 32,500 sq. ft. of office space	HA	213		Closed mortuary per field visit of 1/7/2009
88	Condominiums	11418 Grevillea Avenue	7 units	HA			Existing lawn mower business per field visit of 1/7/2009
89	Hotel Extensions	4334 W. Imperial Highway	165 rooms	HA			Under construction, per field check of 1/7/2009
90	L.A. Air Force Base - Lawndale Annex	East of Aviation Blvd and South of Rosecrans Avenue	285 condominium units	HA	142		Fusion Development at Aviation Blvd and 149th Place is completed. No other condominium projects seen per field visit of 1/7/2009
91	LA Air Force Base - Area A	SE corner of El Segundo Bl and Aviation Bl	625 condominiums	HA	330	405	Under construction per field visit of 1/8/2009
92	LA Air Force Base - Area B	NW corner of El Segundo Bl and Aviation Bl	63,000 sq. ft. warehouse; 560,000 sq. ft. office park; 93,750 sq. ft. base exchange; 43,125 sq. ft. health club; 34,463 sq. ft. medical office	HA	815	711	Existing surface parking lot per field visit of 1/8/2009
93	Prestige Villas	4500 116th Street	116 condominium units	HA	85		Existing closed RFK Medical Center per field visit of 1/7/2009

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
94	Recycling Center at Ralph's Grocery Store	11873 Hawthorne Blvd	Recycling center	HA			No construction per field visit 1/7/2009
95	Single Family Homes	14000 Yukon Avenue	6 units	HA			Four existing single family homes per field visit of 1/7/2009
96	Wiseburn School District	5403 W. 138th St and 5309 W. 135th St and 13500 Aviation Blvd	School Renovation. Existing Peter Burnett School at 5403 W. 138th Street	HA			Construction at Juan Cabrillo Elementary School (5309 W. 135th Street) completed per field visit 1/7/2009
97	Adult School and Day Care	106 East Manchester Blvd.	27,477 sq. ft.; office conversion	IN			Construction completed per field visit of 1/9/2009
98	Auto Sales and Retail	Prairie Avenue and Imperial Highway, NE Cor	49,000 sq. ft.	IN			Under construction per field visit of 1/9/2009
99	Commercial Building Addition	234 W. Manchester Boulevard	12,029 sq. ft.	IN			Construction completed per field visit of 1/9/2009
100	Condominiums	501 East 99th Street	12 units	IN			Existing home per field visit of 1/9/2009
101	Condominiums	940 North Cedar Street	14 units	IN			Existing apartments per field visit 1/9/2009
102	Condominiums	448 North Edgewood Street	6 units	IN			Existing home per field visit of 1/9/2009
103	Condominium	417- 420 N. Market Street	12 units	IN			Fenced lot per field visit of 1/9/2009
104	Condominiums	450 N. Market Street	12 units	IN			Existing abandoned building per field visit of 1/9/2009
105	Condominiums	912 S. Myrtle Avenue	7 units	IN			Existing apartments per field visit of 1/9/2009
106	Condominiums	927 South Osage Avenue	7 units	IN			Existing home per field visit of 1/9/2009
107	Condominium	222 W. Spruce Avenue	10 units	IN			Vacant lot per field visit of 1/9/2009

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
108	Hollywood Park Mixed-Use Development	1050 South Prairie Avenue	2,995 dwelling units; 300-room hotel; 620,000 sq. ft. retail; 75,000 sq. ft. office/commercial; 10,000 sq. ft. of civic use; 300-room hotel with 20,000 sq. ft. of meeting space. Pavilion/casino would be maintained on the project site.	IN	1,604	-39	Draft EIR released fall 2008
109	Mixed retail/restaurant	Florence Avenue and La Brea Avenue, SE corner	49,800 sq. ft.	IN			Vacant lot per field visit of 1/9/2009
110	Mixed retail/restaurant	Southwest corner of Century/Prairie (Haagen)	97,490 sq. ft.	IN			Existing Taco Bell per field visit of 1/9/2009
111	Residential	704 N. Market Street	6 units	IN			Vacant lot per field visit of 1/12/2009
112	Retail and Office	10318 S. Prairie Avenue	10,000 sq. ft.	IN			Under construction per field visit of 1/12/2009
113	Senior Center and Housing	111 N. Locust Street	95,188 sq. ft.	IN			Vacant lot per field visit of 1/12/2009
114	Shopping Center	11441 S. Crenshaw Boulevard	101,323 sq. ft.	IN			Burlington Coat Factory store completed; further construction pending per field visit of 1/12/2009
115	Shopping Center	433 North Centinela Avenue	7,384 sq. ft.	IN			Vacant lot per field visit of 1/12/2009
116	Shopping Center	10922 South Prairie Avenue	8,416 sq. ft.	IN			Vacant paved lot per field visit of 1/12/2009
117	Single Family Homes	11901 S. Yukon Avenue	9 units	IN			In construction per field visit of 1/12/2009
118	Transitional Housing	733 Hindry Avenue	232,966 sq. ft.	IN			Existing transitional housing per field visit of 1/12/2009
119	Transitional Housing	812 S. Osage Avenue	20 units	IN			Vacant lot per field visit of 1/12/2009

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
120	Ambrose Hotel	901 Abbot Kinney Boulevard	57-room hotel, 1,200 sq. ft. of retail and 4,300 sq. ft. restaurant	LA	30	54	No construction. Existing building for lease per field check of 1/14/09
121	Animo High School	841 California Avenue	420-student charter school	LA	332	176	Under construction per field visit of 1/14/09
122	Bank of America	7215 W. Manchester Avenue	Walk-in bank	LA	16	81	Empty lot per field visit of 3/23/2009
123	Car Wash	9204 Airport Boulevard	15,251 sq. ft. of car rental facility to be removed	LA	36	110	No construction per field check of 1/12/2009
124	Central Region Elementary School	Teale Street E/O Lincoln Boulevard	650 students	LA	221		Empty lot per field visit of 1/14/2009
125	Chevron Gas Station	6101 W. Manchester Avenue	1,000 sq. ft. gas station with a drive through Starbucks; 2,000 sq. ft. 24-hour convenience store	LA	133	36	Under construction
126	Condominiums	7430 Arizona Avenue	43 units	LA			Under construction
127	Daycare Center	7900 S. Loyola Boulevard	16 student daycare center	LA	13	13	Daycare construction complete. William H. Hannon Library under construction per field visit of 1/14/2009
128	Grosvernor Court	5550 Grosvenor Boulevard	208 condo units	LA	92	146	Existing surface parking lot per field visit of 1/14/2009
129	Lincoln Boulevard Mixed Use	4004 S. Lincoln Boulevard	98 unit condos & 6020 sq. ft. retail	LA	108	101	Existing strip mall per field visit of 1/14/2009
130	Lincoln Boulevard/ Manchester Avenue	7280 - 7298 W. Manchester Avenue	Apartments to replace specialty retail	LA	36	32	Existing realtor and other structure per field check of 1/12/2009
131	Metro Bus Facility	La Cienega Boulevard at Lennox Boulevard	Metro bus maintenance facility with approx. 234 standard and 106 articulated buses, a dispatch center and maintenance shop	LA	243	239	Environmental review
132	Office Building	5901 Center Drive (at Howard Hughes Pkwy)	249,020 sq. ft., five-story office building	LA	386	371	Building permit application in review but no start date. Will be built to suit

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
133	Private School	5401 Beethoven Street	420 students	LA	294	66	Construction completed per field visit of 1/14/2009
134	Radisson Hotel	6225 W. Century Blvd	340 room hotel; 2,544-space parking structure w/1,733 spaces for airport parking	LA	332	342	Project buildout year is 2012
135	Residential Mixed Use Project	8601 Lincoln Boulevard (at Manchester Avenue)	527 apartments, 12 live/work units, 22,600 sq. ft. of ground retail uses and 8,000 sq. ft. of restaurant	LA	2	105	Construction nearing completion per field visit of 3/23/09
136	Villa Allegra	Sepulveda Blvd, W/S, south of Howard Hughes	Townhomes	LA		17	Under construction per field visit of 1/13/2009; Spring 2009 opening
137	The Village at Playa Vista (Playa Vista Phase II)	Jefferson Boulevard between McConnell Drive and Centinela Avenue	2,600 residential units; 175,000 sq. ft. office; 150,000 sq. ft. retail; 40,000 sq. ft. community serving	LA	1,626	2,302	Three office buildings in construction per field visit of 1/14/2009
138	Warehouse and Office	12700 Braddock Drive	134,557 sq. ft. warehouse; 1,357 sq. ft. office. 58,323 sq. ft. of University of CA laundry building to be removed	LA	-14	154	Existing storage facility per field visit of 1/14/2009
139	Washington Square	300 Washington Blvd (at Via Dolce)	123 unit condominiums; 6,000 sq. ft. office space. (Existing 176,671 sq. ft. office building to be removed)	LA	-222	-250	Under construction per field visit of 1/14/2009
140	Westchester Lutheran School Expansion	7831 Sepulveda Boulevard	600 students	LA	64	32	Under construction per field visit of 1/14/2009
141	Bank and Retail	1129 N. Sepulveda Boulevard	4,000 sq. ft. bank and 2,000 sq. ft. retail; demolition of existing gas station	MB			Fenced structure per field visit of 1/7/2009
142	Mixed-Use Project (former Good Stuff restaurant)	1300 Highland Avenue	15,000 sq. ft. commercial/office/condominium	MB			Under construction per field visit of 1/7/2009
143	Medical Plaza	222 Sepulveda Blvd (NE Corner of Sepulveda Blvd and 2nd St)	12,000 sq. ft. medical office building and 1,000 sq. ft. retail. (Existing 5,000 sq. ft. auto repair shop to be removed)	MB			Existing limousine detailing business per field visit of 1/7/2009

Table 4.2-5

Planned Development Projects List

No.	Project Name	Address	Description	City[1,2]	Net AM Trips	Net PM Trips	Comments
144	Retail	1727 Artesia Boulevard	5,800 sq. ft. retail	MB			Construction nearing completion per field visit of 1/7/2009
145	Retail	1700 Rosecrans Avenue	10,000 sq. ft. retail (from warehouse)	MB			Construction complete per field visit of 1/7/2009
146	Rite Aid Store	1100 Manhattan Beach Blvd	13,000 sq. ft. retail (Existing 8,600 sq. ft. gas station to be removed)	MB			Fenced empty lot per field visit of 1/7/2009
147	Walgreens	2400 Sepulveda Boulevard	15,000 sq. ft. retail (demolition of vacant Albertsons store)	MB			Not started per field visit of 1/7/2009

1 CC = Culver City; CO = County of Los Angeles; ES = El Segundo; HA = Hawthorne; IN = Inglewood; LA = City of Los Angeles; MB = Manhattan Beach

2 Projects in Culver City from "Culver City Related Projects List" dated November 6, 2008 and sent by Ms. Diana Chang, Sr. Management Analyst/Transportation Planner, City of Culver City staff to LAWA. Projects in the City of Los Angeles updated via e-mail from Mr. Eddie Guerrero, Transportation Engineer, LADOT on March 25, 2009. Projects in County of Los Angeles from "Related Projects List," dated April 3, 2008, developed and prepared by Suen Fei Lau, Associate Civil Engineer, Los Angeles County Department of Public Works. Updates to projects in El Segundo provided by Maryam Jonas, El Segundo Public Works Department, on January 21, 2009 via e-mail to LAWA staff. Projects in City of Hawthorne were based on the the City's website: http://www.cityofhawthorne.com/depts/planningcommdev/pending_applications/default.asp dated January 15, 2009 and updated via an e-mail from Mr. Christopher Palmer, Planning Assistant, City of Hawthorne, on January 20, 2009 to LAWA staff. Projects in Inglewood from "Related Projects" list dated 3/27/08. Projects in Manhattan Beach sent from Manhattan Beach City staff to LAWA in May 2008.

Source: Fehr & Peers, 2009.

Table 4.2-6

Future (2013) With Project Conditions Measured Against Future-Adjusted (2013) Without Project Conditions

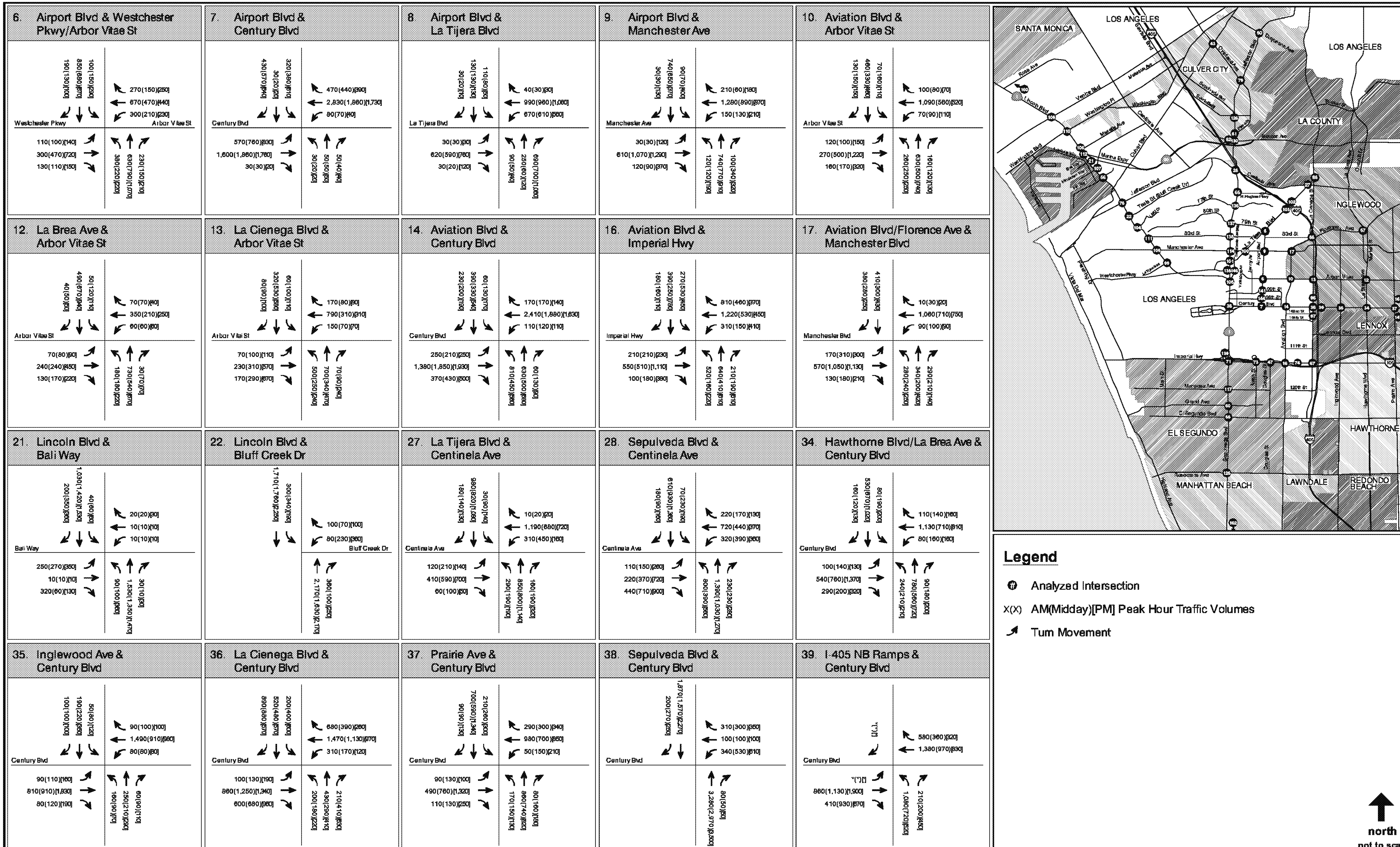
					Future-Adjusted (2013) Without Project Conditions AM		Future (2013) With Project Conditions AM		Significant Impact ?		Future-Adjusted (2013) Without Project Conditions MD		Future (2013) With Project Conditions MD		Significant Impact ?		Future-Adjusted (2013) Without Project Conditions PM		Future (2013) With Project Conditions PM		Significant Impact?	
Int #	Intersection	Jurisdiction	ATSAC	ATCS	V/C	LOS	V/C	LOS	Delta	Impact?	V/C	LOS	V/C	LOS	Delta	Impact?	V/C	LOS	V/C	LOS	Delta	Impact?
6	Airport Bl and Arbor Vitae St / Westchester Pky	LA	X	X	0.653	B	0.804	D	0.151	YES	0.569	A	0.620	B	0.051	NO	0.871	D	0.929	E	0.058	YES
7	Airport Blvd and Century Blvd	LA	X	X	0.718	C	0.864	D	0.145	YES	0.665	B	0.823	D	0.158	YES	0.768	C	0.865	D	0.097	YES
8	Airport Blvd (N/S) and La Tijera Blvd (E/W)	LA	X	X	0.652	B	0.690	B	0.038	NO	0.442	A	0.481	A	0.039	NO	0.614	B	0.639	B	0.025	NO
9	Airport Blvd and Manchester Ave	LA	X	X	0.718	C	0.755	C	0.036	NO	0.704	C	0.718	C	0.015	NO	1.125	F	1.144	F	0.018	YES
10	Arbor Vitae St and Aviation Blvd	Inglewood / LA	X	X	0.707	C	0.747	C	0.040	NO	0.477	A	0.510	A	0.033	NO	0.817	D	0.857	D	0.040	YES
12	Arbor Vitae St and La Brea Ave	Inglewood			0.497	A	0.503	A	0.006	NO	0.535	A	0.541	A	0.006	NO	0.747	C	0.753	C	0.006	NO
13	Arbor Vitae St and La Cienega Blvd	Inglewood	X	X	0.688	B	0.729	C	0.041	NO	0.550	A	0.576	A	0.026	NO	0.769	C	0.826	D	0.057	NO
14	Aviation Blvd and Century Blvd	LA	X	X	0.934	E	1.017	F	0.083	YES	0.665	B	0.726	C	0.061	YES	0.789	C	0.843	D	0.053	YES
16	Aviation Blvd and Imperial Highway	LA	X	X	0.797	C	0.816	D	0.018	NO	0.464	A	0.489	A	0.025	NO	0.860	D	0.886	D	0.026	YES
17	Aviation Bl / Florence Ave and Manchester Bl	Inglewood	X	X	0.779	C	0.796	C	0.017	NO	0.632	B	0.663	B	0.031	NO	0.703	C	0.716	C	0.013	NO
21	Bali Way and Lincoln Blvd	Caltrans / LA / LA County	X	X	0.505	A	0.515	A	0.009	NO	0.523	A	0.533	A	0.009	NO	0.771	C	0.787	C	0.016	NO
22	Bluff Creek Dr and Lincoln Blvd	Caltrans / LA	X	X	0.447	A	0.459	A	0.012	NO	0.414	A	0.425	A	0.011	NO	0.506	A	0.515	A	0.009	NO
27	Centinela Ave (E/W) and La Tijera Blvd (N/S)	LA	X	X	0.671	B	0.676	B	0.005	NO	0.675	B	0.704	C	0.029	NO	0.637	B	0.654	B	0.017	NO
28	Centinela Ave and Sepulveda Blvd	Culver City	X	X	0.797	C	0.803	D	0.006	NO	0.627	B	0.631	B	0.004	NO	0.813	D	0.821	D	0.008	NO
34	Century Blvd and Hawthorne Blvd / La Brea Ave	Inglewood			0.651	B	0.681	B	0.030	NO	0.651	B	0.671	B	0.020	NO	0.861	D	0.896	D	0.035	NO
35	Century Blvd and Inglewood Ave	Inglewood			0.683	B	0.704	C	0.021	NO	0.563	A	0.573	A	0.010	NO	0.811	D	0.834	D	0.023	NO
36	Century Blvd and La Cienega Blvd	Inglewood / LA / County of LA	X	X	0.843	D	0.896	D	0.053	YES	0.725	C	0.784	C	0.058	YES	1.069	F	1.127	F	0.058	YES
37	Century Blvd and Prairie Ave	Inglewood			0.729	C	0.748	C	0.019	NO	0.734	C	0.740	C	0.006	NO	0.925	E	0.954	E	0.029	NO
38	Century Blvd and Sepulveda Blvd	LA / Caltrans	X	X	0.573	A	0.593	A	0.020	NO	0.589	A	0.605	B	0.017	NO	0.697	B	0.720	C	0.023	NO
39	Century Blvd and I-405 NB On/Off Ramps	Caltrans / Inglewood	X	X	0.787	C	0.830	D	0.043	NO	0.568	A	0.603	B	0.035	NO	0.644	B	0.683	B	0.039	NO
43	Culver Blvd and Overland Ave	Culver City	X		0.794	C	0.797	C	0.003	NO	0.634	B	0.640	B	0.006	NO	0.971	E	0.974	E	0.003	NO
47	Douglas St and Imperial Highway	El Segundo / LA	X	X	0.323	A	0.333	A	0.009	NO	0.240	A	0.256	A	0.017	NO	0.412	A	0.422	A	0.010	NO
50	Duquesne Ave and Jefferson Blvd	Culver City	X		0.614	B	0.614	B	0.000	NO	0.497	A	0.497	A	0.000	NO	0.763	C	0.763	C	0.000	NO
55	El Segundo Blvd and Sepulveda Blvd	Caltrans / El Segundo			0.889	D	0.901	E	0.012	NO	0.833	D	0.841	D	0.008	NO	1.007	F	1.017	F	0.010	NO
56	Fiji Way and Lincoln Blvd	Caltrans / LA / LA County	X	X	0.603	B	0.615	B	0.012	NO	0.723	C	0.740	C	0.017	NO	0.835	D	0.846	D	0.011	NO
57	Florence Ave and La Brea Ave	Inglewood			0.800	C	0.803	D	0.003	NO	0.641	B	0.644	B	0.003	NO	0.997	E	1.000	E	0.003	NO
58	Florence Ave and La Cienega Blvd	Inglewood			0.853	D	0.894	D	0.041	NO	0.781	C	0.805	D	0.024	NO	1.088	F	1.107	F	0.019	NO
60	Grand Ave and Sepulveda Blvd	El Segundo			0.889	D	0.897	D	0.008	NO	0.738	C	0.747	C	0.009	NO	0.973	E	0.981	E	0.008	NO
65	Howard Hughes Pkwy and Sepulveda Bl	LA	X	X	0.569	A	0.569	A	0.000	NO	0.569	A	0.569	A	0.000	NO	0.569	A	0.569	A	0.000	NO
67	Imperial Hwy and La Cienega Blvd	LA	X	X	0.441	A	0.456	A	0.015	NO	0.240	A	0.257	A	0.017	NO	0.676	B	0.682	B	0.006	NO
71	Imperial Hwy and Sepulveda Blvd	Caltrans / El Segundo / LA	X	X	0.704	C	0.728	C	0.025	NO	1.040	F	1.067	F	0.027	YES	1.120	F	1.144	F	0.024	YES
73	Imperial Hwy and Nash St / I-105 WB Off-Ramp	El Segundo / Caltrans / LA	X	X	0.654	B	0.661	B	0.007	NO	0.285	A	0.300	A	0.015	NO	0.325	A	0.339	A	0.015	NO
74	Imperial Hwy and I-105 Ramps E/O Aviation Bl	Caltrans / LA	X	X	0.745	C	0.760	C	0.015	NO	0.301	A	0.320	A	0.018	NO	0.594	A	0.637	B	0.043	NO
78	Jefferson Blvd and Lincoln Blvd	Caltrans / LA	X	X	0.715	C	0.714	C	-0.001	NO	0.734	C	0.749	C	0.015	NO	0.805	D	0.812	D	0.007	NO
79	Jefferson Blvd (E/W) and Overland Ave (N/S)	Culver City	X		0.744	C	0.747	C	0.003	NO	0.576	A	0.579	A	0.003	NO	0.883	D	0.890	D	0.007	NO
81	Jefferson Blvd / Playa St and Sepulveda Blvd	Culver City	X		0.712	C	0.718	C	0.006	NO	0.726	C	0.732	C	0.006	NO	0.910	E	0.916	E	0.006	NO
82	Jefferson Blvd (E/W) and Slauson Ave (N/S)	Culver City	X		0.559	A	0.559	A	0.000	NO	0.637	B	0.640	B	0.003	NO	0.584	A	0.584	A	0.000	NO
88	La Cienega Blvd (N/S) and La Tijera Blvd (E/W)	Inglewood / LA	X	X	0.705	C	0.713	C	0.007	NO	0.501	A	0.540	A	0.039	NO	0.780	C	0.827	D	0.047	YES
96	La Cienega Bl and I-405 SB Ramps N/O Century	Caltrans / Inglewood / LA	X	X	0.736	C	0.773	C	0.036	NO	0.569	A	0.609	B	0.040	NO	0.693	B	0.744	C	0.051	YES
97	La Cienega Bl and I-405 SB Ramps S/O Century	Caltrans / Inglewood / LA	X	X	0.353	A	0.380	A	0.027	NO	0.430	A	0.461	A	0.031	NO	0.448	A	0.483	A	0.034	NO
99	La Tijera Blvd and Lincoln Blvd	Caltrans / LA	X	X	0.302	A	0.316	A	0.014	NO	0.228	A	0.247	A	0.019	NO	0.377	A	0.391	A	0.014	NO
100	La Tijera Blvd (N/S) and Manchester Ave (E/W)	LA	X	X	0.704	C	0.733	C	0.029	NO	0.547	A	0.573	A	0.025	NO	0.824	D	0.838	D	0.015	NO
101	La Tijera Blvd and Sepulveda Blvd	LA	X	X	0.753	C	0.838	D	0.085	YES	0.656	B	0.780	C	0.124	YES	0.771	C	0.876	D	0.105	YES
102	La Tijera Blvd and I-405 NB Ramps	Caltrans / LA	X	X	0.531	A	0.560	A	0.029	NO	0.414	A	0.435	A	0.021	NO	0.413	A	0.433	A	0.020	NO
103	La Tijera Blvd and I-405 SB Ramps	Caltrans / LA	X	X	0.463	A	0.480	A	0.018	NO	0.429	A	0.463	A	0.034	NO	0.631	B	0.664	B	0.033	NO
104	Lincoln Blvd and LMU Dr	Caltrans / LA	X	X	0.447	A	0.457	A	0.011	NO	0.384	A	0.403	A	0.019	NO	0.572	A	0.586	A	0.014	NO
105	Lincoln Blvd and Manchester Blvd	Caltrans / LA	X	X	0.519	A	0.537	A	0.018	NO	0.425	A	0.438	A	0.013	NO	0.589	A	0.600	A	0.011	NO
106	Lincoln Blvd and Marina Pointe Dr / Maxella Ave	Caltrans / LA	X	X	0.670	B	0.680	B	0.010	NO	0.631	B	0.640	B	0.009	NO	0.642	B	0.651	B	0.009	NO
107	Lincoln Blvd and Mindanao Way	Caltrans / LA	X	X	0.718	C	0.728	C	0.009	NO	0.779	C	0.788	C	0.009	NO	0.864	D	0.875	D	0.010	NO
108	Lincoln Blvd (E/W) and Sepulveda Blvd (N/S)	Caltrans / LA	X	X	0.377	A	0.425	A	0.048	NO	0.345	A	0.402	A	0.057	NO	0.515	A	0.561	A	0.046	NO
109	Lincoln Blvd and Venice Blvd	Caltrans / LA	X	X	0.892	D	0.910	E	0.018	YES	0.923	E	0.939	E	0.015	YES	0.891	D	0.911	E	0.020	YES
110	Lincoln Blvd and Washington Blvd	Caltrans / LA	X	X	0.808	D	0.818	D	0.010	NO	1.199	F	1.224	F	0.025	YES	1.203	F	1.220	F	0.017	YES
111	Lincoln Blvd and 83rd St	Caltrans / LA	X	X	0.689	B	0.700	B	0.011	NO	0.635	B	0.664	B	0.029	NO	0.651	B	0.662	B	0.011	NO

Table 4.2-6

Future (2013) With Project Conditions Measured Against Future-Adjusted (2013) Without Project Conditions

					Future-Adjusted (2013) Without Project Conditions AM		Future (2013) With Project Conditions AM		Significant Impact ?		Future-Adjusted (2013) Without Project Conditions MD		Future (2013) With Project Conditions MD		Significant Impact ?		Future-Adjusted (2013) Without Project Conditions PM		Future (2013) With Project Conditions PM		Significant Impact?	
Int #	**Intersection**	**Jurisdiction**	**ATSAC**	**ATCS**	**V/C**	**LOS**	**V/C**	**LOS**	**Delta**	**Impact?**	**V/C**	**LOS**	**V/C**	**LOS**	**Delta**	**Impact?**	**V/C**	**LOS**	**V/C**	**LOS**	**Delta**	**Impact?**
112	Lincoln Blvd and SR-90	Caltrans / LA County	X	X	0.807	D	0.815	D	0.008	NO	0.735	C	0.743	C	0.008	NO	0.755	C	0.763	C	0.008	NO
114	Manchester Ave and Sepulveda Blvd	LA	X	X	0.750	C	0.802	D	0.052	YES	0.791	C	0.827	D	0.036	YES	0.924	E	0.980	E	0.056	YES
117	Mariposa Ave and Sepulveda Blvd	El Segundo/Caltrans			0.829	D	0.829	D	0.000	NO	0.769	C	0.790	C	0.021	NO	0.844	D	0.858	D	0.014	NO
125	Rosecrans Ave and Sepulveda Blvd	El Segundo / Manhattan Beach / Caltrans			1.114	F	1.134	F	0.020	YES	0.896	D	0.910	E	0.014	YES	1.044	F	1.054	F	0.010	YES
126	Sawtelle Blvd (E/W) and Sepulveda Blvd (N/S)	Culver City	X		0.503	A	0.506	A	0.003	NO	0.597	A	0.599	A	0.002	NO	0.688	B	0.690	B	0.002	NO
130	Sepulveda Blvd and Slauson Avenue	Culver City	X		0.566	A	0.573	A	0.007	NO	0.644	B	0.654	B	0.010	NO	0.738	C	0.756	C	0.018	NO
135	Sepulveda Blvd and Westchester Pkwy	LA	X	X	0.615	B	0.717	C	0.102	YES	0.580	A	0.640	B	0.060	NO	0.831	D	0.882	D	0.051	YES
136	Sepulveda Blvd and 76th/77th Street	LA	X	X	0.835	D	0.882	D	0.047	YES	0.527	A	0.550	A	0.023	NO	0.704	C	0.730	C	0.026	NO
137	Sepulveda Blvd and 79th St/80th St	LA	X	X	0.645	B	0.693	B	0.049	NO	0.422	A	0.447	A	0.025	NO	0.535	A	0.573	A	0.038	NO
138	Sepulveda Blvd and 83rd St	LA	X	X	0.473	A	0.529	A	0.055	NO	0.365	A	0.402	A	0.037	NO	0.535	A	0.573	A	0.038	NO
139	Sepulveda Blvd and I-105 WB Ramp N/O Imperial	Caltrans/LA	X	X	0.911	E	0.972	E	0.061	YES	0.855	D	0.936	E	0.081	YES	0.829	D	0.891	D	0.063	YES
141	96th Street and Airport Blvd	LA	X	X	0.406	A	0.464	A	0.058	NO	0.462	A	0.467	A	0.004	NO	0.605	B	0.624	B	0.018	NO
144	98th Street and Airport Blvd	LA	X	X	0.423	A	0.460	A	0.037	NO	0.530	A	0.577	A	0.047	NO	0.610	B	0.653	B	0.043	NO
146	Sepulveda Eastway and Westchester Pkwy	LA	X	X	0.480	A	0.507	A	0.027	NO	0.533	A	0.597	A	0.063	NO	0.437	A	0.473	A	0.037	NO
147	Century Boulevard and Crenshaw Boulevard	Inglewood			0.659	B	0.676	B	0.017	NO	0.722	C	0.728	C	0.006	NO	0.876	D	0.905	E	0.029	NO
160	Rose Ave and Lincoln Blvd	LA	X	X	0.910	E	0.917	E	0.007	NO	0.787	C	0.797	C	0.010	NO	0.850	D	0.867	D	0.017	NO
161	Century Blvd and Western Ave	LA	X	X	0.773	C	0.789	C	0.017	NO	0.513	A	0.518	A	0.005	NO	0.778	C	0.800	C	0.022	NO
162	Manhattan Beach Blvd and Sepulveda Blvd	Manhattan Beach			1.125	F	1.132	F	0.007	NO	0.819	D	0.826	D	0.007	NO	1.151	F	1.160	F	0.009	NO
	Number of Impacts Per Time Period									**11**						**10**						**17**
	Number of Intersections with an Impact in any Time Period																					**18**

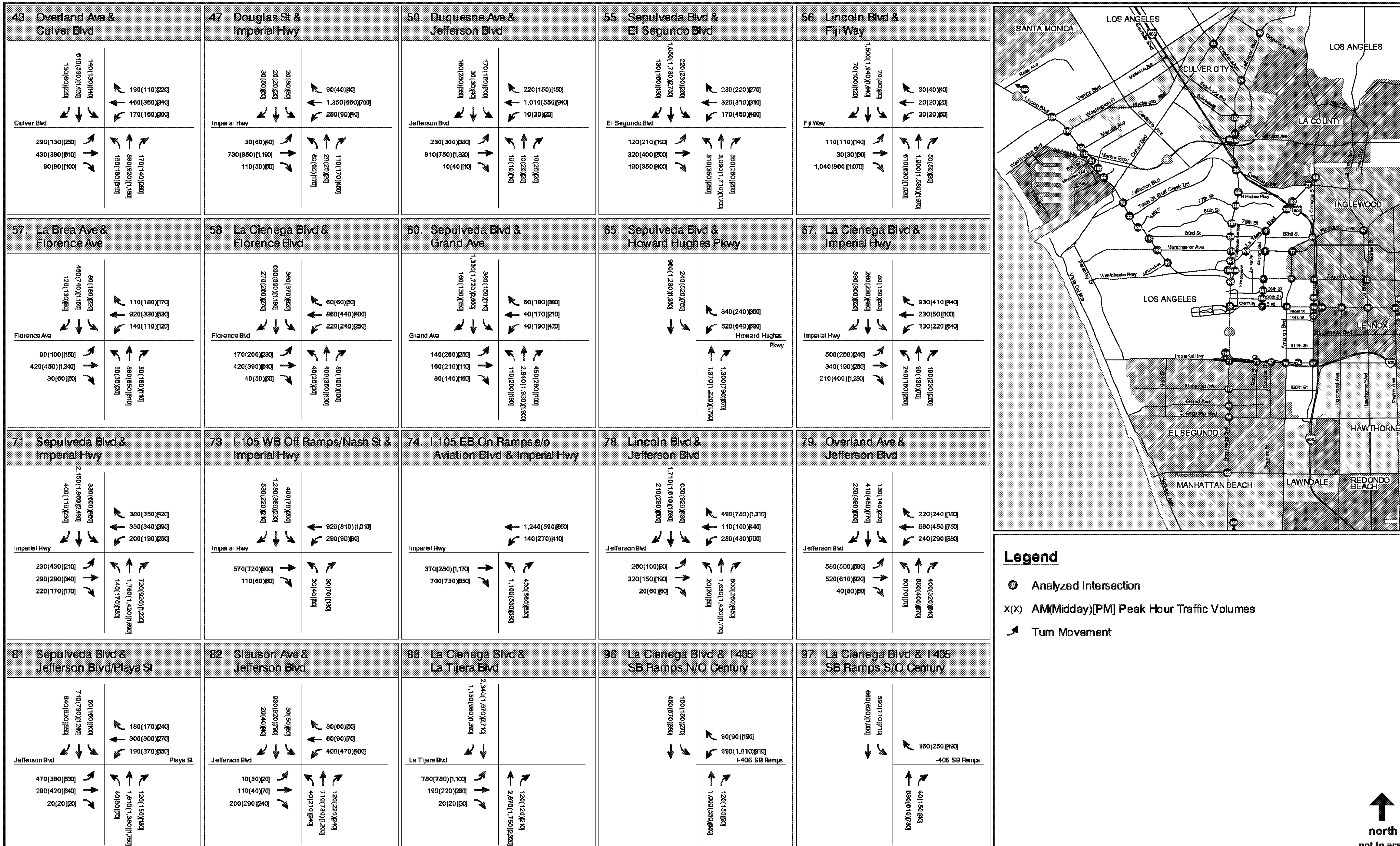
Source: Fehr & Peers, 2009.



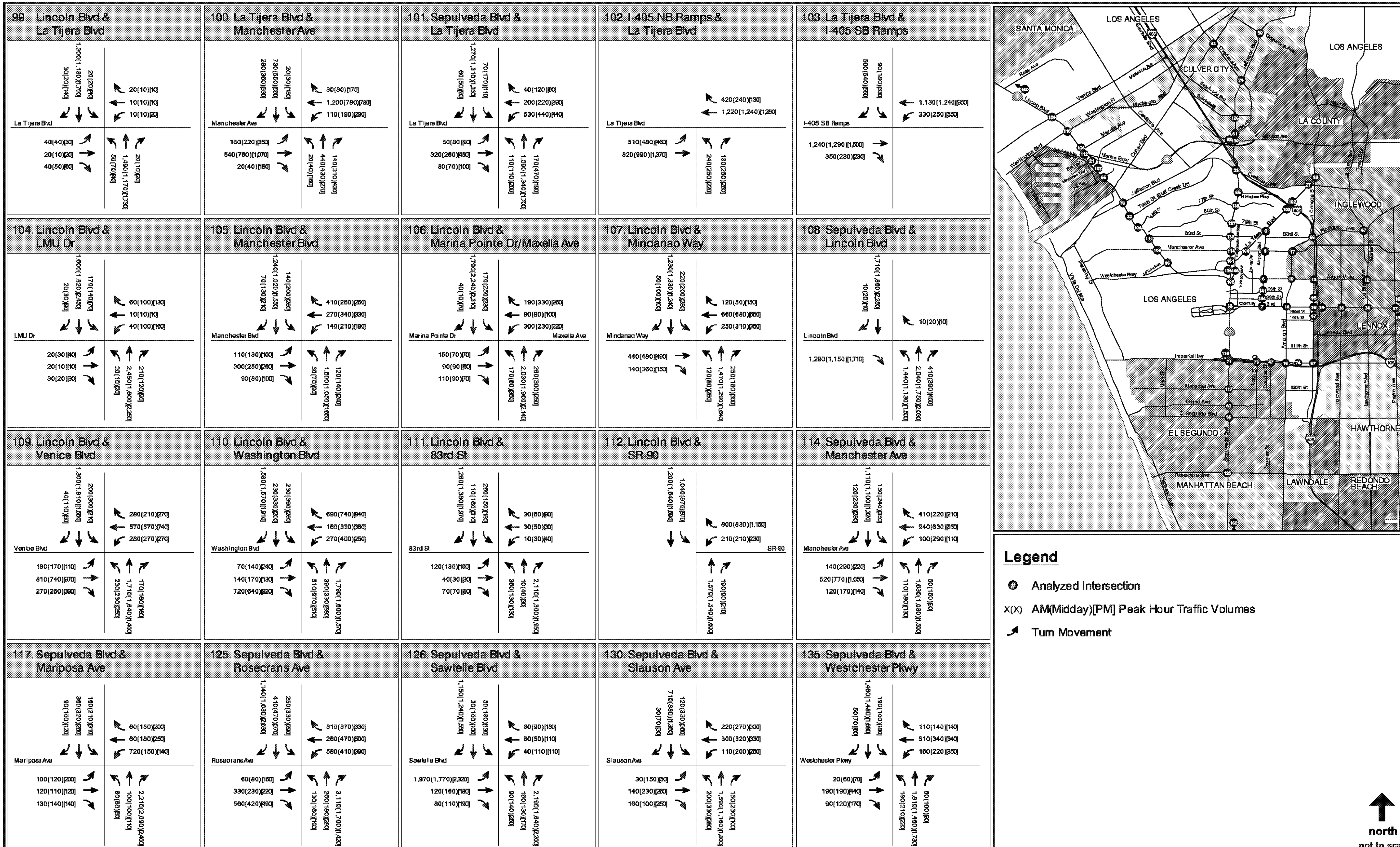
LAX Bradley West Project Draft EIR

Future (2013) With Project Traffic Volumes

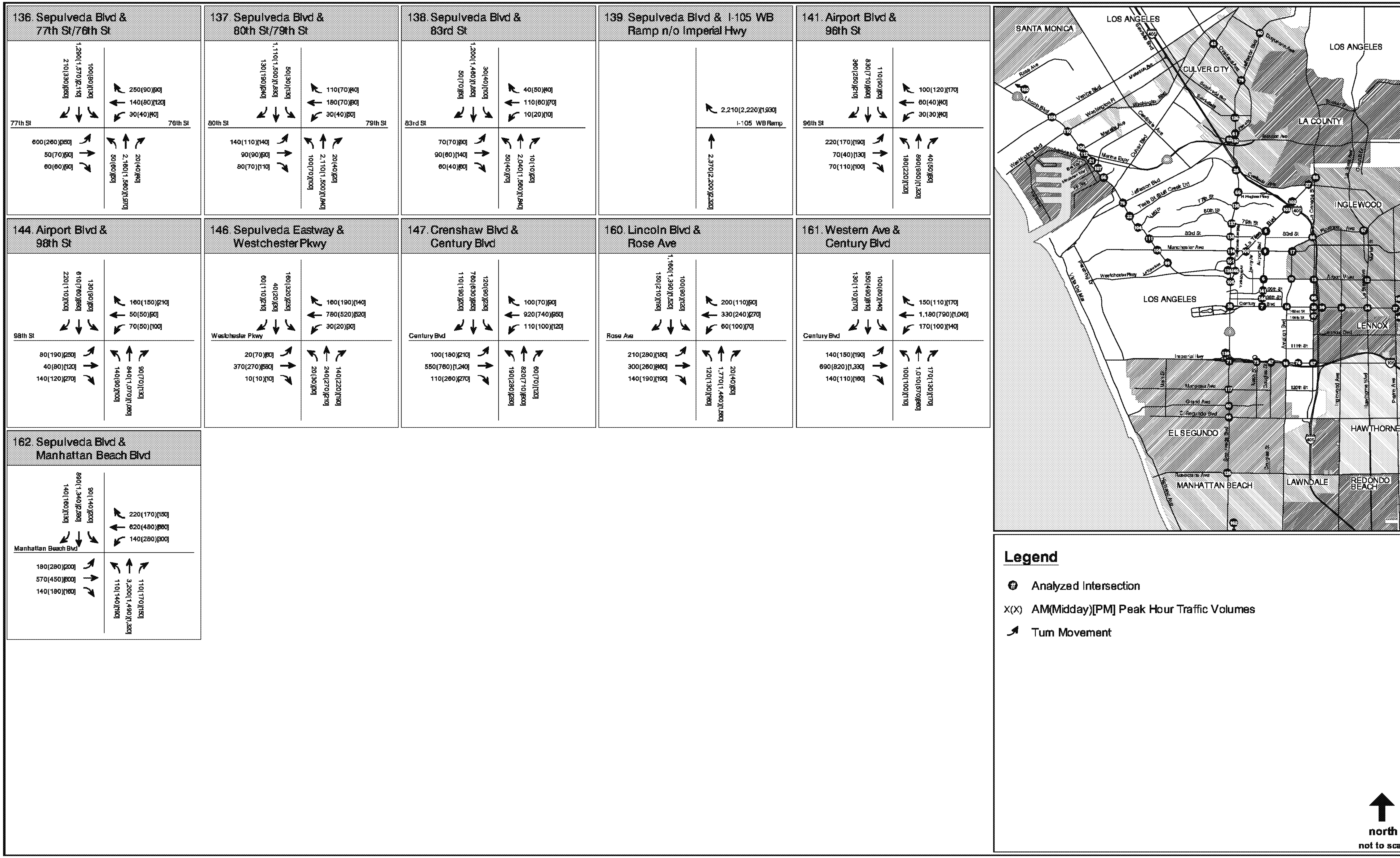
Figure 4.2-4a



LAX Bradley West Project Draft EIR	Future (2013) With Project Traffic Volumes	Figure 4.2-4b



LAX Bradley West Project Draft EIR	Future (2013) With Project Traffic Volumes	Figure 4.2-4c



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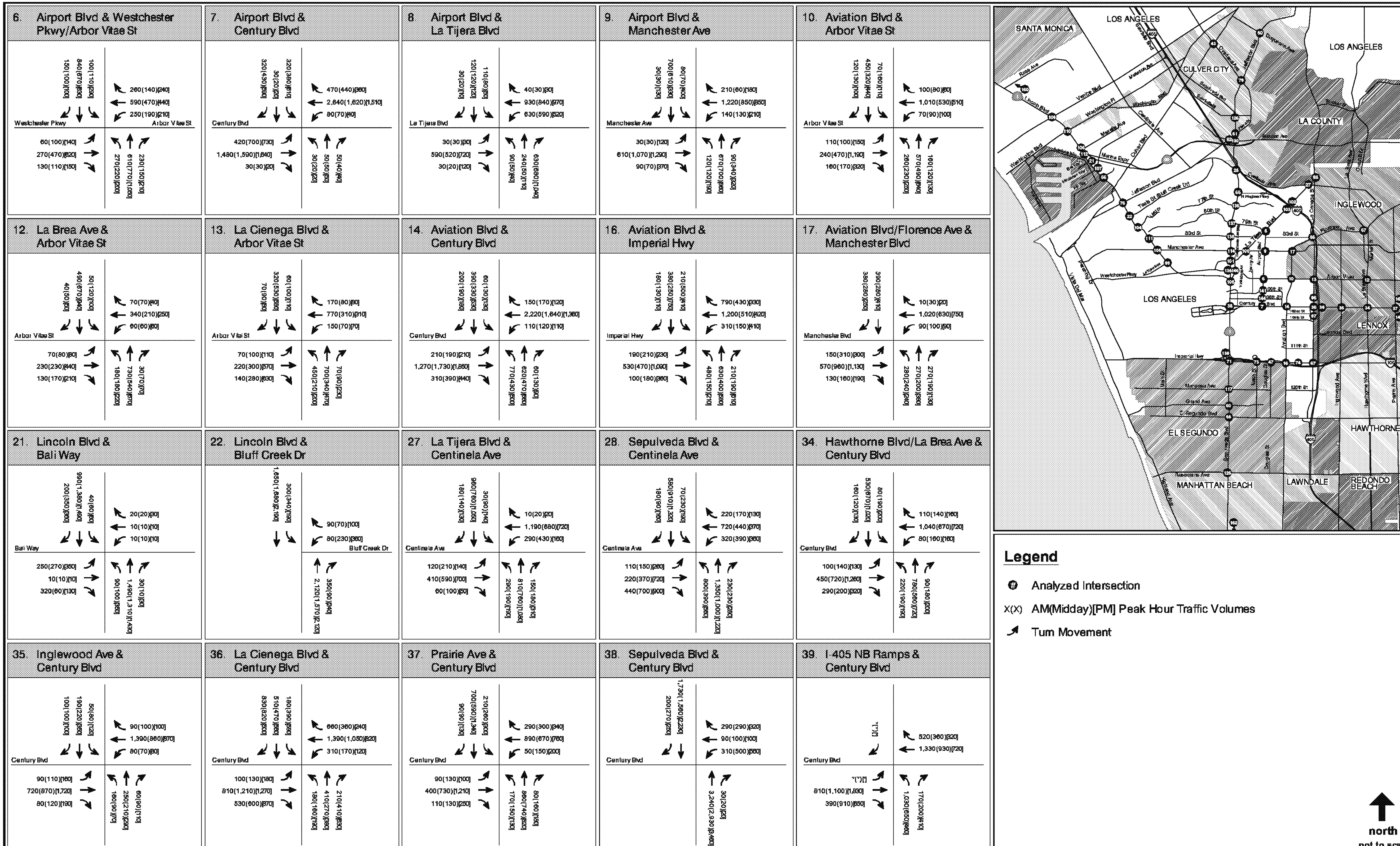
Future (2013) With Project Traffic Volumes

Figure 4.2-4d



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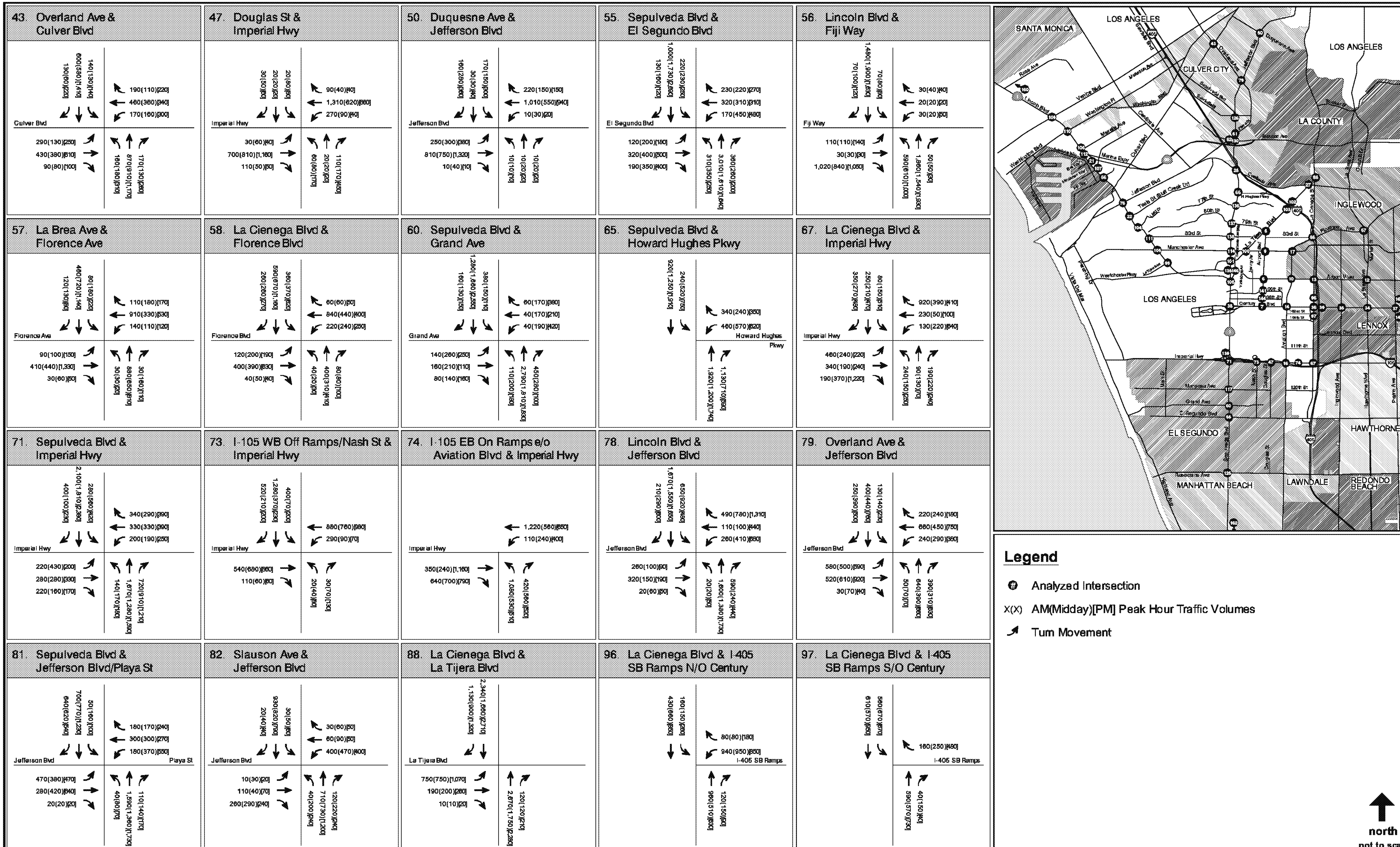
Future-Adjusted (2013) Without Project Traffic Volumes

Figure 4.2-5a



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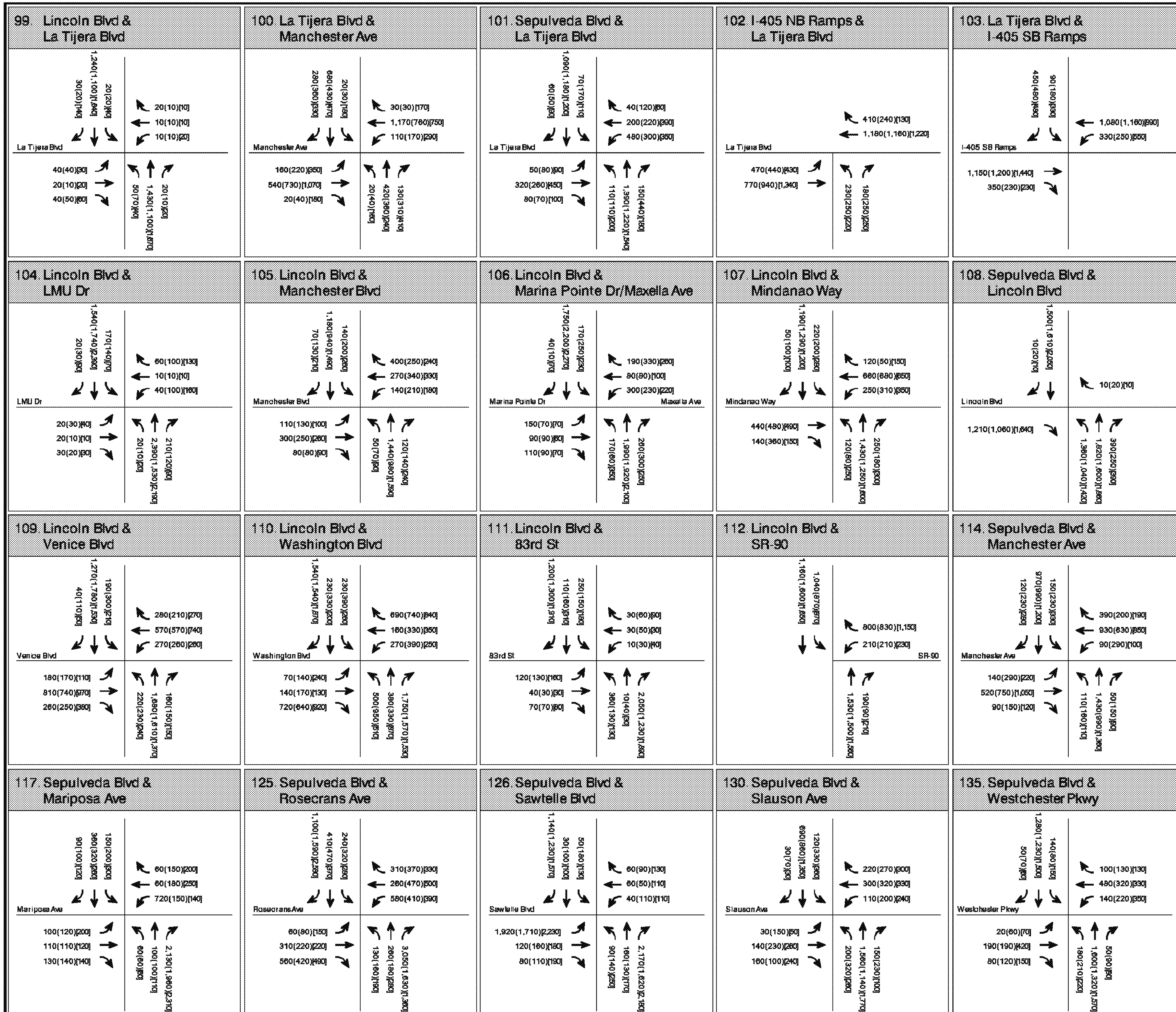
Future-Adjusted (2013) Without Project Traffic Volumes

Figure 4.2-5b



Legend

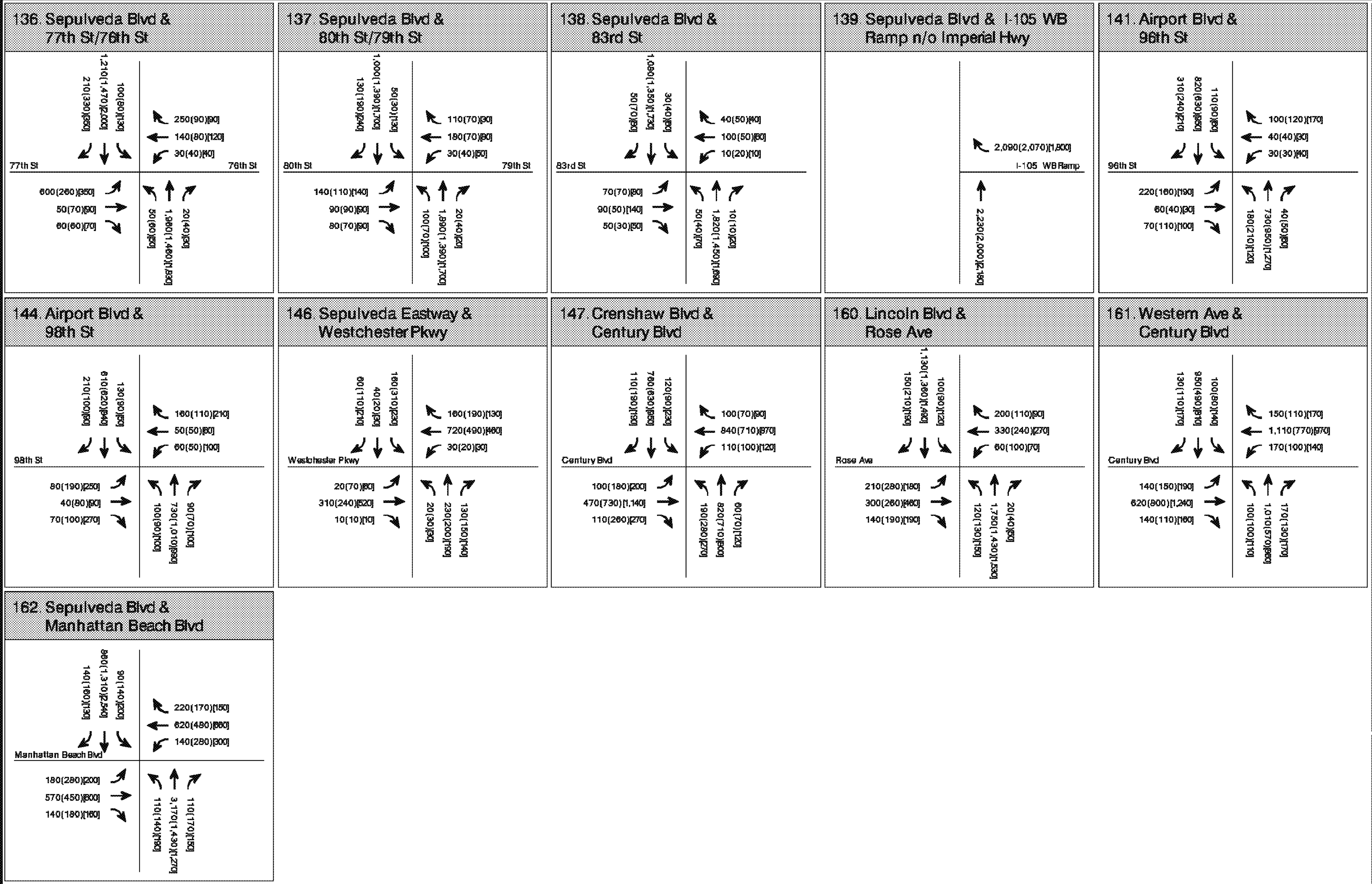
- Analyzed Intersection
- X(X) AM(Midday)[PM] Peak Hour Traffic Volumes
- Turn Movement

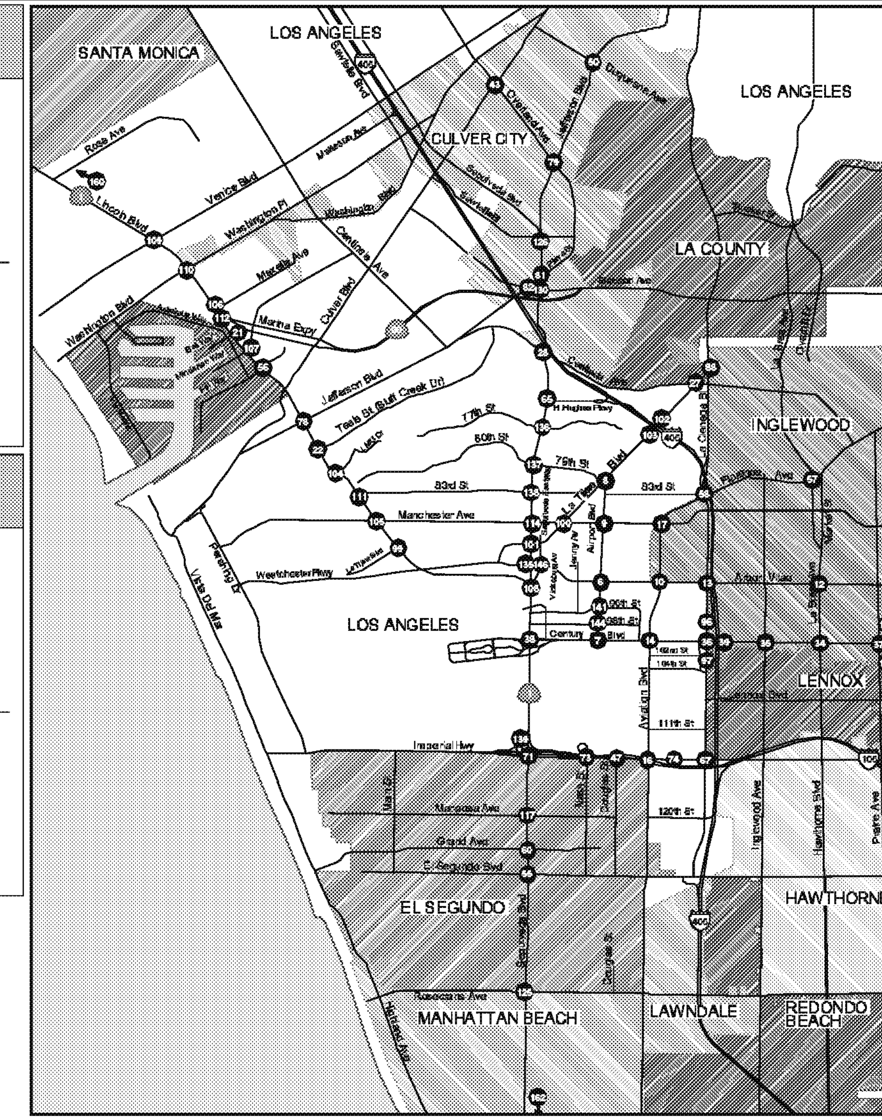
north
not to scale

LAX Bradley West Project Draft EIR

Future-Adjusted (2013) Without Project Traffic Volumes

Figure
4.2-5c





Legend

- Analyzed Intersection
- X(X) AM(Midday)[PM] Peak Hour Traffic Volumes
- Turn Movement

north
not to scale

LAX Bradley West Project Draft EIR

Future-Adjusted (2013) Without Project Traffic Volumes

Figure
4.2-5d

As shown in **Table 4.2-6**, it is anticipated that project-related traffic, including ambient growth in international passenger activity at TBIT by 2013, would result in significant impacts at 18 of the 71 intersections when comparing Future (2013) With Project against Future-Adjusted (2013) Without Project levels of service. The significantly impacted intersections include the following:

- 6. Airport Boulevard and Arbor Vitae Street/Westchester Parkway
- 7. Airport Boulevard and Century Boulevard
- 9. Airport Boulevard and Manchester Avenue
- 10. Arbor Vitae Street and Aviation Boulevard
- 14. Aviation Boulevard and Century Boulevard
- 16. Aviation Boulevard and Imperial Highway
- 36. Century Boulevard and La Cienega Boulevard
- 71. Imperial Highway and Sepulveda Boulevard
- 88. La Cienega Boulevard and La Tijera Boulevard
- 96. La Cienega Boulevard and I-405 Ramps N/O Century Boulevard
- 101. La Tijera Boulevard and Sepulveda Boulevard
- 109. Lincoln Boulevard and Venice Boulevard
- 110. Lincoln Boulevard and Washington Boulevard
- 114. Manchester Avenue and Sepulveda Boulevard
- 125. Rosecrans Avenue and Sepulveda Boulevard
- 135. Sepulveda Boulevard and Westchester Parkway
- 136. Sepulveda Boulevard and 76th/77th Street
- 139. Sepulveda Boulevard and I-105 Ramp north of Imperial Highway

As indicated in Section 2.4.5, the activity level forecast used in the impacts analysis is based on 2008 data, and is considered conservative in light of the current economic recession and the expected decrease in aviation activity worldwide that would likely occur as a result. As such, the delineation of significantly impacted intersections presented above is also considered conservative.

4.2.8.2 CMP Impact Analysis

Several analyses were conducted to comply with the Los Angeles County CMP requirements. This section presents a regional analysis to quantify impacts of the proposed project on the regional freeway system serving the project area, including segments on the I-405, I-10 and I-105 freeways, CMP freeway monitoring locations, and CMP intersection monitoring stations included in the Los Angeles County CMP roadway network. Traffic impacts were determined using the same methodology described in Section 4.2.8.1 used to determine the project's impacts to intersections by comparing Future (2013) With Project Conditions against Future-Adjusted (2013) Without Project Conditions. The significance thresholds used for the CMP analysis are identified in Section 4.2.5.

CMP Arterial Intersection Analysis

There are 14 CMP arterial monitoring stations within the study area:

- 26. Centinela Avenue and La Cienega Boulevard
- 29. Centinela Boulevard and Venice Boulevard
- 55. El Segundo Boulevard and Sepulveda Boulevard
- 85. La Brea Avenue and Manchester Avenue
- 93. La Cienega Boulevard and Stocker Avenue
- 105. Lincoln Boulevard and Manchester Avenue
- 108. Lincoln Boulevard and Sepulveda Boulevard
- 109. Lincoln Boulevard and Venice Boulevard
- 112. Lincoln Boulevard and SR-90
- 114. Manchester Avenue and Sepulveda Boulevard
- 121. Overland Avenue and Venice Boulevard

- 125. Rosecrans Avenue and Sepulveda Boulevard
- 200. La Cienega Boulevard and Jefferson Boulevard
- 201. Manchester Avenue and Crenshaw Boulevard

The CMP arterial monitoring stations identified for analysis were analyzed using LADOT's CalcaDB software which is based on the analysis method described in the Circular 212 or ICU methodology. **Table 4.2-7** delineates the project's impacts to the 14 arterial monitoring stations based on a comparison between Future (2013) With Project Conditions and Future-Adjusted (2013) Without Project Conditions. As indicated in the table, two of the 14 arterial monitoring stations would be significantly impacted; Intersection 93 - La Cienega Boulevard and Stocker Avenue and Intersection 125 - Rosecrans Avenue and Sepulveda Boulevard. The associated level of service sheets are provided in Appendix C-5.

Table 4.2-7

CMP Arterial Monitoring Stations Impact Analysis: Future (2013) With Project Conditions Measured Against Future-Adjusted (2013) Without Project Conditions

				Future-Adjusted (2013) Without Project Conditions		Future (2013) With Project Conditions			
Int #	Intersection	Jurisdiction	Peak Hour	V/C	LOS	V/C	LOS	Increase in V/C	Project Impact?
26	La Cienega Blvd	Inglewood/	AM	1.037	F	1.044	F	0.007	NO
	and Centinela Ave	LA	PM	1.067	F	1.078	F	0.011	NO
29	Centinela Ave	LA	AM	1.032	F	1.035	F	0.003	NO
	and Venice Blvd		PM	1.098	F	1.100	F	0.002	NO
55	El Segundo Blvd	Caltrans/	AM	0.911	E	0.926	E	0.015	NO
	and Sepulveda Blvd	El Segundo	PM	1.023	F	1.033	F	0.010	NO
85	Manchester Blvd	Inglewood	AM	0.811	D	0.811	D	0.000	NO
	and La Brea Ave		PM	0.935	E	0.935	E	0.000	NO
93	La Cienega Blvd	LA County	AM	1.363	F	1.372	F	0.009	NO
	and Stocker Ave		PM	1.536	F	1.564	F	0.028	YES
105	Lincoln Blvd	Caltrans/LA	AM	0.519	A	0.537	A	0.018	NO
	and Manchester Blvd		PM	0.589	A	0.600	A	0.011	NO
108	Lincoln Blvd	Caltrans/LA	AM	0.377	A	0.425	A	0.048	NO
	and Sepulveda Blvd		PM	0.515	A	0.561	A	0.046	NO
109	Lincoln Blvd	Caltrans/LA	AM	0.892	D	0.910	E	0.018	NO
	and Venice Blvd		PM	0.891	D	0.911	E	0.020	NO
112	Lincoln Blvd	Caltrans/	AM	0.741	C	0.750	C	0.009	NO
	and SR-90	LA County	PM	0.709	C	0.718	C	0.009	NO
114	Manchester Ave	LA	AM	0.750	C	0.802	D	0.052	NO
	and Sepulveda Blvd		PM	0.924	E	0.980	E	0.056	NO
121	Overland Ave	Culver City/	AM	0.856	D	0.859	D	0.003	NO
	and Venice Blvd	LA	PM	0.951	E	0.955	E	0.004	NO
125	Rosecrans Ave	El Segundo/	AM	1.144	F	1.164	F	0.020	YES
	and Sepulveda Blvd	Manhattan Beach	PM	1.076	F	1.088	F	0.012	NO
200	La Cienega Blvd	LA	AM	1.202	F	1.205	F	0.003	NO
	and Jefferson Blvd		PM	1.149	F	1.156	F	0.007	NO
201	Crenshaw Blvd	Inglewood	AM	Not Required[1]					
	and Manchester Blvd		PM						

[1] Additional study is not required if the proposed project does not add 50 or more trips during either the a.m. or p.m. weekday peak hours of adjacent street traffic at CMP arterial monitoring stations.

Source: Fehr & Peers, 2009.

CMP Freeway Analysis

A regional analysis was conducted to quantify potential impacts of project traffic on the regional freeway system serving the project area. A total of 73 freeway mainline locations were identified within the sphere of influence of the project. These mainline locations are located on five major freeways, namely the I-10, US 101, I-105, I-110, and I-405. 14 of the 73 mainline locations are identified as CMP Freeway Monitoring Stations in the *2004 Congestion Management Program for Los Angeles County*, including:

- Route 10, at postmile R2.17, Lincoln Boulevard
- Route 10, at postmile R6.75, east of Overland Avenue
- Route 10, at postmile R10.71, east of La Brea Avenue
- Route 10, at postmile 13.53, Budlong Avenue
- Route 101, at postmile 13.98, Coldwater Canyon Avenue
- Route 101, at postmile 23.40, Winnetka Avenue
- Route 105, at postmile R1.00, east of Sepulveda Boulevard (Junction Route 1)
- Route 105, at postmile R5.50, east of Crenshaw Boulevard
- Route 110, at postmile 15.86, Manchester Avenue
- Route 405, at postmile 11.90, south of Route 110
- Route 405, at postmile 18.63, north of Inglewood Avenue
- Route 405, at postmile 24.27, north of La Tijera Boulevard
- Route 405, at postmile 28.30, north of Venice Boulevard
- Route 405, at postmile 35.81, south of Mulholland Drive

Existing freeway mainline traffic volumes were obtained from the *2007 Traffic Volumes on California State Highways*[69] for the selected freeway mainline locations (including CMP stations) and were increased by 1 percent in accordance with the annual average rate of increase in vehicle-miles of travel on California State Highways published in the aforementioned document to estimate existing (2008) conditions for these freeway segments. Peak hour volumes by direction were derived by applying directional and peak hour factors derived from the *2007 Traffic Volumes on California State Highways*, and freeway LOS was analyzed using the demand-to-capacity (D/C) methodology. The D/C ratios were calculated for each freeway segment using a capacity of 2,000 vehicles per hour per lane (vphpl) for freeway mixed-flow lanes, and 1,500 vphpl for HOV lanes. Freeway segment levels of service were determined based on D/C ratios and the definitions shown in **Table 4.2-8**.

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69 California Department of Transportation, 2007 Traffic Volumes on California State Highways, 2007.

Table 4.2-8

Freeway Segment Level Of Service Definitions

Level of Service	Demand/Capacity Ratio	Flow Conditions
A	0.00 - 0.35	Highest quality of service. Free traffic flow, low volumes and densities. Little or no restriction on maneuverability or speed.
B	>0.35 - 0.54	Stable traffic flow, speed becoming slightly restricted. Low restriction on maneuverability.
C	>0.54 - 0.77	Stable traffic flow, but less freedom to select speed, change lanes or pass. Density increasing.
D	>0.77 - 0.93	Approaching unstable flow. Speeds tolerable but subject to sudden and considerable variation. Less maneuverability and driver comfort.
E	>0.93 - 1.00	Unstable traffic flow with rapidly fluctuating speeds and flow rates. Short headways, low maneuverability and low driver comfort.
F(0)	>1.00 - 1.25	Forced traffic flow. Speed and flow may be greatly reduced with high densities.
F(1)	>1.25 - 1.35	Forced traffic flow. Severe congested conditions prevail for more than one hour. Speed and flow may drop to zero with high densities.
F(2)	>1.35 - 1.45	Forced traffic flow. Severe congested conditions prevail for more than one hour. Speed and flow may drop to zero with high densities.
F(3)	>1.45	Forced traffic flow. Severe congested conditions prevail for more than one hour. Speed and flow may drop to zero with high densities.

Source: Adapted from Los Angeles County Metropolitan Transportation Authority, 2004 Congestion Management Program for Los Angeles County, July 2004.

Traffic forecasts for the Future-Adjusted (2013) Without Project scenario were developed by adding the difference between the forecasted traffic volume and the validated base year traffic volume to the 2008 count. The Future (2013) With Project scenario was then developed by adding project-only trips to the Future-Adjusted (2013) Without Project volumes.

The significant impact criteria established by the CMP states that a project would generate significant regional freeway impacts if the project increases traffic demand on a CMP facility by 2 percent of capacity (V/C >= 0.02), causing or worsening LOS F (V/C > 1.00). **Table 4.2-9** displays the segment analysis at the 14 freeway monitoring stations. The additional segment analysis at the remaining 59 non-monitoring locations is displayed in Appendix C-6 of this EIR.

As shown in **Table 4.2-9** and Appendix C-6, the proposed project would not result in a significant impact on the adjacent freeway segments during either of the a.m. or p.m. peak hours.

In addition to the CMP arterial intersection and freeway analysis summarized above, seven study intersections and three freeway facilities were analyzed using procedures and methodologies contained in the *Highway Capacity Manual* (HCM, 2000) for Future-Adjusted (2013) Without Project conditions and Future (2013) With Project Conditions. Appendix C-8 displays the average control delay per vehicle and level of service for all seven signalized intersections based on the average delay of all vehicles passing through the intersection, as well as the density (passenger cars per hour per lane) and level of service for all three freeway facilities. In general, as can be seen in comparing the data in Appendices C-6 and C-8, the intersection levels of service calculated using the HCM methodology are comparable to the corresponding intersection levels of service based on the CMA methodology presented in Section 4.2.8.1. Likewise, the freeway facility levels of service calculated using the HCM methodology are comparable to the corresponding freeway facility levels of service based on the CMP methodology presented in Section 4.2.8.2.

Table 4.2-9

CMP Freeway Monitoring Stations Impact Analysis - Future (2013) With Project Conditions Measured Against Future-Adjusted (2013) Without Project Conditions

			Mixed Flow Lanes	HOV Lanes	Future Capacity	Future-Adjusted (2013) Without Project Volumes		Project Only Trips		Future (2013) With Project Volumes		Future-Adjusted (2013) Without Project V/C & LOS				Future (2013) With Project V/C & LOS				Delta		Signficant Impact?	
Postmile	Route	Segment				AM	PM	AM	PM	AM	PM	AM		PM		AM		PM		AM	PM	AM	PM
2.155	10 EB	Santa Monica, Jct. Rte. 1, Lincoln Blvd Interchange	3		6,000	5,540	5,510	30	30	5,570	5,540	0.923	D	0.918	D	0.928	D	0.923	D	0.005	0.005	NO	NO
2.155	10 WB	Santa Monica, Jct. Rte. 1, Lincoln Blvd Interchange	3		6,000	6,410	4,910	20	30	6,430	4,940	1.068	F(0)	0.818	D	1.072	F(0)	0.823	D	0.003	0.005	NO	NO
6.402	10 EB	Los Angeles, Overland Ave Interchange	5		10,000	10,110	9,550	10	10	10,120	9,560	1.011	F(0)	0.955	E	1.012	F(0)	0.956	E	0.001	0.001	NO	NO
6.402	10 WB	Los Angeles, Overland Ave Interchange	4		8,000	10,470	8,650	10	0	10,480	8,650	1.309	F(1)	1.081	F(0)	1.310	F(1)	1.081	F(0)	0.001	0.000	NO	NO
10.43	10 EB	Los Angeles, La Brea Ave Interchange	5		10,000	10,490	10,280	20	10	10,510	10,290	1.049	F(0)	1.028	F(0)	1.051	F(0)	1.029	F(0)	0.002	0.001	NO	NO
10.43	10 WB	Los Angeles, La Brea Ave Interchange	4		8,000	11,270	9,180	10	10	11,280	9,190	1.409	F(2)	1.148	F(0)	1.410	F(2)	1.149	F(0)	0.001	0.001	NO	NO
13.303	10 EB	Los Angeles, Normandie Ave Interchange	6		12,000	8,220	13,390	10	10	8,230	13,400	0.685	C	1.116	F(0)	0.686	C	1.117	F(0)	0.001	0.001	NO	NO
13.303	10 WB	Los Angeles, Normandie Ave Interchange	6		12,000	12,870	8,720	10	10	12,880	8,730	1.073	F(0)	0.727	C	1.073	F(0)	0.728	C	0.001	0.001	NO	NO
13.878	101 NB	Los Angeles, Coldwater Canyon Ave Interchange	5		10,000	9,600	8,640	20	10	9,620	8,650	0.960	E	0.864	D	0.962	E	0.865	D	0.002	0.001	NO	NO
13.878	101 SB	Los Angeles, Coldwater Canyon Ave Interchange	5		10,000	8,900	10,020	10	10	8,910	10,030	0.890	D	1.002	F(0)	0.891	D	1.003	F(0)	0.001	0.001	NO	NO
23.264	101 NB	Los Angeles, Winnetka Ave Interchange	5		10,000	9,420	8,460	30	40	9,450	8,500	0.942	E	0.846	D	0.945	E	0.850	D	0.003	0.004	NO	NO
23.264	101 SB	Los Angeles, Winnetka Ave Interchange	5		10,000	7,660	9,300	60	30	7,720	9,330	0.766	C	0.930	D	0.772	D	0.933	E	0.006	0.003	NO	NO
0.5	105 EB	Los Angeles, Jct. Rte. 1, Sepulveda Blvd Interchange	3		6,000	3,710	4,110	290	70	4,000	4,180	0.618	C	0.685	C	0.667	C	0.697	C	0.048	0.012	NO	NO
0.5	105 WB	Los Angeles, Jct. Rte. 1, Sepulveda Blvd Interchange	3		6,000	4,250	2,970	120	120	4,370	3,090	0.708	C	0.495	B	0.728	C	0.515	B	0.020	0.020	NO	NO
4.705	105 EB	Inglewood, Crenshaw Blvd Interchange	4	1	9,500	9,210	11,030	190	90	9,400	11,120	0.969	E	1.161	F(0)	0.989	E	1.171	F(0)	0.020	0.009	NO	NO
4.705	105 WB	Inglewood, Crenshaw Blvd Interchange	4	1	9,500	11,000	8,250	90	90	11,090	8,340	1.158	F(0)	0.868	D	1.167	F(0)	0.878	D	0.009	0.009	NO	NO
15.976	110 NB	Los Angeles, Manchester Ave Interchange	4	2	11,000	10,830	10,080	60	40	10,890	10,120	0.985	E	0.916	D	0.990	E	0.920	D	0.005	0.004	NO	NO
15.976	110 SB	Los Angeles, Manchester Ave Interchange	4	2	11,000	10,220	11,740	50	40	10,270	11,780	0.929	D	1.067	F(0)	0.934	E	1.071	F(0)	0.005	0.004	NO	NO
12.97	405 NB	Carson, Jct. Rte. 110, Harbor Freeway Interchange	5	1	11,500	10,480	8,950	30	40	10,510	8,990	0.911	D	0.778	D	0.914	D	0.782	D	0.003	0.003	NO	NO
12.97	405 SB	Carson, Jct. Rte. 110, Harbor Freeway Interchange	4	1	9,500	8,880	9,700	50	20	8,930	9,720	0.935	E	1.021	F(0)	0.940	E	1.023	F(0)	0.005	0.002	NO	NO
18.233	405 NB	Lawndale, Inglewood Ave Interchange	4	1	9,500	11,580	9,560	100	90	11,680	9,650	1.219	F(0)	1.006	F(0)	1.229	F(0)	1.016	F(0)	0.011	0.009	NO	NO
18.233	405 SB	Lawndale, Inglewood Ave Interchange	4	1	9,500	8,470	10,390	100	70	8,570	10,460	0.892	D	1.094	F(0)	0.902	D	1.101	F(0)	0.011	0.007	NO	NO
24.273	405 NB	Los Angeles, La Tijera Blvd/Howard Hughes Parkway Interchange	4	1	9,500	13,170	8,620	50	20	13,220	8,640	1.386	F(2)	0.907	D	1.392	F(2)	0.909	D	0.005	0.002	NO	NO
24.273	405 SB	Los Angeles, La Tijera Blvd/Howard Hughes Parkway Interchange	4	1	9,500	9,680	11,620	100	120	9,780	11,740	1.019	F(0)	1.223	F(0)	1.029	F(0)	1.236	F(0)	0.011	0.013	NO	NO
27.964	405 NB	Culver City, Jct. Rte. 187, Venice Blvd Interchange	5	1	11,500	12,830	8,790	200	110	13,030	8,900	1.116	F(0)	0.764	C	1.133	F(0)	0.774	D	0.017	0.010	NO	NO
27.964	405 SB	Culver City, Jct. Rte. 187, Venice Blvd Interchange	5	1	11,500	7,560	12,010	140	170	7,700	12,180	0.657	C	1.044	F(0)	0.670	C	1.059	F(0)	0.012	0.015	NO	NO
37.026	405 NB	Los Angeles, Mulholland Dr Interchange	6	1	13,500	6,620	12,750	160	60	6,780	12,810	0.490	B	0.944	E	0.502	B	0.949	E	0.012	0.004	NO	NO
37.026	405 SB	Los Angeles, Mulholland Dr Interchange	5	1	11,500	13,070	8,410	60	80	13,130	8,490	1.137	F(0)	0.731	C	1.142	F(0)	0.738	C	0.005	0.007	NO	NO

Source: Fehr & Peers, 2009.

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4.2.9 Mitigation Measures

Potential intersection improvements were identified and evaluated for all intersections identified in Section 4.2.8 as being significantly impacted. Such improvements include the addition of, or improvements to, travel- and turn-lanes, traffic signal enhancements, and intersection restriping. Locations where additional right-of-way may be required are noted. In some cases, it was determined that the improvements would not be feasible to implement and that the impact would be significant and unavoidable. In other cases, it would be feasible to implement the mitigation under consideration. The discussion below presents both those improvements that were considered but determined to be infeasible, as well as those improvements that would be feasible and are thereby included in the recommended mitigation program for the project.

Intersection Improvements Considered but Determined to be Infeasible

The following improvements were identified at the intersections that were anticipated to be significantly impacted, but were determined to be infeasible to implement. For each intersection, the improvement is described, as is the reason it is not considered to be feasible to implement.

- **Airport Boulevard and Arbor Vitae Street/Westchester Parkway (Intersection #6)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to widen the westbound approach to the Airport Boulevard and Arbor Vitae Street/Westchester Parkway intersection to provide two left-turn lanes, one through lane, and a through/right lane and widen the northbound approach to provide two left-turn lanes, two through lanes, and one right-turn lane. However, this improvement is infeasible due to right-of-way constraints on the northeast and southeast corners associated with widening the northbound and westbound approaches. Therefore, this impact would be significant and unavoidable.

- **Airport Boulevard and Century Boulevard (Intersection #7)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to restripe the southbound approach at the Airport Boulevard and Century Boulevard intersection to provide two left-turn lanes, one through-left lane, and two right-turn lanes. However, in discussions with LADOT, the approval of the installation of southbound dual right-turn lanes would require the installation of an exclusive southbound right-turn signal phase. The addition of a new southbound right-turn phase would negate the capacity enhancements achieved with the proposed southbound lane reconfiguration. Therefore, this impact would be significant and unavoidable.

- **Aviation Boulevard and Century Boulevard (Intersection #14)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to widen the westbound approach to the Aviation Boulevard and Century Boulevard intersection to provide one left-turn lane, four through lanes, and a through/right lane and widen the eastbound approach to provide one left-turn lane, four through lanes, and a right-turn lane. However, this improvement is infeasible due to right-of-way constraints associated with the existing above-grade railroad bridge just west of the intersection. Therefore, this impact would be significant and unavoidable.

- **Aviation Boulevard and Imperial Highway (Intersection #16)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to widen the eastbound approach to the Aviation Boulevard and Imperial Highway intersection to provide two left-turn lanes, three through lanes, and a right-turn lane. However, this improvement is infeasible due to right-of-way constraints along the south side of Imperial Highway west of Aviation Boulevard. Therefore, this impact would be significant and unavoidable.

- **Century Boulevard and La Cienega Boulevard (Intersection #36)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to widen the southbound approach to the Century Boulevard and La Cienega Boulevard intersection to provide two left-turn lanes, two through lanes, and two right-turn lanes and widen the westbound approach to provide two left-turn lanes, three through lanes, and a right-turn lane. However, this improvement is infeasible due to right-of-way constraints on the northwest and northeast corners associated with widening the southbound and westbound approaches, respectively. Therefore, this impact would be significant and unavoidable.

- **La Cienega Boulevard and La Tijera Boulevard (Intersection #88)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to widen the southbound approach to the La Cienega Boulevard and La Tijera Boulevard intersection to provide three through lanes and two right-turn lanes. However, this improvement is considered infeasible due to right-of-way constraints on the west side of La Cienega Boulevard north of La Tijera Boulevard. Therefore, this impact would be significant and unavoidable.

- **La Cienega Boulevard and Stocker Avenue (Intersection #93)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to widen the northbound approach to the La Cienega Boulevard and Stocker Avenue intersection to provide three through lanes and a free right-turn lane. The existing northbound right-turn lane is generally blocked by northbound through vehicles queuing back from the intersection during the AM and PM peak hours, effectively causing the northbound approach to operate as two through lanes and a shared through/right-turn lane. In order to address that critical movement, the northbound approach would need to be widened in order to increase the length of the northbound right-turn lane to a distance where through vehicles no longer block right-turning vehicles. However, this improvement is considered infeasible due to right-of-way constraints associated with the presence of high voltage power lines and a large transmission line tower at the southeast corner of the intersection. Therefore, this impact would be significant and unavoidable.

- **Lincoln Boulevard and Venice Boulevard (Intersection #109)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to widen the northbound approach to the Lincoln Boulevard and Venice Boulevard intersection to provide two left-turn lanes, three through lanes, and a right-turn lane and widen the southbound approach to provide two left-turn lanes, three through lanes, and a right-turn lane. However, this improvement is considered infeasible due to right-of-way constraints north and south of the intersection along Lincoln Boulevard associated with providing an additional travel lane in both directions. Therefore, this impact would be significant and unavoidable.

- **Lincoln Boulevard and Washington Boulevard (Intersection #110)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to widen the northbound approach to the Lincoln Boulevard and Washington Boulevard intersection to provide two left-turn lanes, three through lanes, and a through/right lane and widen the southbound approach to provide two left-turn lanes, three through lanes, and a through/right lane. However, this improvement is considered infeasible due to right-of-way constraints north and south of the intersection along Lincoln Boulevard associated with providing an additional travel lane in both directions. Therefore, this impact would be significant and unavoidable.

- **Manchester Avenue and Sepulveda Boulevard (Intersection #114)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to widen the southbound approach to the Manchester Avenue and Sepulveda Boulevard intersection to provide two left-turn lanes, three through lanes, and one right-turn lane. However, this improvement is considered infeasible due to right-of-way constraints on the northwest corner associated with widening the southbound approach. Therefore, this impact would be significant and unavoidable.

- **Rosecrans Avenue and Sepulveda Boulevard (Intersection #125)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to restripe the northbound approach to the Rosecrans Avenue and Sepulveda Boulevard intersection to provide two left-turn lanes, four through lanes, and one right-turn lane and widen the southbound approach to provide two left-turn lanes, four through lanes, and one right-turn lane. However, this improvement is considered infeasible due to right-of-way constraints north and south of the intersection along Sepulveda Boulevard associated with providing an additional southbound travel lane. Therefore, this impact would be significant and unavoidable.

- **Sepulveda Boulevard and Westchester Parkway (Intersection #135)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to widen the westbound approach to the Sepulveda Boulevard and Westchester Parkway intersection to provide two left-turn lanes, two through lanes, and a right-turn lane. This improvement is considered infeasible due to right-of-way constraints on Westchester Parkway east of Sepulveda Boulevard. However, with the elimination of parking on Westchester Parkway and the elimination of the functional eastbound right-turn lane, there is sufficient right-of-way to provide an additional westbound left-turn lane in order to partially mitigate this intersection. The loss of parking on Westchester Parkway is not considered a burden in this immediate area since there are large surface parking lots within a short walking distance, and parking is permitted on both sides of Sepulveda Boulevard. Even with this partial mitigation, the residual impact would be significant and unavoidable.

- **Sepulveda Boulevard and I-105 Ramp north of Imperial Highway (Intersection #139)**

  In order to address the critical movement that is significantly impacted at this intersection, it would be necessary to widen the northbound approach to the Sepulveda Boulevard and I-105 Ramp north of Imperial Highway intersection to four through lanes. However, this measure is considered infeasible due to right-of-way constraints associated with the Sepulveda tunnel under the south runways of LAX. Therefore, this impact would be significant and unavoidable.

Intersection Improvements Determined to be Feasible

The following improvements were identified at the intersections that were anticipated to be significantly impacted and were determined to be feasible to implement.

- **Airport Boulevard and Manchester Avenue (Intersection #9)**

  Restripe the eastbound approach to the Airport Boulevard and Manchester Avenue intersection to provide one left-turn lane, two through lanes, and a through/right lane. With implementation of this measure, three parking spaces on the south side of Manchester Avenue west of Belford Avenue and two parking spaces on the south side of Manchester Avenue east of Belford Avenue would need to be restricted during the PM peak period. The loss of five parking spaces during the PM peak period is not considered a burden to this immediate area since the commercial businesses on the south side of Manchester Avenue west of Belford Avenue have an off-street parking lot, and there is parking allowed on both sides of Belford Avenue and on the north side of Manchester Avenue. Alternatively, restripe and modify the traffic signal for the westbound approach to the Airport Boulevard and Manchester Avenue intersection to provide two left-turn lanes, two through lanes, and a right-turn lane. Implementation of either mitigation measure would reduce the impact to a less-than-significant level.

- **Arbor Vitae Street and Aviation Boulevard (Intersection #10)**

  Widen the eastbound approach to the Arbor Vitae Street and Aviation Boulevard intersection to provide one left-turn lane, two through lanes, and a right-turn lane. Implementation of this mitigation measure would reduce the impact to a less-than-significant level.

- **Imperial Highway and Sepulveda Boulevard (Intersection #71)**

  Restripe the northbound approach to the Imperial Highway and Sepulveda Boulevard intersection to provide one left-turn lane, three through lanes, and two right-turn lanes. Implementation of this mitigation measure would reduce the impact to a less-than-significant level. While restriping this intersection as described above would mitigate this impact, an alternative would be to widen the east side of Sepulveda Boulevard south of Imperial Highway to provide one left-turn lane, three through lanes, and two right-turn lanes on the northbound approach. However, provided the right-of-way is available, the provision of additional travel lane area would require disruption of traffic flows, generation of construction-related air pollutant emissions and noise impacts, and therefore the restriping is recommended rather than the widening.

- **La Cienega Boulevard and I-405 Ramps N/O Century Boulevard (Intersection #96)**

  Widen the southbound approach to the La Cienega Boulevard and I-405 Ramps N/O Century Boulevard intersection to provide two left-turn lanes and two through lanes. Implementation of this mitigation measure would reduce the impact to a less-than-significant level.

- **La Tijera Boulevard and Sepulveda Boulevard (Intersection #101)**

  Restripe the westbound approach to the La Tijera Boulevard and Sepulveda Boulevard intersection and modify the traffic signal at the intersection to provide two left-turn lanes, one through lane, and a through/right lane. Implementation of this mitigation measure would reduce the impact to a less-than-significant level. This mitigation measure would also change the westbound left-turn phasing from protected/permissive to protected only.

- **Sepulveda Boulevard and 76th/77th Street (Intersection #136)**

  Restripe the eastbound approach to the Sepulveda Boulevard and $76^{th}/77^{th}$ Street intersection to provide two left-turn lanes, a through/left-turn lane, and one right-turn lane. Implementation of this mitigation measure would reduce the impact to a less-than-significant level.

Graphic depictions of the improvements described above are included in Appendix C-3. Improvements that were considered for each intersection are depicted, including those improvements determined to be infeasible.[70]

Timing for Implementation of Feasible Intersection Improvements

As indicated in Section 2.4.5 of this EIR, international passenger activity levels at TBIT are assumed in the EIR analysis to increase from 16.7 MAP in 2008 to 21.8 MAP in 2013. The impacts analysis presented in Section 4.2.8 above is based on the additional vehicle trip generation associated with the 5.1 MAP increase in international passenger activity levels. The timing for implementation of the feasible improvements described above will be coordinated with the growth in international passenger activity levels at TBIT based on 1 MAP increments (i.e., 17.7 MAP, 18.7 MAP, 19.7 MAP, etc.). In order to determine which intersection improvements are required under each increment of growth, each significantly impacted intersection where feasible improvements are proposed was analyzed to identify the level of growth that triggers the significant impact. This was done by comparing the intersection LOS and V/C ratio under "Without Project" conditions and "With Project" conditions at each progressive increment of growth until the significant impact was triggered. The "Without Project" conditions were determined for each MAP level by linear interpolation of growth in ambient traffic that would occur over a sequence of five 1-MAP increases in passenger activity levels at TBIT. "With Project" conditions were then determined for each MAP level by linear interpolation of growth in project vehicle trips that would occur over a sequence of five 1-MAP increases in passenger activity levels at TBIT. Impacts were then determined for each MAP level by comparing the corresponding "with" and "without" project scenarios. If the difference in LOS was calculated to exceed the threshold guidelines defined by the jurisdiction in which the intersection was located, then the recommended improvement(s) was identified for construction once the airport reached the corresponding growth in MAP.

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70 The intersection improvements shown in Appendix C-3 focus on the 71 intersections evaluated within the study area, as identified in Section 4.2.3. The improvements for Intersection #93 (La Cienega Boulevard and Stocker Avenue) are not shown in Appendix C-3 because that intersection is addressed as part of the CMP analysis as an arterial monitoring station, as described in Section 4.2.8.2, which is separate from the 71 intersections.

The impact comparison for these conditions is depicted in Appendix C-9 of this EIR. The associated level of service sheets are also provided in Appendix C-9. The following identifies the intersection mitigation improvements associated with each increment of MAP growth over 2008 conditions (16.7 MAP for international travel at TBIT), as will be determined annually, based on calendar year passenger counts at LAX.

One MAP Increase (i.e., 17.7 MAP)

No improvements are necessary at an increase of one MAP (i.e., 17.7 MAP) at TBIT as part of the Bradley West Project.

Two MAP Increase (i.e., 18.7 MAP)

The following intersection improvements shall be implemented at an increase of two MAP (i.e., 18.7 MAP) at TBIT as part of the Bradley West Project.

- Modify the Intersection of La Tijera Boulevard and Sepulveda Boulevard (Intersection #101)

Three MAP Increase (i.e., 19.7 MAP)

In addition to the improvements identified above, improvements at the following three intersections shall be implemented at an increase of three MAP (i.e., 19.7 MAP) at TBIT as part of the Bradley West Project.

- Modify the Intersection of Airport Boulevard and Manchester Avenue (Intersection #9)
- Modify the Intersection of Imperial Highway and Sepulveda Boulevard (Intersection #71)
- Modify the Intersection of Sepulveda Boulevard and 76th/77th Street (Intersection #136)

Four MAP Increase (i.e., 20.7 MAP)

In addition to the improvements identified above, improvements at the following two intersections shall be implemented at an increase of four MAP (i.e., 20.7 MAP) at TBIT as part of the Bradley West Project.

- Modify the Intersection of Arbor Vitae Street and Aviation Boulevard (Intersection #10)
- Modify the Intersection of La Cienega Boulevard and I-405 Ramps N/O Century Boulevard (Intersection #96)

Five MAP Increase (i.e., 21.7 MAP)

All feasible intersection improvements would be implemented before a five MAP increase at TBIT is reached.

Recommended Mitigation Program

In summary, based on the information provided above, the following mitigation measures are proposed to address off-airport surface transportation impacts associated with the Bradley West Project:

- **MM-ST (BWP)-4. Modify the Intersection of Airport Boulevard and Manchester Avenue (Intersection #9).**

  The eastbound approach to the Airport Boulevard and Manchester Avenue intersection shall be restriped to provide one left-turn lane, two through lanes, and a through/right lane. Three parking spaces on the south side of Manchester Avenue west of Belford Avenue and two parking spaces on the south side of Manchester Avenue east of Belford Avenue shall be restricted during the PM peak period. Alternatively, the westbound approach to the Airport Boulevard and Manchester Avenue intersection shall be restriped and the traffic signal modified to provide two left-turn lanes, two through lanes, and a right-turn lane. This mitigation measure will be implemented to the standards and satisfaction of the City of Los Angeles. Implementation of this measure shall occur if/when international passenger activity levels at TBIT increase to 19.7 million annual passengers.

- **MM-ST (BWP)-5. Modify the Intersection of Arbor Vitae Street and Aviation Boulevard (Intersection #10).**

  The eastbound approach to the Arbor Vitae Street and Aviation Boulevard intersection shall be widened to provide one left-turn lane, two through lanes, and a right-turn lane. This mitigation measure will be implemented to the standards and satisfaction of the City of Los Angeles and City of Inglewood. Implementation of this measure shall occur if/when international passenger activity levels at TBIT increase to 20.7 million annual passengers.

- **MM-ST (BWP)-6. Modify the Intersection of Imperial Highway and Sepulveda Boulevard (Intersection #71).**

  The northbound approach to the Imperial Highway and Sepulveda Boulevard intersection shall be restriped to provide one left-turn lane, three through lanes, and two right-turn lanes. While restriping this intersection as described above would mitigate this impact, an alternative would be to widen the east side of Sepulveda Boulevard south of Imperial Highway to provide one left-turn lane, three through lanes, and two right-turn lanes on the northbound approach. However, provided the right-of-way is available, the provision of additional travel lane area would require disruption of traffic flows, generation of construction-related air pollutant emissions and noise impacts, and therefore the restriping is recommended rather than the widening. This mitigation measure will be implemented to the standards and satisfaction of the City of Los Angeles, City of El Segundo, and Caltrans. Implementation of this measure shall occur if/when international passenger activity levels at TBIT increase to 19.7 million annual passengers.

- **MM-ST (BWP)-7. Modify the Intersection of La Cienega Boulevard and I-405 Ramps N/O Century Boulevard (Intersection #96).**

  The southbound approach to the La Cienega Boulevard and I-405 Ramps N/O Century Boulevard intersection shall be widened to provide two left-turn lanes and two through lanes. This mitigation measure will be implemented to the standards and satisfaction of the City of Los Angeles, City of Inglewood, and Caltrans. Implementation of this measure shall occur if/when international passenger activity levels at TBIT increase to 20.7 million annual passengers.

- **MM-ST (BWP)-8. Modify the Intersection of La Tijera Boulevard and Sepulveda Boulevard (Intersection #101).**

  The westbound approach to the La Tijera Boulevard and Sepulveda Boulevard intersection shall be restriped and the traffic signal modified to provide two left-turn lanes, one through lane, and a through/right lane. This mitigation measure will be implemented to the standards and satisfaction of the City of Los Angeles. Implementation of this measure shall occur if/when international passenger activity levels at TBIT increase to 18.7 million annual passengers.

- **MM-ST (BWP)-9. Modify the Intersection of Sepulveda Boulevard and 76th/77th Street (Intersection #136).**

  The eastbound approach to the Sepulveda Boulevard and 76th/77th Street intersection shall be restriped to provide two left-turn lanes, a through/left-turn lane, and one right-turn lane. This mitigation measure will be implemented to the standards and satisfaction of the City of Los Angeles. Implementation of this measure shall occur if/when international passenger activity levels at TBIT increase to 19.7 million annual passengers.

4.2.10 Level of Significance after Mitigation

Table 4.2-10 summarizes the final LOS for the six significantly impacted intersections identified in Section 4.2.8 that can be mitigated through the feasible intersection improvements identified in Section 4.2.9. Those intersections include the following:

- 9. Airport Boulevard and Manchester Avenue
- 10. Arbor Vitae Street and Aviation Boulevard

- 71. Imperial Highway and Sepulveda Boulevard
- 96. La Cienega Boulevard and I-405 Ramps N/O Century Boulevard
- 101. La Tijera Boulevard and Sepulveda Boulevard
- 136. Sepulveda Boulevard and 76th/77th Street

As shown in **Table 4.2-10**, the improvements included in the recommended mitigation program would reduce impacts at those six intersections to a level that is less than significant, including under either of the improvement alternatives described for Intersections #9 and #71. The proposed timing/phasing of mitigation measures is designed to provide for the recommended intersection improvements in coordination with incremental increases in passenger activity levels at TBIT. This analysis assumes that there would be situations, including unexpected conditions and circumstances, where a proposed improvement(s) would not yet be completed by the time the impact occurs, and consequently there would be a temporary significant and unavoidable impact until the recommended improvements are in-place. Examples of unanticipated conditions and circumstances include, but are not limited to, delays in receiving required permits and approvals, coordination with affected jurisdictions, unexpected site conditions such as subsurface contamination, and coordination with other circulation system improvements nearby (i.e., schedule in coordination with other projects nearby that require lane closures or detours).

As discussed in Section 4.2.9 above, existing constraints at the remaining 13 significantly impacted intersections render potential intersection improvements infeasible. Those intersections include the following:

- 6. Airport Boulevard and Arbor Vitae Street/Westchester Parkway
- 7. Airport Boulevard and Century Boulevard
- 14. Aviation Boulevard and Century Boulevard
- 16. Aviation Boulevard and Imperial Highway
- 36. Century Boulevard and La Cienega Boulevard
- 88. La Cienega Boulevard and La Tijera Boulevard
- 93. La Cienega Boulevard and Stocker Avenue
- 109. Lincoln Boulevard and Venice Boulevard
- 110. Lincoln Boulevard and Washington Boulevard
- 114. Manchester Avenue and Sepulveda Boulevard
- 125. Rosecrans Avenue and Sepulveda Boulevard
- 135. Sepulveda Boulevard and Westchester Parkway
- 139. Sepulveda Boulevard and I-105 Ramp north of Imperial Highway

In the absence of feasible mitigation measures, the impacts at those 13 intersections would be significant and unavoidable.

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Table 4.2-10

Off-Airport Surface Transportation Impacts - Intersection Level of Service With Recommended Mitigation Program[1]

					Future-Adjusted (2013) Without Project Conditions AM		Mitigated Future (2013) With Project Conditions AM		Significant Impact?		Future-Adjusted (2013) Without Project Conditions MD		Mitigated Future (2013) With Project Conditions MD		Significant Impact		Future-Adjusted (2013) Without Project Conditions PM		Mitigated Future (2013) With Project Conditions PM		Significant Impact?	
Int #	**Intersection**	**Jurisdiction**	**ATSAC**	**ATCS**	**V/C**	**LOS**	**V/C**	**LOS**	**Delta**	**Impact?**	**V/C**	**LOS**	**V/C**	**LOS**	**Delta**	**Impact?**	**V/C**	**LOS**	**V/C**	**LOS**	**Delta**	**Impact?**
9	Airport Blvd and Manchester Ave	LA	X	X	0.718	C	0.755	C	0.036	NO	0.704	C	0.611	B	-0.093	NO	1.125	F	1.077	E	-0.048	NO
10	Arbor Vitae St and Aviation Blvd	Inglewood / LA	X	X	0.707	C	0.747	C	0.040	NO	0.477	A	0.507	A	0.030	NO	0.817	D	0.750	C	-0.067	NO
71	Imperial Hwy and Sepulveda Blvd	Caltrans / El Segundo / LA	X	X	0.704	C	0.678	B	-0.025	NO	1.040	F	0.780	C	-0.260	NO	1.120	F	0.750	C	-0.369	NO
96	La Cienega Blvd and I-405 SB Ramps N/O Century	Caltrans / Inglewood / LA	X	X	0.736	C	0.720	C	-0.016	NO	0.569	A	0.560	A	-0.009	NO	0.693	B	0.656	B	-0.037	NO
101	La Tijera Blvd and Sepulveda Blvd	LA	X	X	0.753	C	0.665	B	-0.088	NO	0.656	B	0.636	B	-0.020	NO	0.771	C	0.732	C	-0.039	NO
136	Sepulveda Blvd and 76th/77th Street	LA	X	X	0.835	D	0.803	D	-0.032	NO	0.527	A	0.527	A	0.000	NO	0.704	C	0.698	B	-0.006	NO

[1] The recommended mitigation program includes those intersections for which feasible intersection improvements were identified. Potential intersection improvements for other significantly impacted intersections not included in this table were determined to be infeasible. See discussion in Section 4.2.9.

Source: Fehr & Peers, 2009.

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4.3 Construction Surface Transportation

4.3.1 Introduction

By way of background, the LAX Master Plan Final EIR analyzed future roadway traffic impacts for the entirety of the Master Plan including a peak construction year of 2008, when it was previously anticipated that many of the Master Plan projects would be under construction. For operational conditions, the LAX Master Plan Final EIR analyzed future roadway traffic impacts at Master Plan buildout, previously anticipated to be 2015. The Master Plan Final EIR analyzed traffic impacts associated with several alternatives considered for the Master Plan, including Alternative D, which was ultimately approved. In conjunction with the evaluation of traffic impacts, the Final EIR proposed numerous Master Plan commitments and mitigation measures to address potential traffic impacts associated with construction and operation of the Master Plan. The LAX Master Plan Final EIR provides a programmatic evaluation of the overall impacts of the Master Plan, understanding that a more detailed analysis of impacts particular to individual projects within the Master Plan can be better evaluated at the more detailed levels of project planning. That is the case here relative to the Bradley West Project. The traffic analysis presented in this section addresses the construction traffic impacts specific to the Bradley West Project that were not otherwise covered in the Master Plan Final EIR. The impacts were determined for both the peak construction period for the Bradley West Project (Q4 2011) and the overall cumulative peak (Q4 2010).[71] In this case, the peak construction month for the Bradley West Project does not correspond to the peak cumulative condition, which includes traffic from the construction of other known projects anticipated to be under construction during the approximately 5-year Bradley West Project construction schedule.

The information provided in this project-level tiered EIR was prepared to examine, at a greater level of detail, the potential surface transportation impacts specifically associated with development of the Bradley West Project. This Bradley West Project analysis "tiers" from the analysis and findings of the LAX Master Plan Final EIR. However, this Bradley West Project analysis incorporates current traffic data and information obtained subsequent to LAX Master Plan Final EIR publication. For example, procedures and certain assumptions used in this analysis were based on the traffic analysis conducted for the South Airfield Improvement Project (SAIP) EIR, which was published in 2005. The SAIP was the first Master Plan project to be constructed and the EIR for the SAIP was tiered from the LAX Master Plan Final EIR. Subsequent to the SAIP, construction analysis methodologies and data were updated to assess the potential impacts associated with construction of the LAX Crossfield Taxiway Project (CFTP), which was documented in the CFTP Draft EIR published in September 2008. Given that the traffic conditions resulting from the construction of both the CFTP and the Bradley West Project will be assessed against the same Baseline (2008) traffic conditions, and that both projects are similar in terms of regional approach/departure patterns and construction peaking characteristics, the analysis procedures and data were applied and updated as appropriate for the Bradley West Project based on the particular characteristics of the project.

The anticipated traffic impacts at intersections that would accommodate traffic from construction vehicles are assessed herein, including construction employee vehicles, construction equipment and material delivery trucks, and other construction-related roadway traffic activity (i.e., employee shuttles and transfer trucks). Applicable LAX Master Plan commitments and mitigation measures consistent with the Master Plan Mitigation Monitoring and Reporting Program (MMRP) were incorporated to mitigate potential construction-related impacts and are considered part of the proposed project.

This analysis addresses, in particular, the impacts from construction-related traffic that would occur during the peak period of project construction. This peak-period analysis is considered to provide conservative

[71] The peak construction period related to construction traffic impacts is anticipated to occur in the fourth quarter of 2011. This is different from the peak construction period related to air quality impacts, which is anticipated to occur in the third quarter of 2010. The reason for that difference is that the peak traffic generation would occur during completion of the new buildings at TBIT, which involve a substantial number of workers, but not necessarily equipment that has air pollutant emissions; whereas the peak air pollutant emissions would occur in conjunction with the demolition and reconstruction of aircraft apron and taxiway areas, which involves a substantial amount of heavy construction equipment that has air pollutant emissions.

results in that project-related traffic during periods when construction activities are less intensive will result in fewer traffic impacts than presented herein. The analysis focuses on construction-related impacts associated with the proposed Bradley West Project. Potential impacts associated with the operation of the Bradley West Project are discussed in Section 4.1, *On-Airport Surface Transportation*, and Section 4.2, *Off-Airport Surface Transportation*, of this EIR.

4.3.2 Methodology

4.3.2.1 Overview

As noted above, this analysis focuses on construction impacts related to the Bradley West Project. The analysis methodology is based largely on the approach used for the SAIP and the CFTP, which are generally similar in nature, scope, and location to the Bradley West Project. Given that both the Bradley West Project and the CFTP share the same Baseline (2008) conditions, no new traffic data were collected for the Bradley West Project analysis and many of the assumptions used for the Bradley West Project and documented herein were assumed to be the same as those used for the aforementioned traffic studies.

The Bradley West Project study area consists of a focused area that includes those intersections and roadways anticipated to be directly or indirectly affected by the construction associated with the Bradley West Project. Given the similarities between the previous projects and the Bradley West Project, the geographic limits of the Bradley West Project study area and the potentially affected intersections continue to include the study area selected as part of the CFTP, which were determined through consultation with Los Angeles World Airports (LAWA) and the Los Angeles Department of Transportation (LADOT). However, for the Bradley West Project analysis, the study area previously used for the CFTP was expanded to include additional intersections that could potentially be affected, given that the location of the Bradley West Project employee parking and staging locations vary from the location assumed for the CFTP. As described in more detail in Section 4.3.3 below, construction staging and construction parking for the Bradley West Project would be distributed between several locations situated around the airport. The nature and intensity of construction would vary over the approximately 5-year construction period, as would also the associated need for, and distribution of, construction staging and parking. The exact characteristics of how and when those needs would change are unknown at this time. As such, a conservative approach has been applied to the construction traffic impacts analysis whereby all the construction employee parking, which constitutes the vast majority (i.e., over 90 percent) of the project's construction-related peak-hour trips during the peak construction period (fourth quarter of 2011), is analyzed under four different scenarios. The first scenario focuses on the use of a construction employee parking area located at the northwest corner of the airport. The second scenario focuses on the use of construction employee parking areas located at the southeast corner or east edge of the airport. The third and fourth scenarios provide a sensitivity analysis that assumes the potential for a temporary surge in the number of construction workers and concurrent use of both employee parking areas in the northwest and in the southeast. (See Section 4.3.4.2 below for more detail regarding these four scenarios.)

The study area for the impacts analysis includes those roads and intersections that would most likely be affected by employee and truck traffic associated with construction of the Bradley West Project. The methodology used in this analysis is based on data and procedures used for the LAX Master Plan Final EIR traffic study,[72] subsequently updated and refined based on analyses prepared for the SAIP and CFTP traffic studies. The procedures are also consistent with the information and requirements defined in Los Angeles Department of Transportation (LADOT) Traffic Study Policies and Procedures, revised by the LADOT in March 2002, notwithstanding that a construction traffic analysis such as this is not typically required by LADOT.

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[72] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.3.

The following steps and assumptions were used to develop the analysis methodology.

- The study area (explained further in Section 4.3.3.1 below) was defined according to the travel paths that would be used by construction traffic to access the project site, equipment, materials staging, and parking areas. Construction delivery vehicle travel paths would be regulated according to the construction traffic management plan detailed within the LAX Master Plan Mitigation Monitoring and Reporting Program. The specific mitigation commitments associated with the LAX Master Plan are described in more detail within Section 4.3.7 below. Although the proposed Bradley West Project improvements are located in the mid-field just west of the Central Terminal Area (CTA), construction delivery and employee parking would be located at various areas near the northwest, west, east, and boundaries of the airport. Consequently, all Bradley West Project construction employee vehicle activity would access the proposed parking and staging areas via off-airport roads adjacent to the airport. Construction materials would be transferred from the staging areas via service roads within the airport boundaries and, therefore, material transfers would not affect the public on-airport roadway system. Bradley West Project construction vehicles would not access the CTA roadways.
- Intersection traffic volume data were collected at the key study area intersections in July and August 2008 during the a.m. commute peak hours (7:00 a.m. to 9:00 a.m.) and the p.m. commute peak hours (4:30 p.m. to 6:30 p.m.). These data were then adjusted to represent peak hour volumes that would occur during (a) the a.m. peak inbound hour for construction employees and deliveries and (b) the p.m. peak outbound hour for construction employees and deliveries. Pursuant to the mitigation requirements set forth in the LAX Master Plan Final EIR, construction truck delivery and construction employee traffic activity would not be scheduled during the morning or afternoon commute peak periods. The estimated peak hours for construction-related traffic were determined by reviewing the estimated hourly construction-related trip activity. The a.m. peak construction hour was determined to be 5:00 a.m. to 6:00 a.m. and the p.m. peak construction hour was determined to be 3:30 p.m. to 4:30 p.m.
- Key off-airport intersections, including intersections with freeway ramps in the proposed study area, were analyzed. Impacts to roadway segments and freeway[73] links, typically required to be analyzed during peak commute periods, were not analyzed because peak construction-related traffic activity is anticipated to occur outside of peak commute periods.

In general, this analysis complements the assumptions and analyses included in the LAX Master Plan Final EIR and subsequent detailed project-level construction traffic studies prepared for the SAIP EIR and the CFTP EIR. Additional data were collected as part of this study to prepare technical analyses that (a) incorporate the most current available data, (b) accommodate a more focused study area, and (c) consider alternative peak hours that were not specifically modeled or analyzed in the LAX Master Plan Final EIR (i.e., construction peak hours specific to Bradley West Project construction).

The following describes the methodology and assumptions underlying the various traffic conditions considered in this traffic analysis, and how the project's direct and indirect (cumulative) impacts were identified relative to those conditions.

4.3.2.2 Determination of Baseline (2008) Traffic Conditions

The Baseline conditions used in the analysis of project-related construction traffic impacts are defined as the existing conditions within the Bradley West Project traffic study area at the time the Notice of Preparation (NOP) for the Bradley West Project Draft EIR was published in 2008. For purposes of this analysis, intersection turning movement volumes collected in July and August 2008, which represent the

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73 During a review of the proposed analysis methodology and study area for the SAIP, LADOT staff indicated in a July 29, 2004, e-mail that "intersection analysis for this type of study is more than sufficient" and that roadway and freeway link analyses would not be required. A Congestion Management Program (CMP) analysis is not required for construction-related activity because it is not anticipated that the Bradley West Project would generate traffic during the a.m. or p.m. peak commute periods. Additionally, because the Bradley West Project would not alter roadway circulation patterns or increase traffic volumes subsequent to construction, a CMP analysis is not required for post-construction traffic operations.

most current comprehensive traffic counts completed by LAWA, were used as a basis for preparing the traffic analysis and assessing potential project-related traffic impacts. The use of 2008 traffic conditions as the baseline for evaluating construction traffic impacts is reasonable and appropriate, given that construction traffic is anticipated to begin in late 2009 and reach a peak in 2010. The background traffic conditions in 2009 and 2010 are not anticipated to be substantially different from those in 2008; hence, a 2008 baseline is considered to provide a suitable basis for assessing the significance of project-related construction traffic impacts. The following steps were taken to develop the Baseline (2008) traffic conditions information.

Prepare Model of Study Area Roadways and Intersections--A traffic model of study area roadways and intersections was developed to assist with intersection capacity analysis (i.e., geometric configuration, quantitative delineation of capacity, and operational characteristics of intersections likely to be affected by project traffic). The model was developed using TRAFFIX,[74] a commercially available traffic analysis software program designed for developing traffic forecasts and analyzing intersection and roadway capacities. The model uses widely accepted traffic engineering methodologies and procedures, including the Transportation Research Board Critical Movement Analysis (CMA) Circular 212 Planning Method,[75] which is the required intersection analysis methodology for traffic impact studies conducted within the City of Los Angeles.

Review Off-Airport Traffic Data Collected in 2008--Intersection turning movement counts for Baseline conditions were collected during a.m. and p.m. peak commute hours in July and August 2008. July and August are considered to be the peak months for airport-related traffic around LAX; therefore, additional seasonal adjustments were not required to convert the counts to peak month conditions. However, to estimate background traffic activity during peak construction periods, it was necessary to convert these data to represent the traffic activity that would occur during the clock hour that directly precedes the peak commute hours. This adjustment to the peak commute hour data reflects the fact that, as a result of LAX Master Plan Commitments ST-12 and ST-14 identified within the LAX Master Plan MMRP, construction work hours and construction vehicle deliveries are required to be scheduled so as to avoid peak commute hours. An adjustment factor was developed using 24-hour automatic traffic recorder (ATR) counts[76] collected at multiple locations within the study area during June 2008. The adjustment factor was calculated as the ratio of traffic volumes during the construction peak period divided by the traffic volumes during the corresponding commute peak period (see Section 4.3.3.3 below for discussion of the data used to develop the adjustment factor). It was assumed that the traffic volumes recorded in June 2008 provide a reasonable representative profile of the hourly peaking pattern of background traffic on the study area roadway network during the summer 2008 season and would, therefore, be representative of hourly peaking patterns in July and August 2008.

Estimate Baseline (2008) Traffic Volumes--Baseline (2008) traffic volumes consist of the data collected in July and August 2008 during the a.m. and p.m. peak commute hours adjusted using the ratio described in the preceding paragraph to represent estimated traffic volumes during the construction peak hour. The intersection levels of service calculated using these volumes served as a basis of comparison for assessing potential impacts generated by construction of the Bradley West Project.

4.3.2.3 Determination of Baseline (2008) Plus Peak Bradley West Project Traffic Conditions

This traffic analysis was designed to assess the direct impacts associated with the Bradley West Project, as well as the effects of future cumulative conditions as described below. For purposes of determining

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74 Dowling Associates, TRAFFIX Version 7.7. Based on information provided by Dowling Associates in May 2, 2008, over 425 site TRAFFIX licenses are owned by public and private entities, including licenses owned by 44 cities, 5 countries, and Caltrans within the State of California.

75 Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

76 Traffic data were collected in support of the SGI Group Inc, LAX Air Quality and Source Apportionment Study, July 30, 2008.

the direct project-related impacts, a traffic scenario was developed consisting of the Baseline (2008) traffic described above plus the additional traffic that would be generated by the Bradley West Project during the peak construction period. The Baseline (2008) Plus Peak Bradley West Project traffic condition is somewhat hypothetical in nature, inasmuch as it combines the project-related traffic estimated to occur during a future peak period of construction (fourth quarter 2011) with the Baseline (2008) traffic volumes identified for current conditions.

The following steps were conducted to determine the Baseline (2008) Plus Peak Bradley West Project traffic volumes.

Analyze Peak Bradley West Project Construction Activity--Vehicle trips associated with construction of the Bradley West Project during the peak month of construction activity were estimated and distributed throughout the study area network. The trips were estimated based on a review of the proposed construction schedule, associated equipment crews, and associated equipment, including trucks and other construction vehicles, for the Bradley West Project. Project-related construction trips were summarized to delineate peak month inbound and outbound construction employee trips, delivery truck trips, transfer trips, and shuttle bus trips by hour of the day. The estimate of Bradley West Project construction trips was based on construction employee workload schedules prepared for the Bradley West Project.[77] The construction employee trip distribution patterns were based on regional patterns developed for the CFTP using the modeling results prepared for the LAX Master Plan EIR, specific haul route information, airline passenger survey information, and regional population distributions.

Peak construction activity was estimated for the following general scenarios that are defined more fully in Section 4.3.4.2 below:

- Scenario 1: All Construction Employee Parking Occurs at the Northwest Construction Staging/ Parking Area
- Scenario 2: All Construction Employee Parking Occurs at the East Contractor Employee Parking Area or the Southeast Construction Staging/Parking Area
- Scenario 3: Sensitivity Analysis Assuming Temporary 60% Surge in Number of Employees and Employee Parking Demand is Distributed between the Northwest Construction Staging/Parking Area (63%) and the Southeast Construction Staging/Parking Area (37%)
- Scenario 4: Sensitivity Analysis Assuming Temporary 60% Surge in Number of Employees and Employee Parking Demand is Distributed between the Northwest Construction Staging/Parking Area (37%) and the Southeast Construction Staging/Parking Area (63%)

Estimate Baseline (2008) Plus Peak Bradley West Project Traffic Volumes--The Estimated Baseline (2008) Plus Peak Bradley West Project (referred to hereinafter as Baseline Plus) traffic volumes were estimated by adding the project volumes during the peak project activity period anticipated to occur in the fourth quarter of 2011 to Baseline (2008) traffic volumes.

4.3.2.4 Delineation of Future Cumulative Traffic Conditions

In addition to the Baseline Plus Project condition described above, future cumulative traffic conditions were analyzed. In accordance with Section 15355 of the CEQA Guidelines, cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." For this traffic analysis, cumulative traffic conditions were assessed for the period during the overall Bradley West Project construction program when the cumulative traffic associated with other LAX development programs would be greatest. This peak cumulative period was estimated to occur during the Fourth Quarter of 2010. To add a conservative measure to this analysis, the traffic volumes associated with the peak period of Bradley West Project construction during the Fourth Quarter of 2011 was added to cumulative peak period from the Fourth

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[77] U.S. Cost, Bradley West Resource Loaded Schedule, November 19, 2008.

Quarter of 2010. As an additional conservative measure, the future cumulative analysis was conducted for the Scenario 3 and Scenario 4 worst-case surged conditions described in the previous section.

The conservative assumptions used to prepare the cumulative impacts analysis accounts for potentially two points in time during the approximate 5-year construction schedule when the combined impacts of Bradley West Project-related traffic and traffic from other projects may differ; one point is when construction activities specific to the Bradley West Project are at their peak and other project construction is also underway (Q4 2011) and the second point is when Bradley West Project construction levels are lower than peak, but the construction activity of other projects may combine to produce a peak that is higher than the Bradley West Project peak (Q4 2010). Refer to Section 4.3.5 below for information related to peaking characteristics of the Bradley West Project and other concurrent construction projects.

In accordance with CEQA Guidelines Section 15130(b), there are essentially two options for delineating cumulative development for evaluating potential impacts:

a. List past, present, and reasonably foreseeable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or

b. Summarize projections contained in an adopted general plan or related planning document, or in a prior adopted or certified environmental document, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

For purposes of the Bradley West Project, the first of the two options, commonly referred to as "the list approach," was used to delineate cumulative projects - see Section 4.3.5.1 for a description of cumulative projects and Sections 4.3.5.1 and 4.3.5.3 for specific project listings and descriptions regarding how and when the traffic generation related to those projects would overlap with that of the Bradley West Project. Background traffic was increased to reflect additional growth from non-specific projects, which adds an element of the second option to result in a cumulative impacts analysis that is more conservative.

Cumulative impacts were determined using a process that requires the development of the two sets of future cumulative traffic volume conditions, as described below.

Cumulative Traffic (Fourth Quarter 2010) Without Project

This is a hypothetical scenario that combines Baseline (2008) traffic volumes with growth from all sources other than the project during the peak construction period for the Bradley West Project. The following steps were taken to develop the traffic volumes for this scenario.

Develop Fourth Quarter 2010 Focused Study Area Roadway Network--The TRAFFIX model was updated, as necessary, to reflect any committed and funded study area transportation improvements that would be in place by the fourth quarter of 2011. Additional information on committed transportation improvements is provided in Section 4.3.5.2 below.

Estimate Fourth Quarter 2010 Cumulative Traffic Volumes--Cumulative (Q4 2010) traffic volumes were estimated using the following process:

- The Baseline (2008) traffic volumes defined previously were multiplied by a growth factor of 2 percent per year to account for local background traffic growth through 2010. This assumption was deemed to be conservative given that roadway traffic in the study area generally decreased between 2004 and 2008 (refer to "Annual Growth Patterns" in Section 4.3.3.3 below). This annual growth rate assumption is consistent with previous direction provided by LADOT for use in the SAIP study.[78]
- Construction trips for committed LAX development projects that are expected to commence during the period of Bradley West Project construction were directly estimated and included in the analysis. Construction trips associated with the peak period of cumulative construction (Fourth Quarter 2010) were estimated based on the construction cost of the project and the timeline for project completion.

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78 City of Los Angeles, Los Angeles World Airports, Draft Environmental Impact Report for South Airfield Improvement Project, Los Angeles International Airport (LAX), August 2005, page IV-38.

The projects that are considered as part of this analysis and the estimated trips associated with these projects are described in more detail in Section 4.3.5.1 below.

- The location and trip generation characteristics of the development identified on the list of related projects (refer to Section 4.3.5.3 below, and Table 4.2-5 in Section 4.2 of this EIR, particularly the other approved "non-airport" development projects that would be in place by Q4 2010) were reviewed and incorporated. Given that these other "non-airport" projects are not in the immediate vicinity of the study area, it was determined that the effects of associated traffic activity would be indirectly included as part of the assumed 2 percent growth rate.
- In addition to the specific projects addressed in the cumulative analysis as described above, there were several past and present projects that may have contributed vehicle trips to the traffic volumes used to define the Baseline (2008) traffic conditions. Those projects that were initiated in the past and were under construction during the traffic data collection periods for this project, and that may have been represented in the Baseline volumes (i.e., construction-related trips from such projects were already occurring at the time of the traffic counts and were therefore already included in the Baseline volumes), were conservatively assumed to increase in proportion with the "non-airport" growth rate described above resulting in a higher future cumulative traffic volume than likely given that these projects will not be underway during the Bradley West Project peak. Examples of such projects occurring in the vicinity of the Bradley West Project area include the TBIT Interior Improvements Program and the In-Line Baggage Screening Systems. With respect to past projects in the vicinity of the Bradley West Project that have already been completed, the operations-related trips for those completed projects would have also been included in the Baseline volumes; however, the construction-related trips of such completed projects would have already occurred prior to the traffic counts and therefore are not within the Baseline volumes. An example of such a past project in the vicinity of the Project site is the SAIP, which was under construction from March 2006 to June 2008. Other notable non-LAWA development projects completed over the past few years that are located along or near major roadways common to LAX include: Phase I development at Playa Vista near Lincoln Boulevard and Jefferson Boulevard; multi-story residential and mixed use development along Lincoln Boulevard south of Manchester Avenue; partial development of the El Segundo Corporate Campus on Nash Street near Imperial Highway; and, development of the initial phases of Plaza El Segundo on El Segundo Boulevard at Rosecrans Avenue. Inasmuch as the construction-related trips associated with these projects no longer occur, these projects would not add construction-related vehicle trips. To the extent that there might be an indirect cumulative relationship between the projects, such as if local drivers automatically change their commute patterns during construction of the Bradley West Project based solely on the traffic congestion characteristics, if any, that they experienced during construction of these other projects, the identification and analysis of such indirect cumulative impacts are too speculative to address. Regarding operational trips associated with these developments that were under construction in the past, it was determined that these projects are not in the immediate vicinity of the study area and that the operational effects of associated traffic activity would be already included in the background traffic volumes collected for the study and/or indirectly included as part of the assumed 2 percent growth rate.

Cumulative Traffic (Fourth Quarter 2010) With Project

The project-related (fourth quarter 2011) traffic volumes described in Section 4.3.2.3 above were added to the Cumulative Traffic (fourth quarter 2010) "Without Project" traffic volumes described in the previous section. This is a realistic traffic scenario that is intended to represent the estimated total peak hour traffic volumes (consisting of background traffic, traffic related to ambient growth, traffic related to other projects, and Bradley West Project construction peak traffic) that would use the study area intersections during the overall cumulative peak in the fourth quarter of 2010.[79]

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[79] Cumulative traffic scenarios were evaluated for the more conservative “surge” conditions defined as Scenarios 3 and 4 which represent a worst-case demand condition for the project combined with the maximum volume associated with cumulative traffic from other projects (see Section 4.3.4.2).

4.3.2.5 Delineation of Impacts and Mitigation Measures

The following steps were conducted to calculate intersection levels of service, identify impacts, and identify potential mitigation measures, if necessary.

Analyze Intersection and Roadway Levels of Service--The levels of service on the study area intersections and roadways were analyzed using TRAFFIX. Intersection level of service was estimated using the CMA planning level methodology, as defined in Transportation Research Board Circular 212,[80] in accordance with LADOT Traffic Studies Policies and Procedures guidelines,[81] and the L.A. CEQA Thresholds Guide.[82] Intersection level of service was analyzed for the following conditions:

- Baseline (2008)
- Baseline (2008) Plus Peak Bradley West Project
- Cumulative Traffic (Fourth Quarter 2010) Without Project
- Cumulative Traffic (Fourth Quarter 2010) With Project

Identify Project Impacts--Project-related impacts associated with construction of the Bradley West Project were identified. Intersections that were anticipated to be significantly affected by project-related construction were identified according to the criteria established in the L.A. CEQA Thresholds Guide.[83] Impacts were determined by comparing the level of service results for the following:

- **Baseline (2008) Plus Peak Bradley West Project Compared with Baseline (2008)** - This comparison is utilized to isolate the potential impacts of the project.
- **Cumulative Impacts** - Cumulative impacts were determined using a two-step process. Initially, the cumulative "With Project" condition was compared to the Baseline (2008) condition to determine if a cumulative impact would occur relative to the Baseline. An impact was deemed significant if it would exceed the allowable threshold of significance defined in the LADOT Guidelines. If a cumulative impact were determined, then a second comparison of the "With Project" vs. the "Without Project" level of service conditions was made to determine if the project's contribution of the cumulative impact is determined to be "cumulatively considerable" in accordance with the impact thresholds defined in Section 4.3.6 below.

Identify Potential Mitigation Measures--The traffic analysis methodology included provisions to identify mitigation measures, as necessary, for intersections determined to be significantly affected by construction-related traffic. The identification of appropriate mitigation measures includes integration of the applicable Master Plan commitments intended to address construction-related impacts.

4.3.3 Baseline (2008) Conditions

As indicated above, the Baseline (2008) conditions relate to the facilities and general conditions that existed during the month in which the NOP for the Bradley West Project Draft EIR was published.

4.3.3.1 Study Area

The construction traffic analysis study area is depicted in **Figure 4.3-1**. The scope of the study area was determined by identifying the intersections most likely to be used by construction-related vehicles accessing the Bradley West Project construction site and construction employees accessing construction parking areas. The study area is generally bounded by I-405 to the east, I-105 and Imperial

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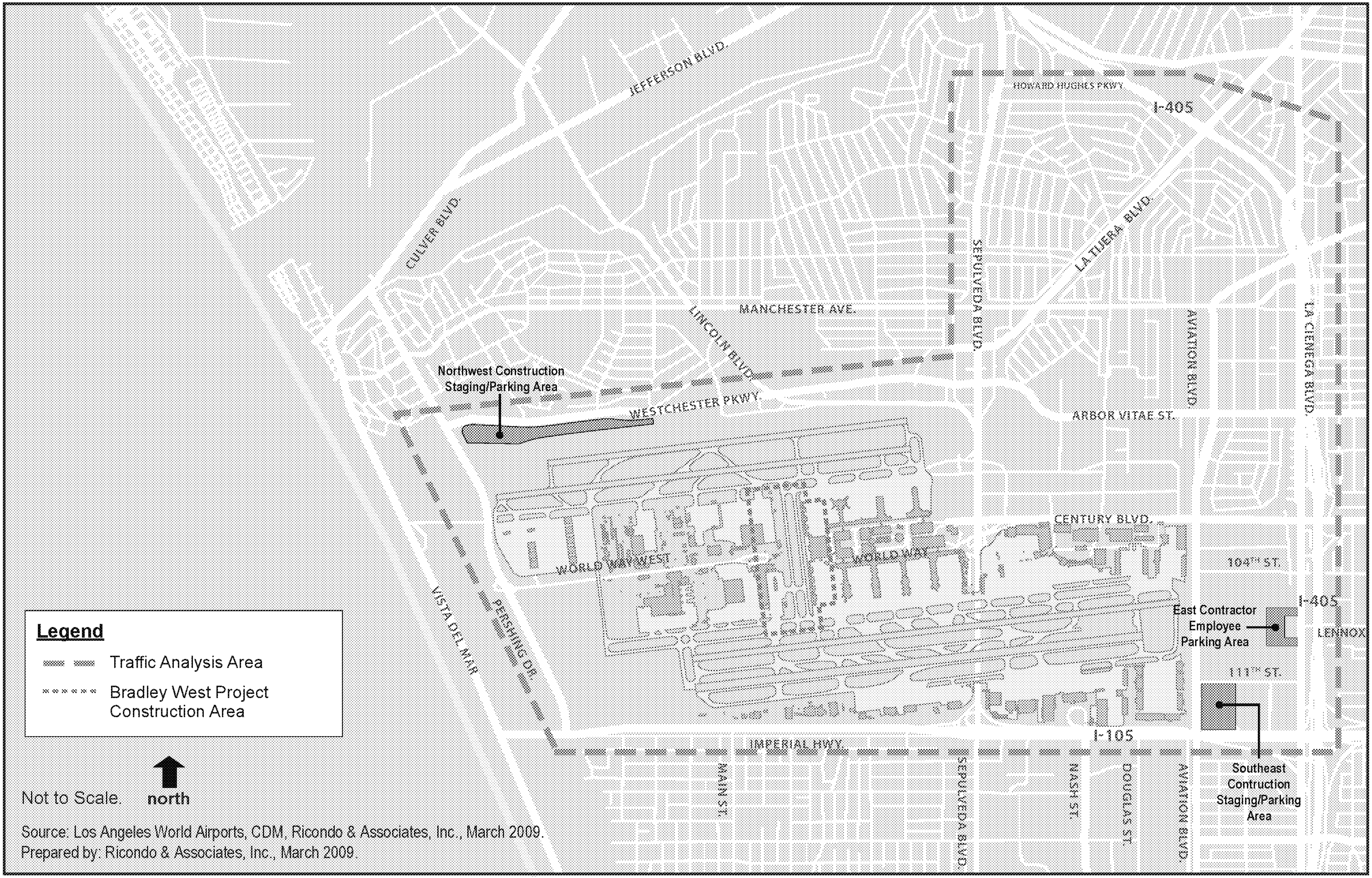
80 Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

81 Los Angeles Department of Transportation, Traffic Study Policies and Procedures, Revised March 2002, Available: http://www.lacity.org/LADOT/TrafficStudyGuidelines.pdf.

82 City of Los Angeles, L.A. CEQA Thresholds Guide, Your Resource for Preparing CEQA Analysis in Los Angeles, 2006.

83 City of Los Angeles, Department of City Planning, L.A. CEQA Thresholds Guide, Your Resource for Preparing CEQA Analysis in Los Angeles, 2006.



LAX Bradley West Project Draft EIR	Construction Traffic Analysis Study Area	Figure 4.3-1

Highway to the south, Pershing Drive to the west, and Sepulveda Boulevard and Howard Hughes Parkway to the north. **Figure 4.3-1** depicts the Bradley West Project construction site, which would be accessed via a gate located on World Way West. As also shown in **Figure 4.3-1**, three areas have been identified as potential locations for construction employee parking, including: the Northwest Construction Staging/Parking Area, which would be accessed via a driveway off of Westchester Parkway; the East Employee Parking Area, which would be accessed via La Cienega Boulevard; and the Southeast Construction Staging/Parking Area, which would be accessed via Aviation Boulevard and 111th Street.

4.3.3.2 Study Area Roadways

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

- **I-405 (San Diego Freeway)** - This north-south freeway generally forms the eastern boundary of the construction traffic analysis study area and provides regional access to the airport and the surrounding area. Access to the study area is provided via ramps at Howard Hughes Parkway, Century Boulevard, I-105, Imperial Highway, and three locations along La Cienega Boulevard.
- **I-105 (Glenn M. Anderson or Century Freeway)** - Along with Imperial Highway (described below), this east-west freeway forms the southern boundary of the construction traffic 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 along Imperial Highway. This freeway is a primary access roadway for both employee and construction traffic. The westbound off-ramp from the I-105 Freeway to northbound Sepulveda Boulevard is currently being widened by the California Department of Transportation (Caltrans). The construction is scheduled to be completed during the first quarter of 2010.
- **Aviation Boulevard** - This north-south four-lane roadway bisects the study area.
- **Century Boulevard** - This eight-lane divided roadway serves as the primary entry to the LAX CTA. This roadway also provides access to off-airport businesses and hotels and on-airport aviation-related facilities (e.g., air cargo facilities) located between the airport CTA and I-405.
- **Imperial Highway** - This east-west roadway is located at-grade and beneath much of the elevated I-105 freeway. The number of lanes on this roadway varies from six-lanes east of the merge with I-105 to four-lanes west of the merge with I-105. Imperial Highway is a key access route to Pershing Drive and the employee parking facility located on Westchester Parkway. Imperial Highway is also part of the exclusive travel route for construction delivery trucks accessing the West Construction Staging Area.
- **La Cienega Boulevard** - This north-south roadway parallels I-405 at the east boundary of the study area. The roadway varies from four to six lanes. This roadway serves as the primary access route to the East Contractor Employee Parking Area near the intersection with Lennox Boulevard.
- **Pershing Drive** - This north-south four-lane divided roadway forms the western boundary of the construction traffic analysis study area. The roadway serves as the primary access route for traffic from the south to the Northwest Construction Staging/Parking Area. Additionally, this roadway would serve as the exclusive access route for delivery trucks accessing the West Construction Staging Area.
- **Westchester Parkway** - This east-west four-lane divided arterial roadway provides direct access to the Northwest Construction Staging/Parking Area. This roadway forms a portion of the northern boundary of the study area.
- **Sepulveda Boulevard (State Route 1 south of Lincoln Boulevard)** - This major north-south six-lane arterial roadway provides direct access to the airport and Bradley West Project study area via I-405 and Westchester Parkway on the north and via I-105 on the south. Sepulveda Boulevard between I-105 and Century Boulevard is located in a tunnel section beneath the south airfield runways.

- **111th Street** - This east-west roadway has one lane in each direction separated by a continuous two-way left turn lane. This roadway provides access to the airport's Public Parking Lot B, Airport Employee Parking Lot E, and other businesses in the study area. The Southeast Construction Staging/Parking Area would be located south of 111th Street near the intersection with Aviation Boulevard.

4.3.3.3 Existing Traffic Conditions

Traffic conditions at the study area intersections and existing traffic activity (peak month, hourly, and annual) are discussed below.

Study Area Intersections

Intersection locations and intersection control and geometry are discussed in this section.

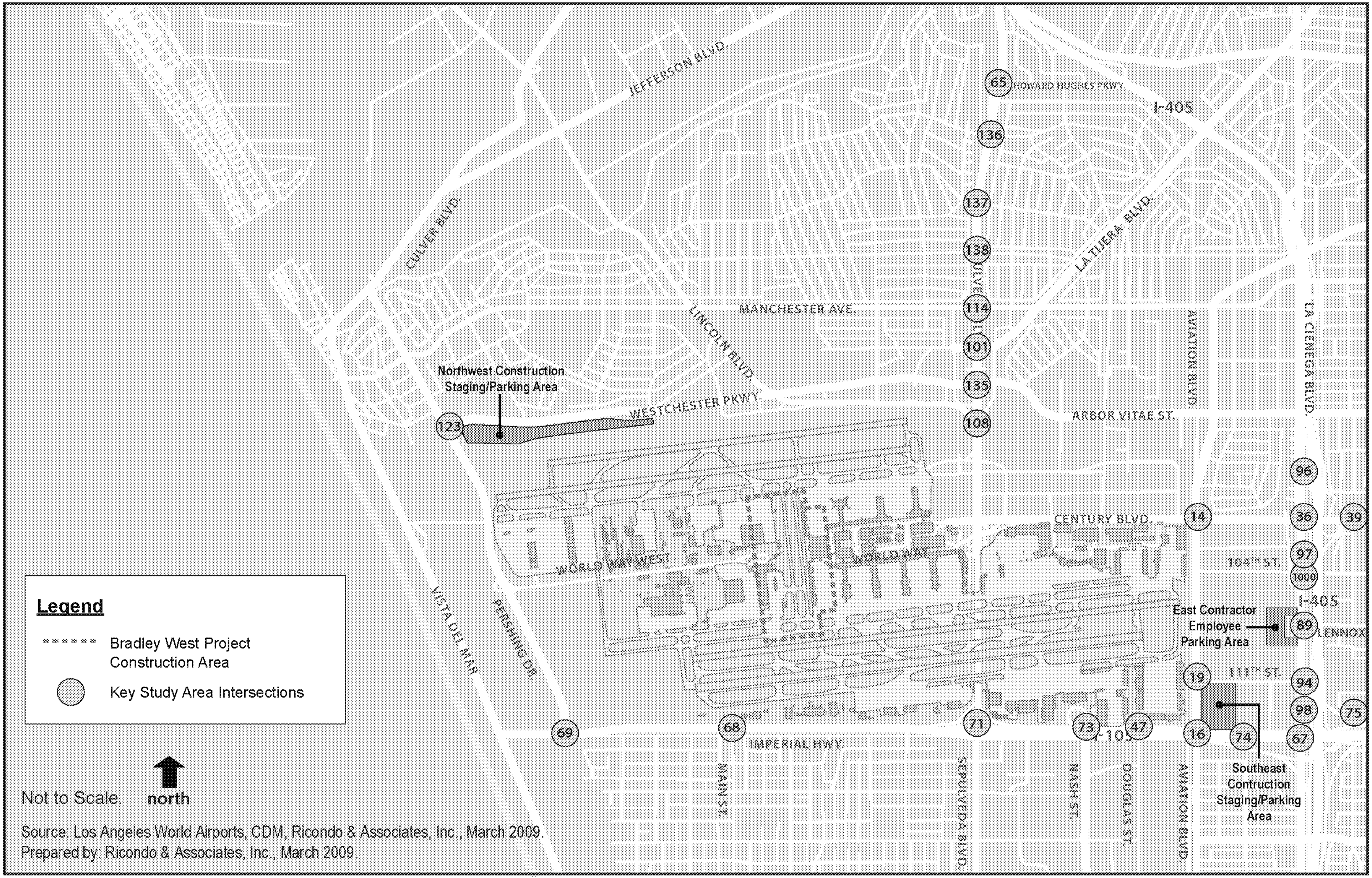
Intersection Locations

The anticipated routes used by construction-related vehicles were reviewed to identify the intersections likely to be used by vehicles accessing the project construction site or one of the construction employee parking areas. Based on this review, the key intersections to be analyzed are depicted in **Figure 4.3-2**.

Intersection Number[84]	Intersection Location
14.	Aviation Boulevard and Century Boulevard
16.	Imperial Highway and Aviation Boulevard
19.	Aviation Boulevard and 111th Street
36.	La Cienega Boulevard and Century Boulevard
39.	Century Boulevard and I-405 Northbound Ramps East of La Cienega Boulevard
47.	Imperial Highway and Douglas Street
65.	Imperial Highway and La Cienega Boulevard
67.	Imperial Highway and La Cienega Boulevard
68.	Imperial Highway and Main Street
69.	Imperial Highway and Pershing Drive
71.	Imperial Highway and Sepulveda Boulevard
73.	Imperial Highway and Nash Street
74.	Imperial Highway and I-105 Ramp
75.	Imperial Highway and I-405 Northbound Ramp
89.	La Cienega Boulevard and Lennox Boulevard
94.	La Cienega Boulevard and 111th Street
96.	La Cienega Boulevard and I-405 Southbound Ramps North of Century Boulevard
97.	La Cienega Boulevard and I-405 Southbound Ramps South of Century Boulevard
98.	La Cienega Boulevard and I-405 Southbound Ramps North of Imperial Highway
101.	Sepulveda Boulevard and La Tijera Boulevard
108.	Sepulveda Boulevard and Lincoln Boulevard
114.	Sepulveda Boulevard and Manchester Avenue
123.	Westchester Parkway and Pershing Drive
135.	Sepulveda Boulevard and Westchester Parkway
136.	Sepulveda Boulevard and 76th/77th Street
137.	Sepulveda Boulevard and 79th/80th Street
138.	Sepulveda Boulevard and 83rd Street
1000.[85]	La Cienega Boulevard and 104th Street

84 The intersection numbers correspond with the intersection number designations associated with the August 2008 intersection traffic count database that has been collected to support analyses associated with the LAX Specific Plan Amendment Study.

85 The intersection of La Cienega Boulevard and 104th Street is not included in the August 2008 intersection traffic count database that has been collected to support analyses associated with the LAX Specific Plan Amendment Study.



LAX Bradley West Project Draft EIR

Construction Traffic Study Area Intersections

Figure **4.3-2**

Intersection Control and Geometry

All of the study area intersections listed above and depicted in **Figure 4.3-2** are signalized. In addition, all of the intersections are included in LADOT's Automated Traffic Surveillance and Control (ATSAC) system, except Imperial Highway and the I-405 northbound ramps (east of La Cienega Boulevard) (Intersection #75) and Century Boulevard and the I-405 northbound ramps east of La Cienega Boulevard (Intersection #39). The ATSAC system provides for monitoring of intersection traffic conditions and the flexibility to adjust traffic signal timing in response to current conditions.

The geometry for the intersections listed above is provided in Appendix D-1.

Traffic Activity

Traffic data collected to support the traffic analyses required for the Bradley West Project are summarized below.

Peak Month Activity

Monthly traffic data in the vicinity of LAX over the past nine years were reviewed to identify the typical peak month of traffic activity associated with airport operations. The average daily traffic (ADT) volumes accessing the CTA by month for January 2000 through December 2008 are provided in **Table 4.3-1**. As shown, CTA traffic reached peak activity during the summer months of July and August. August is typically the peak month for airport roadway traffic followed closely by July. Given the influence of airport activity on the study area roadways and intersections, it was determined that the analysis of 2008 background traffic should be based on peak August 2008 conditions.

Table 4.3-1

CTA Average Daily Traffic Volumes

Monthly Traffic	2000	2001	2002	2003	2004	2005	2006	2007	2008
January	82,136	90,683	65,135	66,039	61,775	69,554	67,727	66,999	67,483
February	79,791	87,509	61,148	60,808	59,802	60,930	63,715	65,339	64,924
March	86,627	93,186	66,794	59,921	64,431	63,748	69,034	68,380	69,819
April	92,863	96,566	68,164	60,434	68,164	64,771	69,230	70,268	69,184
May	98,052	96,341	70,867	64,306	68,155	68,982	70,303	71,599	72,022
June	102,392	101,585	72,282	65,903	74,650	75,699	72,647	73,669	75,118
July	106,445	**105,842**	75,433	74,047	**78,674**	75,635	75,895	78,342	75,640
August	**108,871**	103,308	**79,427**	**76,556**	77,986	**79,046**	**78,236**	**82,193**	**76,434**
September	95,917	59,987	66,630	60,762	66,276	68,151	67,171	68,316	65,227
October	92,169	42,370	65,166	59,904	66,395	66,607	66,981	68,152	64,260
November	96,308	56,579	62,264	59,944	65,525	68,200	70,326	72,098	64,128
December	94,551	60,649	71,845	68,666	73,107	70,700	71,978	71,900	70,972
Annual	1,136,122	994,605	825,155	777,290	824,940	832,023	843,243	857,255	835,211
Average Daily Traffic									
Average Daily Traffic	94,692	82,884	68,763	64,774	68,901	69,335	70,270	71,438	69,601
% Annual Change	--	-12.5%	-17.0%	-5.8%	6.4%	0.6%	1.3%	1.7%	-2.6%
Million Annual Passengers	67.3	61.6	56.2	55.0	60.7	61.5	61.0	62.4	59.8
% Annual Change	--	-8.5%	-8.8%	-2.1%	10.4%	1.3%	-0.8%	1.5%	-4.2%

Source: City of Los Angeles, Los Angeles World Airports, Ground Transportation Report, Ground Transportation Planning and Design, February 26, 2009.

The peak Bradley West Project construction period is anticipated to occur in the fourth quarter of 2011, a period in which average daily CTA traffic volumes have historically been significantly lower than during peak summer months. The project-related traffic analysis was based on peak month traffic activity combined with peak Bradley West Project construction activity. Using peak month data for background roadway traffic combined with peak traffic associated with Bradley West Project construction produces a conservative result, representing the maximum potential traffic activity in the study area for purposes of defining future roadway traffic conditions.

Project-related Peak Hours

Certain project commitments identified in the LAX Master Plan Final EIR are required to be implemented in conjunction with LAX Master Plan development projects, and many of these commitments would have a direct effect on the traffic generated by the construction associated with the Bradley West Project. 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 a.m. (7:00 a.m. to 9:00 a.m.) and p.m. (4:30 p.m. to 6:30 p.m.) peak commute periods, and would apply to the Bradley West Project. These commitments, along with other transportation-related commitments relevant to the Bradley West Project, are listed in Section 4.3.7 below.

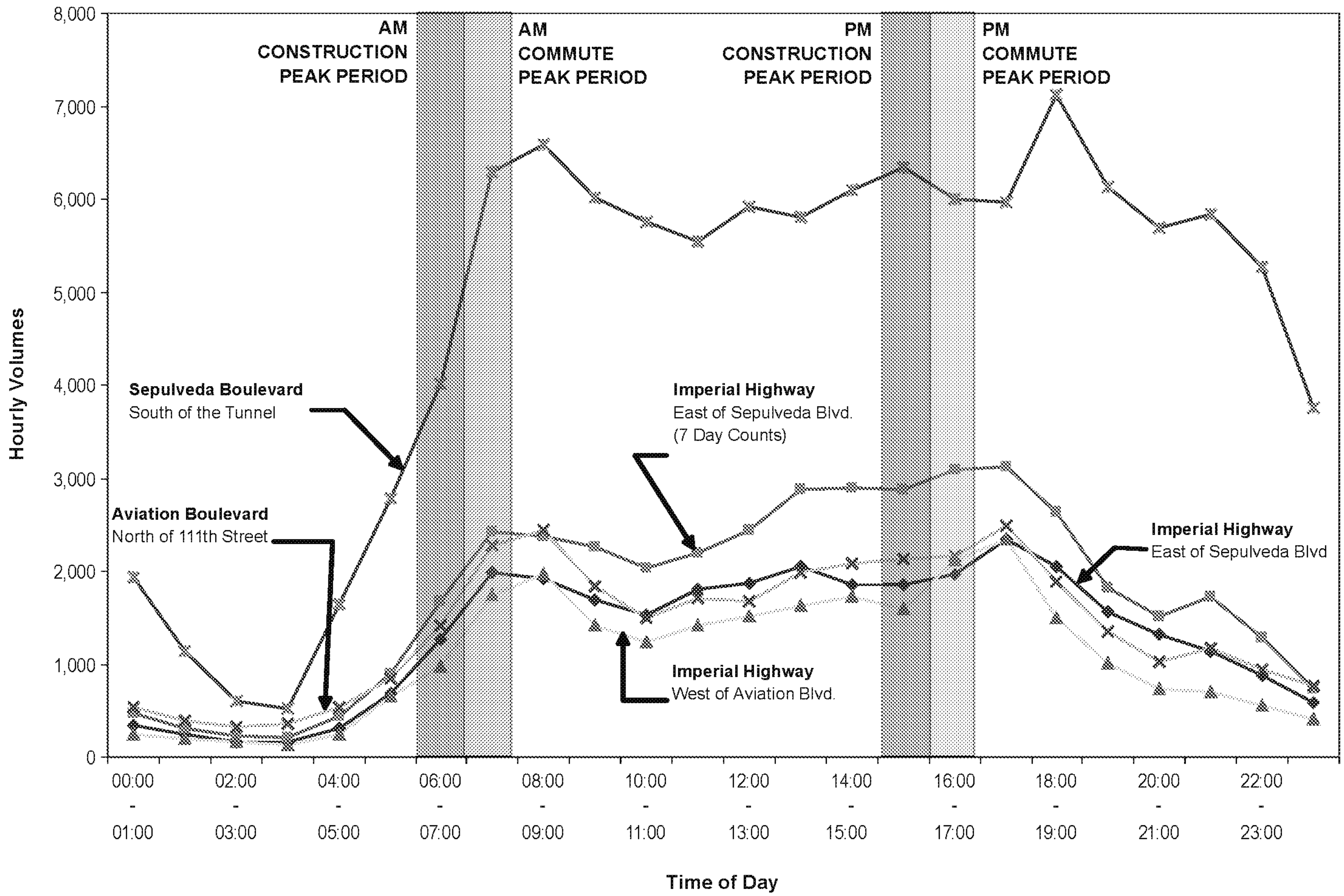
The anticipated project-related traffic peak hours were identified by reviewing estimates of the construction-related traffic associated with the Bradley West Project. Using these data, the peak hours analyzed for the project were determined to be the following:

- **Project Construction A.M. Peak Hour (6:00 a.m. to 7:00 a.m.)** - The project construction a.m. peak hour represents the peak period for construction employees arriving to the construction employee parking lots. Based on review of the employee schedule, employees are likely to arrive between 5:00 a.m. and 6:00 a.m. However, it was determined that peak period volumes between 6:00 a.m. and 7:00 a.m. in combination with 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., just prior to the start of the morning peak commute period.
- **Project Construction P.M. Peak Hour (3:30 p.m. to 4:30 p.m.)** - The project construction p.m. peak hour represents the peak period for construction employees leaving the construction employee parking lots. This period also represents the peak period for trucks delivering materials to the project site or material staging areas. The peak period was assumed to end at 4:30 p.m., just prior to the start of the afternoon peak commute period.

Hourly Traffic Patterns

ATR data collected in June 2008 at multiple locations within the study area were used to evaluate traffic peaking patterns throughout the day and to adjust intersection turning movement traffic volume data collected during the a.m. and p.m. commute peak hours to corresponding traffic during the construction peak hours. It is anticipated that the data collected in June 2008 will provide a representative profile of the hourly peaking pattern of background traffic using the study area roadway network during the summer 2008 season and will, therefore, be representative of hourly peaking patterns during the 2008 peak months. Hourly traffic volumes counted at five locations within the study area are graphically depicted in **Figure 4.3-3**. The volumes depicted in **Figure 4.3-3** represent traffic along the following roadways: (a) Aviation Boulevard, (b) Sepulveda Boulevard, and (c) Imperial Highway (three locations). These data were collected in the first and second week of June 2008. The reported traffic conditions represent activity on a typical busy weekday (Tuesday through Thursday).

As shown in **Figure 4.3-3**, the study area roadways tend to experience peaking patterns that correlate with the regional commute peaks. The morning peak period in the study area generally occurs over a sustained period between 7:00 a.m. and 9:00 a.m. The afternoon peak period generally occurs between 5:00 p.m. and 6:00 p.m., which is within the 4:30 p.m. to 6:30 p.m. peak commute period.



Source: Los Angeles World Airports, Traffic Survey Conducted in Support of LAWA Air Quality and Source Apportionment Study; Source Group Inc., 2008.
Prepared by: Ricondo & Associates, Inc., March 2009.

Automatic Traffic Recorder Hourly Volumes (June 2008)

Figure 4.3-3

Table 4.3-2 shows the percentage difference between the commute and construction peak hours at five locations within the study area during June 2008. As depicted in **Table 4.3-2** and **Figure 4.3-3**, the traffic volumes on the study area roadways during the project construction peak hours were lower than the traffic volumes during the adjacent a.m. and p.m. commute peak periods. During the a.m. construction peak hour (6:00 a.m. to 7:00 a.m.), the roadway volumes were about 36 percent lower on average than the roadway volumes during the adjacent a.m. peak commute hour (7:00 a.m. to 8:00 a.m.). During the construction p.m. peak hour (3:30 p.m. to 4:30 p.m.), traffic volumes were approximately 11 percent lower on average than during the typical evening commuter peak (4:30 p.m. to 5:30 p.m.). For purposes of this analysis, and as a conservative assumption, background volumes during the construction peak periods were calculated by reducing the volumes collected during the peak commute periods by a factor obtained from the ATR location reflecting the least reduction between the construction and commute peak hour periods. As such, the a.m. construction peak hour volumes were estimated by reducing all of the a.m. commute peak volumes by 28.5 percent (reflecting the a.m. percentage change at Imperial Highway west of Sepulveda Boulevard). The p.m. construction peak hour volumes were assumed to be the same as the p.m. commute peak volumes (i.e., no reduction was applied based on the p.m. percentage change at Sepulveda Boulevard south of the tunnel).

Table 4.3-2

Comparison of Traffic Volumes during the Commute and Construction Peak Hours

	AM Peak Hour			PM Peak Hour		
Location	**Construction Peak Hour 6:00 am-7:00 am**	**Commute Peak Hour 7:00 am-8:00 am**	**Percentage Change**	**Construction Peak Hour 3:30 pm-4:30 pm**	**Commute Peak Hour 4:30 pm-5:30 pm**	**Percentage Change**
Imperial Highway, East of Sepulveda Boulevard[1]	1,263	1,990	-36.5%	1,890	2,257	-16.3%
Imperial Highway, West of Sepulveda Boulevard[2]	1,450	2,027	-28.5%	2,611	3,218	-18.9%
Imperial Highway, West of Aviation Boulevard[3]	971	1,741	-44.2%	1,864	2,537	-26.5%
Aviation Boulevard., North of 111^{th} Street[4]	1,411	2,270	-37.8%	2,144	2,369	-9.5%
Sepulveda Boulevard, South of the Tunnel[5]	4,018	6,293	-36.2%	6,070	6,071	0.0%
Total/Average	**9,113**	**14,321**	**-36.4%**	**14,579**	**16,452**	**-11.40%**

1 Data Collected on Tuesday June 3, 2008
2 Data Collected on Wednesday June 4, 2008
3 Data Collected on Tuesday June 3, 2008
4 Data Collected on Tuesday June 10, 2008
5 Data Collected on Wednesday June 4, 2008

Source: Ricondo & Associates, Inc., using data from the traffic survey conducted in support of the SGI Group Inc., LAX Air Quality and Source Apportionment Study, July 30, 2008.

Annual Growth Patterns

Historical traffic data collected during the a.m. and p.m. commute peak hours were analyzed to assess historical growth patterns in the study area. As shown in **Table 4.3-3**, it was calculated that traffic volumes on the study area intersections decreased approximately 1.5 percent per year (compounded annually), on average, between 2004 and 2006. Study area traffic volumes continued to decrease an average of approximately 2.5 percent per year between 2006 and 2008. Overall between 2004 and 2008, traffic volumes at the study area intersections decreased at a compounded annual rate of 2.0 percent between 2004 and 2008. Although the traffic volumes on the study area intersections have decreased annually, on average, as shown in **Table 4.3-1**, average daily traffic accessing the CTA increased annually from 2004 through 2007. However, the average annual increases were nominal, ranging from 0.6 to 1.7 percent per year. Average daily traffic accessing the CTA during the peak month of August continued to increase at a higher rate. In 2008, average annual traffic accessing the CTA decreased 2.6 percent compared with traffic in 2007.

Table 4.3-3

Historical Traffic Volumes on Study Area Intersections

Study Area Intersections[1]		Peak Hour[1]	Intersection Total			Average Annual Growth Rate	
			August 2004	August 2006	August 2008	2004 to 2006	2006 to 2008
14.	Aviation Blvd. & Century Blvd.	AM	5,670	5,159	5,125	-4.6%	-0.3%
		PM	6,367	5,084	5,512	-10.6%	4.3%
16.	Imperial Hwy. & Aviation Blvd.	AM	3,840	3,779	3,941	-0.8%	2.1%
		PM	4,841	4,516	4,634	-3.4%	1.3%
19.	Aviation Blvd. & 111th St.	AM	2,470	2,004	2,435	-9.9%	10.2%
		PM	2,848	2,349	2,714	-9.2%	7.5%
36.	La Cienega Blvd. & Century Blvd.	AM	5,409	5,022	4,792	-3.6%	-2.3%
		PM	5,947	5,576	5,621	-3.2%	0.4%
39.	Century Blvd. & I-405 NB Ramps	AM	4,033	3,633	3,215	-5.1%	-5.9%
		PM	3,618	3,592	3,812	-0.4%	3.0%
47.	Imperial Hwy. & Douglas St.	AM	1,833	2,235	2,076	10.4%	-3.6%
		PM	2,566	2,665	2,499	1.9%	-3.2%
65.	Sepulveda Blvd. & H. Hughes Pkwy.	AM	N/A[2]	5,400	4,652	N/A	-7.2%
		PM	N/A	6,326	5,581	N/A	-6.1%
67.	Imperial Hwy. & La Cienega Blvd.	AM	2,975	3,213	2,863	3.9%	-5.6%
		PM	4,057	3,930	4,138	-1.6%	2.6%
68.	Imperial Hwy. & Main St.	AM	3,114	2,789	3,147	-5.4%	6.2%
		PM	3,238	2,907	3,229	-5.2%	5.4%
69.	Imperial Hwy. & Pershing Dr.	AM	2,720	2,601	2,567	-2.2%	-0.7%
		PM	2,612	2,510	2,608	-2.0%	1.9%
71.	Imperial Hwy. & Sepulveda Blvd.	AM	7,003	7,627	5,873	4.4%	-12.2%
		PM	7,818	7,236	6,897	-3.8%	-2.4%
73.	Imperial Hwy. & Nash St.	AM	4,232	4,229	3,658	0.0%	-7.0%
		PM	2,577	2,676	2,491	1.9%	-3.5%
74.	Imperial Hwy. & I-105 EB Ramps	AM	3,027	3,230	3,355	3.3%	1.9%
		PM	3,321	3,138	3,469	-2.8%	5.1%
75.	Imperial Hwy. & I-405 NB Ramps	AM	1,951	2,298	1,852	8.5%	-10.2%
		PM	2,732	2,822	2,944	1.6%	2.1%
89.	La Cienega Blvd. & Lennox Blvd.	AM	1,569	1,452	1,349	-3.8%	-3.6%
		PM	1,986	2,031	1,875	1.1%	-3.9%
94.	La Cienega Blvd. & 111th St.	AM	1,601	1,579	1,505	-0.7%	-2.4%
		PM	2,140	2,052	2,037	-2.1%	-0.4%
96.	La Cienega Blvd. & I-405 Southbound Ramps North of Century	AM	2,341	2,316	2,106	-0.5%	-4.6%
		PM	2,573	2,615	2,365	0.8%	-4.9%

Table 4.3-3

Historical Traffic Volumes on Study Area Intersections

Study Area Intersections[1]	Peak Hour[1]	Intersection Total August 2004	August 2006	August 2008	Average Annual Growth Rate 2004 to 2006	2006 to 2008
97. La Cienega Blvd. & I-405 Southbound Ramps South of Century	AM	1,687	1,714	1,878	0.8%	4.7%
	PM	2,700	2,726	2,682	0.5%	-0.8%
98. La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	AM	1,690	1,524	1,550	-5.0%	0.8%
	PM	2,124	1,834	1,993	-7.1%	4.2%
101. Sepulveda Blvd. & La Tijera Blvd.	AM	N/A	3,918	3,425	N/A	-6.5%
	PM	N/A	4,972	4,397	N/A	-6.0%
108. Sepulveda Blvd. & Lincoln Blvd.	AM	N/A	6,183	5,690	N/A	-4.3%
	PM	N/A	7,170	6,504	N/A	-4.8%
114. Sepulveda Blvd. & Manchester Ave.	AM	N/A	5,358	4,687	N/A	-6.5%
	PM	N/A	6,328	5,649	N/A	-5.5%
123. Westchester Pkwy. & Pershing Dr.	AM	N/A	1,741	1,725	N/A	-0.5%
	PM	N/A	1,945	1,609	N/A	-9.0%
135. Sepulveda Blvd. & Westchester Pkwy.	AM	N/A	4,298	3,558	N/A	-9.0%
	PM	N/A	4,878	4,326	N/A	-5.8%
136. Sepulveda Blvd. & 76th/77th St.	AM	N/A	4,949	4,293	N/A	-6.9%
	PM	N/A	5,160	4,865	N/A	-2.9%
137. Sepulveda Blvd. & 79th/80th St.	AM	N/A	4,688	3,594	N/A	-12.4%
	PM	N/A	4,718	4,204	N/A	-5.6%
138. Sepulveda Blvd. & 83rd St.	AM	N/A	4,325	3,115	N/A	-15.1%
	PM	N/A	4,698	3,866	N/A	-9.3%
1000. La Cienega Blvd. & 104th St.	AM	N/A	N/A	N/A	N/A	N/A
	PM	N/A	N/A	N/A	N/A	N/A
Average Compounded Annual Growth Rate						
Year - to - Year			**-1.5%**	**-2.5%**		
2004 - 2008				**-2.0%**		

1 AM Peak Hour refers to traffic volumes collected between 8:00 a.m. and 9:00 a.m.; PM Peak Hour refers to traffic volumes collected between 5:00 p.m. and 6:00 p.m.
2 N/A = Not Available

Source: Ricondo & Associates, Inc., using data collected by Wiltec on August 3 to 5, 2004; August 1 to 9, 2006; and July 16 to August 28, 2008.

In summary, traffic volume on the study area roadways during the peak month of August declined even during a period when airport passenger activity continued to experience growth on an average daily basis. However, rather than assuming that traffic activity will continue to decrease through the 2010 study period, a conservative assumption of 2 percent growth per year was used to adjust these volumes to represent future year traffic conditions. This annual growth rate assumption is consistent with previous direction provided by LADOT for use in the SAIP and CFTP studies.[86]

4.3.3.4 Baseline (2008) Intersection Volumes

Baseline (2008) traffic volumes consist of the traffic volumes at the time the NOP for the Bradley West Project Draft EIR was published (December 2008). The Baseline (2008) volumes were estimated based on actual data collected during the 2008 a.m. and p.m. commute peak hours that were adjusted using factors derived from ATR counts in the study area to reflect 2008 conditions during the a.m. and p.m. construction peak hours. Baseline (2008) intersection traffic volumes are provided in Appendix D-3.

4.3.3.5 Baseline (2008) Intersection Analyses

Intersection level of service was analyzed using the CMA methodology to assess the estimated operating conditions during Baseline (2008) conditions for the a.m. and p.m. construction peak hours. Level of service is a qualitative measure that describes traffic operating conditions (e.g., delay, queue lengths, congestion). Intersection level of service ranges from A (i.e., excellent conditions with little or no vehicle delay) to F (i.e., excessive vehicle delays and queue lengths). Levels of service definitions for the CMA methodology are presented in **Table 4.3-4**.

Table 4.3-4

Level of Service Thresholds and Definitions for Signalized Intersections

Level of Service (LOS)	Volume/Capacity Ratio Threshold	Definition
A	0 - 0.6	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	0.601 - 0.7	VERY GOOD. An occasional approach phase is fully used; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 - 0.8	GOOD. Occasionally, drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 - 0.9	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 - 1.0	POOR. Represents the most vehicles that intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	Greater than - 1.0	FAILURE. Backups from nearby intersections or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, Transportation Research Circular No. 212, Interim Materials on Highway Capacity, January 1980.

In accordance with LADOT analysis procedures, the volume/capacity (v/c) ratio calculated using the CMA methodology is further reduced by 0.07 for those intersections included within the ATSAC system (discussed earlier in Section 4.3.3.3) 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.[87]

86 City of Los Angeles, Los Angeles World Airports, Draft Environmental Impact Report for South Airfield Improvement Project, Los Angeles International Airport (LAX), August 2005, page IV-38.

87 Los Angeles Department of Transportation, Traffic Study Policies and Procedures, Revised March 2002, Available: http://www.lacity.org/LADOT/TrafficStudyGuidelines.pdf.

The estimated intersection level of service for Baseline (2008) conditions is provided in **Table 4.3-5**. As shown in **Table 4.3-5**, it was estimated that most of the intersections operated at LOS C or better in 2008 during the construction a.m. and p.m. peak periods analyzed for the Bradley West Project. The three exceptions occurred at the following locations:

(1) Intersection of La Cienega Boulevard and Century Boulevard (Intersection #36), which was estimated to operate at LOS E during the construction p.m. peak period;

(2) Intersection of Imperial Highway and Sepulveda Boulevard (Intersection #71), which was estimated to operate at LOS F during the construction p.m. peak period;

(3) Intersection of Sepulveda Boulevard and Manchester Avenue (Intersection #114), which was estimated to operate at LOS D during the construction p.m. peak period.

Table 4.3-5

Baseline (2008) Intersection Analysis Results

Intersection		Peak Hour[1]	V/C[2]	LOS[3]
14.	Aviation Blvd. & Century Blvd.	Construction AM	0.469	A
		Construction PM	0.757	C
16.	Imperial Hwy. & Aviation Blvd.	Construction AM	0.523	A
		Construction PM	0.667	B
19.	Aviation Blvd. & 111th St.	Construction AM	0.353	A
		Construction PM	0.488	A
36.	La Cienega Blvd. & Century Blvd.	Construction AM	0.392	A
		Construction PM	0.910	E
39.	Century Blvd. & I-405 N/B Ramp	Construction AM	0.514	A
		Construction PM	0.548	A
47.	Imperial Hwy. & Douglas St.	Construction AM	0.155	A
		Construction PM	0.412	A
65.	Sepulveda Blvd. & H. Hughes Pkwy.	Construction AM	0.256	A
		Construction PM	0.643	B
67.	Imperial Hwy. & La Cienega Blvd.	Construction AM	0.220	A
		Construction PM	0.568	A
68.	Imperial Hwy. & Main St.	Construction AM	0.405	A
		Construction PM	0.716	C
69.	Imperial Hwy. & Pershing Dr.	Construction AM	0.481	A
		Construction PM	0.434	A
71.	Imperial Hwy. & Sepulveda Blvd.	Construction AM	0.509	A
		Construction PM	1.185	F
73.	Imperial Hwy. & Nash St.	Construction AM	0.377	A
		Construction PM	0.300	A
74.	Imperial Hwy. & I-105 Ramp	Construction AM	0.533	A
		Construction PM	0.541	A
75.	Imperial Hwy. & I-405 NB Ramp	Construction AM	0.246	A
		Construction PM	0.554	A
89.	La Cienega Blvd. & Lennox Blvd.	Construction AM	0.224	A
		Construction PM	0.408	A
94.	La Cienega Blvd. & 111th St.	Construction AM	0.122	A
		Construction PM	0.363	A
96.	La Cienega Blvd. & I-405 Southbound Ramps North of Century	Construction AM	0.442	A
		Construction PM	0.560	A
97.	La Cienega Blvd. & I-405 Southbound Ramps South of Century	Construction AM	0.238	A
		Construction PM	0.424	A
98.	La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	Construction AM	0.173	A
		Construction PM	0.279	A
101.	Sepulveda Blvd. & La Tijera Blvd.	Construction AM	0.377	A
		Construction PM	0.663	B
108.	Sepulveda Blvd. & Lincoln Blvd.	Construction AM	0.409	A
		Construction PM	0.715	C

Table 4.3-5

Baseline (2008) Intersection Analysis Results

Intersection		Peak Hour[1]	V/C[2]	LOS[3]
114.	Sepulveda Blvd. & Manchester Ave.	Construction AM	0.501	A
		Construction PM	0.877	D
123.	Westchester Pkwy. & Pershing Dr.	Construction AM	0.212	A
		Construction PM	0.255	A
135.	Sepulveda Blvd. & Westchester Pkwy.	Construction AM	0.331	A
		Construction PM	0.636	B
136.	Sepulveda Blvd. & 76th/77th St.	Construction AM	0.510	A
		Construction PM	0.552	A
137.	Sepulveda Blvd. & 79th/80th St.	Construction AM	0.421	A
		Construction PM	0.508	A
138.	Sepulveda Blvd. & 83rd St.	Construction AM	0.308	A
		Construction PM	0.459	A
1000.	La Cienega Blvd. & 104th St.	Construction AM	0.154	A
		Construction PM	0.356	A

1 The hours of analysis include the construction a.m. peak (6:00 a.m. - 7:00 a.m.) and the construction p.m. peak (3:30 p.m. - 4:30 p.m.).
2 Volume to capacity ratio.
3 Level of Service range: A (excellent) to F (failure).

Source: Ricondo & Associates, Inc., using TRAFFIX, December 2008.

Appendix D-4 provides the level of service results from the TRAFFIX program, including the volume, geometry and other inputs used to produce these results.

4.3.4 Project-Generated Traffic

Traffic that would be generated by the Bradley West Project is defined for the anticipated peak period of traffic generation.

4.3.4.1 Bradley West Project Construction Traffic during Project Peak (Fourth Quarter 2011)

The peak construction period for the Bradley West Project is anticipated to occur during the fourth quarter of 2011. Construction employee and delivery vehicle trips were estimated on an hourly basis over the typical busy day (with the exception of the peak a.m. and p.m. commute periods) during the peak construction period. Based on the resource loaded schedule developed for the project, it is estimated that 691 construction employees (553 in the a.m. and 138 in the p.m.) would access the Bradley West Project construction site on a daily basis during the peak period of construction.[88] Vehicle occupancy was assumed to be 1.15 employees per vehicle. According to a study published by the Southern California Association of Governments (SCAG), the average vehicle occupancy on several regional roadways in the Los Angeles region ranged from approximately 1.15 to 1.30.[89] Provided the temporary nature of construction employment and the lower likelihood of rideshare opportunities, a conservative estimate of vehicle occupancy of 1.15 employees per vehicle was assumed. By applying the assumed vehicle occupancy factor, it was projected that 601 construction employee vehicles per day would access and egress the study area in support of Bradley West Project construction.

For purposes of the intersection analyses, all vehicle trips were converted to a "passenger car equivalents" (PCEs) to account for the additional impact that large vehicles, such as delivery and transfer

88 U.S. Cost, Bradley West Resource Loaded Schedule, November 19, 2008.

89 Southern California Association of Governments, Regional High-Occupancy Vehicle Lane System Performance Study, November 4, 2004.

trucks and shuttle buses, would have on roadway traffic operations. As such, the number of construction-related vehicle trips was multiplied by the following PCE factors, consistent with the assumptions in the LAX Master Plan Final EIR:

Vehicle Type	PCE Factor
Construction employees[90]	1.0
Construction delivery/transfer trucks	2.5
Employee shuttle buses	2.0

Employee parking shuttles would be used to transport construction employees from the employee parking lots to the work site. The number of shuttle buses required to transport the construction employees was estimated based on an assumption that each bus would carry 40 passengers. Using an assumed PCE factor of 2.0 per vehicle and distributing these volumes in accordance with the anticipated employee arrival and departure schedule, it was estimated that shuttle buses would equate to 28 PCEs entering and 28 PCEs exiting the study area during the a.m. and p.m. peak hours of construction.

Delivery trucks carrying construction equipment and material would enter and exit the materials staging areas. It is estimated that approximately five construction-related truck delivery round trips would access the site during the construction a.m. peak hour and that four construction-related truck delivery round trips would access the site during the construction p.m. peak hour. Using an assumed PCE factor of 2.5 per vehicle and distributing these volumes in accordance with the anticipated delivery schedule, it was estimated that 13 PCEs entering and 13 PCEs exiting the study area during the construction a.m. peak hour. Meanwhile, it was estimated that 10 PCEs entering and 10 PCEs exiting the study area during the construction p.m. peak period.

Transfer trucks would be used to transfer materials from the project staging areas to the project site. It was assumed that transfer trucks would make twice as many round trips as delivery trucks; therefore, it is estimated that the number of delivery round trips would be 25 and 20 PCE during the a.m. and p.m. construction peak periods, respectively. However, it is important to note that transfer trucks would use the airfield service road system rather than the public roadway system to transfer goods between the construction staging area and the construction site and, as a result, would not have an effect on off-airport roadway traffic operations.

The estimated project-related construction trips (in PCEs) during the Bradley West Project construction peak in the fourth quarter of 2011 are summarized by hour in **Table 4.3-6**. **Table 4.3-6** includes construction employee vehicle trips, employee shuttle bus trips, construction delivery truck trips, and transfer truck trips. As shown, during the morning, construction employees were assumed to arrive between 5:00 a.m. and 6:00 a.m. to begin work at 6:00 a.m. These volumes were added to the 6:00 a.m. to 7:00 a.m. traffic volumes to produce a conservative estimate of construction employees arriving in the a.m. peak hour that is higher than would occur if the peak construction traffic were added to the 5:00 a.m. to 6:00 a.m. background traffic activity. During the afternoon, the second-shift employees were assumed to arrive during a half-hour period between 3:30 p.m. and 4:00 p.m. to begin the second shift at 4:00 p.m. The first shift was 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 p.m. to 4:30 p.m.

The traffic volumes during the construction a.m. and construction p.m. peak hours are summarized in the top portion of **Table 4.3-7** in the section of the table described labeled "standard operating condition." As shown, during the construction a.m. peak hour (6:00 a.m. to 7:00 a.m.), approximately 547 PCE trips were estimated to enter the study area roadway network and 66 PCE trips were estimated to exit the study area. During the construction p.m. peak hour (3:30 p.m. to 4:30 p.m.), approximately 178 PCE trips would enter the study area and 539 PCE trips would exit the study area.

90 It should be noted that a different conversion factor was applied to determine the number of construction employee vehicles that would access the project area. A vehicle occupancy factor of 1.15 employees per vehicle was used to convert from employees to vehicles. This conversion factor is different than the PCE factor discussed here, which is used to adjust for the additional impact that large vehicles have on roadway traffic operations.

Table 4.3-6

Bradley West Project Peak (Fourth Quarter 2011) - Project-Related Construction Traffic Volumes

Hour		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 Trips In[3]	Transfer Trips Out[3]	Total Construction Trips
		Construction Trips in Passenger Car Equivalents (PCEs)								
0:00	1:00	0	0	0	0	0	0	0	0	0
1:00	2:00	0	0	0	0	0	0	0	0	0
2:00	3:00	0	120	6	6	0	0	0	0	132
3:00	4:00	0	0	0	0	0	0	0	0	0
4:00	5:00	0	0	0	0	0	0	0	0	0
5:00	6:00	481	0	28	28	13	13	25	25	613
6:00	7:00	0	0	0	0	13	13	25	25	76
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	13	13	25	25	76
10:00	11:00	0	0	0	0	13	13	25	25	76
11:00	12:00	0	0	0	0	13	13	25	25	76
12:00	13:00	0	0	0	0	13	13	25	25	76
13:00	14:00	0	0	0	0	13	13	25	25	76
14:00	15:00	0	0	0	0	13	13	25	25	76
15:00	16:00	0	0	0	0	0	0	0	0	0
16:00	17:00	120	481	28	28	0	0	0	0	657
17:00	18:00	0	0	0	0	0	0	0	0	0
18:00	19:00	0	0	0	0	0	0	0	0	0
19:00	20:00	0	0	0	0	10	10	20	20	60
20:00	21:00	0	0	0	0	5	5	10	10	30
21:00	22:00	0	0	0	0	5	5	10	10	30
22:00	23:00	0	0	0	0	5	5	10	10	30
23:00	0:00	0	0	0	0	0	0	0	0	0
Total		**601**	**601**	**62**	**62**	**129**	**129**	**250**	**250**	**2,084**

1 Estimate is based on 691 peak day construction employees. An occupancy factor of 1.15 employees per vehicle is included in the employee trip calculations.
2 Shuttles with maximum 40-person capacity or less would transport employees between the contractor employee parking lots and the construction site in the 30 minutes before and after each shift. Shuttle trips were converted to PCEs at a rate of 2 to PCEs per vehicle.
3 Truck trips (i.e., delivery and transfer) were converted at a rate of 2.5 PCEs per vehicle.

Source: U.S. Cost, Bradley West Resource Loaded Schedule, November 19, 2008.

Table 4.3-7

Bradley West Project Construction Trip Estimates and Assumptions

	Employees									
	People		Vehicles		Shuttle Vehicles		Delivery Vehicles[1]		Total	
	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit
Standard operating condition										
a.m. construction peak (6:00 am - 7:00 am)	553	-	481	-	14	14	5	5	510	29
p.m. construction peak (3:30 pm - 4:30 pm)	138	553	120	481	14	14	4	4	146	507
Total daily	691	691	601	601						
People per Vehicle			1.15	1.15	40.0	40.0	NA	NA	--	--
PCE Factor	NA	NA	1.0	1.0	2.0	2.0	2.5	2.5	--	--
Passenger car equivalents:										
a.m. construction peak (6:00 am - 7:00 am)	NA	NA	481	-	28	28	13	13	547	66
p.m. construction peak (3:30 pm - 4:30 pm)	NA	NA	120	481	28	28	10	10	178	539
Peak surge condition (60% increase, 2 shifts)										
a.m. construction peak (6:00 am - 7:00 am)	880	-	766	-	22	22	5	5	803	37
p.m. construction peak (3:30 pm - 4:30 pm)	220	880	192	766	22	22	4	4	226	800
Total daily	1,100	1,100	957	957						
People per Vehicle			1.15	1.15	40.0	40.0	NA	NA	--	--
PCE Factor	NA	NA	1.0	1.0	2.0	2.0	2.5	2.5	--	--
Passenger car equivalents:										
a.m. construction peak (6:00 am - 7:00 am)	NA	NA	766	-	44	44	13	13	848	82
p.m. construction peak (3:30 pm - 4:30 pm)	NA	NA	192	766	44	44	10	10	266	840
Primary Location (62.8%):										
a.m. construction peak (6:00 am - 7:00 am)	553	-	481	-	28	28				
p.m. construction peak (3:30 pm - 4:30 pm)	138	553	120	481	28	28				
Secondary Location (37.2%):										
a.m. construction peak (6:00 am - 7:00 am)	327	-	285	-	16	16				
p.m. construction peak (3:30 pm - 4:30 pm)	82	327	72	285	16	16				

1 It is assumed that construction delivery vehicle movements would not be affected by employee surge conditions.
2 NA = Not Applicable

Source: Ricondo & Associates, Inc., 2009.

The calculation of 691 peak day employees is based on an assumption that Bradley West Project construction during the peak period occurs on a double-shift work schedule, with 10-hour days, and six-day work-weeks. For the purposes of this EIR, a sensitivity analysis was conducted to assess a potential scenario that assumes a short-term 60 percent surge in employees as might occur with a more intense single shift or a five-day work week. The bottom portion of **Table 4.3-7** labeled "Peak surge condition" provides the tabulations involved with the surged traffic condition. A total of 1,100 peak day construction employees was assumed for this sensitivity analysis. While the impacts analysis of 691 peak day employees addresses two alternate scenarios whereby all of the employee parking would occur either in the northwest portion of the airport or in the southeast or east portion of the airport, the sensitivity analysis assumes parking would be split between the two areas. Specifically, it was assumed that either the Northwest Construction Staging/Parking Area or the East Contractor Employee/Southeast Construction Staging/Parking Area would serve as the primary location for employee parking and equipment and material staging, thus accounting for the trips associated with 691 of these employees (i.e., 553 employees entering in the a.m. construction peak hour and 138 entering in the p.m. construction peak). Meanwhile the area that is not the primary location would provide service as the secondary location and would accommodate the remaining 409 employees (i.e., 327 employees entering in the a.m. construction peak and 82 entering in the p.m. construction peak). Applying the assumed vehicle occupancy factor of 1.15 employees per vehicle to the 409 additional employees assumed for the sensitivity analysis, it was projected that 357 additional construction employee vehicles round trips per day would access the study area in support of Bradley West Project construction. Additional shuttle buses would be required to transport construction employees from the secondary location to and from the worksite. No additional delivery or transfer trucks were assumed as part of this scenario.

Appendix D-3 provides Fourth Quarter 2011 peak hour intersection traffic volumes for the four modeled scenarios which are discussed in greater detail in Section 4.3.4.2 below.

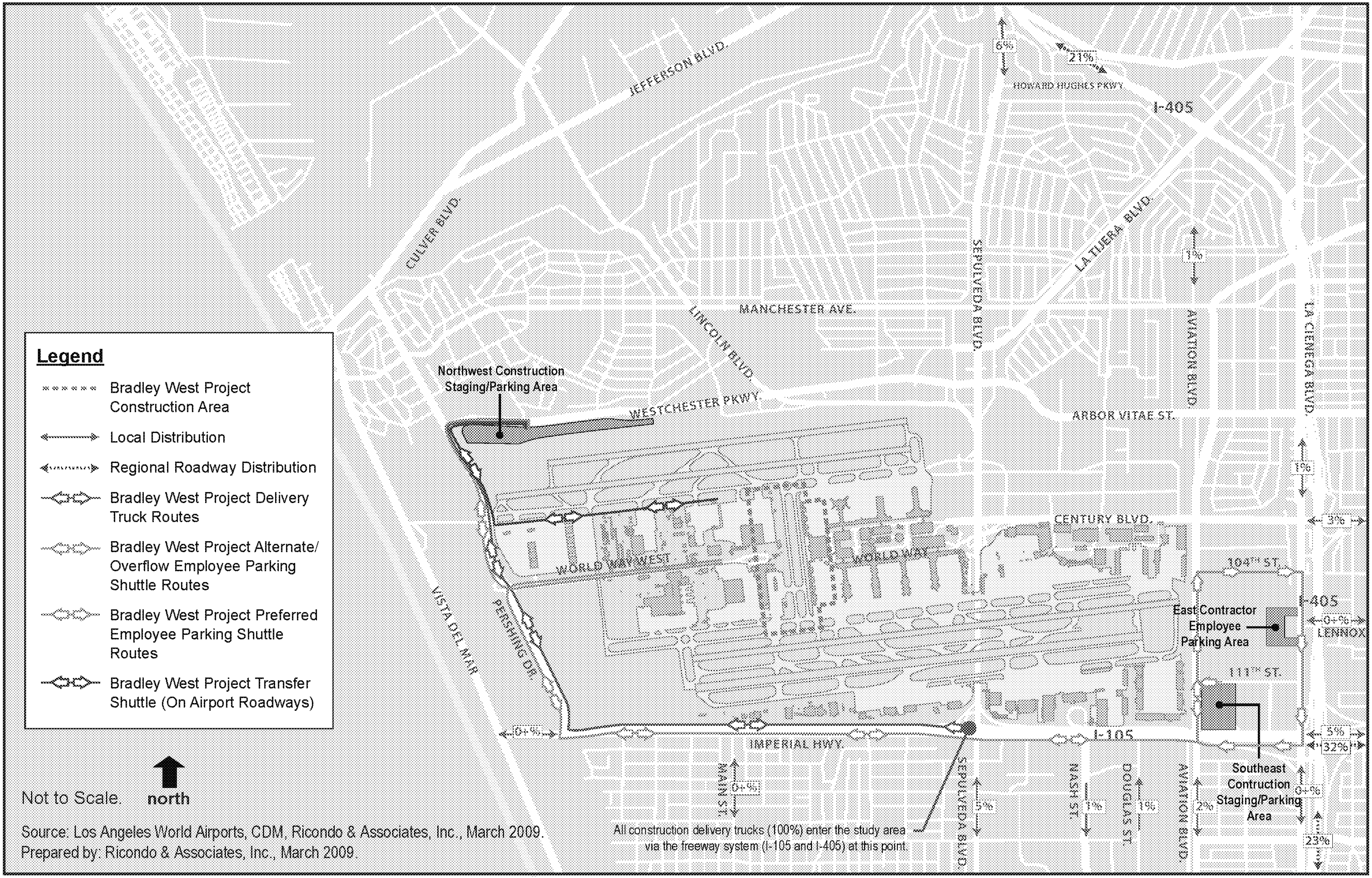
4.3.4.2 Bradley West Project Construction Trip Distribution

Given the dynamic nature of the LAX construction program, LAWA has decided to study the impacts of operating from one or a combination of three employee parking locations in order to maintain future flexibility to address changes in the construction program. In essence, this analysis is intended to result in a mitigation program to identify impacts associated with a range of employee parking lot options in order to maintain this flexibility.

Three locations for employee parking lots were considered for this analysis, with each parking facility accommodating varying parking demands. Furthermore, because the facilities are widely distributed throughout the study area the distribution of trips within the study area would be different for each location.

These three locations formed the basis for four parking and trip distribution scenarios that were studied as part of this analysis. Each of the four scenarios were analyzed using the peak Bradley West Project traffic volumes in order to ensure that all impacts would be accounted for throughout the Bradley West Project construction program in the event the need arises to adjust construction employee parking locations over the duration of the project. The locations of the Bradley West Project construction site, construction employee parking lots, delivery staging areas, and other relevant features of the four scenarios are depicted in **Figure 4.3-4**. The specific details of the scenarios are as follows:

- Scenario 1: *All Construction Employee Parking Occurs at the Northwest Construction Staging/Parking Area* - This analysis scenario assumes that all 601 Bradley West Project construction employee vehicles would park at the Northwest Construction Staging/Parking Area located on Westchester Parkway east of Pershing Drive. The driveway for this facility is located on the south leg of the signalized intersection of Westchester Parkway and Falmouth Avenue. Only right and left turns into and out of this driveway are permitted with no through traffic allowed between Falmouth Avenue and the driveway. Equipment and materials staging would also take place at this location. Shuttle buses would transport employees to and from the employee parking facility to the construction site.



LAX Bradley West Project Draft EIR

Project Construction
Vehicle Routes & Trip Distribution

Figure
4.3-4

Alternatively, it is possible that LAWA may elect to use an employee parking area on the west side of the airport accessed via World Way West (located in the southeast quadrant of the interchange of World Way West with Pershing Drive).[91]

- Scenario 2: *All Construction Employee Parking Occurs at the East Contractor Employee Parking Area or the Southeast Construction Staging/Parking Area* - This analysis scenario assumes that all 601 Bradley West Project construction employee vehicles would park at the East Contractor Employee Parking Area or the Southeast Construction Staging/Parking Area. Shuttle buses would transport employees to and from the employee parking facility to the construction site. The Bradley West Project East Contractor Employee Parking Area is the same lot that was used for the construction employees on the SAIP and is designated for use during construction of the CFTP. It is located near the intersection of La Cienega Boulevard and Lennox Boulevard, with access from La Cienega Boulevard. If for any reason the East Contractor Employee Parking Area becomes unavailable, Scenario 2 assumes the proposed Southeast Construction Staging/Parking Area would instead be used. Given the proximity of the two subject sites and that the main access routes are similar for both sites including the employee shuttle route to and from the construction site, the traffic impacts associated with employee parking at either site are considered to be the same.
- Scenario 3: *Sensitivity Analysis Assuming Temporary 60% Surge in Number of Employees and Employee Parking Demand is Distributed between the Northwest Construction Staging/Parking Area (63%) and the Southeast Construction Staging/Parking Area (37%)* - This scenario assumes a 60 percent temporary increase in the peak period construction work force, based on a more intense daytime work shift, and a split distribution of employee parking. Under this scenario, 601 Bradley West Project construction employee vehicles would be assigned to the Northwest Construction Staging/Parking Area and 357 construction employee vehicles would be assigned to the Southeast Construction Staging/Parking Area. As discussed within Section 4.3.4.1 above, additional shuttle bus trips were also included in this analysis.
- Scenario 4: *Sensitivity Analysis Assuming Temporary 60% Surge in Number of Employees and Employee Parking Demand is Distributed between the Northwest Construction Staging/Parking Area (37%) and the Southeast Construction Staging/Parking Area (63%)* - This scenario assumes a 60 percent temporary increase in the peak period construction work force, based on a more intense daytime work shift, and a split distribution of employee parking. Under this scenario, 601 Bradley West Project construction employee vehicles would be assigned to the Southeast Construction Staging/Parking Area and 357 construction employee vehicles would be assigned to the Northwest Construction Staging/Parking Area. As discussed within Section 4.3.4.1 above, additional shuttle bus trips were also included in this analysis.

As shown in **Figure 4.3-4**, delivery trucks are anticipated to use the regional freeway system (I-405 and I-105), Imperial Highway, and Pershing Drive to access the West Construction Staging Area or the Northwest Construction Staging/Parking Area. The delivery truck routes are consistent amongst the various parking scenarios. The routes for employee parking shuttles are also depicted in **Figure 4.3-4**. As shown, employee parking shuttle routes to and from the two proposed southeast employee parking areas differ by the access locations for the various routes. While the lot at proposed Southeast Construction Staging/Parking Area would be accessed via 111th Street, the other lot at the East Contractor Employee Parking Area would be accessed via La Cienega Boulevard. Project-related construction employees are anticipated to park in the potential construction employee parking lots. While the employee parking shuttles and delivery trucks are assumed to travel on off-airport roadways, transfer shuttles are assumed to travel on on-airport roadway. The regional and local traffic flow distributions are

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91 Due to its geographic proximity to the Northwest Construction Staging/Parking Area, this location accessed via World Way West was not analyzed separately and the impacts are assumed to be the same as those discussed in Scenario 1. It should be noted that the use of this location along World Way West for employee parking would reduce the amount of traffic at the study area intersection of Westchester Parkway and Pershing Drive given that employees accessing employee parking facilities from northbound Pershing Drive would not be required to drive through this intersection.

also provided in **Figure 4.3-4**. The estimated flow paths used by employees are documented in Appendix D-2.

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 4.3-8**. The regional population distribution was developed during the SAIP traffic study and is based on information obtained from the LAX Master Plan Final EIR and the 2001 Air Passenger Survey. LAWA conducts airline passenger surveys on a regular basis to determine airline passenger travel characteristics and to assess changes in these travel patterns over time. Based on a review of the 2006 Air Passenger Survey data, it was determined that the regional travel and access patterns and regional population distribution percentages have not materially changed from the data obtained in 2001. Therefore, the distribution pattern assumptions used to distribute construction employee and construction delivery trips on the study area roadway network remain unchanged from those in the 2005 SAIP EIR.

Table 4.3-8

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%**

Sources: LAX Master Plan Supplement to the Draft EIR, Figure 4.3.2-3 (Existing 1996 Airport Traffic versus Non-Airport Traffic Comparison); 2001 LAX Passenger Survey Report (Table 39), Los Angeles International Airport, April 2004, Applied Management & Planning Group; 2006 LAX Passenger Survey Report, Los Angeles International Airport, December 2007, Applied Management & Planning Group.

As shown in **Table 4.3-8** and in **Figure 4.3-4**, 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 represent the roadway that a construction-related vehicle would use to access the study area.

In assigning traffic to the study area roadways, it was assumed that construction vehicles, consisting of delivery trucks and construction employee automobiles, would approach the study area in proportion to the regional distributions described above. The freeway ramps, roadways, and intersections representing 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 those trips to the most logical routes. The analysis is not particularly sensitive to the regional approach assumptions, given that a large proportion of the construction-related trips would access the 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 in 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 D-2.

4.3.5 Future Cumulative Traffic

The components of traffic for the future cumulative traffic condition are described in this section. The future cumulative traffic condition takes into consideration past, present, and reasonably foreseeable projects and includes growth in ambient background traffic and both airport and non-airport developments in the vicinity of the airport. (See Section 4.3.3.3 and Section 4.3.2.4 above for additional discussion of annual growth assumptions and cumulative methodology). Known development projects in the airport vicinity that may contribute traffic to the project study area roadway system during the peak Bradley West Project construction period were also considered. These trips would result from either the construction or the operation of those development projects. The list of local area development projects presented later in this section represents projects during 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 past and current local area developments are represented in the traffic volume data that were collected for the Bradley West Project in 2008 and used as a basis for the traffic study. The development schedule and traffic characteristics of larger projects in close proximity to the Bradley West Project study area were reviewed and their effects were incorporated into the cumulative analysis. Other future "non-airport" projects that are not in the immediate vicinity of the study area are accounted for indirectly as part of the assumed 2 percent growth rate.

The cumulative traffic impacts analysis provided in this section supplements the impacts discussion contained in the LAX Master Plan Final EIR. In the LAX Master Plan Final EIR analysis, the potential for construction traffic from Master Plan projects to share the same roadways and haul routes as construction traffic from other projects in the general vicinity of LAX was discussed. The cumulative traffic impacts analysis presented in this Bradley West Project Draft EIR provides a detailed quantitative evaluation of construction-related impacts based on more complete and precise information than was available at the time the LAX Master Plan Final EIR was prepared, regarding the nature, location, and timing of construction projects occurring while the Bradley West Project is under construction.

4.3.5.1 Cumulative Projects

Development projects considered in the cumulative impacts analysis include both LAX Master Plan projects as well as other capital improvement projects undertaken by LAWA and other local agencies. Based on information available at the time the Bradley West Project construction traffic analysis was undertaken (March 2009), the development projects anticipated to be under construction concurrent with Bradley West Project construction and of a nature that would contribute to cumulative traffic impacts included the following:

- Security Program - In-Line Baggage Screening System (T6) - This project is to construct an in-line baggage screening system at LAX Terminal 6.
- Airfield Improvement Program - Taxiway/Taxilane/Service Roads - This project is to reconstruct multiple taxiways and taxilanes.
- Terminal Electrical Service Capacity Expansion - This project upgrades electrical systems to accommodate all ground support equipment at LAX.
- Central Utilities Plant (CUP) Replacement Program - This project is to replace the existing Central Utilities Plant with a new Leadership in Energy and Environmental Design (LEED™)-certified building to the east of the existing facility.
- CTA Elevators and Escalators Replacement - This project provides the replacement of existing elevators and escalators within parking structures and terminals at LAX.
- Miscellaneous Construction and Maintenance Activities.

Table 4.3-9 provides estimated construction costs, and the assumed start and end dates of construction for the Bradley West Project and each of the construction projects identified above.

Table 4.3-9

Construction Projects Concurrent with Bradley West Project Peak Construction

Project Number	Concurrent Construction Project	Estimated Total Construction Cost (millions)	Start Date	End Date	Estimated Employee Hours during Projects (Total)
N/A[1]	Bradley West Project	$2,000	Nov 2009	Feb 2015	4,483,216
1	Security Program - In-Line Baggage Screening Systems (T6)	80	Jun 2010	Sep 2011	134,496
2	Airfield Improvement Program - Taxiway/ Taxilane/Service Roads	125	Jun 2010	Dec 2012	210,151
3	Terminal Electrical Service Capacity Expansion	49	Dec 2010	Dec 2011	65,903
4	Central Utilities Plant (CUP) Replacement Program	558	May 2010	Apr 2013	938,113
5	CTA Elevators and Escalators Replacement	175	Feb 2010	Feb 2013	98,070
6	Misc Construction and Maintenance Activities	200	Jan 2009	Jan 2015	110,414

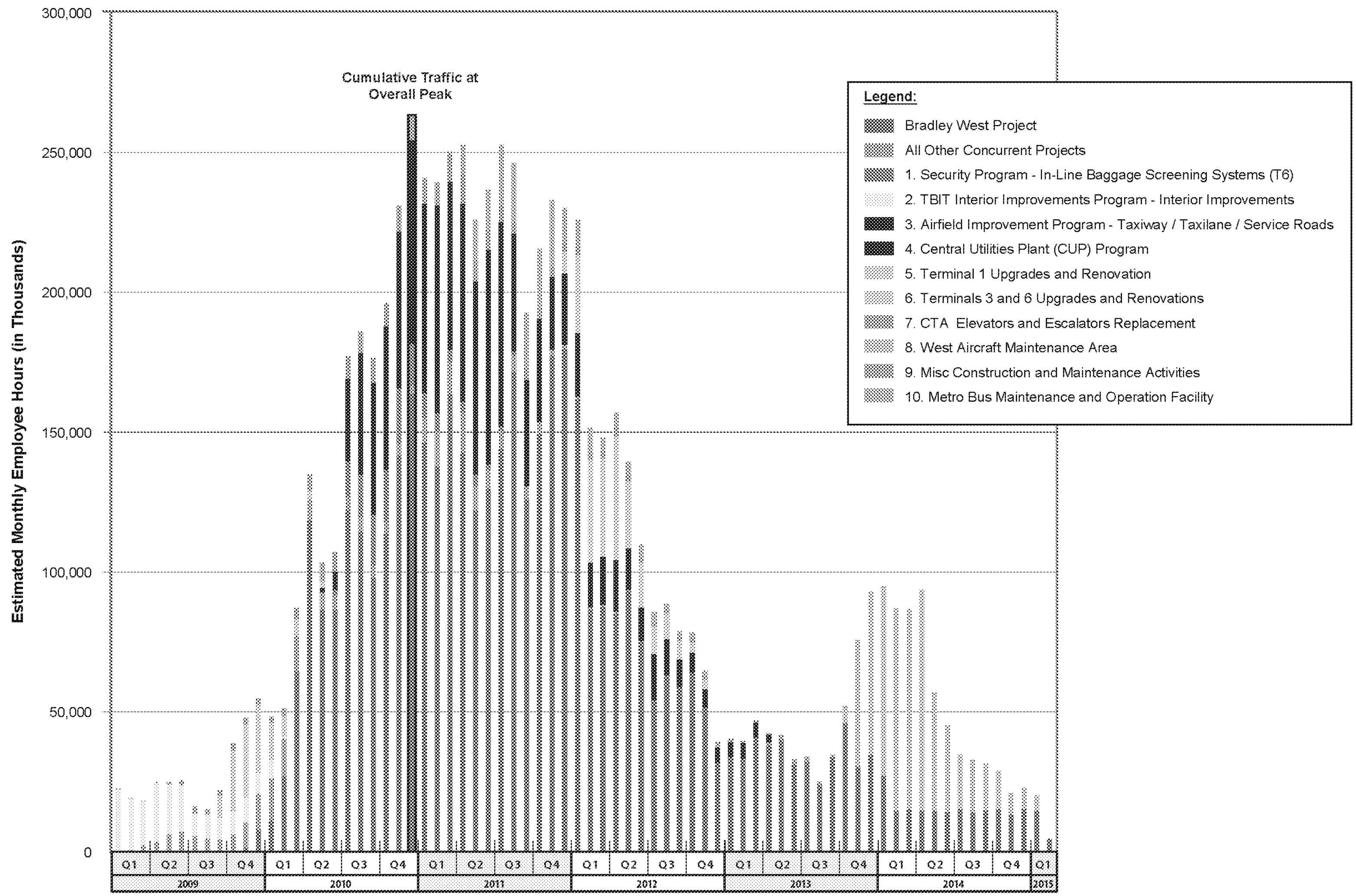
[1] N/A = Not Available

Source: CDM (Cumulative Project List Assumptions), Ricondo & Associates, Inc. (Estimated Employee Hours), U.S. Cost (Bradley West Project), 2009.

Detailed construction vehicle trip estimates were not available for each of these projects. Therefore, it was necessary to estimate future trips associated with construction of these projects for purposes of estimating cumulative traffic impacts. Detailed analysis of monthly construction activity for the Bradley West Project was possible through analysis of a resource loaded schedule prepared by U.S. Cost. Using the relationship between estimated project labor cost and total construction employee hours for the Bradley West Project, total employee hours for the other concurrent projects were estimated. In addition, the general distribution of employee hours over the course of the Bradley West Project construction program was used to distribute the total employee hours over the course of the individual projects. **Figure 4.3-5** provides a chart of estimated employee hours by month for the Bradley West Project and the concurrent construction projects during the Bradley West Project construction period. As shown in **Figure 4.3-5**, the peak period for Bradley West Project construction (estimated to be December 2011) does not coincide with the overall cumulative peak during construction of the Bradley West Project (estimated to be December 2010). The Bradley West Project is expected to be completed in the first quarter of 2015.

Based on the current level of planning and the anticipated timing for other Master Plan projects, it is not anticipated that other LAX Master Plan projects would be under construction during the peak month of Bradley West Project construction. However, as discussed previously, the assumed conservative growth in background traffic is anticipated to produce a conservative traffic volume scenario that would account for additional construction-related traffic in the event that additional LAX Master Plan construction projects are initiated during the time frame evaluated for this study.

Estimated a.m. and p.m. construction peak hour vehicle trips associated with Bradley West Project construction during December 2011 and the six concurrent construction projects during December 2010 are provided in **Table 4.3-10**. Traffic volumes associated with each construction project were estimated by calculating the relationship of vehicle trips to employee hours for the Bradley West Project and multiplying this relationship by the estimated total number of employee trips for each project in December 2010. The distribution of vehicle trips arriving at and departing the study area by hour of the day was assumed to be the same as for the Bradley West Project.



Note: Overall cumulative peak occurs in Fourth Quarter 2010.

Source: U.S. Cost (TBIT), CDM (Construction cost and schedule), Ricondo & Associates, Inc., March 2009 (Estimated trips for all projects except Bradley West Project).
Prepared by: Ricondo & Associates, Inc., March 2009.

Estimated Employee Hours for Bradley West and Other Concurrent Construction Projects

Figure 4.3-5

Table 4.3-10

A.M. and P.M. Construction Peak Hour Traffic Volumes by Project

	Construction Trips in Passenger Car Equivalents (PCEs)															
	Construction A.M. Peak Hour (6:00 a.m. - 7:00 a.m.)								Construction P.M. Peak Hour (3:30 p.m. - 4:30 p.m.)							
	Employees		Shuttles		Delivery Trucks[1]		Transfer Trucks		Employees		Shuttles		Delivery Trucks[1]		Transfer Trucks	
Project	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
Bradley West Project (December 2011)[2]	481	0	14	14	5	5	10	10	120	481	14	14	4	4	8	8
Other Concurrent Projects in December 2010																
1. Security Program - In-Line Baggage Screening Systems (T6)	40	0	2	2	2	2	4	4	10	40	2	2	2	2	4	4
2. Airfield Improvement Program - Taxiway/ Taxilane/Service Roads	42	0	2	2	2	2	4	4	10	42	2	2	2	2	4	4
3. Terminal Electrical Service Capacity Expansion	8	0	1	1	1	1	2	2	2	8	1	1	1	1	2	2
4. Central Utilities Plant (CUP) Replacement Program	154	0	6	6	6	6	12	12	38	154	6	6	6	6	12	12
5. CTA Elevators and Escalators Replacement	12	0	1	1	1	1	2	2	3	12	1	1	1	1	2	2
6. Misc Construction and Maintenance Activities	10	0	1	1	1	1	2	2	3	10	1	1	1	1	2	2
Total for Other Concurrent Projects in Dec. 2010	**266**	**0**	**13**	**13**	**13**	**13**	**26**	**26**	**66**	**266**	**13**	**13**	**13**	**13**	**26**	**26**

1 Peak hour for delivery trucks was assumed to represent 10 percent of daily trips based on Bradley West Project.
2 The Bradley West Project trips shown here are based on 691 peak day construction employees generating 601 daily employee vehicles.

Source: Ricondo & Associates, Inc., 2009.

For purposes of distributing traffic within the study area, it was necessary to identify the employee parking and staging locations for the concurrent projects. The locations of construction staging areas and general access and circulation patterns of construction-related vehicle activity for the Bradley West Project and the concurrent construction projects are depicted in **Figure 4.3-6**. The anticipated contractor employee parking and staging areas for the six concurrent construction projects are also depicted in **Figure 4.3-6** at multiple locations within the study area. The regional and local area distribution patterns are anticipated to be generally the same as for the Bradley West Project, with adjustments as necessary for access to the individual sites. The estimated flow paths used by the employees and delivery trucks are documented in Appendix D-2.

4.3.5.2 Transportation Network Improvements

Caltrans is constructing high occupancy vehicle (HOV) lanes northbound and southbound on I-405 from I-10 to SR-90. Originally expected to be completed by late 2008, the project remains under construction. It is not believed that this construction will result in traffic diverting from the freeway system to local streets in the study area.

Construction of the westbound I-105 off-ramp to northbound Sepulveda Boulevard began in August 2008. This project will widen the off-ramp to install a third lane. While this project has resulted in the ramp being closed infrequently during the early morning (midnight to 5 AM) hours, lane closures on the westbound I-105 off-ramp to northbound Sepulveda Boulevard are not expected to occur until the last half of 2009. According to an e-mail from Mr. David Njoya, Construction Engineer/Senior Resident Engineer for Caltrans, to LAWA on August 18, 2008,[92] the traffic generated by the contractor's work force is minimal, with no more than 20 people working on the project at one time. Therefore, the volume of construction and employee traffic generated by the off-ramp widening project would be indirectly included as part of the assumed 2 percent growth factor for study area traffic. The off-ramp widening project is scheduled for completion in January 2010.

In addition, Caltrans recently improved Lincoln Boulevard (SR-1). In August 2008, Caltrans opened four lanes northbound from Loyola Marymount University (LMU) Drive to Jefferson Boulevard and four lanes southbound from Jefferson Boulevard, narrowing to three lanes just north of LMU Drive. During Phase 2 of the project, completed in January 2009, Lincoln Boulevard was widened from La Tijera Boulevard to LMU Drive to provide an additional northbound lane along with traffic signal modifications.

The City of Los Angeles is currently improving Sepulveda Boulevard from Howard Hughes Parkway to south of 92nd Street. One component of the project is to widen Sepulveda Boulevard south of Manchester Avenue to create three moving lanes of traffic, with parking, for both northbound and southbound directions. While the entire project is not expected to be finished until later this year, the physical widening of the roadway has already been completed. Sepulveda Boulevard is the primary access roadway for employee traffic accessing Northwest Construction Staging/Parking Area from the north.

4.3.5.3 Local Area Construction and Development Projects

Planned development projects in the City of Los Angeles and neighboring communities within the vicinity of the study area were previously noted in Table 4.2-5 in Section 4.2 of this EIR, provided in the off-airport traffic analysis section of this EIR. The list was prepared to document and describe all known local area development projects that may contribute traffic to the Bradley West Project study area. The list is based on consultation with representatives of the LADOT, Culver City, El Segundo, Hawthorne, Inglewood, Los Angeles County, and Manhattan Beach. Table 4.2-5 lists, if known, the estimated daily and hourly trips generated by the development project and includes notes relating to project status. 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 commute periods that do not coincide with the "off-peak" construction peak periods analyzed for construction of the Bradley West Project.

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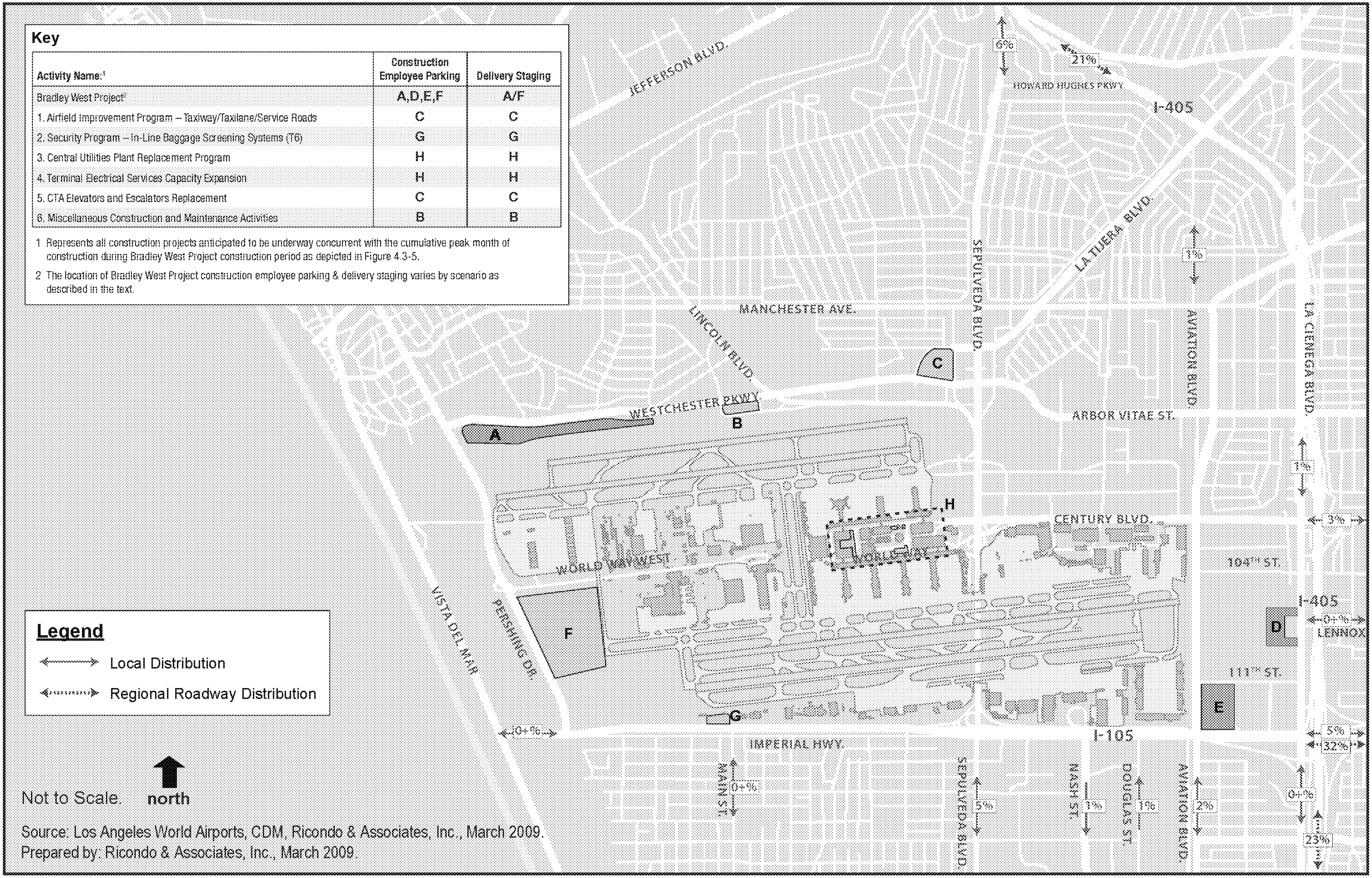
[92] Njoya, David, Construction Engineer/Senior Resident Engineer, Caltrans, Personal Communication, August 18, 2008.

Key

Activity Name:[1]	Construction Employee Parking	Delivery Staging
Bradley West Project[2]	A,D,E,F	A/F
1. Airfield Improvement Program – Taxiway/Taxilane/Service Roads	C	C
2. Security Program – In-Line Baggage Screening Systems (T6)	G	G
3. Central Utilities Plant Replacement Program	H	H
4. Terminal Electrical Services Capacity Expansion	H	H
5. CTA Elevators and Escalators Replacement	C	C
6. Miscellaneous Construction and Maintenance Activities	B	B

1 Represents all construction projects anticipated to be underway concurrent with the cumulative peak month of construction during Bradley West Project construction period as depicted in Figure 4.3-5.

2 The location of Bradley West Project construction employee parking & delivery staging varies by scenario as described in the text.



Legend

Local Distribution

Regional Roadway Distribution

Not to Scale. north

Source: Los Angeles World Airports, CDM, Ricondo & Associates, Inc., March 2009.
Prepared by: Ricondo & Associates, Inc., March 2009.

LAX Bradley West Project Draft EIR

Employee Parking and Staging Locations for Bradley West Project and Other Projects at Construction Peak

Figure 4.3-6

As described in Section 4.3.3 above, Bradley West Project construction-related traffic would be managed such that construction-related trips related to the project would be negligible during a.m. and p.m. peak commute 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 Table 4.2-5 in Section 4.2 of this EIR.

The construction schedules and specific dates of occupancy for most of the developments listed in Table 4.2-5 were not available. However, given the locations of these projects, it is reasonable to assume that construction-related traffic would access the project areas via freeway ramps and roadways that are outside the Bradley West Project study area. As such, construction vehicle trips generated by those developments would be represented within the 2 percent growth rate assumed for background traffic and would have negligible impact on the study area intersections.

In summary, the few local development projects anticipated to be under construction or operational during the project construction period for the Bradley West Project are anticipated to generate relatively few commute peak hour trips (and even fewer trips during the peak hours analyzed for the Bradley West Project) within the project study area. Given these characteristics, it is anticipated that traffic volumes generated by the developments listed in Table 4.2-5 that would be under construction or operational during the project peak construction period would be included in the assumed 2 percent growth factor for background traffic. The potential effect of trips on the study area intersections generated by local developments would be further reduced given that the peak hours evaluated for this study do not coincide with the a.m. and p.m. commute peak periods that generally correspond with the peak traffic generation periods for most of these developments.

4.3.6 CEQA Thresholds of Significance

As described in Section 4.3.2.1 above, for the SAIP, which is similar in nature to the Bradley West Project, LADOT stated that intersection analysis was sufficient and analysis of freeway and roadway links was not required given that the project would not produce traffic volumes during the a.m. and p.m. commute peak hours; therefore, criteria for determining significant impacts are limited to analysis of intersections. In accordance with LADOT criteria defined in its *Traffic Study Policy and Procedures*.[93] Based on the LADOT definition, an impact is considered to be significant if one of the following thresholds is exceeded:

- The LOS is C, its final v/c ratio is 0.701 to 0.80, and the project-related increase in v/c is 0.040 or greater, or
- The LOS is D, its final v/c ratio is 0.801 to 0.90, and the project-related increase in v/c is 0.020 or greater, or
- The LOS is E or F, its final v/c ratio is 0.901 or greater, and the project-related increase in v/c is 0.010 or greater.

The "final v/c ratio" as defined by LADOT consists of the future v/c ratio at an intersection that includes volume from the project, baseline, ambient background growth,[94] and other related projects, but without proposed intersection traffic mitigation[95] as potentially required by the project. The "project-related increase" is defined as the change in the unmitigated LOS condition between the (a) future v/c "with" the

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93 Los Angeles Department of Transportation, Traffic Study Policies and Procedures, Revised March 2002, Available: http://www.lacity.org/LADOT/TrafficStudyGuidelines.pdf.

94 This definition applies to the cumulative analysis and not the project-specific analysis where ambient background growth and and trips from other concurrent construction projects are not included in the calculation of the “final v/c ratio.” The “final v/c ratio” for the project-specific analysis is calculated using future project volumes associated with construction of the project added directly to the Baseline volumes.

95 As discussed in Section 4.3.7, commitments identified within the LAX Master Plan Mitigation Monitoring and Reporting Program are considered as part of these analyses. Future transportation network improvements described in Section 4.3.5.2 are assumed within future year transportation networks and are not considered as possible mitigation measures to address project-related impacts.

project, baseline, ambient background growth (for the cumulative analysis), and other related project growth, and (b) the future v/c "without" the project, but with baseline, ambient background growth, and other related project growth.

For purposes of this analysis and in accordance with CEQA, project impacts were determined by comparing the level of service results for the following conditions:

- **Project Impacts--**The direct project impacts are determined by calculating the difference in LOS for (a) the Baseline (2008) Plus Peak Bradley West Project LOS and (b) the Baseline (2008) LOS. This comparison is required to isolate the direct impacts of the project. The difference in LOS is compared to the thresholds identified earlier in this section to determine if the project would result in a significant impact.
- **Cumulative Impacts--**The cumulative impacts analysis is intended to provide a realistic comparison of future traffic conditions, consisting of traffic generated by all anticipated sources described previously in this document. Cumulative impacts were analyzed using a two-step process. Initially, the cumulative "With Project" LOS condition was compared with the Baseline (2008) condition to determine if a cumulative impact would occur relative to the Baseline. A cumulative impact was deemed significant it if exceeded the allowable threshold of significance defined earlier in this section. If a cumulative impact was determined, then a second comparison was conducted by calculating the difference in LOS for the "With Project" and "Without Project" levels of service to determine the proposed project's contribution. If the calculated differences in LOS exceed the threshold guidelines defined in this section, then it was determined that the project component would represent a cumulatively considerable contribution in terms of impact.

4.3.7 LAX Master Plan Commitments and Mitigation Measures

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

- **C-1. Establishment of a Ground Transportation/Construction Coordination Office**. Establish this office for the life of the construction projects to coordinate deliveries, monitor traffic conditions, advise motorists and those making deliveries about detours and congested areas, and monitor and enforce delivery times and routes. LAWA 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.

  This office may undertake a variety of duties, including but not limited to:

  - Inform motorists about detours and congestion by use of static signs, changeable message signs, media announcements, airport website, etc.;
  - Work with airport police and the Los Angeles Police Department to enforce delivery times and routes;
  - Establish staging areas;
  - Coordinate with police and fire personnel regarding maintenance of emergency access and response times;
  - Coordinate roadway projects of Caltrans, City of Los Angeles, and other jurisdictions with those of the airport construction projects;
  - Monitor and coordinate deliveries;
  - Establish detour routes;

- Work with residential and commercial neighbors to address their concerns regarding construction activity; and
- Analyze traffic conditions to determine the need for additional traffic controls, lane restriping, signal modifications, etc.

- **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 Construction Coordination Office. Notification of deliveries shall be made with sufficient time to allow for any modifications to approved traffic detour plans.
- **ST-12. Designated Truck Delivery Hours**. Truck deliveries shall be encouraged to use night-time hours and shall avoid the peak periods of 7:00 a.m. to 9:00 a.m. and 4:30 p.m. to 6:30 p.m.

  [*Note: This measure provides guidelines for controlling the arrival and departure times of construction related traffic during peak commute periods, and served as input for developing an estimated schedule of Bradley West Project construction delivery activity*.]
- **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., 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.

  [*Note: This measure provides guidelines for controlling the arrival and departure times of construction employees, and served as direct input for determining the employee traffic activity associated with the Bradley West Project. Traffic analysis was limited to weekday traffic conditions to provide a conservative estimate of potential impacts given that weekday traffic activity is typically significantly higher than during the weekend traffic*.]
- **ST-16. Designated Haul Routes**. Every effort will be made to ensure that haul routes are located away from sensitive noise receptors.
- **ST-17. Maintenance of Haul Routes**. Haul routes on off-airport roadways will be maintained periodically and will comply with City of Los Angeles or other appropriate jurisdictional requirements for maintenance. Minor striping, lane configurations, and signal phasing modifications 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 may include, but will not necessarily be limited to: Pershing Drive (Westchester Parkway to Imperial Highway); Florence Avenue (Aviation Boulevard to I-405); Manchester Boulevard (Aviation Boulevard to I-405); Aviation Boulevard (Manchester Avenue to Imperial Highway); Westchester Parkway/Arbor Vitae Street (Pershing Drive to I-405); Century Boulevard (Sepulveda Boulevard to I-405); Imperial Highway (Pershing Drive to I-405); La Cienega Boulevard (north of Imperial Highway); Airport Boulevard (Arbor Vitae Street to Century Boulevard); Sepulveda Boulevard (Westchester Parkway to Imperial Highway); I-405; and I-105.

4.3.8 Impact Analysis

As described previously in Section 4.3.2, potential traffic-related impacts pertaining to construction of the Bradley West Project were assessed by conducting the two impact comparisons described in the following sections.

4.3.8.1 Impact Comparison 1--Peak Project Traffic Plus Baseline (2008) Traffic Measured against Baseline (2008)

This comparison provides the basis for determining project-related impacts. The comparison is based on project specific traffic activity during the peak Bradley West Project (fourth quarter 2011) added to Baseline (2008) traffic volumes. The resulting levels of service were compared to the levels of service associated with the Baseline (2008) condition. A significant impact would be realized if/when the thresholds of significance defined in Section 4.3.6 above are met or exceeded.

As described previously in Section 4.3.4.2, four potential employee parking scenarios were evaluated in order to identify potential impacts of operating from one or a combination of three potential employee parking locations order to maintain future flexibility to address changes in the construction program over the duration of the project. In essence, this analysis is intended to result in a potential mitigation program to address impacts associated with a range of employee parking lot options in order to maintain this desired flexibility.

Impact comparisons under construction employee parking Scenario 1, Scenario 2, Scenario 3, and Scenario 4 are depicted in **Table 4.3-11**, **Table 4.3-12**, **Table 4.3-13**, and **Table 4.3-14**, respectively. As shown in the tables, it is anticipated that the following intersections would experience project-related impacts:

- **La Cienega Boulevard and Century Boulevard (Intersection #36)**. It is anticipated that this intersection would experience project-related traffic impacts as part of employee parking Scenario 1, Scenario 2, Scenario 3, and Scenario 4.
- **Imperial Highway and Main Street (Intersection #68)**. It is anticipated that this intersection would experience project-related traffic impacts as part of employee parking Scenario 1, Scenario 3 and Scenario 4.
- **Imperial Highway and Pershing Drive (Intersection #69)**. It is anticipated that this intersection would experience project-related traffic impacts as part of employee parking Scenario 1 and Scenario 3.
- **Sepulveda Boulevard and Manchester Avenue (Intersection #114)**. It is anticipated that this intersection would experience project-related traffic impacts as part of employee parking Scenario 1, Scenario 3, and Scenario 4.

Table 4.3-11

Level of Service Analysis Results - Impact Comparison 1 Baseline (2008) Compared to Project plus Baseline (2008); Scenario 1

			Baseline (2008)		Bradley West Project Plus Baseline (2008)			
	Intersection	**Peak Hour[1]**	**V/C[2]**	**LOS[3]**	**V/C[2]**	**LOS[3]**	**Change in V/C**	**Significant Impact**
14.	Aviation Boulevard and Century Boulevard	Construction AM	0.469	A	0.470	A	0.001	--[4]
		Construction PM	0.757	C	0.757	C	0.000	--
16.	Imperial Highway and Aviation Boulevard	Construction AM	0.523	A	0.523	A	0.000	--
		Construction PM	0.667	B	0.702	C	0.035	--
19.	Aviation Boulevard and 111th Street	Construction AM	0.353	A	0.353	A	0.000	--
		Construction PM	0.488	A	0.488	A	0.000	--
36.	La Cienega Boulevard and Century Boulevard	Construction AM	0.392	A	0.392	A	0.000	--
		Construction PM	0.910	E	0.921	E	0.011	Yes
39.	Century Boulevard and I-405 Northbound Ramp	Construction AM	0.514	A	0.518	A	0.004	--
		Construction PM	0.548	A	0.551	A	0.003	--
47.	Imperial Highway and Douglas Street	Construction AM	0.155	A	0.193	A	0.038	--
		Construction PM	0.412	A	0.448	A	0.036	--
65.	Sepulveda Boulevard and Howard Hughes Pkwy.	Construction AM	0.256	A	0.256	A	0.000	--
		Construction PM	0.643	B	0.643	B	0.000	--
67.	Imperial Highway and La Cienega Boulevard	Construction AM	0.220	A	0.220	A	0.000	--
		Construction PM	0.568	A	0.568	A	0.000	--
68.	Imperial Highway and Main Street	Construction AM	0.404	A	0.410	A	0.006	--
		Construction PM	0.716	C	0.827	D	0.111	Yes
69.	Imperial Highway and Pershing Drive	Construction AM	0.479	A	0.704	C	0.225	Yes
		Construction PM	0.426	A	0.556	A	0.130	--
71.	Imperial Highway and Sepulveda Boulevard	Construction AM	0.509	A	0.509	A	0.000	--
		Construction PM	1.185	F	1.185	F	0.000	--
73.	Imperial Highway and Nash Street	Construction AM	0.377	A	0.492	A	0.115	--
		Construction PM	0.300	A	0.335	A	0.035	--
74.	Imperial Highway and I-105 Ramp	Construction AM	0.533	A	0.580	A	0.047	--
		Construction PM	0.541	A	0.565	A	0.024	--
75.	Imperial Highway and I-405 Northbound Ramp	Construction AM	0.246	A	0.276	A	0.030	--
		Construction PM	0.554	A	0.584	A	0.030	--
89.	La Cienega Boulevard and Lennox Boulevard	Construction AM	0.224	A	0.224	A	0.000	--
		Construction PM	0.408	A	0.408	A	0.000	--
94.	La Cienega Boulevard and 111th Street	Construction AM	0.122	A	0.122	A	0.000	--
		Construction PM	0.363	A	0.363	A	0.000	--
96.	La Cienega Blvd. & I-405 Southbound Ramps North of Century	Construction AM	0.442	A	0.442	A	0.000	--
		Construction PM	0.560	A	0.562	A	0.002	--
97.	La Cienega Blvd. & I-405 Southbound Ramps South of Century	Construction AM	0.238	A	0.238	A	0.000	--
		Construction PM	0.424	A	0.424	A	0.000	--
98.	La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	Construction AM	0.173	A	0.173	A	0.000	--

Table 4.3-11

Level of Service Analysis Results - Impact Comparison 1 Baseline (2008) Compared to Project plus Baseline (2008); Scenario 1

			Baseline (2008)		Bradley West Project Plus Baseline (2008)			
	Intersection	Peak Hour[1]	V/C[2]	LOS[3]	V/C[2]	LOS[3]	Change in V/C	Significant Impact
		Construction PM	0.279	A	0.279	A	0.000	--
101.[5]	Sepulveda Boulevard and La Tijera Boulevard	Construction AM	0.377	A	0.377	A	0.000	--
		Construction PM	0.663	B	0.681	B	0.018	--
108.	Sepulveda Boulevard and Lincoln Boulevard	Construction AM	0.409	A	0.409	A	0.000	--
		Construction PM	0.715	C	0.725	C	0.010	--
114.[5]	Sepulveda Boulevard and Manchester Avenue	Construction AM	0.501	A	0.501	A	0.000	--
		Construction PM	0.877	D	0.908	E	0.031	Yes
123.	Westchester Parkway and Pershing Drive	Construction AM	0.212	A	0.364	A	0.152	--
		Construction PM	0.255	A	0.429	A	0.174	--
135.[5]	Sepulveda Boulevard and Westchester Parkway	Construction AM	0.331	A	0.331	A	0.000	--
		Construction PM	0.636	B	0.636	B	0.000	--
136.[5]	Sepulveda Boulevard and 76th/77th Street	Construction AM	0.510	A	0.510	A	0.000	--
		Construction PM	0.552	A	0.559	A	0.007	--
137.	Sepulveda Boulevard and 79th/80th Street	Construction AM	0.421	A	0.421	A	0.000	--
		Construction PM	0.508	A	0.515	A	0.007	--
138.	Sepulveda Boulevard and 83rd Street	Construction AM	0.308	A	0.308	A	0.000	--
		Construction PM	0.459	A	0.464	A	0.005	--
1000.	La Cienega Boulevard and 104th Street	Construction AM	0.154	A	0.156	A	0.002	--
		Construction PM	0.356	A	0.356	A	0.000	--

1 The hours of analysis include the construction a.m. peak (6:00 a.m. - 7:00 a.m.), and the construction p.m. peak (3:30 p.m. - 4:30 p.m.).
2 Volume to capacity ratio. Includes an LADOT ATSAC benefit applied at each intersection with the exception of intersections #39 and #75, which are not a part of the LADOT system.
3 Level of Service range: A (excellent) to F (failure).
4 -- Indicates "No Impact"
5 The Baseline (2008) plus Project level of service did not include the additional capacity from the widening of Sepulveda Boulevard that was completed subsequent to publication of the NOP for the Bradley West Project Draft EIR. As a result, the level of service for the Baseline (2008) conditions would provide improved conditions relative to the results shown if these improvements were included.

Source: Ricondo & Associates, Inc., using TRAFFIX, 2009.

Table 4.3-12

Level of Service Analysis Results - Impact Comparison 1 Baseline (2008) Compared to Project plus Baseline (2008); Scenario 2

			Baseline (2008)		Bradley West Project Plus Baseline (2008)			
	Intersection	Peak Hour[1]	V/C[2]	LOS[3]	V/C[2]	LOS[3]	Change in V/C	Significant Impact
14.	Aviation Boulevard and Century Boulevard	Construction AM	0.469	A	0.469	A	0.000	--[4]
		Construction PM	0.757	C	0.769	C	0.012	--
16.	Imperial Highway and Aviation Boulevard	Construction AM	0.523	A	0.675	B	0.152	--
		Construction PM	0.667	B	0.673	B	0.006	--
19.	Aviation Boulevard and 111th Street	Construction AM	0.353	A	0.439	A	0.086	--
		Construction PM	0.488	A	0.491	A	0.003	--
36.	La Cienega Boulevard and Century Boulevard	Construction AM	0.392	A	0.528	A	0.136	--
		Construction PM	0.910	E	0.947	E	0.037	Yes
39.	Century Boulevard and I-405 Northbound Ramp	Construction AM	0.514	A	0.559	A	0.045	--
		Construction PM	0.548	A	0.559	A	0.011	--
47.	Imperial Highway and Douglas Street	Construction AM	0.155	A	0.160	A	0.005	--
		Construction PM	0.412	A	0.419	A	0.007	--
65.	Sepulveda Boulevard and Howard Hughes Pkwy.	Construction AM	0.256	A	0.256	A	0.000	--
		Construction PM	0.643	B	0.647	B	0.004	--
67.	Imperial Highway and La Cienega Boulevard	Construction AM	0.220	A	0.230	A	0.010	--
		Construction PM	0.568	A	0.617	B	0.049	--
68.	Imperial Highway and Main Street	Construction AM	0.405	A	0.417	A	0.013	--
		Construction PM	0.716	C	0.726	C	0.010	--
69.	Imperial Highway and Pershing Drive	Construction AM	0.481	A	0.504	A	0.025	--
		Construction PM	0.434	A	0.454	A	0.028	--
71.	Imperial Highway and Sepulveda Boulevard	Construction AM	0.509	A	0.527	A	0.018	--
		Construction PM	1.185	F	1.189	F	0.004	--
73.	Imperial Highway and Nash Street	Construction AM	0.377	A	0.388	A	0.011	--
		Construction PM	0.300	A	0.307	A	0.007	--
74.	Imperial Highway and I-105 Ramp	Construction AM	0.533	A	0.607	B	0.074	--
		Construction PM	0.541	A	0.601	B	0.060	--
75.	Imperial Highway and I-405 Northbound Ramp	Construction AM	0.246	A	0.251	A	0.005	--
		Construction PM	0.554	A	0.559	A	0.005	--
89.	La Cienega Boulevard and Lennox Boulevard	Construction AM	0.224	A	0.238	A	0.014	--
		Construction PM	0.408	A	0.408	A	0.000	--
94.	La Cienega Boulevard and 111th Street	Construction AM	0.122	A	0.126	A	0.004	--
		Construction PM	0.363	A	0.486	A	0.123	--
96.	La Cienega Blvd. & I-405 Southbound Ramps North of Century	Construction AM	0.442	A	0.481	A	0.039	--
		Construction PM	0.560	A	0.572	A	0.012	--

Table 4.3-12

Level of Service Analysis Results - Impact Comparison 1 Baseline (2008) Compared to Project plus Baseline (2008); Scenario 2

	Intersection	Peak Hour[1]	Baseline (2008) V/C[2]	Baseline (2008) LOS[3]	Bradley West Project Plus Baseline (2008) V/C[2]	Bradley West Project Plus Baseline (2008) LOS[3]	Change in V/C	Significant Impact
97.	La Cienega Blvd. & I-405 Southbound Ramps South of Century	Construction AM	0.238	A	0.238	A	0.000	--
		Construction PM	0.424	A	0.424	A	0.000	--
98.	La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	Construction AM	0.173	A	0.173	A	0.000	--
		Construction PM	0.279	A	0.357	A	0.078	--
101.[5]	Sepulveda Boulevard and La Tijera Boulevard	Construction AM	0.377	A	0.377	A	0.000	--
		Construction PM	0.663	B	0.670	B	0.007	--
108.	Sepulveda Boulevard and Lincoln Boulevard	Construction AM	0.409	A	0.409	A	0.000	--
		Construction PM	0.715	C	0.716	C	0.001	--
114.[5]	Sepulveda Boulevard and Manchester Avenue	Construction AM	0.501	A	0.501	A	0.000	--
		Construction PM	0.877	D	0.884	D	0.007	--
123.	Westchester Parkway and Pershing Drive	Construction AM	0.212	A	0.217	A	0.005	--
		Construction PM	0.255	A	0.255	A	0.000	--
135.[5]	Sepulveda Boulevard and Westchester Parkway	Construction AM	0.331	A	0.331	A	0.000	--
		Construction PM	0.636	B	0.642	B	0.006	--
136.[5]	Sepulveda Boulevard and 76th/77th Street	Construction AM	0.510	A	0.510	A	0.000	--
		Construction PM	0.552	A	0.554	A	0.002	--
137.	Sepulveda Boulevard and 79th/80th Street	Construction AM	0.421	A	0.421	A	0.000	--
		Construction PM	0.508	A	0.510	A	0.002	--
138.	Sepulveda Boulevard and 83rd Street	Construction AM	0.308	A	0.308	A	0.000	--
		Construction PM	0.459	A	0.460	A	0.001	--
1000.	La Cienega Boulevard and 104th Street	Construction AM	0.154	A	0.383	A	0.229	--
		Construction PM	0.356	A	0.424	A	0.068	--

1 The hours of analysis include the construction a.m. peak (6:00 a.m. - 7:00 a.m.), and the construction p.m. peak (3:30 p.m. - 4:30 p.m.).
2 Volume to capacity ratio. Includes an LADOT ATSAC benefit applied at each intersection with the exception of intersections #39 and #75, which are not a part of the LADOT system.
3 Level of Service range: A (excellent) to F (failure).
4 -- Indicates "No Impact"
5 The Baseline (2008) plus Project level of service did not include the additional capacity from the widening of Sepulveda Boulevard that was completed subsequent to publication of the NOP for the Bradley West Project Draft EIR. As a result, the level of service for the Baseline (2008) conditions would provide improved conditions relative to the results shown if these improvements were included.

Source: Ricondo & Associates, Inc., using TRAFFIX, 2009.

Table 4.3-13

Level of Service Analysis Results - Impact Comparison 1 Baseline (2008) Compared to Project plus Baseline (2008); Scenario 3

	Intersection	Peak Hour[1]	Baseline (2008) V/C[2]	Baseline (2008) LOS[3]	Bradley West Project Plus Baseline (2008) V/C[2]	Bradley West Project Plus Baseline (2008) LOS[3]	Change in V/C	Significant Impact
14.	Aviation Boulevard and Century Boulevard	Construction AM	0.469	A	0.470	A	0.001	--[4]
		Construction PM	0.757	C	0.764	C	0.007	--
16.	Imperial Highway and Aviation Boulevard	Construction AM	0.523	A	0.549	A	0.026	--
		Construction PM	0.667	B	0.706	C	0.039	--
19.	Aviation Boulevard and 111th Street	Construction AM	0.353	A	0.380	A	0.027	--
		Construction PM	0.488	A	0.515	A	0.027	--
36.	La Cienega Boulevard and Century Boulevard	Construction AM	0.392	A	0.392	A	0.000	--
		Construction PM	0.910	E	0.925	E	0.015	Yes
39.	Century Boulevard and I-405 Northbound Ramp	Construction AM	0.514	A	0.520	A	0.006	--
		Construction PM	0.548	A	0.553	A	0.005	--
47.	Imperial Highway and Douglas Street	Construction AM	0.155	A	0.197	A	0.042	--
		Construction PM	0.412	A	0.453	A	0.041	--
65.	Sepulveda Boulevard and Howard Hughes Pkwy.	Construction AM	0.256	A	0.256	A	0.000	--
		Construction PM	0.643	B	0.645	B	0.002	--
67.	Imperial Highway and La Cienega Boulevard	Construction AM	0.220	A	0.244	A	0.024	--
		Construction PM	0.568	A	0.587	A	0.019	--
68.	Imperial Highway and Main Street	Construction AM	0.405	A	0.420	A	0.015	--
		Construction PM	0.716	C	0.836	D	0.120	Yes
69.	Imperial Highway and Pershing Drive	Construction AM	0.481	A	0.726	C	0.245	Yes
		Construction PM	0.434	A	0.575	A	0.141	--
71.	Imperial Highway and Sepulveda Boulevard	Construction AM	0.509	A	0.520	A	0.011	--
		Construction PM	1.185	F	1.188	F	0.003	--
73.	Imperial Highway and Nash Street	Construction AM	0.377	A	0.504	A	0.127	--
		Construction PM	0.300	A	0.340	A	0.040	--
74.	Imperial Highway and I-105 Ramp	Construction AM	0.533	A	0.585	A	0.052	--
		Construction PM	0.541	A	0.605	B	0.064	--
75.	Imperial Highway and I-405 Northbound Ramp	Construction AM	0.246	A	0.304	A	0.058	--
		Construction PM	0.554	A	0.593	A	0.039	--
89.	La Cienega Boulevard and Lennox Boulevard	Construction AM	0.224	A	0.224	A	0.000	--
		Construction PM	0.408	A	0.408	A	0.000	--
94.	La Cienega Boulevard and 111th Street	Construction AM	0.122	A	0.233	A	0.111	--
		Construction PM	0.363	A	0.498	A	0.135	--
96.	La Cienega Blvd. & I-405 Southbound Ramps North of Century	Construction AM	0.442	A	0.466	A	0.024	--
		Construction PM	0.560	A	0.573	A	0.013	--

Table 4.3-13

Level of Service Analysis Results - Impact Comparison 1 Baseline (2008) Compared to Project plus Baseline (2008); Scenario 3

	Intersection	Peak Hour[1]	Baseline (2008) V/C[2]	Baseline (2008) LOS[3]	Bradley West Project Plus Baseline (2008) V/C[2]	Bradley West Project Plus Baseline (2008) LOS[3]	Change in V/C	Significant Impact
97.	La Cienega Blvd. & I-405 Southbound Ramps South of Century	Construction AM	0.238	A	0.238	A	0.000	--
		Construction PM	0.424	A	0.448	A	0.024	--
98.	La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	Construction AM	0.173	A	0.173	A	0.000	--
		Construction PM	0.279	A	0.279	A	0.000	--
101.[5]	Sepulveda Boulevard and La Tijera Boulevard	Construction AM	0.377	A	0.377	A	0.000	--
		Construction PM	0.663	B	0.685	B	0.022	--
108.	Sepulveda Boulevard and Lincoln Boulevard	Construction AM	0.409	A	0.409	A	0.000	--
		Construction PM	0.715	C	0.725	C	0.010	--
114.[5]	Sepulveda Boulevard and Manchester Avenue	Construction AM	0.501	A	0.501	A	0.000	--
		Construction PM	0.877	D	0.912	E	0.035	Yes
123.	Westchester Parkway and Pershing Drive	Construction AM	0.212	A	0.379	A	0.167	--
		Construction PM	0.255	A	0.440	A	0.185	--
135.[5]	Sepulveda Boulevard and Westchester Parkway	Construction AM	0.331	A	0.331	A	0.000	--
		Construction PM	0.636	B	0.640	B	0.004	--
136.[5]	Sepulveda Boulevard and 76th/77th Street	Construction AM	0.510	A	0.510	A	0.000	--
		Construction PM	0.552	A	0.560	A	0.008	--
137.	Sepulveda Boulevard and 79th/80th Street	Construction AM	0.421	A	0.421	A	0.000	--
		Construction PM	0.508	A	0.516	A	0.008	--
138.	Sepulveda Boulevard and 83rd Street	Construction AM	0.308	A	0.308	A	0.000	--
		Construction PM	0.459	A	0.468	A	0.009	--
1000.	La Cienega Boulevard and 104th Street	Construction AM	0.154	A	0.159	A	0.005	--
		Construction PM	0.356	A	0.357	A	0.001	--

1 The hours of analysis include the construction a.m. peak (6:00 a.m. - 7:00 a.m.), and the construction p.m. peak (3:30 p.m. - 4:30 p.m.).
2 Volume to capacity ratio. Includes an LADOT ATSAC benefit applied at each intersection with the exception of intersections #39 and #75, which are not a part of the LADOT system.
3 Level of Service range: A (excellent) to F (failure).
4 -- Indicates "No Impact"
5 The Baseline (2008) plus Project level of service did not include the additional capacity from the widening of Sepulveda Boulevard that was completed subsequent to publication of the NOP for the Bradley West Project Draft EIR. As a result, the level of service for the Baseline (2008) conditions would provide improved conditions relative to the results shown if these improvements were included.

Source: Ricondo & Associates, Inc., using TRAFFIX, 2009.

Table 4.3-14

Level of Service Analysis Results - Impact Comparison 1 Baseline (2008) Compared to Project plus Baseline (2008); Scenario 4

	Intersection	Peak Hour[1]	Baseline (2008) V/C[2]	Baseline (2008) LOS[3]	Bradley West Project Plus Baseline (2008) V/C[2]	Bradley West Project Plus Baseline (2008) LOS[3]	Change in V/C	Significant Impact
14.	Aviation Boulevard and Century Boulevard	Construction AM	0.469	A	0.469	A	0.000	--[4]
		Construction PM	0.757	C	0.769	C	0.012	--
16.	Imperial Highway and Aviation Boulevard	Construction AM	0.523	A	0.566	A	0.043	--
		Construction PM	0.667	B	0.698	B	0.031	--
19.	Aviation Boulevard and 111th Street	Construction AM	0.353	A	0.398	A	0.045	--
		Construction PM	0.488	A	0.534	A	0.046	--
36.	La Cienega Boulevard and Century Boulevard	Construction AM	0.392	A	0.392	A	0.000	--
		Construction PM	0.910	E	0.923	E	0.013	Yes
39.	Century Boulevard and I-405 Northbound Ramp	Construction AM	0.514	A	0.520	A	0.006	--
		Construction PM	0.548	A	0.553	A	0.005	--
47.	Imperial Highway and Douglas Street	Construction AM	0.155	A	0.185	A	0.030	--
		Construction PM	0.412	A	0.442	A	0.030	--
65.	Sepulveda Boulevard and Howard Hughes Pkwy.	Construction AM	0.256	A	0.256	A	0.000	--
		Construction PM	0.643	B	0.647	B	0.004	--
67.	Imperial Highway and La Cienega Boulevard	Construction AM	0.220	A	0.261	A	0.041	--
		Construction PM	0.568	A	0.600	A	0.032	--
68.	Imperial Highway and Main Street	Construction AM	0.405	A	0.424	A	0.019	--
		Construction PM	0.716	C	0.796	C	0.080	Yes
69.	Imperial Highway and Pershing Drive	Construction AM	0.481	A	0.646	B	0.165	--
		Construction PM	0.434	A	0.531	A	0.097	--
71.	Imperial Highway and Sepulveda Boulevard	Construction AM	0.509	A	0.527	A	0.018	--
		Construction PM	1.185	F	1.189	F	0.004	--
73.	Imperial Highway and Nash Street	Construction AM	0.377	A	0.390	A	0.013	--
		Construction PM	0.300	A	0.329	A	0.029	--
74.	Imperial Highway and I-105 Ramp	Construction AM	0.533	A	0.569	A	0.036	--
		Construction PM	0.541	A	0.623	B	0.082	--
75.	Imperial Highway and I-405 Northbound Ramp	Construction AM	0.246	A	0.312	A	0.066	--
		Construction PM	0.554	A	0.587	A	0.033	--
89.	La Cienega Boulevard and Lennox Boulevard	Construction AM	0.224	A	0.224	A	0.000	--
		Construction PM	0.408	A	0.408	A	0.000	--
94.	La Cienega Boulevard and 111th Street	Construction AM	0.122	A	0.310	A	0.188	--
		Construction PM	0.363	A	0.590	A	0.227	--
96.	La Cienega Blvd. & I-405 Southbound Ramps North of Century	Construction AM	0.442	A	0.481	A	0.039	--
		Construction PM	0.560	A	0.579	A	0.019	--
97.	La Cienega Blvd. & I-405 Southbound Ramps South of Century	Construction AM	0.238	A	0.238	A	0.000	--
		Construction PM	0.424	A	0.464	A	0.040	--

Table 4.3-14

Level of Service Analysis Results - Impact Comparison 1 Baseline (2008) Compared to Project plus Baseline (2008); Scenario 4

	Intersection	Peak Hour[1]	Baseline (2008) V/C[2]	Baseline (2008) LOS[3]	Bradley West Project Plus Baseline (2008) V/C[2]	Bradley West Project Plus Baseline (2008) LOS[3]	Change in V/C	Significant Impact
98.	La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	Construction AM	0.173	A	0.173	A	0.000	--
		Construction PM	0.279	A	0.279	A	0.000	--
101.[5]	Sepulveda Boulevard and La Tijera Boulevard	Construction AM	0.377	A	0.377	A	0.000	--
		Construction PM	0.663	B	0.680	B	0.017	--
108.	Sepulveda Boulevard and Lincoln Boulevard	Construction AM	0.409	A	0.409	A	0.000	--
		Construction PM	0.715	C	0.722	C	0.007	--
114.[5]	Sepulveda Boulevard and Manchester Avenue	Construction AM	0.501	A	0.501	A	0.000	--
		Construction PM	0.877	D	0.902	E	0.025	Yes
123.	Westchester Parkway and Pershing Drive	Construction AM	0.212	A	0.272	A	0.060	--
		Construction PM	0.255	A	0.352	A	0.097	--
135.[5]	Sepulveda Boulevard and Westchester Parkway	Construction AM	0.331	A	0.331	A	0.000	--
		Construction PM	0.636	B	0.642	B	0.006	--
136.[5]	Sepulveda Boulevard and 76th/77th Street	Construction AM	0.510	A	0.510	A	0.000	--
		Construction PM	0.552	A	0.558	A	0.006	--
137.	Sepulveda Boulevard and 79th/80th Street	Construction AM	0.421	A	0.421	A	0.000	--
		Construction PM	0.508	A	0.514	A	0.006	--
138.	Sepulveda Boulevard and 83rd Street	Construction AM	0.308	A	0.308	A	0.000	--
		Construction PM	0.459	A	0.464	A	0.005	--
1000.	La Cienega Boulevard and 104th Street	Construction AM	0.154	A	0.160	A	0.006	--
		Construction PM	0.356	A	0.358	A	0.002	--

1 The hours of analysis include the construction a.m. peak (6:00 a.m. - 7:00 a.m.), and the construction p.m. peak (3:30 p.m. - 4:30 p.m.).
2 Volume to capacity ratio. Includes an LADOT ATSAC benefit applied at each intersection with the exception of intersections #39 and #75, which are not a part of the LADOT system.
3 Level of Service range: A (excellent) to F (failure).
4 -- Indicates "No Impact"
5 The Baseline (2008) plus Project level of service did not include the additional capacity from the widening of Sepulveda Boulevard that was completed subsequent to publication of the NOP for the Bradley West Project Draft EIR. As a result, the level of service for the Baseline (2008) conditions would provide improved conditions relative to the results shown if these improvements were included.

Source: Ricondo & Associates, Inc., using TRAFFIX, 2009.

4.3.8.2 Impact Comparison 2--Cumulative Traffic (Q4 2010) Measured against Baseline (2008)

This comparison was conducted in two steps which are consistent with CEQA Guidelines Section 15130. An initial comparison was conducted by comparing the level of service associated with cumulative traffic volumes during the peak period of Bradley West Project construction with the Baseline 2008 levels of service. This initial comparison was conducted to determine if there would be a significant cumulative impact. If a significant cumulative impact were determined, then an additional comparison was conducted to determine if the project would produce a cumulatively considerable contribution to the significant cumulative impact. This second comparison was conducted by comparing cumulative conditions both with and without the project. Cumulatively considerable contributions are realized when the thresholds of significance defined in Section 4.3.6 above are met or exceeded.

Cumulative impacts were evaluated for the most critical "surged" conditions that would occur at the peak of the Bradley West Project construction (Fourth Quarter 2011) combined with the peak cumulative condition that would occur in the Fourth Quarter of 2010. These cumulative impact comparisons identified as Scenario 3 and Scenario 4 are presented in **Table 4.3-15** and **Table 4.3-16**, respectively. Given the traffic volume generated by Scenarios 3 and 4 are substantially higher than Scenarios 1 and 2, the analysis of Scenarios 3 and Scenario 4 provides a worst-case condition for the assessment of cumulative impacts. As shown in **Table 4.3-15** and **Table 4.3-16**, it is anticipated that the following intersections would experience cumulative impacts where the project-component would be cumulatively considerable under both employee parking Scenario 3 and Scenario 4:

- **La Cienega Boulevard and Century Boulevard (Intersection #36).**
- **Imperial Highway and Main Street (Intersection #68).**
- **Imperial Highway and Pershing Drive (Intersection #69).**
- **Sepulveda Boulevard and Manchester Avenue (Intersection #114).**

4.3.8.3 Summary of Impacts

Table 4.3-17 provides an overall summary of intersections that are estimated to experience future project-related impacts or experience cumulative impacts where the project-component would be cumulatively considerable.

Table 4.3-15

Level of Service Analysis Results - Impact Comparison 2 Cumulative Traffic (Scenario 3, Fourth Quarter 2010)

			Baseline (2008) [A]		Bradley West Project Peak (Q4 2010) Without Project [B]		With Project[1] [C]		Cumulative Impact Determination [C]-[A]		Cumulative Considerable Determination/Significant Impact [C]-[B]	
	Intersection	Peak Hour[1]	V/C[2]	LOS[3]	V/C[2]	LOS[3]	V/C[2]	LOS[3]	Change in V/C	Cumulative Impact?	Change in V/C	Cumulatively Considerable Contribution?
14.	Aviation Boulevard and Century	Construction AM	0.469	A	0.522	A	0.522	A	0.053	--	0.000	--[4]
	Boulevard	Construction PM	0.757	C	0.815	D	0.822	D	0.065	Yes	0.007	--
16.	Imperial Highway and Aviation Boulevard	Construction AM	0.523	A	0.591	A	0.617	B	0.094	--	0.026	--
		Construction PM	0.667	B	0.729	C	0.768	C	0.101	Yes	0.039	--
19.	Aviation Boulevard and 111th Street	Construction AM	0.353	A	0.397	A	0.424	A	0.071	--	0.027	--
		Construction PM	0.488	A	0.531	A	0.558	A	0.070	--	0.027	--
36.	La Cienega Boulevard and Century	Construction AM	0.392	A	0.415	A	0.416	A	0.024	--	0.001	--
	Boulevard	Construction PM	0.910	E	0.958	E	0.973	E	0.063	Yes	0.015	Yes
39.	Century Boulevard and I-405 Northbound	Construction AM	0.514	A	0.540	A	0.546	A	0.032	--	0.006	--
	Ramp	Construction PM	0.548	A	0.574	A	0.579	A	0.031	--	0.005	--
47.	Imperial Highway and Douglas Street	Construction AM	0.155	A	0.174	A	0.218	A	0.063	--	0.044	--
		Construction PM	0.412	A	0.439	A	0.480	A	0.068	--	0.041	--
65.	Sepulveda Boulevard and Howard	Construction AM	0.256	A	0.269	A	0.269	A	0.013	--	0.000	--
	Hughes Parkway	Construction PM	0.643	B	0.672	B	0.674	B	0.031	--	0.002	--
67.	Imperial Highway and La Cienega	Construction AM	0.220	A	0.242	A	0.266	A	0.046	--	0.024	--
	Boulevard	Construction PM	0.568	A	0.605	B	0.624	B	0.056	--	0.019	--
68.	Imperial Highway and Main Street	Construction AM	0.405	A	0.426	A	0.442	A	0.037	--	0.016	--
		Construction PM	0.716	C	0.801	D	0.921	E	0.205	Yes	0.120	Yes
69.	Imperial Highway and Pershing Drive	Construction AM	0.481	A	0.537	A	0.782	C	0.301	Yes	0.245	Yes
		Construction PM	0.434	A	0.472	A	0.562	A	0.128	--	0.090	--
71.	Imperial Highway and Sepulveda	Construction AM	0.509	A	0.533	A	0.544	A	0.035	--	0.011	--
	Boulevard	Construction PM	1.185	F	1.237	F	1.240	F	0.055	Yes	0.003	--
73.	Imperial Highway and Nash Street	Construction AM	0.377	A	0.395	A	0.535	A	0.158	--	0.140	--
		Construction PM	0.300	A	0.324	A	0.364	A	0.064	--	0.040	--
74.	Imperial Highway and I-105 Ramp	Construction AM	0.533	A	0.586	A	0.638	B	0.105	--	0.052	--
		Construction PM	0.541	A	0.580	A	0.644	B	0.103	--	0.064	--
75.	Imperial Highway and I-405 Northbound	Construction AM	0.246	A	0.280	A	0.338	A	0.092	--	0.058	--
	Ramp	Construction PM	0.554	A	0.589	A	0.628	B	0.074	--	0.039	--
89.	La Cienega Boulevard and Lennox	Construction AM	0.224	A	0.236	A	0.236	A	0.012	--	0.000	--
	Boulevard	Construction PM	0.408	A	0.427	A	0.427	A	0.019	--	0.000	--
94.	La Cienega Boulevard and 111th Street	Construction AM	0.122	A	0.130	A	0.240	A	0.118	--	0.110	--
		Construction PM	0.363	A	0.381	A	0.515	A	0.152	--	0.134	--
96.	La Cienega Blvd. & I-405 Southbound	Construction AM	0.442	A	0.481	A	0.504	A	0.062	--	0.023	--
	Ramps North of Century	Construction PM	0.560	A	0.597	A	0.610	B	0.050	--	0.013	--

Table 4.3-15

Level of Service Analysis Results - Impact Comparison 2 Cumulative Traffic (Scenario 3, Fourth Quarter 2010)

		Baseline (2008) [A]		Bradley West Project Peak (Q4 2010) Without Project [B]		Bradley West Project Peak (Q4 2010) With Project[1] [C]		Cumulative Impact Determination [C]-[A]		Cumulative Considerable Determination/Significant Impact [C]-[B]	
Intersection	**Peak Hour[1]**	**V/C[2]**	**LOS[3]**	**V/C[2]**	**LOS[3]**	**V/C[2]**	**LOS[3]**	**Change in V/C**	**Cumulative Impact?**	**Change in V/C**	**Cumulatively Considerable Contribution?**
97. La Cienega Blvd. & I-405 Southbound	Construction AM	0.238	A	0.250	A	0.250	A	0.012	--	0.000	--
Ramps South of Century	Construction PM	0.424	A	0.458	A	0.482	A	0.058	--	0.024	--
98. La Cienega Blvd. & I-405 Southbound	Construction AM	0.173	A	0.182	A	0.182	A	0.009	--	0.000	--
Ramps North of Imperial	Construction PM	0.279	A	0.292	A	0.292	A	0.013	--	0.000	--
101.[5] Sepulveda Boulevard and La Tijera	Construction AM	0.377	A	0.377	A	0.377	A	0.000	--	0.000	--
Boulevard	Construction PM	0.663	B	0.663	B	0.674	B	0.011	--	0.011	--
108. Sepulveda Boulevard and Lincoln	Construction AM	0.409	A	0.429	A	0.429	A	0.020	--	0.000	--
Boulevard	Construction PM	0.715	C	0.750	C	0.760	C	0.045	Yes	0.010	--
114.[5] Sepulveda Boulevard and Manchester	Construction AM	0.501	A	0.515	A	0.515	A	0.014	--	0.000	--
Avenue	Construction PM	0.877	D	0.902	E	0.937	E	0.060	Yes	0.035	Yes
123. Westchester Parkway and Pershing Drive	Construction AM	0.212	A	0.228	A	0.429	A	0.217	--	0.201	--
	Construction PM	0.255	A	0.269	A	0.486	A	0.231	--	0.217	--
135.[5] Sepulveda Boulevard and Westchester	Construction AM	0.331	A	0.351	A	0.351	A	0.020	--	0.000	--
Parkway	Construction PM	0.636	B	0.644	B	0.668	B	0.032	--	0.024	--
136.[5] Sepulveda Boulevard and 76th/77th	Construction AM	0.510	A	0.531	A	0.531	A	0.021	--	0.000	--
Street	Construction PM	0.552	A	0.552	A	0.556	A	0.004	--	0.004	--
137. Sepulveda Boulevard and 79th/80th	Construction AM	0.421	A	0.441	A	0.441	A	0.020	--	0.000	--
Street	Construction PM	0.508	A	0.533	A	0.541	A	0.033	--	0.008	--
138. Sepulveda Boulevard and 83rd Street	Construction AM	0.308	A	0.323	A	0.323	A	0.015	--	0.000	--
	Construction PM	0.459	A	0.481	A	0.489	A	0.030	--	0.008	--
1000 La Cienega Boulevard and 104th Street	Construction AM	0.154	A	0.156	A	0.160	A	0.006	--	0.004	--
.	Construction PM	0.356	A	0.373	A	0.374	A	0.018	--	0.001	--

1 The hours of analysis include the construction a.m. peak (6:00 a.m. - 7:00 a.m.) and the construction p.m. peak (3:30 p.m. - 4:30 p.m.).
2 Volume to capacity ratio. Includes an LADOT ATSAC benefit applied at each intersection with the exception of intersections #39 and #75, which are not a part of the LADOT system
3 Level of Service range: A (excellent) to F (failure).
4 -- Indicates "No Impact"
5 The Bradley West Project With and Without Project scenarios level of service were calculated to include the widening of Sepulveda Boulevard that was completed subsequent to publication of the NOP for the Bradley West Project Draft EIR.

Source: Ricondo & Associates, Inc., using TRAFFIX, 2009.

Table 4.3-16

Level of Service Analysis Results - Impact Comparison 2 Cumulative Traffic (Scenario 4, Fourth Quarter 2010)

			Baseline (2008) [A]		Bradley West Project Peak (Q4 2010) Without Project [B]		Bradley West Project Peak (Q4 2010) With Project[1] [C]		Cumulative Impact Determination [C]-[A]		Cumulative Considerable Determination/Significant Impact [C]-[B]	
	Intersection	Peak Hour[1]	V/C[2]	LOS[3]	V/C[2]	LOS[3]	V/C[2]	LOS[3]	Change in V/C	Cumulative Impact?	Change in V/C	Cumulatively Considerable Contribution?
14.	Aviation Boulevard and Century	Construction AM	0.469	A	0.522	A	0.522	A	0.053	--	0.000	--[4]
	Boulevard	Construction PM	0.757	C	0.815	D	0.827	D	0.070	Yes	0.012	--
16.	Imperial Highway and Aviation	Construction AM	0.523	A	0.591	A	0.635	B	0.112	--	0.044	--
	Boulevard	Construction PM	0.667	B	0.729	C	0.760	C	0.093	Yes	0.031	--
19.	Aviation Boulevard and 111th	Construction AM	0.353	A	0.397	A	0.443	A	0.090	--	0.046	--
	Street	Construction PM	0.488	A	0.531	A	0.577	A	0.089	--	0.046	--
36.	La Cienega Boulevard and	Construction AM	0.392	A	0.415	A	0.415	A	0.023	--	0.000	--
	Century Boulevard	Construction PM	0.910	E	0.958	E	0.986	E	0.076	Yes	0.028	Yes
39.	Century Boulevard and I-405	Construction AM	0.514	A	0.540	A	0.546	A	0.032	--	0.006	--
	Northbound Ramp	Construction PM	0.548	A	0.574	A	0.579	A	0.031	--	0.005	--
47.	Imperial Highway and Douglas	Construction AM	0.155	A	0.174	A	0.204	A	0.049	--	0.030	--
	Street	Construction PM	0.412	A	0.439	A	0.469	A	0.057	--	0.030	--
65.	Sepulveda Boulevard and Howard	Construction AM	0.256	A	0.269	A	0.269	A	0.013	--	0.000	--
	Hughes Parkway	Construction PM	0.643	B	0.672	B	0.676	B	0.033	--	0.004	--
67.	Imperial Highway and La Cienega	Construction AM	0.220	A	0.242	A	0.280	A	0.060	--	0.038	--
	Boulevard	Construction PM	0.568	A	0.605	B	0.637	B	0.069	--	0.032	--
68.	Imperial Highway and Main Street	Construction AM	0.405	A	0.426	A	0.445	A	0.040	--	0.019	--
		Construction PM	0.716	C	0.801	D	0.881	D	0.165	Yes	0.080	Yes
69.	Imperial Highway and Pershing	Construction AM	0.481	A	0.537	A	0.702	C	0.221	Yes	0.165	Yes
	Drive	Construction PM	0.434	A	0.472	A	0.518	A	0.084	--	0.046	--
71.	Imperial Highway and Sepulveda	Construction AM	0.509	A	0.533	A	0.551	A	0.042	--	0.018	--
	Boulevard	Construction PM	1.185	F	1.237	F	1.241	F	0.056	Yes	0.004	--
73.	Imperial Highway and Nash Street	Construction AM	0.377	A	0.395	A	0.527	A	0.150	--	0.132	--
		Construction PM	0.300	A	0.324	A	0.353	A	0.053	--	0.029	--
74.	Imperial Highway and I-105 Ramp	Construction AM	0.533	A	0.586	A	0.623	B	0.090	--	0.037	--
		Construction PM	0.541	A	0.580	A	0.662	B	0.121	--	0.082	--
75.	Imperial Highway and I-405	Construction AM	0.246	A	0.280	A	0.345	A	0.099	--	0.065	--
	Northbound Ramp	Construction PM	0.554	A	0.589	A	0.622	B	0.068	--	0.033	--
89.	La Cienega Boulevard and Lennox	Construction AM	0.224	A	0.236	A	0.236	A	0.012	--	0.000	--
	Boulevard	Construction PM	0.408	A	0.427	A	0.427	A	0.019	--	0.000	--
94.	La Cienega Boulevard and 111th	Construction AM	0.122	A	0.130	A	0.318	A	0.196	--	0.188	--
	Street	Construction PM	0.363	A	0.381	A	0.607	B	0.244	--	0.226	--
96.	La Cienega Blvd. & I-405 South-	Construction AM	0.442	A	0.481	A	0.520	A	0.078	--	0.039	--
	bound Ramps North of Century	Construction PM	0.560	A	0.597	A	0.616	B	0.056	--	0.019	--

Table 4.3-16

Level of Service Analysis Results - Impact Comparison 2 Cumulative Traffic (Scenario 4, Fourth Quarter 2010)

		Baseline (2008) [A]		Bradley West Project Peak (Q4 2010) Without Project [B]		Bradley West Project Peak (Q4 2010) With Project[1] [C]		Cumulative Impact Determination [C]-[A]		Cumulative Considerable Determination/Significant Impact [C]-[B]	
Intersection	Peak Hour[1]	V/C[2]	LOS[3]	V/C[2]	LOS[3]	V/C[2]	LOS[3]	Change in V/C	Cumulative Impact?	Change in V/C	Cumulatively Considerable Contribution?
97. La Cienega Blvd. & I-405 South-	Construction AM	0.238	A	0.250	A	0.250	A	0.012	--	0.000	--
bound Ramps South of Century	Construction PM	0.424	A	0.458	A	0.499	A	0.075	--	0.041	--
98. La Cienega Blvd. & I-405 South-	Construction AM	0.173	A	0.182	A	0.182	A	0.009	--	0.000	--
bound Ramps North of Imperial	Construction PM	0.279	A	0.292	A	0.292	A	0.013	--	0.000	--
101.[5] Sepulveda Boulevard and La	Construction AM	0.377	A	0.377	A	0.377	A	0.000	--	0.000	--
Tijera Boulevard	Construction PM	0.663	B	0.663	B	0.666	B	0.003	--	0.003	--
108. Sepulveda Boulevard and Lincoln	Construction AM	0.409	A	0.429	A	0.429	A	0.020	--	0.000	--
Boulevard	Construction PM	0.715	C	0.750	C	0.757	C	0.042	Yes	0.007	--
114.[5] Sepulveda Boulevard and	Construction AM	0.501	A	0.515	A	0.515	A	0.014	--	0.000	--
Manchester Avenue	Construction PM	0.877	D	0.902	E	0.927	E	0.050	Yes	0.025	Yes
123. Westchester Parkway and	Construction AM	0.212	A	0.228	A	0.322	A	0.110	--	0.094	--
Pershing Drive	Construction PM	0.255	A	0.269	A	0.398	A	0.143	--	0.129	--
135.[5] Sepulveda Boulevard and	Construction AM	0.331	A	0.351	A	0.351	A	0.020	--	0.000	--
Westchester Parkway	Construction PM	0.636	B	0.644	B	0.652	B	0.016	--	0.008	--
136.[5] Sepulveda Boulevard and	Construction AM	0.510	A	0.531	A	0.531	A	0.021	--	0.000	--
76th/77th Street	Construction PM	0.552	A	0.552	A	0.552	A	0.000	--	0.000	--
137. Sepulveda Boulevard and	Construction AM	0.421	A	0.441	A	0.441	A	0.020	--	0.000	--
79th/80th Street	Construction PM	0.508	A	0.533	A	0.539	A	0.031	--	0.006	--
138. Sepulveda Boulevard and 83rd	Construction AM	0.308	A	0.323	A	0.323	A	0.015	--	0.000	--
Street	Construction PM	0.459	A	0.481	A	0.487	A	0.028	--	0.006	--
1000. La Cienega Boulevard and 104th	Construction AM	0.154	A	0.156	A	0.162	A	0.008	--	0.006	--
Street	Construction PM	0.356	A	0.373	A	0.374	A	0.018	--	0.001	--

1 The hours of analysis include the construction a.m. peak (6:00 a.m. - 7:00 a.m.) and the construction p.m. peak (3:30 p.m. - 4:30 p.m.).
2 Volume to capacity ratio. Includes an LADOT ATSAC benefit applied at each intersection with the exception of intersections #39 and #75, which are not a part of the LADOT system
3 Level of Service range: A (excellent) to F (failure).
4 -- Indicates "No Impact"
5 The Bradley West Project With and Without Project scenarios level of service were calculated to include the widening of Sepulveda Boulevard that was completed subsequent to publication of the NOP for the Bradley West Project Draft EIR.

Source: Ricondo & Associates, Inc., using TRAFFIX, 2009.

Table 4.3-17

Level of Service Analysis Results Summary

Intersection	Peak Hour[1]	Impact Comparison 1 Baseline (2008) Compared to Baseline (2008) + Project Scenario				Impact Comparison 2 Cumulative Traffic at Bradley West Project Peak (Cumulative Considerable Determination, 4th Quarter 2010)	
		Scenario 1[2]	Scenario 2[3]	Scenario 3[4]	Scenario 4[5]	Scenario 3[4]	Scenario 4[5]
36. La Cienega Blvd and Century Blvd	Construction AM	--[6]	--	--	--	--	--
	Construction PM	Yes	Yes	Yes	Yes	Yes	Yes
68. Imperial Highway and Main Street	Construction AM	--	--	--	--	--	--
	Construction PM	Yes	--	Yes	Yes	Yes	Yes
69. Imperial Highway and Pershing Drive	Construction AM	Yes	--	Yes	--	Yes	Yes
	Construction PM	--	--	--	--	--	--
114. Sepulveda Blvd and Manchester Ave	Construction AM	--	--	--	--	--	--
	Construction PM	Yes	--	Yes	Yes	Yes	Yes

1 The hours of analysis include the construction a.m. peak (6:00 a.m. - 7:00 a.m.), and the construction p.m. peak (3:30 p.m. - 4:30 p.m.).
2 Scenario 1: 601 trips allocated to the Northwest Parking Area (located on Westchester Parkway at Pershing Drive).
3 Scenario 2: 601 trips allocated to the Southeast Parking Area (located on La Cienega Boulevard at Lennox Boulevard).
4 Scenario 3: 357 trips allocated to the Southeast Parking Area (located at Continental City) and 601 trips allocated to the Northwest Parking Area.
5 Scenario 4: 601 trips allocated to the Southeast Parking Area (located at Continental City) and 357 trips allocated to the Northwest Parking Area.
6 -- Indicates "No Impact"

Source: Ricondo & Associates, Inc., 2009.

4.3.9 Mitigation Measures

As described above in the impact discussions in Sections 4.3.8.1 and 4.3.8.2, the Bradley West Project would result in significant construction traffic-related impacts. Given the dynamic nature of the construction program, LAWA has performed a worst-case analysis to identify the collective impacts associated with operating construction employee parking from one and a combination of four employee parking areas described previously within the four scenarios. In order to maintain future flexibility in the construction program, LAWA developed a mitigation program that, if implemented, would mitigate construction impacts at some of the impacted intersections when operating from any of the four scenarios in accordance with the assumptions described previously. In essence, this program is intended to mitigate impacts at these intersections in order to maintain this necessary flexibility that would allow LAWA to use the identified construction employee lots either individually or collectively over the course of the construction program.

In developing the proposed mitigation program, LAWA evaluated possible improvements that could be made at each of the significantly impacted intersections. In some cases, it was determined that the improvements would not be feasible to implement and that the impact would be significant and unavoidable. In other cases, it would be feasible to implement the mitigation under consideration. The discussion below presents both those improvements that were considered but determined to be infeasible, as well as those improvements that would be feasible and are thereby included in the recommended mitigation program. The existing and potential future lane geometry for each intersection is depicted in **Figure 4.3-7**. This figure depicts the future lane geometry with the feasible improvements that were considered for each intersection.

Intersection Improvements Considered but Determined to be Infeasible

The following improvements were identified at the intersections that were anticipated to be significantly impacted by construction-related traffic generated by the Bradley West Project, but were determined to be infeasible to implement. For each intersection, the improvement is described, as is the reason it is not considered to be feasible to implement.

- **La Cienega Boulevard and Century Boulevard (Intersection #36)**

  To mitigate the anticipated impacts, the landscaped median on eastbound Century Boulevard west of La Cienega Boulevard could be removed to accommodate an additional right-turn lane on the west leg of the intersection. The westbound approach could be restriped to provide one left-turn lane, three through lanes, and a right-turn lane. Existing roadway widths and right-of-way constraints do not allow for the proposed lane reconfiguration at this intersection without demolition of the landscaped median installed by the City of Los Angeles that reduced the capacity of the eastbound approach by converting the dual eastbound right-turn lane to a single right-turn lane. Therefore, the impact is considered significant and unavoidable due to physical constraints in place and given that the short-term nature of the impact would not justify the removal of the landscaped median.

- **Sepulveda Boulevard and Manchester Avenue (Intersection #114)**

  To mitigate the anticipated impacts to this intersection, the southbound approach could be widened to provide an additional left turn lane. The resulting southbound lane geometry would consist of a dual left-turn lane, three through lanes, and a single right-turn lane. However, this improvement is considered infeasible due to right-of-way constraints on the northwest corner associated with widening the southbound approach. This intersection would therefore remain unmitigated and the impact is considered significant and unavoidable.

Intersection Improvements Determined to be Feasible

The following improvements were identified at the intersections that were anticipated to be significantly impacted by construction-related traffic generated by the Bradley West Project, and were determined to be feasible to implement.

- **Imperial Highway and Main Street (Intersection #68)**

  To mitigate construction-related impacts at this intersection, the median island on the east leg of the intersection would be modified to provide a second left turn lane. The resulting westbound configuration would be comprised of a dual left-turn lane and two through lanes. Implementation of this mitigation measure would reduce the impact to a less-than-significant level for all scenarios and all impact comparisons.

- **Imperial Highway and Pershing Drive (Intersection #69)**

  To mitigate construction-related impacts to this intersection, the north side of the westbound approach of Imperial Highway would be widened to provide a second right-turn lane. The resulting westbound lane configuration would be comprised of one left turn lane, two through lanes, and two right turn lanes. Implementation of this mitigation measure would reduce the impact to a less-than-significant level for all scenarios and all impact comparisons.

Recommended Mitigation Program

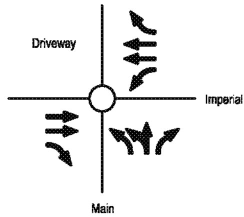
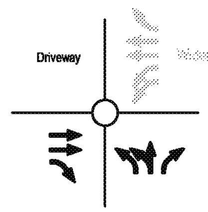
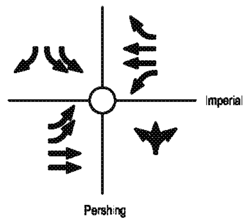
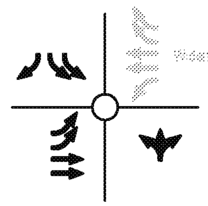
Based on the information provided above, the following mitigation measures are proposed to address construction-related surface transportation impacts associated with the Bradley West Project. As stated in Section 4.3.8.2 above, neither of these mitigation measures would be needed under employee parking Scenario 2.

- **MM-ST (BWP)-10. Modify the Intersection of Imperial Highway and Main Street (Intersection #68).**

  Modify the median island on the east leg of the intersection to provide a second left turn lane. The resulting westbound configuration would be comprised of a dual left-turn lane and two through lanes.

- **MM-ST (BWP)-11. Modify the Intersection of Imperial Highway and Pershing Drive (Intersection #69).**

  Widen the north side of the westbound approach of Imperial Highway to provide a second right-turn lane. The resulting westbound lane configuration would be comprised of one left turn lane, two through lanes, and two right turn lanes.

	BASELINE CONDITIONS (YEAR 2008)	FUTURE CONDITION WITH MITIGATION
68. Imperial Hwy. & Main St.		
69. Imperial Hwy. & Pershing Dr.		

north

Source: Ricondo & Associates, Inc., March 2009.
Prepared by: Ricondo & Associates,Inc., March 2009.

Legend

○ Signalized Intersection

LAX Bradley West Project Draft EIR

Lane Configurations at Mitigated Intersections

Figure **4.3-7**

4.3.10 Level of Significance After Mitigation

Table 4.3-18 summarizes the final LOS if all the potential intersection improvements identified in Section 4.3.9 were feasible to implement. Although not summarized in the table, the improvements, if implemented, would also address the project impacts associated with the Baseline (2008) Plus Project compared with the Baseline (2008) condition. This is because the future With Project condition compared with the Without Project condition, which is used to assess whether the impact is cumulatively considerable (and therefore an impact) is a more conservative analysis than the Baseline Plus Project compared with the Baseline, which is used to assess project impacts. It is more conservative because the difference in traffic activity which determines an impact for both comparisons is comprised of the same "project" volume distributed throughout the study area network in the same manner for both comparisons; however, the Baseline condition used in the cumulative analysis is of a greater magnitude which results in a lower tolerance for adding project traffic before an impact would occur.

As noted in Section 4.3.9, it is likely that physical constraints adjacent to two impacted intersections, La Cienega Boulevard and Century Boulevard (Intersection #36) and Sepulveda Boulevard and Manchester Avenue (Intersection #114), would render the improvements identified in Section 4.3.9 infeasible. As a result, impacts to these intersections would be significant and unavoidable.

With the implementation of Mitigation Measures MM-ST (BWP)-10 and MM-ST (BWP)-11, project and cumulative construction-related impacts to the intersections of Imperial Highway and Main Street (Intersection #68) and Imperial Highway and Pershing Drive (Intersection #69) would be less than significant. However, the improvements identified for the intersections at La Cienega Boulevard and Century Boulevard (Intersection #36) and Sepulveda Boulevard and Manchester Avenue (#114) were determined to be infeasible; therefore, the impacts associated with these two intersections would remain significant and unavoidable. The final LOS after implementing the recommended transportation mitigation plan, which includes only feasible mitigation measures, is summarized in **Table 4.3-19**. Except for Intersections #68 and #69, all significant impacts identified in Section 4.3.8 would remain significant and unavoidable for both Scenario 3 and Scenario 4.

Table 4.3-18

Level of Service With Potential Intersection Improvements

Intersection Number	Peak Hour	Intersection	Improvements	Affected Scenario	2010 Without Project (Without Improvements) V/C	2010 Without Project (Without Improvements) LOS	2010 With Project (Without Improvements) V/C	2010 With Project (Without Improvements) LOS	2010 With Project (With Improvements) V/C	2010 With Project (With Improvements) LOS	Significance Impact with Improvements?
#36	PM	La Cienega and Century	Improvements for this impact would involve 1) widening Century to the south for the addition of a right-turn lane on the west leg of the intersection and 2) restriping the WB approach with a resulting lane configuration of WB - 1 LT, 3 TH, 1 RT.[2]	Scenario 3	0.958	E	0.973	E	0.787	C[1]	NA[1]
				Scenario 4	0.958	E	0.986	E	0.800	C[1]	NA[1]
#68	PM	Imperial and Main	Mitigation for this impact involves narrowing the median island on the east leg of the intersection for the addition of a second left-turn lane.	Scenario 3	0.801	D	0.921	E	0.774	C	No
				Scenario 4	0.801	D	0.881	D	0.732	C	No
#69	AM	Imperial and Pershing	Mitigation for this impact involves widening Imperial to the north for the addition of a right-turn lane on the east leg of the intersection. Resulting lane configuration is WB - 1 LT, 2 TH, 2 RT.	Scenario 3	0.537	A	0.782	C	0.244	A	No
				Scenario 4	0.537	A	0.702	C	0.248	A	No
#114	PM	Sepulveda and Manchester	Improvements for this impact would involve widening Sepulveda to the west for the addition of a left-turn lane on the north leg of the intersection.	Scenario 3	0.902	E	0.937	E	0.856	D[1]	NA[1]
				Scenario 4	0.902	E	0.927	E	0.846	D[1]	NA[1]

1 Although potential intersection improvements would reduce the impacts at this intersection, the improvements are not considered to be feasible.
2 WB = westbound, LT - left-turn lane, TH = through lane, RT = right-turn lane

Source: Ricondo & Associates, Inc., using TRAFFIX, 2009.

Table 4.3-19

Construction-Related Impacts With Mitigation

Intersection Number	Peak Hour	Intersection	Affected Scenario	2010 Without Project V/C	2010 Without Project LOS	2010 With Project V/C	2010 With Project LOS	Significant Impact?
#36	PM	La Cienega and Century	Scenario 3	0.958	E	0.973	E	Yes
			Scenario 4	0.958	E	0.986	E	
#68	PM	Imperial and Main	Scenario 3	0.801	D	0.774	C	No
			Scenario 4	0.801	D	0.732	C	
#69	AM	Imperial and Pershing	Scenario 3	0.537	A	0.244	A	No
			Scenario 4	0.537	A	0.248	A	
#114	PM	Sepulveda and Manchester	Scenario 3	0.902	E	0.937	E	Yes
			Scenario 4	0.902	E	0.927	E	

Source: Ricondo & Associates, Inc., using TRAFFIX, 2009.

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Draft Environmental Impact Report
(Draft EIR)

[State Clearinghouse No. 2008121080]

for

Los Angeles International Airport (LAX)
Bradley West Project

(formerly Los Angeles International Airport [LAX] Tom Bradley International Terminal [TBIT] Reconfiguration Project)

Volume 2

Main Document

City of Los Angeles
Los Angeles City File No. AD 043-08

May 2009

BRADLEY WEST PROJECT

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City of Los Angeles
Los Angeles City File No. AD 043-08

May 2009

Los Angeles World Airports (LAWA) has prepared this project-level draft environmental impact report (Draft EIR) for the Bradley West Project pursuant to the California Environmental Quality Act (CEQA). The Bradley West Project 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 Bradley West Project Draft EIR is "tiered" from, and incorporates by reference, 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 public agencies, decision makers, and interested parties to evaluate the Bradley West Project 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 later EIRs (such as this Draft EIR) on issues that may have not 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 individual projects encompassed within the Master Plan, such as the improvements currently proposed for the Bradley West Project. 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, and it focuses on those effects not previously considered in the Master Plan EIR. For this reason, much of the information related to the Bradley West Project improvements contained in the LAX Master Plan EIR is not repeated in this Draft EIR. However, a brief summary of each of the areas covered in the LAX Master Plan Final EIR has been provided in this project level Draft EIR, along with 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 written comments on this Draft EIR during the 45-day public comment period, which expires on June 22, 2009. LAWA will then prepare written responses to all comments received on issues pertinent to the Draft EIR during the comment period. Those responses, along with a copy of the comments received, will be published in a Final EIR. LAWA, the Los Angeles Board of Airport Commissioners, and other decision-makers will use the Final EIR to inform their decisions on the Bradley West Project, as CEQA requires.

4.4 Air Quality

4.4.1 Introduction

The LAX Master Plan Final EIR analyzed future air pollutant emissions and proposed mitigation measures to address potential Master Plan-related programmatic 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 primary purpose of this air quality analysis is to examine, at a greater level of detail, potential air quality impacts associated specifically with the construction of the Bradley West Project. As described in Section 1.2.3, this EIR for the Bradley West Project tiers from the analysis and findings documented in the LAX Master Plan Final EIR. This analysis has been further refined to incorporate detailed project-related assumptions regarding construction equipment that would be utilized and airport activity levels during the construction of the Bradley West Project.

The air quality analysis conducted for the Bradley West Project addresses emissions from construction activities (e.g., on-site and off-site construction equipment, fugitive dust, and worker vehicle trips) that would occur during the temporary construction period. The analysis describes anticipated conditions during the approximately 5 years of proposed construction activities.

Although the LAX Master Plan Final EIR analyzed future operational impacts, several operational sources are included in this Bradley West Project air quality analysis. The sources included are those that would have different operating characteristics after completion of the Bradley West Project than after full implementation of the LAX Master Plan. Specifically, the gates at the West Remote Pads would continue to be utilized after completion of the Bradley West Project, although at a much lower level than without the project. These gates would be taken out of service after full buildout of the LAX Master Plan. In addition, heating and cooling capacity would be added to TBIT as part of the project to address the incremental demand specific to the Bradley West Project. Finally, the Master Plan analysis assumed that ground access vehicles would enter a ground transportation center (GTC) to the east of the airport and passengers would then be transported by alternate modes into the Central Terminal Area (CTA). This GTC is not anticipated to be constructed by 2013 when the main Bradley West Project improvements are in place. Therefore, operational emissions associated with aircraft activity on the ground at LAX and transporting passengers between TBIT and the gates at the West Remote Pads, with off-airport ground access regional vehicle traffic, and with the heating and cooling units at TBIT were analyzed for 2013 with and without the project as well as for 2008 baseline conditions. The operational impacts for air quality are quantified in terms of criteria pollutant emissions listed in Section 4.4.6.2 below, and in terms of greenhouse gas reductions discussed in Section 4.6, *Global Climate Change*, of this EIR.

The criteria pollutant emission inventories were developed using standard industry software/models and federal, state, and locally approved methodologies. Results of the emission 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 (Basin).[96]

4.4.1.1 Pollutants of Interest

Six criteria pollutants were evaluated for the Bradley West Project including sulfur dioxide (SO_2), carbon monoxide (CO), particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM10), particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (PM2.5), nitrogen dioxide (NO_2), and ozone (O_3) using as surrogates volatile organic compounds (VOC)[97] and oxides of nitrogen (NO_x). These pollutants were analyzed because they were shown to have significant

96 South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993; as updated by "SCAQMD Air Quality Significance Thresholds," July 2008, Available: http://www.aqmd.gov/CEQA/handbook/signthres.pdf.

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

impacts in the air quality analysis documented in Section 4.6 of the LAX Master Plan Final EIR. Although lead (Pb) is a criteria pollutant, it was not evaluated in this EIR because construction of the Bradley West Project would have a negligible impact on lead emissions in the Basin.

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

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 VOCs and NO_x reacting in the presence of sunlight in the atmosphere. Ozone levels are highest in warm-weather months. VOCs and NO_x are termed "ozone precursors" and their emissions are regulated in order to control the creation of 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.

Carbon Monoxide (CO)

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

Particulate Matter (PM10) and Fine Particulate Matter (PM2.5)

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. PM10 refers to particulate matter with an aerodynamic diameter less than or equal to 10 micrometers and PM2.5 refers to particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers. Particles smaller than 10 micrometers (i.e., PM10 and PM2.5) represent that portion of particulate matter thought to represent the greatest hazard to public health.[98] PM10 and PM2.5 can accumulate in the respiratory system and are associated with a variety of negative health effects. Exposure to particulate matter 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 adverse health 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 fuel combustion, automobile exhaust, field burning, factories, and vehicle movement or other man-made disturbances of unpaved areas. Secondary formation of particulate matter may occur in some cases where gases such as sulfur oxides (SO_x) and NO_x interact with other compounds in the air to form particulate matter. In the Basin, both VOCs and ammonia are also considered precursors to PM2.5. Fugitive dust generated by construction activities is a major source of suspended particulate matter.

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[98] U.S. Environmental Protection Agency, Particle Pollution and Your Health, September 2003.

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.

Nitrogen Dioxide (NO_2)

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

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

Sulfur Dioxide (SO_2)

Sulfur oxides are formed when fuel containing sulfur (typically, coal and oil) is burned, and during other industrial processes. The term "sulfur oxides" (SO_x) accounts for distinct but related compounds, primarily sulfur dioxide (SO_2) and sulfur trioxide (SO_3). As a conservative assumption for this analysis, it was assumed that all SO_x is emitted as SO_2, therefore SO_x and SO_2 are considered equivalent in this document. Higher SO_2 concentrations are found in the vicinity of large industrial facilities than elsewhere. 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.

4.4.1.2 Scope of Analysis

As discussed above, the air quality analysis conducted for the Bradley West Project addresses construction-related impacts for the approximately 5 years of proposed construction activities. The basic steps involved in performing the analysis are listed below.

Construction:

- Identify Bradley West Project construction-related emissions sources.
- Develop annual, quarterly, and peak daily construction emissions inventories.
- Compare emissions inventories with appropriate CEQA thresholds for construction.
- Conduct dispersion modeling for the peak year of project construction emissions.
- Obtain background concentration data from SCAQMD and estimate future concentrations with the Bradley West Project.
- Identify potential construction-related mitigation measures beyond LAX Master Plan commitments and mitigation measures (if required).

Operations:

- Identify operational emission sources potentially affected by the Bradley West Project.
- Develop annual and peak daily operational emissions inventories for the identified sources.
- Compare emissions inventories with the appropriate CEQA thresholds for operations.

4.4.2 Methodology

The air quality assessment for the Bradley West Project was conducted in accordance with Federal Aviation Administrative (FAA) guidelines[99,100,101] for assessing environmental impacts and the SCAQMD's 1993 *CEQA Air Quality Handbook*.[102] The details of emission estimating and modeling used in this evaluation are consistent with those used in the preparation of the LAX Master Plan Final EIR, the Final General Conformity Determination,[103] the Final EIR for the South Airfield Improvement Project (SAIP),[104] and the Final EIR for the Crossfield Taxiway Project (CFTP).[105] The following methodology discussion is designed to supplement the methodology discussions provided in Appendix F-B of the LAX Master Plan Final EIR, Appendix B of the Final General Conformity Determination, Appendix K of the SAIP Final EIR, and Appendix C of the CFTP Final EIR.

4.4.2.1 Construction

Annual, quarterly, and peak daily air pollutant emissions inventories were developed for the Bradley West Project for the construction-related activities. Emissions estimates for CO, VOC, NO_x, SO_2, PM10, and PM2.5 were developed for off-road construction equipment, on-road on-site construction equipment, and on-road off-site construction equipment. Emissions from off-road devices and on-road equipment (tractor trailers, light duty trucks, employee vehicles, etc., which can travel on highways and local roads) were evaluated separately to account for the California Air Resources Board's (CARB's) published emissions factors for both categories of equipment. Fugitive dust emissions resulting from excavation, wind erosion of dirt piles, rock crushing operations, and dust entrainment from 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 activity schedules were developed by the LAX Development Program Team. Daily estimates of equipment usage (in hours) were also developed for specific construction activities and crews (e.g., demolition, earthwork, and pavement).

Annual, quarterly, and peak daily emissions estimates were developed for the construction period based on the numbers and types of construction equipment expected to be used each day of the project and the proposed construction schedule. Peak-day emissions estimates were developed for each construction quarter.

Emissions estimates for Bradley West Project construction activities included the application of emission reduction measures required by the LAX Master Plan Final EIR and SCAQMD rules, as well as additional control measures set forth in the LAX Master Plan Community Benefits Agreement. These measures are applicable to PM10 and PM2.5 emissions and to a lesser degree to NO_x emissions. The reductions of PM10 and PM2.5 are discussed in Section 4.4.5 below and shown in Appendix E of this EIR. Due to the uncertainty regarding the compatibility of NO_x control devices in the listed off-road diesel construction equipment, no reduction of NO_x has been assumed in this analysis.

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99 U.S. Department of Transportation, Federal Aviation Administration, Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, April 28, 2006.

100 U.S. Departments of Transportation, Federal Aviation Administration, Environmental Desk Reference for Airport Actions, October 2007.

101 U.S. Department of Transportation, Federal Aviation Administration, and United States Air Force, Air Quality Procedures for Civilian Airports and Air Force Bases, FAA-AEE-97-03 and AL/EQ-TR-1996-0017, April 1997 and Addendum FAA-AEE-04-03, September 2004.

102 South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993, as amended.

103 U.S. Department of Transportation, Federal Aviation Administration, Clean Air Act Final General Conformity Determination, Los Angeles International Airport Proposed Master Plan Improvements Alternative D, January 2005.

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

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

Off-Road Equipment

Off-road construction equipment includes dozers, loaders, sweepers and other heavy-duty construction equipment that is not licensed for travel on public roadways. Off-road equipment types, models, and horsepower ratings were determined by the LAX Development Program Team. Emission rates, in pounds per hour (lb/hr), were obtained from the SCAQMD's CEQA website for off-road equipment operating in the Basin.[106] These emission rates were converted to emission factors by dividing the rate by the specific horsepower from the SCAQMD off-road emission rate list and load factor from the SCAQMD CEQA Handbook Table A9-8-D for each equipment type. These emission factors, in pounds per horsepower-hour (lb/hp-hr), were multiplied by the project equipment horsepower and load factor to develop project-specific emission rates for CO, VOC, NO_x, SO_2, and PM10. PM2.5 emission factors were developed using the ratio of PM2.5-to-PM10 emission factors derived from the CARB-approved California Emission Inventory Development and Reporting System (CEIDARS), Version 2.5. The emission factors used to estimate emissions for off-road construction equipment are presented in Appendix E.

Daily emissions for off-road equipment were calculated by multiplying the appropriate emission factor by the horsepower, load factor, and daily operational hours for each type of equipment. Using the resource loaded schedule equipment activity (hours per month), the peak month -average day was used to quantify peak daily emissions for off-road equipment. Annual and quarterly off-road emissions were derived from the daily emissions estimates and the project's construction schedule.

On-Road On-Site Equipment

On-road on-site equipment emissions were generated for 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 from the CARB emission factor model EMFAC2007, Version 2.3.[107] The SCAQMD-compiled EMFAC2007 factors[108] were used which incorporate the most conservative result of summer versus winter emission factors for each pollutant.

In developing these emissions factors from EMFAC2007, SCAQMD simplified the technology categories into three for use in CEQA analyses: passenger vehicles (gasoline vehicles less than 8,500 lbs), delivery trucks (gasoline vehicles greater than 8,500 lbs and less than 33,000 lbs), and heavy duty diesel trucks (diesel vehicles greater than 33,000 lbs up to 60,000 lbs).

EMFAC2007 emission factors are expressed in pounds per mile; therefore, roundtrip distances for on-site travel were determined for each category to calculate emissions in pounds per day. The EMFAC factors account for start-up, running, and idling.[109] In addition, the VOC emission factors include diurnal, hot soak, running, and resting emissions, and the PM10 and PM2.5 factors include tire and brake wear.

Annual and quarterly on-road on-site emissions were calculated from the daily emissions estimates and the project's construction schedule.

On-Road Off-Site Equipment

On-road off-site trip types identified in the construction schedule include personal vehicles used by personnel/employees and inspectors to access the construction site; deliveries of aggregate and cement for the batch plant, taxiway base material, and miscellaneous material; and hauling away of cut material

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106 South Coast Air Quality Management District, OFFROAD2007 Model and South Coast Air Basin Fleet Averages, Available: http://www.aqmd.gov/CEQA/handbook/offroad/offroad.html, accessed January 2009.

107 California Air Resources Board, Research Division, EMFAC 2007 On-Road Emissions Inventory Estimation Model, Version 2.3. 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. 73, No. 13, pp. 3464-3467, January 18, 2008.

108 South Coast Air Quality Management District, Available: http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html, accessed January, 2009.

109 California Air Resources Board, Research Division, EMFAC 2007 On-Road Emissions Inventory Estimation Model, Version 2.3 User's Guide, EMFAC calculates idling emissions for heavy duty trucks to account for unloading and loading goods. Start-up emissions are only calculated for gasoline vehicles.

unsuitable for on-site reuse, contaminated soil for disposal, demolition spoils that cannot be reused on-site, and miscellaneous material.

On-road off-site vehicle emissions were calculated by determining total vehicle miles traveled (VMT) by each type of vehicle per day. The SCAQMD EMFAC2007 emission factors (all six criteria pollutants including PM2.5) were used to calculate emissions for on-road off-site vehicles.

Total emissions for on-road off-site equipment were calculated using the same methodology assumed for on-road on-site vehicles. In general, the EMFAC2007 emissions factors were multiplied by the total VMT for each vehicle type to obtain emissions in pounds per day. Quarterly and annual emissions were then calculated using the proposed construction schedule. Data for on-road off-site vehicle emissions, VMT and emissions factors, are presented in Appendix E.

Off-Site Batching

Additional on-road off-site heavy duty diesel truck travel has been developed to estimate emissions for a scenario without an on-site concrete batch plant(s). The concrete would be brought to the site in concrete mix trucks with an assumed capacity of 12 cubic yards each. The total amount of concrete needed for the Bradley West Project was estimated to be 457,775 cubic yards, and the distance to the off-site concrete batch plants was estimated to be 20 miles one way. Therefore, over 1.5 million VMT of heavy duty diesel concrete mix truck trip emissions would be generated if concrete batching for the Bradley West Project does not occur on-site. In addition, not all of the demolition material from Bradley West Project construction could be used on-site under the off-site batch plant scenario. This unused material, which would have been processed in the on-site rock crusher(s) for use in the batch plant, would instead need to be transported to a landfill for disposal. Thus, an additional 31,000 VMT heavy duty diesel haul truck emissions would also be generated under the off-site batch plant scenario. These emissions were calculated using the SCAQMD-developed EMFAC2007 emission factors for heavy duty diesel trucks.

Fugitive Dust

Additional sources of PM10 and PM2.5 emissions associated with construction activities are related to fugitive dust. Fugitive dust includes entrained road dust from both off- and on-road vehicles, as well as dust from grading, loading and unloading, hauling and storage activities. Fugitive dust emissions (PM10 and PM2.5) were calculated using the URBEMIS model,[110] USEPA's AP-42,[111] and SCAQMD's CEQA Air Quality Handbook. Daily fugitive dust emissions were calculated for each piece of construction equipment or construction activity, from which annual, quarterly and peak day fugitive dust emissions were determined.

Fugitive dust emissions for vehicles traveling on paved roads were calculated using the paved road dust factor for high average daily trip (ADT) roads under average conditions developed by Midwest Research Institute (MRI).[112] All haul trucks, flatbed trucks and automobiles were assumed to travel on paved roads.

Fugitive dust emissions from on-site construction activities (grading, crushing, loading, hauling, and storage) were calculated from the AP-42 and URBEMIS. The grading, loading, and hauling (on-site) emissions are implicitly included in the URBEMIS 9.2.4 model which was used to estimate grading, loading, and demolition material hauling emissions.

Fugitive dust emissions associated with the operation of an on-site 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

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110 Jones and Stokes, Associates, Software User's Guide: URBEMIS2007 for Windows Version 9.2 - Emissions Estimation for Land Use Development Projects, prepared on behalf of South Coast Air Quality Management District, November 2007.

111 U.S. Environmental Protection Agency, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition (AP-42), Available: http://www.epa.gov/ttn/chief/ap42/index.html, accessed January 2009.

112 South Coast Air Quality Management District, Improvement of Specific Emission Factors (BACM Project No. 1) Final Report, prepared by Midwest Research Institute, March 29, 1996.

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 summing emission factors for the following crushing activities: tertiary crushing, fines crushing, and screening. 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. The batch plant was assumed to operate using a central mix method. Emissions from storage piles in the staging area were calculated using USEPA methodology[113] with parameters from SCAQMD's CEQA Handbook, Table A9-9-E.

Paving and Painting

Construction materials that can be sources of VOC emissions include hot-mix asphalt paving, runway/taxiway striping, and architectural coating. 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 were calculated using the SCAQMD recommended approach included in the URBEMIS model. The URBEMIS model is recommended by SCAQMD for estimation of construction and operation emissions from land use development projects.

VOC emissions from paint striping were calculated based on the project's maximum daily paint usage of 175 gallons, a worst-case paint VOC content of 100 grams per liter,[114] and the proposed construction schedule. VOC emissions from architectural coating were calculated using URBEMIS.

Dispersion Modeling Methodology

Air dispersion modeling was used to predict pollutant concentrations in the vicinity of the airport from construction emissions in the peak year of construction. The USEPA AERMOD[115] dispersion model was used to conduct this analysis.[116] Pollutant concentrations were calculated for criteria pollutants which exceeded the SCAQMD thresholds for peak daily or peak quarterly construction emissions. Therefore, pollutant concentrations were calculated for CO, NO_X, SO_X, PM10, and PM2.5.

A series of receptors[117] surrounding the airport at the fenceline were established to conservatively calculate concentration from Bradley West Project construction activities. In addition, receptors were located downwind in the prevailing wind direction and in the CTA. The receptor locations near the fenceline are generally the closest locations with unrestricted access to airport emission sources. Modeled concentrations at these locations would therefore be higher than concentrations modeled farther away from the airport. This was confirmed by the downwind community site receptors. The area that encompasses the Bradley West Project sources and receptors is relatively flat; therefore the flat terrain option was used in the modeling analysis.

The averaging periods selected in AERMOD for each pollutant were based on the Basin's attainment status and averaging periods in the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS). In particular, 1-hour and 8-hour averages were used for CO, 1-hour and annual averages were used for NO_2, 24-hour and annual averages were used for PM10, and 24-hour averages were used for PM2.5.

To allow for consistent comparison of concentration impacts presented in the LAX Master Plan Final EIR, SAIP Final EIR, CFTP Final EIR, and this Bradley West Project EIR, the same meteorological data file

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113 U.S. Environmental Protection Agency, Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, September 1992.

114 South Coast Air Quality Management District, Rule 1113 - Architectural Coatings, Amended July 13, 2007.

115 U.S. Environmental Protection Agency, User's Guide for the AMS/EPA Regulatory Model-AERMOD, EPA-454/B-03-001, September 2004; and Addendum, December 2006.

116 The FAA requires the use of the EDMS model for analysis of aviation sources at the airport, however analysis of construction sources can be conducted using appropriate, USEAP-approved models.

117 Receptors represent locations in the vicinity of the airport where people could potentially be exposed to the Bradley West Project construction - related air pollutants by breathing the air.

used in the Master Plan, SAIP, and CFTP modeling was used in the Bradley West Project modeling to provide the meteorological input to AERMOD.

The off-road equipment used on the construction site and staging area and the on-road on-site equipment transfer and haul trucks were included in the dispersion modeling of all pollutants. The fugitive dust generated by these sources was included in the PM10 and PM2.5 analyses. **Figure 4.4-1** provides an overview of the modeled source and receptor locations. **Figure 4.4-2** provides a more detailed view of the source areas.

For the air dispersion analysis, it was assumed that the total modeled NO_x concentrations were equivalent to NO_2 concentrations at each receptor, assuming complete conversion of NO_x to NO_2. This is a highly conservative estimate for the closest receptors in the analysis since NO_x emitted from construction equipment is typically only 5 to 10 percent NO_2.

4.4.2.2 Operations

As described in Section 2.4.5 of this EIR, forecast increased demand for air travel in 2013, anticipated to occur regardless of whether the proposed project is implemented, would result in an increase in total aircraft activity and associated taxi/idle times from aircraft ground movement, an increase in bus trips involving the transfer of passengers from remote gates to the terminals, and an increase in off-airport ground access vehicle traffic.[118] Therefore, following the completion of the Bradley West Project, operational emissions from aircraft, passenger bus trips, and ground access vehicles would increase over the 2008 baseline with or without the Bradley West Project. As described further below, the only operational sources that would be directly associated with the Bradley West Project are the boilers, chillers and cooling tower (Bradley West heating and cooling utilities) that would be used to supply space and water heating and cooling in the new TBIT concourses. As described in Chapter 3 of this EIR, LAWA is proposing to replace the existing LAX Central Utility Plant (CUP), which is over 40 years old and considered to be outdated and inefficient, with a new more efficient CUP. Based on the design and efficiency of the new CUP, it is anticipated that the improved heating and cooling abilities of the CUP would be able to adequately serve TBIT, as modified by the Bradley West Project, as well as the other terminals at LAX. Replacement of the existing CUP, if approved, would eliminate the need for the heating and cooling system currently proposed specifically for the Bradley West Project. Replacement of the existing CUP facilities is proposed to occur in phases with completion in 2013. At such time, and providing the replacement CUP provides sufficient heating and cooling for the Bradley West Project, operation of the aforementioned boilers, chillers, and cooling tower would no longer be needed. This air quality impact analysis assumes, however, that once the Bradley West heating and cooling utilities are installed and brought online, they continue to operate through the end of the Bradley West Project construction period, including the period needed to complete Taxiway T. The overall operational impacts are expected to be beneficial over 2013 business-as-usual projections. The overall impact of aircraft activity growth on air quality was analyzed in the LAX Master Plan Final EIR. The only portion of aircraft activity that the Bradley West Project actually impacts is the taxi/idle time due to the additional gates at TBIT. Therefore, aircraft emissions during taxi/idle modes on the airport following completion of the project, as well as passenger bus trip emissions, the Bradley West heating and cooling utilities, and off-airport ground access vehicle traffic are the Bradley West Project operational sources analyzed for emissions.

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[118] Also described in Section 2.4.5, as well as in the introduction of Chapter 4, is the fact that the aviation activity forecast developed in mid-2008 for the Bradley West Project EIR analysis anticipated a substantial growth in passenger levels at LAX between 2008 and 2013, especially as related to international travel; however, more recent forecasts indicate a substantially lower growth rate for LAX, based on current and projected national and international economic conditions. As such, the impacts presented in this EIR, which are based on the high growth rate, are considered to be very conservative and actual impacts would likely be much less or lower.

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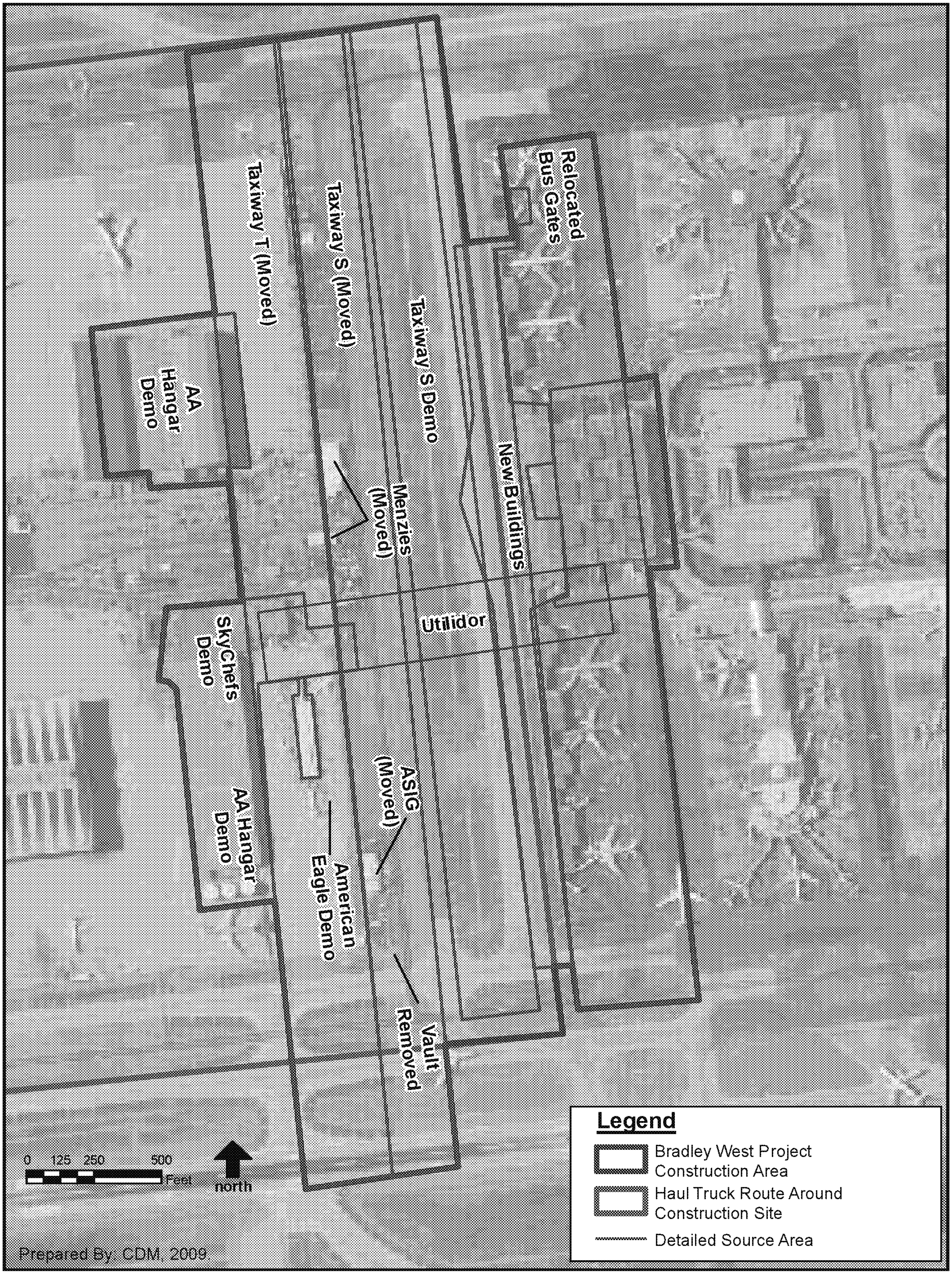
Modeled Source and Receptor Locations Construction

Figure 4.4-1



LAX Bradley West Project
Draft EIR

Bradley West Project
Construction Area
Detailed Source Areas

Figure
4.4-2

Aircraft

The aircraft types used in airport simulation modeling with and without the Bradley West Project are listed in Appendix E. The aircraft descriptions and engine assignments are based on the defaults provided in EDMS Version 5.1, and thus are not entirely identical to those used in the Master Plan analysis which was developed using EDMS Version 4.2.

The analysis of aircraft taxi/idle emissions was conducted by estimating taxi/idle times with and without the Bradley West Project using airfield simulation modeling. The resulting taxi/idle times were summarized by aircraft type (fleet mix), and emissions for the 2008 baseline year and for 2013 with and without the project were calculated using the Version 5.1 of the FAA EDMS model.[119] The incremental change in emissions with and without the Bradley West Project would be the project's operational impact on criteria pollutant emissions from aircraft.

Busing

The buses that transfer passengers from the gates at the West Remote Pads to TBIT are expected to be impacted (reduced) by the Bradley West Project over the 2013 Without Project scenario due to the development of new contact gates on the west side of TBIT. Bus trips would increase over the 2008 baseline due to forecast increased demand for international air travel. The EMFAC2007 model for urban buses was used to obtain emission factors for criteria pollutants.

Total emissions from buses were calculated using the same methodology assumed for on-road on-site construction vehicles. The EMFAC2007 emissions factors were multiplied by the total daily busing distance to obtain emissions in pounds per day. Quarterly and annual emissions were then calculated for the 2008 baseline year and for 2013 with and without the Bradley West Project construction. Data for busing emissions, including VMT and emissions factors, are presented in Appendix E.

Bradley West Heating and Cooling Utilities

As the Bradley West Project concourses are completed and brought online, the space and water heating and cooling demand may be greater than can be supplied by the existing CUP in its current configuration. The existing CUP is over 40 years old and is considered to be outdated and inefficient, currently being unable to providing heating and cooling at its design capacity. It is anticipated that the improved efficiency and design of the new, replacement CUP facilities (see Chapter 3 of this EIR) would have sufficient capacity to meet the heating and cooling requirements of all existing terminals at LAX as well as that of the Bradley West Project. In such case, operation of the proposed Bradley West heating and cooling utilities would no longer be needed. This Bradley West Project EIR assumes, however, that operation of the subject heating and cooling utilities continues indefinitely into the future. For purposes of the air quality impacts analysis, it is assumed that up to four small (less than 2 million British thermal units (Btu) per hour) natural gas boilers, up to seven chillers, and a cooling tower would be installed at TBIT to supply the utility needs until the CUP upgrades are completed. The chillers do not produce on-airport air emissions and are not included in the air quality impact analysis. The boilers and cooling tower are included in the operational emissions analysis.

Total emissions from boilers were calculated using AP-42[120] Chapter 1.4 emission factors assuming natural gas combustion in small boilers with controlled low-NO_X burners. Cooling tower emissions were calculated based on the methodology used for the LAX AQMD Title V operating permit application for the CUP and water quality data from the City of LA 2005 Water Quality Report which are attachments to LAWA's 2007-2008 Annual Emissions Report (AER) submitted to the SCAQMD.[121]

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119 U.S. Department of Transportation, Federal Aviation Administration, Emissions and Dispersion Modeling System (EDMS), Version 5.1, Available: http://www.faa.gov/about/office_org/headquarters_offices/aep/models/edms_model/, September 2008.

120 U.S. Environmental Protection Agency, Compilation of Air Pollutant Emission Factors - Volume I: Stationary Point and Area Sources, AP-42 Fifth Edition, January 1995 (including supplements through 2008), Available: http://www.epa.gov/ttn/chief/ap42/index.html, accessed January 16, 2009.

121 Los Angeles World Airports, AQMD 2007-2008 (7/1/07 - 12/31/07) Annual Emissions Report, August 26, 2008.

Off-Site Ground Access Vehicle Traffic

Increased demand for air travel will lead to increased ground access vehicle traffic including passenger, employee, and cargo delivery trips related to the Bradley West Project. As described in Section 4.2.2 of this EIR, traffic generation in terms of new vehicle trips directly associated with the proposed project would be generally limited to those resulting from additional employment within TBIT. In that regard, off-site traffic would increase slightly over the 2013 Without Project scenario.

Emissions from passenger, employee, and cargo delivery trips were calculated using Los Angeles County average fleet emission factors per mile obtained from EMFAC2007. The emission factors were multiplied by the total annual forecast VMT for the 2008 baseline year and for 2013 with and without the Bradley West Project construction.

4.4.3 Baseline Conditions

Baseline conditions for ambient air pollutant concentrations discussed herein refer to calendar year 2007, the last full calendar year for which air quality data was available from SCAQMD when the air quality analysis was prepared. The airport is located within the South Coast Air Basin of California, a 6,745 square-mile area encompassing all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties.

4.4.3.1 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.

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.

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 [mph] or 4.1 meters per second [m/s]). Maximum recorded gusts range from 27 knots (31 mph or 13.9 m/s) in July to 54 knots (62 mph or 27.8 m/s) in March. The monthly average wind speeds range from 5 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.

4.4.3.2 Regulatory Setting

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

Federal

The USEPA is responsible for implementation of the federal Clean Air Act (CAA). The CAA was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, 1990, and 1997). Under the authority granted by the CAA, USEPA has established NAAQS for the following criteria pollutants: CO, Pb, NO_2, ozone, PM10, PM2.5, and SO_2. **Table 4.4-1** presents the NAAQS that are currently in effect for criteria air pollutants. Ozone is a secondary pollutant, meaning that it is formed from reactions of "precursor" compounds under certain conditions. The primary precursor compounds that can lead to the formation of ozone include VOC and NO_X.

Table 4.4-1

National and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[2]	NAAQS[1]	
			Primary	Secondary
Ozone (O_3)	8-Hour	0.07 ppm[3] (137 µg/m^3)[4]	0.075 ppm (147 µg/m^3)	Same as Primary
	1-Hour	0.09 ppm (180 µg/m^3)	N/A[5]	N/A
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)[6]	9 ppm (10 mg/m^3)	N/A
	1-Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	N/A
Nitrogen Dioxide (NO_2)	Annual	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary
	1-Hour	0.18 ppm (339 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
Respirable Particulate Matter (PM10)	AAM[7]	20 µg/m^3	N/A	N/A
	24-Hour	50 µg/m^3	150 µg/m^3	Same as Primary
Fine Particulate Matter (PM2.5)	AAM	12 µg/m^3	15 µg/m^3	Same as Primary
	24-Hour	N/A	35 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

Table 4.4-1

National and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[2]	NAAQS[1] Primary	NAAQS[1] Secondary
Sulfates	24-Hour	25 µg/m[3]	N/A	N/A

[1] NAAQS = National Ambient Air Quality Standards
[2] CAAQS = California Ambient Air Quality Standards
[3] ppm = parts per million (by volume)
[4] µg/m³ = micrograms per cubic meter
[5] N/A = Not applicable
[6] mg/m³ = milligrams per cubic meter
[7] AAM = Annual arithmetic mean

Source: California Air Resources Board, November 17, 2008.

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

The Bradley West Project is included in the Basin, which is a sub-region of the SCAQMD's jurisdiction including all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin is designated as a federal nonattainment area for ozone, PM10, and PM2.5. Nonattainment designations under the CAA for ozone, CO, and PM10 are categorized into levels of severity based on the level of concentration above the standard, which is also used to set the required attainment date. The Basin was reclassified in 1998 to attainment/maintenance for NO_2 since concentrations of that pollutant dropped below (became better than) the NO_2 NAAQS in the early 1990s. More recently, the Basin was reclassified to attainment/maintenance for CO in 2007. Attainment/maintenance means that the pollutant is currently in attainment and that measures are included in the SIP to ensure that the NAAQS for that pollutant are not exceeded again (maintained). **Table 4.4-2** presents the attainment designation for each of the federal criteria air pollutants.

Table 4.4-2

South Coast Air Basin Attainment Status

Pollutant (Status as of May 23, 2008)	National Standards	California Standards
Ozone (O_3)	Nonattainment - Severe 17[1]	Nonattainment
Carbon Monoxide (CO)	Attainment - Maintenance	Attainment
Nitrogen Dioxide (NO_2)	Attainment - Maintenance	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Respirable Particulate Matter (PM10)	Nonattainment - Serious	Nonattainment
Fine Particulate Matter (PM2.5)	Nonattainment	Nonattainment
Lead (Pb)	Attainment	Attainment

[1] The current designation of the region is Severe-17. However, in the 2007 AQMP, SCAQMD requests a re-designation to Extreme non-attainment.

Source: CDM, 2008.

State

The CCAA, signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. The CAAQS are at least as stringent as, and in several cases more stringent than, the NAAQS. The currently applicable CAAQS are presented with the NAAQS in **Table 4.4-2**. The attainment status with regard to the CAAQS is presented in **Table 4.4-3** for each pollutant.

Table 4.4-3

Southwest Coastal Los Angeles Monitoring Station Ambient Air Quality Data

Pollutant[1,2]	2003	2004	2005	2006	2007
Ozone (O_3)					
Maximum Concentration 1-hr period, ppm	0.110	0.120	0.086	0.084	0.087
Maximum Concentration 8-hr period, ppm	0.077	0.1	0.076	0.067	0.076
Carbon Monoxide (CO)					
Maximum Concentration 1-hr period, ppm	7	4	3	3	[3]
Maximum Concentration 8-hr period, ppm	5.04	3.03	2.14	2.27	2.39
Nitrogen Dioxide (NO_2)					
Maximum Concentration 1-hr period, ppm	0.120	0.091	0.091	0.099	0.084
Annual Arithmetic Mean (AAM), ppm	0.023	[3]	0.013	0.015	0.014
Sulfur Dioxide (SO_2)					
Maximum Concentration 1-hr period, ppm	0.03	0.02	0.04	0.02	[3]
Maximum Concentration 24-hr period, ppm	0.004	0.007	0.012	0.010	0.009
Annual Arithmetic Mean (AAM), ppm	0.001	0.003	0.006	0.002	0.003
Respirable Particulate Matter (PM10)[4,5]					
Maximum National Concentration 24-hr period, µg/m^3	58	47	44	45	128
Maximum California Concentration 24-hr period, µg/m^3	58	46	44	45	96
Annual National Concentration, µg/m^3	29.8	21.5	22.9	23.5	29.3
Annual California Concentration, µg/m^3	29.6	[3]	[3]	[3]	[3]

1 Through 2003, this station was located at 5234 West 120th Street (Hawthorne). In April 2004, the station was moved to 7201 W. Westchester Parkway (Westchester).
2 An exceedance is not necessarily a violation. Violations are defined in 40 CFR 50 for NAAQS and 17 CCR 70200 for CAAQS.
3 There was insufficient (or no) data available to determine the value.
4 Statistics may include data that are related to an exceptional event.
5 State and national statistics may differ for the following reasons: State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

Source: California Air Resources Board, 2008.

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

South Coast Air Quality Management District (SCAQMD)

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

The SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the CAAQS and NAAQS. Most recently, SCAQMD and CARB have adopted the 2007 AQMP and have submitted it to USEPA for approval. These plans require, among other emissions-reducing activities, control technology for existing sources; control programs for area sources and indirect sources; a permitting system designed to ensure no net increase in emissions from any new or modified permitted sources of emissions; transportation control measures; sufficient control strategies to achieve a five percent or more annual reduction in emissions (or 15 percent or more in a three-year period) for VOC, NO_x, CO, and PM10; and demonstration of compliance with CARB's established reporting periods for compliance with air quality goals.

The SCAQMD also adopts rules to implement portions of the AQMP. At least one of these rules is applicable to the construction phase of the project. Rule 403 requires the implementation of best available fugitive dust control measures during active construction activities capable of generating fugitive dust emissions from on-site earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads.

Southern California Association of Governments

The Southern California Association 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 CAA for determining conformity of transportation projects, plans, and programs with applicable air quality plans.

In the Basin, the City of Los Angeles, CARB, and the SCAQMD have adopted or proposed additional rules and policies governing the use of cleaner fuels in public vehicle fleets. The City of Los Angeles Policy CF#00-0157 requires that city-owned or operated diesel-fueled vehicles be equipped with particulate traps and that they use ultra-low-sulfur diesel fuel. CARB adopted a Risk Reduction Plan for diesel-fueled engines and vehicles. The SCAQMD has proposed a series of rules that would require the use of clean fuel technologies in on-road school buses, on-road heavy-duty public fleets, and street sweepers. 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 emission reductions that would be associated with implementation of SCAQMD's clean fuel rules are not incorporated into the Bradley West Project air quality analysis; therefore, the estimate of ground access vehicle emissions is considered conservative.

4.4.3.3 Historical and Baseline Ambient Air Quality

The SCAQMD maintains a network of air quality monitoring stations located throughout the 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. Through 2003, this station was located at 5234 West 120th Street (Hawthorne), or about 2.4 miles southeast of the LAX Theme Building and 0.75 mile southeast of the southeast corner of the airport. In April 2004, the station was moved to 7201 W. Westchester Parkway (referred to as the LAX Hastings site), roughly 1.5 miles northwest of the Theme Building and less than 0.5 mile from Runway 24R (northernmost LAX runway). This station monitors ozone, CO, SO_2, NO_2, and PM10. Data available from this monitoring station were summarized for the five-year period of 2003 - 2007 in **Table 4.4-3**. In general, the measured concentrations at these locations are below concentrations measured at many of the other monitors around the Basin. It does appear that 2007 showed some increases in several pollutants compared to 2005 and 2006, especially the PM10 measurements. These PM10 concentrations may have been influenced by the extensive fires that occurred throughout Southern California in the fall of 2007. The fires occurred concurrently with strong Santa Ana winds that blew from the eastern deserts out to the coast, and may have carried the ash to the coastal monitoring stations.

4.4.4 CEQA Thresholds of Significance

The SCAQMD has developed CEQA operational and construction-related thresholds of significance for air pollutant emissions from projects proposed in the Basin. Construction and operational emission thresholds are summarized in **Table 4.4-4**. In accordance with the SCAQMD CEQA Air Quality Handbook, a significant air quality impact would occur if the estimated incremental increase in construction-related emissions attributable to the project would be greater than the daily or quarterly construction emission thresholds presented in **Table 4.4-4**. A significant air quality impact would occur as well if the estimated incremental increase in operational emissions attributable to the project would be greater than the operational daily emission thresholds presented in **Table 4.4-4**.

Table 4.4-4

SCAQMD CEQA Thresholds of Significance for Air Pollutant Emissions in the South Coast Air Basin

	Mass Emission Thresholds		
	Construction		Operation
Pollutant	lbs/day	tons/quarter	lbs/day
CO	550	24.75	550
NO_x	100	2.5	55
VOC[1]	75	2.5	55
SO_2	150	6.75	150
PM10	150	6.75	150
PM2.5	55	N/A	55
Lead	3	N/A	3

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

Source: SCAQMD, 1993, 2008.

The SCAQMD has also developed operational and construction-related thresholds of significance[122] for air pollutant concentration impacts from projects proposed in the Basin. These thresholds are summarized in **Table 4.4-5**. In accordance with the SCAQMD CEQA Air Quality Handbook, a significant air quality impact would occur if the estimated incremental ambient concentrations due to project construction-related or operations-related emissions would be greater than the concentration thresholds presented in **Table 4.4-5**.

122 South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993; as updated by "SCAQMD Air Quality Significance Thresholds," July 2008, Available: http://www.aqmd.gov/CEQA/handbook/signthres.pdf.

Table 4.4-5

SCAQMD CEQA Thresholds of Significance for Air Pollutant Concentrations in the South Coast Air Basin

		Project-Related Concentration Thresholds		
Pollutant	**Averaging Period**	**Construction**	**Operation**	**Project Only or Total[1]**
PM10	Annual	1.0 μg/m^3	1.0 μg/m^3	Project Only
PM10	24-hour	10.4 μg/m^3	2.5 μg/m^3	Project Only
PM2.5	24-hour	10.4 μg/m^3	2.5 μg/m^3	Project Only
CO	1-hour	20 ppm (23 mg/m^3)	20 ppm (23 mg/m^3)	Total incl. Background
CO	8-hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)	Total incl. Background
NO_x (as NO_2)	1-hour	0.18 ppm (339 μg/m^3)	0.18 ppm (339 μg/m^3)	Total incl. Background
NO_x (as NO_2)	Annual	0.030 ppm (57 μg/m^3)	0.030 ppm (57 μg/m^3)	Total incl. Background

1 The concentration threshold for attainment pollutants (CO and NO_2) is the CAAQS, which is at least as stringent as the NAAQS. The concentration threshold for nonattainment pollutants (PM10 and PM2.5) has been developed by SCAQMD for project construction or operational impacts.

Source: SCAQMD, 1993, 2008.

4.4.5 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)*. Of the three commitments and four mitigation measures that were designed to address air quality impacts related to implementation of the LAX Master Plan, two measures are applicable to construction emissions 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.**[123] 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.
- **MM-AQ-2. Construction-Related Measure.**[124] 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 4.4-6**. For the Bradley West Project air quality analysis, it was assumed that these mitigation measures would be in place in 2009. Some components of MM-

123 Los Angeles World Airports, LAX Master Plan Mitigation Plan for Air Quality (MPAQ) - MM-AQ-1: Framework, prepared by URS Corporation and KB Environmental Sciences, Inc., October 2005.

124 Los Angeles World Airports, LAX Master Plan Mitigation Plan for Air Quality (MPAQ) - MM-AQ-2: Construction-Related Mitigation Measures, prepared by URS Corporation and KB Environmental Sciences, Inc., October 2005.

AQ-2 are not readily quantifiable, but would be implemented as part of the Bradley West Project. These mitigation strategies, presented in **Table 4.4-7**, are expected to further reduce construction-related emissions associated with the Bradley West Project. Other feasible mitigation measures may be defined in the final LAX MP-MPAQ, which will be complete prior to implementation of the Bradley West Project.

Table 4.4-6

Construction-Related Mitigation Measures Incorporated into Construction Emissions Inventories

Mitigation Measure	Potential Emissions Reduction by Equipment
Heavy Duty Diesel (Off-road)	
Particulate Traps (where technologically feasible)	85% PM10 and 85% PM2.5, adjusted for compatibility
Fugitive dust caused by on- and off-site vehicle trips	
Watering (per SCAQMD Rule 403)	61% PM10 and 61% PM2.5

Source: CDM, 2009.

Table 4.4-7

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

Table 4.4-7

Construction-Related Air Quality Mitigation Measures

Measure	Type of Measure
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, 2004.

Additionally, the LAX Master Plan Community Benefits Agreement (CBA) includes several measures applicable to LAX Master Plan projects. Section X.F of the CBA delineates the measures specific to Construction Equipment, with the majority of such measures being centered on the following requirement:

- **Best Available Emission Control Devices Required**. LAWA shall require that all diesel equipment used for construction related to the LAX Master Plan Program be outfitted with the best available emission control devices primarily to reduce diesel emissions of PM, including fine PM, and secondarily, to reduce emissions of NO_X. This requirement shall apply to diesel-powered off-road equipment (such as construction machinery), on-road equipment (such as trucks) and stationary diesel engines (such as generators). The emission control devices utilized for the equipment at the LAX Master Plan Program construction shall be: (i) verified for use by EPA for on-road or off-road vehicles or engines. Devices certified or verified for mobile engines may be effective for stationary engines and that technology from EPA/CARB on-road verification lists may be used in the off-road context.

The estimated compatibility of PM filters for the off-road construction equipment identified for the CFTP and applied to the Bradley West Project was determined by Clean Fuel Connection, Inc.,[125] the third-party environmental inspection firm for the LAX SAIP. The compatibility for each type of equipment was provided as a high, medium or low probability. For this analysis, the probabilities were given numeric values such that 90 percent of equipment with high compatibility was assumed to be installed with PM filters, 50 percent of those with medium probability were installed with filters, and 10 percent of those with low probability were installed with filters. This ranking was used to adjust the Level 3 PM filter control efficiency (85 percent reduction) downward. In particular, those pieces of equipment with a high compatibility were assumed to achieve a 76.5 percent reduction over the construction duration, those with a medium compatibility were assumed to achieve a 42.5 percent reduction, and those with a low probability were assumed to achieve an 8.5 percent reduction. Again, these reductions are assumed to be included in the project design since they are required under existing measures and agreements. The specific assignments of emission reductions to equipment types are included in Appendix E.

[125] Clean Fuel Connection, Inc., Assessment of Compatibility of Verified Diesel Emission Control Systems with Diesel Equipment Identified for Use on the LAX Taxiway C13 and D Project, April 30, 2008.

4.4.6 Impact Analysis

4.4.6.1 Construction

Uncontrolled

Emissions

Uncontrolled Bradley West Project maximum peak daily, maximum quarterly, and annual construction emissions inventories are presented in **Table 4.4-8**.[126] In this analysis, "uncontrolled" refers to the emissions that would occur without application of the fugitive dust controls required by SCAQMD Rules 403, 1156, 1157, Regulation XIII, and without installation of diesel particulate filters required under the CBA. Details of the construction emission input parameters and results are presented in Appendix E. As shown in **Table 4.4-8**, the peak daily and peak quarterly emissions of SO_2 for the Bradley West Project would not exceed the SCAQMD construction emission thresholds presented in **Table 4.4-4**. Peak daily and peak quarterly uncontrolled emissions of CO, VOC, NO_X, PM10, and PM2.5 associated with the Bradley West Project would exceed the respective SCAQMD construction emissions thresholds. Therefore, uncontrolled Bradley West Project construction emissions of CO, VOC, NO_X, PM10, and PM2.5 would be significant.

Table 4.4-8

Uncontrolled Maximum Peak Bradley West Project Daily, Quarterly, and Annual Construction Emissions

Pollutant	Project Max	SCAQMD Significance Threshold	Emissions Exceed Threshold?
Maximum Daily Emissions, Uncontrolled (lb/day)[1,2]			
Carbon monoxide, CO	1,216	550	Yes
Volatile organic compounds, VOC	362	75	Yes
Nitrogen oxides, NO_X	1,987	100	Yes
Sulfur dioxide, SO_2	3	150	No
Respirable particulate matter, PM10	1,264	150	Yes
Fine particulate matter, PM2.5	319	55	Yes
Maximum Quarterly Emissions, Uncontrolled (tons/quarter)[1,2]			
Carbon monoxide, CO	38.93	24.75	Yes
Volatile organic compounds, VOC	8.32	2.50	Yes
Nitrogen oxides, NO_X	60.42	2.50	Yes
Sulfur dioxide, SO_2	0.09	6.75	No
Respirable particulate matter, PM10	42.94	6.75	Yes
Fine particulate matter, PM2.5	10.82	6.75	Yes

126 The peak construction period for construction-related air quality impacts is anticipated to occur in the third quarter of 2010. This is different from the peak construction period related to construction-related traffic impacts, which is anticipated to occur in the fourth quarter of 2011, as described in Section 4.3. The reason for that difference is that the peak air pollutant emissions would occur in conjunction with the demolition and reconstruction of aircraft apron and taxiway areas, which involves a substantial amount of heavy construction equipment that has air pollutant emissions, whereas the peak traffic generation would occur during completion of the new buildings at TBIT, which involve a substantial number of workers, but not necessarily equipment that has air pollutant emissions.

Table 4.4-8

Uncontrolled Maximum Peak Bradley West Project Daily, Quarterly, and Annual Construction Emissions

Total Emissions (tons)	2009 Total	2010 Total	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Project Total
Carbon monoxide, CO	14.92	130.59	108.56	84.46	87.67	68.50	15.55	510.25
Volatile organic compounds, VOC	2.08	26.56	20.99	14.73	15.07	10.70	2.28	92.42
Nitrogen oxides, NO_x	10.92	196.73	165.40	104.08	97.19	62.60	12.42	649.34
Sulfur dioxide, SO_2	0.03	0.28	0.25	0.19	0.18	0.13	0.03	1.09
Respirable particulate matter, PM10	6.27	93.73	25.18	24.48	42.65	26.75	4.75	223.82
Fine particulate matter, PM2.5	0.93	25.20	9.31	7.40	11.27	6.37	1.18	62.02

1 "Uncontrolled" indicates that no emission reductions have been assumed for measures required by regulation (e.g., SCAQMD Rule 403), or the LAX Master Plan Community Benefits Agreement (construction equipment diesel particulate filters). These reductions are incorporated into Table 4.4-11.

2 The peak daily activity of VOC emissions occurs in 2011 due to fugitive emissions from paving and architectural coating activities. The peak daily activity of CO, NO_x, SO_x, PM10, and PM2.5 emissions occurs in 2010.

Source: CDM, 2009.

Off-Site Concrete Batch Plant Scenario

As noted in Section 4.4.2.1, a construction scenario was analyzed to evaluate the potential impact associated with supplying concrete from off-site concrete batch plants, in the event that the provision and continued operation of on-site concrete batch plants are found to be infeasible. The construction emissions listed above (see **Table 4.4-8**) include those associated with operation of an on-site concrete batch plant. The increase in project construction emissions associated with using concrete supplied by off-site batch plants is summarized in **Table 4.4-9**. The use of off-site batch plants would substantially increase the amount of air emissions in and around the airport due primarily to the number of concrete mix trucks needed to haul the necessary quantity of concrete to the site. Also, while the direct emissions of on-site batch plant operations would be removed from the airport, those emissions would still occur in the Basin, typically within 20 miles of the airport. Finally, because some of the recycled material obtained from project-related taxiway and apron demolition and reconstruction would have been used in the on-site batch plant, this material would need to be hauled off-site and disposed in a landfill - resulting in more heavy duty diesel truck trips. Should the off-site concrete batch plant scenario occur, the uncontrolled maximum peak Bradley West Project daily, quarterly, and annual construction emissions indicated in **Table 4.4-8** would increase by the amounts shown in **Table 4.4-9**.

Table 4.4-9

Incremental Increase in Peak Bradley West Project Daily, Quarterly, Annual, and Total Construction Emissions Associated with Using Off-Site Batch Plants for Concrete

Pollutant	Peak Daily Emissions (lbs/day)	Peak Quarterly Emissions (tons/quarter)	Peak Annual Emissions (tons/years)	Total Project Emissions (tons)
Carbon monoxide, CO	91.8	2.6	4.0	8.3
Volatile organic compounds, VOC	23.4	0.7	1.0	2.0
Nitrogen oxides, NO_x	303.8	9.2	14.1	27.1
Sulfur dioxide, SO_2	0.3	---	---	---
Respirable particulate matter, PM10	25.7	0.8	1.2	2.6
Fine particulate matter, PM2.5	14.6	0.4	0.7	1.4

Source: CDM, 2009.

Concentrations

Air dispersion modeling was used to predict pollutant concentrations in the vicinity of the airport from construction emissions in the peak year of construction. Pollutant concentrations were calculated for pollutants which exceeded the SCAQMD thresholds for peak daily or peak quarterly construction emissions.[127] Therefore maximum pollutant concentrations were determined for CO, NO_x, PM10, and PM2.5 using AERMOD.

Table 4.4-10 compares the maximum predicted concentrations during the peak construction period including background concentrations with the NAAQS and CAAQS for CO and NO_2. Maximum predicted 24-hour concentrations for PM10 and PM2.5 are compared with the respective SCAQMD thresholds in **Table 4.4-5**. Uncontrolled PM10 would exceed the 24-hour SCAQMD concentration threshold and NO_2 would exceed the 1-hour NO_2 CAAQS. Concentrations of uncontrolled PM10 and NO_x would therefore be significant.

127 VOCs are not run through dispersion models for criteria air pollutant impact analysis as there is no NAAQS or CAAQS for VOC.

Table 4.4-10

Uncontrolled Air Pollutant Concentrations for Project Construction (2010) (Including Background)

Pollutant Concentration	Averaging Period	CAAQS/NAAQS	Project and Background	Exceed AAQS?
CO (mg/m^3)	1-hr	10/10	5	No
	8-hr	23/40	3	No
NO_2 ($\mu g/m^3$)	Annual	57/100	32	No
	1-hr	339/NA	402	CAAQS
		SCAQMD Significance Threshold	**Project**	**Exceed Threshold?**
PM10 ($\mu g/m^3$)	Annual	1.0	2.1	Yes
PM10 ($\mu g/m^3$)	24-hr	10.4	26.2	Yes
PM2.5 ($\mu g/m^3$)	24-hr	10.4	6.4	No

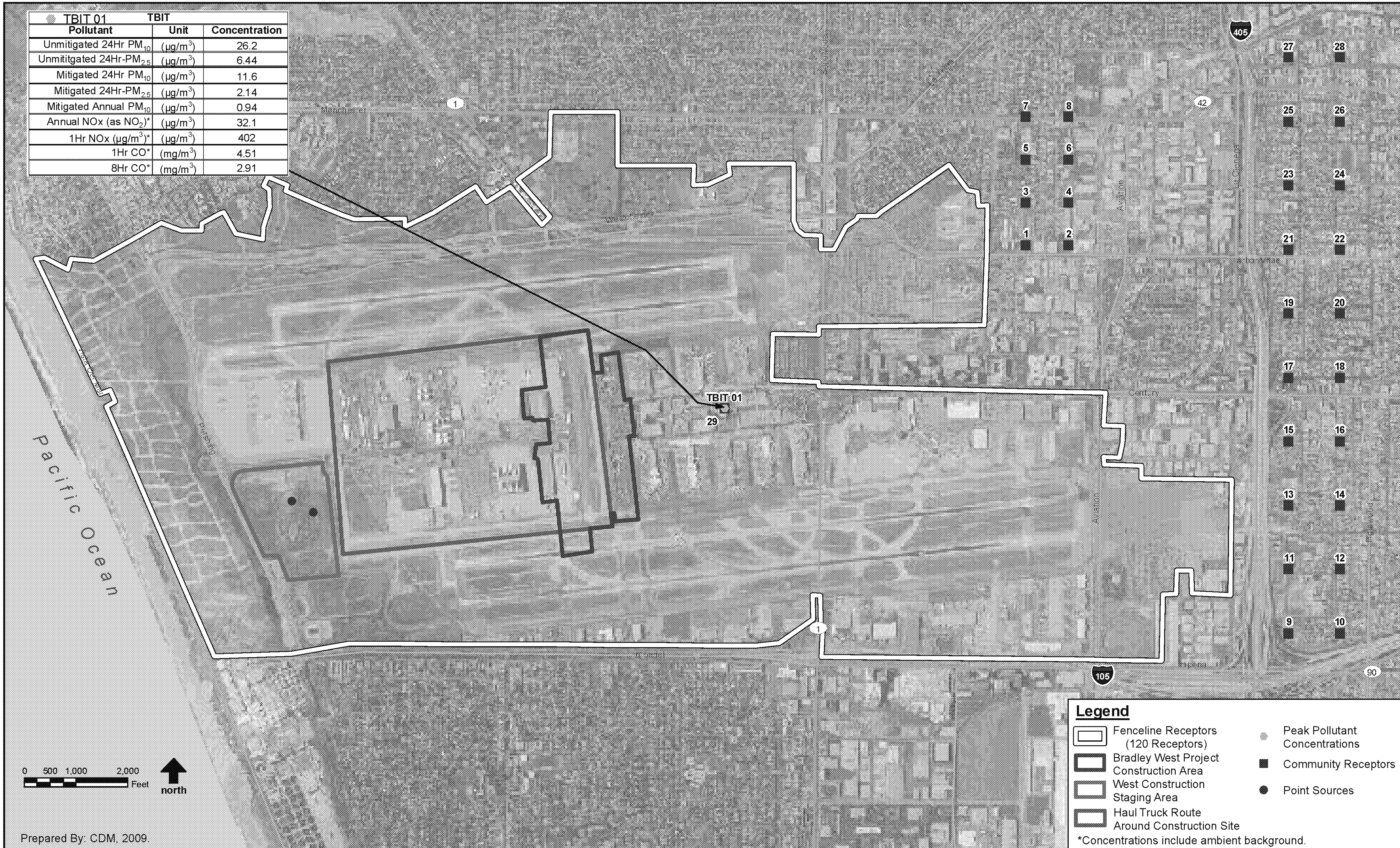
Sources: CDM, 2009.

The peak impact location for all modeled pollutants is the CTA receptor shown in **Figure 4.4-3**. The one-hour NO_2 concentration exceeds the NO_2 one-hour CAAQS at six additional fenceline receptors, or approximately five percent of the total receptor locations. The 24-hour PM10 concentration also exceeds the SCAQMD threshold of 10.4$\mu g/m^3$ at six additional fenceline receptors. The annual PM10 concentration exceeds the SCAQMD threshold of 1.0$\mu g/m^3$ at two additional fenceline receptors. Exceedances of both NO_2 and PM10 occur northeast of the CTA and along the southwest fenceline bordering Imperial Highway. The NO_2 one-hour CAAQS and the SCAQMD PM10 24-hour threshold were not exceeded at the modeled downwind community sites.

Controlled

Emissions

Controlled construction emissions were calculated for PM10 and PM2.5 only, using the watering control efficiency of 61 percent for fugitive dust, as noted in **Table 4.4-6**, and using the control efficiencies for construction equipment diesel particulate filters described in Section 4.4.5. Controlled Bradley West Project peak daily, quarterly, and annual construction emissions inventories for PM10 and PM2.5 are presented in **Table 4.4-11**. Details of the construction emission input parameters and results are presented in Appendix E. As shown in **Table 4.4-11**, the peak daily controlled emissions of PM10 and PM2.5 and the peak quarterly controlled emissions of PM10 would exceed the SCAQMD construction emission thresholds presented in **Table 4.4-4**. Peak quarterly controlled emissions of PM2.5 associated with the Bradley West Project would not exceed the SCAQMD construction emissions thresholds. Controlled Bradley West Project construction emissions of PM10 and PM2.5 would therefore be significant.



Pollutant	Unit	Concentration
Unmitigated 24Hr PM_{10}	($\mu g/m^3$)	26.2
Unmititgated 24Hr-$PM_{2.5}$	($\mu g/m^3$)	6.44
Mitigated 24Hr PM_{10}	($\mu g/m^3$)	11.6
Mitigated 24Hr-$PM_{2.5}$	($\mu g/m^3$)	2.14
Mitigated Annual PM_{10}	($\mu g/m^3$)	0.94
Annual NOx (as NO_2)*	($\mu g/m^3$)	32.1
1Hr NOx ($\mu g/m^3$)*	($\mu g/m^3$)	402
1Hr CO*	(mg/m^3)	4.51
8Hr CO*	(mg/m^3)	2.91

Bradley West Project Construction Peak Criteria Pollutant Concentrations

Figure 4.4-3

Table 4.4-11

Controlled Bradley West Project Daily, Quarterly, and Annual Construction Emissions

Pollutant	Project Max	SCAQMD Significance Threshold	Emissions Exceed Threshold?					
Maximum Daily Emissions, Controlled (lb/day)[1]								
Respirable particulate matter, PM10	559	150	Yes					
Fine particulate matter, PM2.5	172	55	Yes					
Maximum Quarterly Emissions, Controlled (tons/quarter)[1]								
Respirable particulate matter, PM10	19.51	6.75	Yes					
Fine particulate matter, PM2.5	6.72	6.75	No					
Total Emissions (tons)	**2009 Total**	**2010 Total**	**2011 Total**	**2012 Total**	**2013 Total**	**2014 Total**	**2015 Total**	**Project Total**
Respirable particulate matter, PM10	2.54	46.39	18.85	16.85	23.80	16.67	3.34	128.44
Fine particulate matter, PM2.5	0.97	18.00	8.12	5.97	8.57	4.84	0.96	47.44

[1] "Controlled" includes emission reduction measures required by regulation (e.g., SCAQMD Rule 403), or the LAX Master Plan Community Benefits Agreement (construction equipment diesel particulate filters). These reductions are part of the project design.

Source: CDM, 2009.

The emissions presented in **Table 4.4-11** are based on the assumption that controls currently required by SCAQMD Rule 403, 1156 and 1157 would reduce fugitive dust (PM10 and PM2.5) emissions by approximately 61 percent from uncontrolled levels, and that diesel particulate filters would be used on some portion of the construction equipment as noted in Section 4.4.5. The combination of SCAQMD rule requirements and compliance with CBA Section X.F.1 decreases the construction peak daily emissions of PM10 and PM2.5 by 56 percent and 46 percent, maximum quarterly emissions by 55 percent and 37 percent, and total project emissions by 40 percent and 20 percent, respectively. The calculated emission reductions of PM10 and PM2.5 are with controls less than presented in **Table 4.4-6** due to the varying applicability of diesel particulate filters to each piece of construction equipment. Note that the emissions in **Table 4.4-11** also assume that an on-site batch plant would be used to supply concrete for the project. Should the off-site concrete batch plant scenario occur, the emissions indicated in **Table 4.4-11** would increase by the amounts shown in **Table 4.4-9**.

Concentrations

The maximum predicted concentrations of controlled PM10 and PM2.5 are compared in **Table 4.4-12** to the SCAQMD thresholds presented in **Table 4.4-5**. The PM10 annual concentration and the PM2.5 24-hour concentration would not exceed the SCAQMD thresholds. The PM10 24-hour peak concentration would exceed the SCAQMD threshold by approximately 9 percent. Due to this exceedance, the Bradley West Project controlled PM10 construction-related impact would be significant.

Table 4.4-12

Controlled Air Pollutant Concentrations for Project Construction (2010) (Including Background)

Pollutant Concentration	Averaging Period	SCAQMD Significance Threshold	Project	Exceed Threshold?
PM10 ($\mu g/m^3$)	Annual	1.0[1]	0.9	No
	24-hr	10.4[1]	11.6	Yes
PM2.5 ($\mu g/m^3$)	24-hr	10.4[1]	2.1	No

1 SCAQMD Air Quality Significance Threshold.

Sources: CDM, 2009.

The peak 24-hour PM10 concentration occurs at the CTA receptor in the center of the airport's existing gates and passenger parking area. No other modeled receptors, including fenceline receptors and all of the community sites, exceed the SCAQMD threshold of 10.4$\mu g/m^3$. Therefore with the exception of the CTA receptor, no exceedances of the SCAQMD threshold are expected at or beyond the airport fenceline.

4.4.6.2 Operations

Emissions from On-Airport Sources

Based on the currently proposed construction schedule, it is anticipated that all of the Bradley West Project improvements would be completed in 2013, with the exception of Taxiway T, which would be completed by 2015. Since no anticipated operational air quality impacts are associated with completion of Taxiway T, the operational impacts were analyzed for year 2013 when all other Bradley West Project improvements would be completed. As described in Section 2.4.5 of this EIR, the Bradley West Project would not alter the airspace traffic, runway operational characteristics, or the practical capacity of the airport. Therefore, changes in emissions from aircraft operations are due to increased travel demand and changes in aircraft fleet mixes that are projected to occur by 2013 irrespective of the proposed Bradley West Project improvements. Passenger bus trips from TBIT to the gates at the West Remote Pads and off-site ground access vehicle traffic would be affected by the Bradley West Project, as described in Section 4.4.2.2. Also, the Bradley West Project would require temporary utilities, as described in Section 4.4.2.2.

Due to projected increased demand for air travel, aircraft activity levels and aircraft emissions are forecast to increase in 2013 compared to those in 2008. Upon completion of the Bradley West Project, aircraft movements around the airfield would see a slight improvement (reduction) in taxi/idle times and associated emissions from aircraft operations over the 2013 Without Project scenario. When averaged over 1,849 total operations per day (projected 2013 operations), this reduction is approximately 50 seconds per landing and takeoff cycle (LTO). **Table 4.4-13** summarizes the LTO taxi/idle times and associated aircraft activity levels.

Table 4.4-13

Aircraft Operations

	2008 Baseline	2013 Without Project	2013 With Project
Aircraft Activity (LTO/day)	889	925	925
LTO Taxi/Idle Time (min)	17.61	21.15	20.32

Source: CDM, 2009.

Table 4.4-14 summarizes the aircraft operational emissions inventory associated with taxi and idle modes, as described in Section 4.4.2.2. Aircraft emissions in 2013 under the Without Project scenario are projected to increase an average of 27 percent over baseline (2008) conditions due to forecast increased demand for air travel and corresponding increased aircraft activity levels.[128] Aircraft emissions in 2013 with the Bradley West Project are projected to increase an average of 24 percent over baseline (2008) conditions. However, compared to the Without Project scenario, the Bradley West Project would result in a decrease of aircraft taxi/idle emissions for all pollutants.

Table 4.4-14

Aircraft Taxi/Idle Emissions

	2008 Baseline Conditions		2013 Without Project		2013 With Project	
Pollutant[1]	**(tons/yr)**	**(lbs/day)[2]**	**(tons/yr)**	**(lbs/day)[2]**	**(tons/yr)**	**(lbs/day)[2]**
Carbon monoxide, CO	2,051	11,238	2,783	15,249	2,648	14,508
Volatile organic compounds, VOC	342	1,875	414	2,270	394	2,160
Nitrogen oxides, NO_X	435	2,384	661	3,624	624	3,419
Sulfur dioxide, SO_2	126	688	181	991	171	940
Inhalable particulate matter, PM10	16	89	22	118	21	113
Fine particulate matter, PM2.5	16	89	22	118	21	113

1 Includes emissions from auxiliary power units (APUs).
2 Calculation of daily emissions uses a factor of 0.9 to adjust from annual activity to daily activity in the peak month (i.e., lbs/day = tons/yr * 2000 lbs/ton/(365 days/yr * 0.9).

Source: CDM, 2009.

Table 4.4-15 presents an inventory of emissions from bus operations transporting passengers from the gates at the West Remote Pads to TBIT. Implementation of the Bradley West Project would reduce the need for bus transport of passengers from remote gates to TBIT, and therefore, bus emissions for the 2013 With Project scenario would decrease compared to those for the 2013 Without Project scenario. This decrease would be greater than 40 percent for all air pollutants. However, emissions under either the 2013 Without Project or 2013 With Project scenarios would increase over the 2008 baseline due to increased demand for international air travel.

128 As noted in Section 4.4.2.2, the aviation activity forecast developed in mid-2008 for the Bradley West Project EIR assumed substantial growth in activity levels at TBIT between 2008 and 2013; however, more recent forecasts indicate a much lower rate and amount of growth. As such, the project increases in aviation activity reflected in this section is considered to be very conservative (high).

Table 4.4-15

Bus Operational Emissions

Pollutant (tons)[1]	2008 Baseline (113 trips) (tons/yr)	2008 Baseline (113 trips) (lbs/day)	2013 Without Project (273 trips) (tons/yr)	2013 Without Project (273 trips) (lbs/day)	2013 With Project (160 trips) (tons/yr)	2013 With Project (160 trips) (lbs/day)
Carbon monoxide, CO	0.65	3.57	1.47	8.03	0.86	4.71
Volatile organic compounds, VOC	0.11	0.59	0.24	1.33	0.14	0.78
Nitrogen oxides, NO_x	3.07	16.81	6.87	37.67	4.03	22.08
Sulfur dioxide, SO_2	0.00	0.02	0.01	0.05	0.00	0.03
Inhalable particulate matter, PM10	0.10	0.56	0.25	1.36	0.15	0.79
Fine particulate matter, PM2.5	0.06	0.31	0.14	0.75	0.08	0.44

[1] Bus trips from the gates at the West Remote Pads to TBIT.

Source: CDM, 2009.

Table 4.4-16 provides the emissions inventory for operation of the Bradley West utilities by 2013. Since these units would not be installed for the 2008 baseline or 2013 Without Project scenarios, all emissions from these units would be attributable to Bradley West Project operations.

Table 4.4-16

Bradley West Heating and Cooling Utilities Operational Emissions - 2013 With Project

Pollutant (tons)[1]	Boilers (tons/yr)	Boilers (lbs/day)	Cooling Tower (tons/yr)	Cooling Tower (lbs/day)	Total Utilities (tons/yr)	Total Utilities (lbs/day)
Carbon monoxide, CO	2.65	14.52	NA	NA	2.65	14.52
Volatile organic compounds, VOC	0.17	0.95	NA	NA	0.17	0.95
Nitrogen oxides, NO_x	1.58	8.64	NA	NA	1.58	8.64
Sulfur dioxide, SO_2	0.02	0.10	NA	NA	0.02	0.10
Inhalable particulate matter, PM10	0.24	1.31	0.14	0.78	0.38	2.09
Fine particulate matter, PM2.5	0.24	1.31	0.14	0.75	0.38	2.06

Source: CDM, 2009.

Table 4.4-17 summarizes total emissions from on-airport operations, including aircraft taxi/idle, West Remote Pad bus trips, and Bradley West heating and cooling utilities in 2013 with and without the Bradley West Project, as well as 2008 baseline emissions from those sources. Emissions would increase from the baseline conditions as a result of forecast increases in air travel demand. However with the planned improvements of aircraft movement and reduction of bus transport to remote gates that would occur with implementation of the Bradley West Project, emissions in 2013 would decrease as compared to the Without Project scenario.

Table 4.4-17

Total On-Airport Operational Emissions

Pollutant (tons)[1]	2008 Baseline (tons/yr)	2008 Baseline (lbs/day)	2013 Without Project (tons/yr)	2013 Without Project (lbs/day)	2013 With Project (tons/yr)	2013 With Project (lbs/day)
Carbon monoxide, CO	2,052	11,242	2,784	15,257	2,652	14,527
Volatile organic compounds, VOC	342	1,876	414	2,271	394	2,162
Nitrogen oxides, NO_x	438	2,401	668	3,662	630	3,450
Sulfur dioxide, SO_2	126	688	181	991	171	940
Inhalable particulate matter, PM10	16	90	22	119	22	116
Fine particulate matter, PM2.5	16	89	22	119	21	116

1 Includes emissions from aircraft, APUs, passenger bus trips, and Bradley West heating and cooling utilities.

Source: CDM, 2009.

Table 4.4-18 compares the incremental increase in on-airport operational emissions (aircraft, passenger bus trips, and Bradley West heating and cooling utilities) in 2013 to the SCAQMD operational significance thresholds (see **Table 4.4-4**). Operational emissions of CO, VOC, NO_X, and SO_2 with the Bradley West Project in 2013 would be significant. However, operational emissions under the 2013 With Project scenario would be lower than those under the 2013 Without Project scenario.

Table 4.4-18

Incremental Operational Impacts for On-Airport Sources

Pollutant (lbs/day)	2013 Without Project Impact[1]	2013 With Project Impact[1]	SCAQMD Significance Threshold	Without Project Exceed Threshold?	With Project Exceed Threshold?
Carbon monoxide, CO	4,015	3,015	550	Yes	Yes
Volatile organic compounds, VOC	395	286	55	Yes	Yes
Nitrogen oxides, NO_x	1,261	1,049	55	Yes	Yes
Sulfur dioxide, SO_2	303	252	150	Yes	Yes
Inhalable particulate matter, PM10	29	26	150	No	No
Fine particulate matter, PM2.5	30	27	55	No	No

1 Increase in operational emissions over the 2008 baseline.

Source: CDM, 2009.

Emissions from Off-Airport (Regional) Traffic Sources

Table 4.4-19 shows the emissions associated with off-airport traffic related to the Bradley West Project traveling to and from LAX. This traffic includes airport passengers, employees, and trucks delivering cargo to or from the airport. Paved road dust for off-airport traffic is shown separately for PM10 and PM2.5 to show its magnitude relative to off-airport PM10 and PM2.5 emissions from vehicle exhaust.

Table 4.4-19

Off-Airport Traffic Operational Emissions

Pollutant (tons)[1]	2008 Baseline (tons/yr)	2008 Baseline (lbs/day)	2013 Without Project (tons/yr)	2013 Without Project (lbs/day)	2013 With Project (tons/yr)	2013 With Project (lbs/day)
Carbon monoxide, CO	2,971	16,278	3,364	18,433	3,386	18,554
Volatile organic compounds, VOC	304	1,665	356	1,950	358	1,963
Nitrogen oxides, NO_X	645	3,534	763	4,182	768	4,209
Sulfur dioxide, SO_2	3	16	5	27	5	27
Engine exhaust PM10	35	194	56	307	56	309
Paved road dust PM10[2]	205	1,126	349	1,911	351	1,924
Engine exhaust PM2.5	26	142	40	219	40	221
Paved road dust PM2.5[2]	35	190	59	323	59	325

1 Includes emissions from passenger, employee, and cargo or other ancillary trips.
2 Paved road dust from passenger, employee, and cargo or other ancillary trips.

Source: CDM, 2009.

Table 4.4-20 compares the incremental increase in off-airport traffic emissions in 2013 to the SCAQMD operational significance thresholds (see **Table 4.4-4**). Operational emissions of CO, VOC, NO_X, PM10, and PM2.5 with the Bradley West Project in 2013 would be significant.

Table 4.4-20

Incremental Operational Impacts from Off-Airport Traffic

Pollutant (lbs/day)	2013 Without Project Impact[1]	2013 With Project Impact[1]	SCAQMD Significance Threshold	Without Project Exceed Threshold?	With Project Exceed Threshold?
Carbon monoxide, CO	2,155	2,276	550	Yes	Yes
Volatile organic compounds, VOC	285	298	55	Yes	Yes
Nitrogen oxides, NO_X	648	675	55	Yes	Yes
Sulfur dioxide, SO_2	11	11	150	No	No
Inhalable particulate matter, PM10	898	913	150	Yes	Yes
Fine particulate matter, PM2.5	210	214	55	Yes	Yes

1 Increase in operational emissions over the 2008 baseline.

Source: CDM, 2009.

Concentrations

Table 4.4-21 presents the on-airport 2013 Bradley West Project operational impacts on ambient air concentrations from incremental aircraft taxi/idle and passenger bus trip emissions as well as from the Bradley West heating and cooling utilities. These concentration impacts are compared to the SCAQMD CEQA significant concentration thresholds for operations presented in **Table 4.4-5**. This comparison indicates that operational impacts would not exceed the SCAQMD CEQA operational significance thresholds. It should be noted that these operational impacts would also occur under the 2013 Without Project scenario, since the majority of the operational impacts are due to aircraft taxi/idle emissions that would happen with or without the Bradley West Project.

Table 4.4-21

Air Pollutant Concentrations for Project Operations in 2013 (Including Background)

Pollutant Concentration	Averaging Period	CAAQS/NAAQS	Project and Background	Exceed AAQS?
CO (mg/m^3)	1-hr	10/10	4	No
	8-hr	23/40	3	No
NO_2 ($\mu g/m^3$)	Annual	57/100	31	No
	1-hr	339/NA	218	No
		SCAQMD[1] Significance Threshold	**Project**	**Exceed Threshold?**
PM10 ($\mu g/m^3$)	Annual	1.0	0.1	No
PM10 ($\mu g/m^3$)	24-hr	2.5	0.2	No
PM2.5 ($\mu g/m^3$)	24-hr	2.5	0.1	No

1 SCAQMD Air Quality Significance Threshold.

Sources: CDM, 2009.

4.4.6.3 Overall Significance of the Bradley West Project Before Mitigation

The Bradley West Project would exceed the thresholds of significance presented in Section 4.4.4 with respect to CO, VOC and NO_X (as ozone precursors), SO_2, PM10, and PM2.5 with controls required by SCAQMD rules, the LAX Master Plan MMRP, and the CBA due to the following operational- and construction-related findings:

- Construction emissions would be significant for CO, VOC, NO_X, PM10, and PM2.5.
- Concentrations from construction-related sources would be significant for PM10, and may exceed the CAAQS for NO_2 (1-hour).
- On-airport emissions from operational sources would be significant for CO, VOC, NO_X, and SO_2.
- Off-airport traffic emissions would be significant for CO, VOC, NO_X, PM10, and PM2.5.

4.4.7 Cumulative Impacts

4.4.7.1 Construction Emissions

The construction of several on-going and anticipated future projects at LAX would potentially occur simultaneously with the Bradley West Project construction. Projects that were considered in the cumulative air quality analysis include: (1) Crossfield Taxiway Project (CFTP), (2) Airfield Operating Area (AOA) Perimeter Fence Enhancements -- Phase III, (3) Security Program - In-Line Baggage Screening Systems (T6) (4) TBIT Interior Improvements Program, (5) Airfield Intersection Improvements -- Phase 2, (6) Airport Operations Center (AOC)/Emergency Operation Center (EOC), (7) K-9 Training Facility, (8) Central Utilities Plant (CUP) Replacement Program, (9) Passenger Boarding Bridge Replacement, (10) Bus Wash Rack Facility, (11) CTA Elevators and Escalators Replacement, (12) CTA Seismic Retrofits, (13) Sewer Line Replacement, (14) CTA Joint Repair, Roadway Improvements, and Security Barriers, (15) Korean Air Cargo Terminal Improvement Project, (16), West Aircraft Maintenance/Aircraft Parking Area, (17) Westchester Golf Course 3-Hole Expansion Project, (18) Westchester Rainwater (Stormwater) Improvement Project, and (19) Metro Bus Maintenance and Operations Facility.

Several additional planned projects (the Terminal Electric Service Capacity Expansion, Terminals 1, 3, and 6 Upgrades and Renovation, Concessions Upgrades Program, and the CTA Americans with Disabilities Act (ADA) Improvements) were considered in this analysis only in terms of construction worker trips generated because they represent mostly interior work that would not result in ambient air quality impacts from construction equipment.

Construction emissions for the CFTP project were obtained from the Final EIR prepared for that project.[129] Emissions for the remaining projects, with the exception of the West Aircraft Maintenance/Aircraft Parking Area and K-9 Training Facility, were developed by CDM in consultation with LAWA. Emissions for the West Aircraft Maintenance/Aircraft Parking Area and K-9 Training Facility were estimated using a calculation of emissions based on project cost and emissions-to-cost ratios for projects with previously estimated emissions and known approximate costs. Calculations for all cumulative projects are included in Appendix E. The cumulative impacts from the projects occurring during the peak year of Bradley West Project construction are summarized in **Table 4.4-22** and the cumulative impacts from all projects which overlap with the 63 months of Bradley West Project construction are summarized in **Table 4.4-23**. From a cumulative standpoint, CO, NO_X, VOC, PM10 and PM2.5 emissions would be significant due to the combined emissions from all construction projects at LAX.

129 City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for the Crossfield Taxiway Project, January 2009.

Table 4.4-22

Cumulative Construction Projects Peak Daily Emissions Estimates

Projects Occurring During Peak Year of Bradley West Project Construction (2010)[1]	Peak Daily Emissions, lbs/day					
	CO	VOC	NO_x	SO_x	PM10	PM2.5
Crossfield Taxiway Project[2]	502	278	939	1	126	47
AOA Perimeter Fence Enhancements - Phase III[4]	2	1	4	0	1	0
Security Program - In-Line Baggage Screening Systems (T6)[4]	14	2	12	-	0	0[8]
TBIT Interior Improvements Program[4]	55	38	14	-	1	1[8]
Airfield Intersection Improvements -- Phase 2[3]	41	22	71	0	15	7
Airport Operations Center (AOC)/Emergency Operation Center (EOC)[4]	9	8	15	0	7	2
Central Utilities Plant (CUP) Replacement Program[4]	14	3	25	0	41	9
Passenger Boarding Bridge Replacement (T1, T3, T6, Remotes)[4]	12	25	25	0	0	0
Bus Wash Rack Facility[4]	6	1	10	0	1	1
CTA Elevators and Escalators Replacement[4]	7	0	0	0	0	0
Sewer Line Replacement (T1, T6)[4]	5	1	10	0	1	1
CTA Joint Repair, Roadway Improvements, and Security Barriers[4]	14	4	25	0	2	2
Korean Air Cargo Terminal Improvement Project[4]	25	25	13	0	5	2
Westchester Golf Course 3-Hole Expansion Project[4]	13	2	8	0	26	6
Westchester Rainwater (Stormwater) Improvement Project[4]	27	6	58	0	20	6
Worker Vehicle Trips[5]	29	3	3	0	3	1
Total from Other Construction Projects, lbs/day[5,6]	**774**	**419**	**1,234**	**1**	**249**	**84**
Bradley West Project Peak Daily Emissions, lbs/day[5]	1,216	362	1,987	3	559	172
Total Cumulative Construction Project Emissions, lbs/day[6,7]	**1,991**	**781**	**3,221**	**4**	**808**	**256**
SCAQMD Construction Emission Significance Thresholds, lbs/day	550	75	100	150	150	55
Emissions Significant?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

1 Sixteen of the nineteen cumulative projects have construction that is expected to occur during 2010.
2 City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Crossfield Taxiway Project, Los Angeles International Airport (LAX), January 2009.
3 City of Los Angeles, Los Angeles World Airports, Airfield Intersections Improvement Project Equipment Inventory - Peak Day Jan 2009-Jan 2010, May 22, 2008.
4 Equipment estimates developed by CDM in consultation with LAWA.
5 Includes worker trips for projects that have no other construction equipment.
6 Numbers may not total exactly due to rounding.
7 Sum of peak daily emissions for each individual project; these peaks may not necessarily overlap with the peak daily emissions from the CFTP or from the other cumulative projects.
8 Pollutant calculated by CDM, not calculated in reference document.

Source: CDM, 2009.

The sixteen construction projects included in **Table 4.4-22** represent the most relevant planned development projects occurring during the peak year (2010) of Bradley West Project construction, for which detailed information regarding construction plans, such as the nature and timing of construction activities and the associated construction equipment, was available. The nineteen construction projects shown in **Table 4.4-23** represent the most relevant planned development projects occurring during the approximately 5 years of Bradley West Project construction.

Table 4.4-23

Cumulative Construction Projects Total Emissions Estimates

Construction Project	% Overlap[5]	Total Project Emissions,[6] tons					
		CO	VOC	NO_x	SO_x	PM10	PM2.5
Crossfield Taxiway Project[1]	62%	45.93	11.73	82.56	0.10	8.60	3.96
AOA Perimeter Fence Enhancements - Phase III[4]	40%	0.03	0.01	0.04	0.00	0.01	0.00
Security Program - In-Line Baggage Screening Systems (T6)[2]	100%	0.38	0.05	0.35	-	0.01	0.01
TBIT Interior Improvements Program[4]	17%	4.29	2.96	1.09	-	0.08	0.07
Airfield Intersection Improvements -- Phase 2[3]	100%	8.82	4.75	15.24	0.02	3.21	1.40
Airport Operations Center (AOC)/Emergency Operation Center (EOC)[4]	100%	0.86	0.30	1.48	0.00	0.18	0.11
K-9 Training Facility[4]	100%	0.32	0.08	0.45	0.00	0.05	0.03
Central Utilities Plant (CUP) Replacement Program[4]	100%	9.44	1.68	11.94	0.01	13.27	3.23
Passenger Boarding Bridge Replacement (T1, T3, T6, Remotes)[4]	33%	0.15	0.04	0.32	0.00	0.02	0.01
Bus Wash Rack Facility[4]	100%	1.03	0.22	1.70	0.00	0.11	0.10
CTA Elevators and Escalators Replacement[4]	100%	3.74	0.48	1.80	0.01	0.48	0.15
CTA Seismic Retrofits[4]	100%	3.73	0.88	5.28	0.01	0.43	0.30
Sewer Line Replacement (T1, T6)[4]	80%	0.11	0.03	0.23	0.00	0.03	0.02
CTA Joint Repair, Roadway Improvements, and Security Barriers[4]	83%	3.11	0.86	4.91	0.01	0.42	0.36
Korean Air Cargo Terminal Improvement Project[4]	100%	1.36	0.57	1.79	0.00	0.16	0.11
West Aircraft Maintenance/Aircraft Parking Area[4]	100%	6.90	3.39	8.65	0.01	2.57	0.92
Westchester Golf Course 3-Hole Expansion Project[4]	50%	2.04	0.47	2.75	0.00	2.38	0.58
Westchester Rainwater (Stormwater) Improvement Project[4]	50%	1.89	0.40	4.05	0.00	3.27	0.82
Metro Bus Maintenance and Operation Facility[4]	100%	11.99	1.28	6.45	0.01	1.65	0.64
Worker Vehicle Trips[8]	100%	4.52	0.50	0.50	0.01	0.49	0.11
Total from Other Construction Projects, tons[7]		**110.64**	**30.68**	**151.59**	**0.18**	**37.42**	**12.91**
Total Bradley West Project Emissions, tons		510.25	92.42	649.34	1.09	128.44	47.40
Total Cumulative Construction Project Emissions, tons[7]		**620.88**	**123.10**	**800.93**	**1.27**	**165.86**	**60.34**

1 City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Crossfield Taxiway Project, Los Angeles International Airport, January 2009.
2 City of Los Angeles, Los Angeles World Airports, Final Mitigated Negative Declaration: Security Program - In-Line Baggage Screening System, Terminals 1 - 8, prepared by PCR Services Corporation, March 2006.
3 City of Los Angeles, Los Angeles World Airports, Airfield Intersections Improvement Project Equipment Inventory - Peak Day Jan 2009-Jan 2010, May 22, 2008.
4 Equipment estimates developed by CDM in consultation with LAWA.
5 Percentage of project construction that would occur during the Bradley West Project construction period.
6 Emissions presented in this table represent total estimated emissions for each construction project over the duration which the project would overlap with Bradley West Project construction.
7 Numbers may not total due to rounding.
8 Includes worker trips for projects that have no other construction equipment.

Source: CDM, 2009.

The cumulative impacts to air quality resulting from projects at LAX with operational emissions, such as from the Airport Operations Center (AOC)/Emergency Operation Center (EOC), have been accounted for as part of the overall long-term improvement of LAX addressed in the LAX Master Plan Final EIR. Other projects identified above, such as the Airfield Intersection Improvements -- Phase 2, the AOA Perimeter Fence Enhancement -- Phase III, and the Westchester Rainwater (Stormwater) Improvement Project, would not have any notable air pollutant emissions associated with operations. Construction of the Bradley West Project would result in a cumulatively considerable impact to air quality from aircraft operations.

4.4.7.2 Operational Emissions

Implementation of the Van Nuys Airport Noisier Aircraft Phaseout Project could result in additional aircraft operations at LAX, and the associated air pollutant emissions, to the extent that affected operators choose to utilize LAX, among other regional airports, instead of Van Nuys Airport. The Draft EIR for the Van Nuys Airport Noisier Aircraft Phaseout Project estimated that an annual total of 62 flights (i.e., equivalent to 0.17 flights per day) would divert to LAX in 2014.[130] This diversion of flights would add incrementally to the total emissions from aircraft currently operating at LAX. As described above in Section 4.4.6.2 and quantified in **Table 4.4-13** implementation of the Bradley West Project would provide certain improvements to aircraft ground movement at LAX over the Without Project scenario, resulting in reductions in air pollutant emissions from aircraft engine operation. As such, implementation of the Bradley West Project would not contribute a cumulative increase in operations-related air pollutant emissions when considered in conjunction with the Van Nuys Airport Noisier Aircraft Phaseout Project. Further, LAX and Van Nuys Airport are both within the Basin, and no changes to the regional air pollution are expected to occur as a result of the diversion of flights from Van Nuys to LAX.

4.4.7.3 Concentrations

Cumulative construction impacts were modeled using the AERMOD dispersion model for the peak year of Bradley West Project construction. This cumulative impact analysis includes concentration impacts from Bradley West Project operational impacts, which were addressed separately in Section 4.4.6.2. This analysis conservatively combines the 2010 Bradley West Project construction and other construction project concentrations with the 2013 Bradley West Project operational concentrations. **Table 4.4-24** compares the resulting cumulative project construction-related concentrations to the SCAQMD concentration thresholds shown in **Table 4.4-5**.

Table 4.4-24

Air Pollutant Concentrations for the Bradley West Project Construction (2010), 2010 Other Construction Projects, and Bradley West Project Operations (2013)

Pollutant Concentration	Averaging Period	Threshold (CAAQS)	Bradley West Project,[2] Other Construction Projects, and Background	Exceed AAQS?
CO (mg/m^3)	1-hr	10	6	No
	8-hr	23	3	No
NO_2 ($\mu g/m^3$)	Annual	57	37	No
	1-hr	339	566	Yes
		SCAQMD[1]	**Bradley West Project[2] and Other Construction Projects**	**Exceed Threshold?**
PM10 ($\mu g/m^3$)	Annual	1.0	2.0	Yes
	24-hr	10.4	23.0	Yes
PM2.5 ($\mu g/m^3$)	24-hr	10.4	5.7	No

1 SCAQMD Air Quality Significance Threshold.
2 Includes 2010 Bradley West Project construction and 2013 Bradley West Project operations.

Source: CDM, 2009.

130 City of Los Angeles, Los Angeles World Airports, Draft Environmental Impact Report for the Van Nuys Airport Noisier Aircraft Phaseout Project, September 2008.

The one-hour NO_2 CAAQS would be exceeded during the peak year of cumulative project construction. The SCAQMD construction thresholds for annual and 24-hour PM10 would also be exceeded. The one-hour NO_2 peak concentration would occur at the CTA, and NO_x emissions from diesel construction equipment represent over 95 percent of this peak value. The annual PM10 and the 24-hour PM10 maximum concentrations would occur along the boundary of the Westchester Rainwater (Stormwater) Improvement Project site and would exceed the SCAQMD threshold at three additional fenceline locations. Implementation of the Bradley West Project would result in a cumulatively significant impact related to NO_2 and PM10. The peak impact locations for each pollutant are shown in **Figure 4.4-4**.

Although the Bradley West Project is being identified as cumulatively significant for NO_2, it should be noted again that an extremely conservative method was used to reach this conclusion. The analysis assumes that all NO_x from the construction equipment is emitted as NO_2, not a combination of NO and NO_2. However, most (up to 95 percent)[131] combustion NO_x is initially emitted as NO and is eventually converted to NO_2 through atmospheric reactions. At least eight cumulative projects, in addition to the Bradley West Project, are located in the CTA, including the CUP Replacement; CTA Elevators and Escalators Replacement; CTA Seismic Retrofits; CTA Joint Repair, Roadway Improvements, and Security Barriers; Security Program - In-Line Baggage Screening Systems (T6); TBIT Interior Improvements Program; Passenger Boarding Bridge Replacement (T1, T3, T6, Remotes); and Sewer Line Replacement (T1, T6) projects. These projects include emissions that occur within 500 meters of the CTA receptor. Since the NO_2/NO_x conversion factor is 0.258 at 500 meters downwind,[132] it is possible that actual NO_2 concentrations in the CTA would be less than the CAAQS.

4.4.7.4 Overall Significance of Bradley West Project Cumulative Projects

The cumulative projects with Bradley West Project would exceed the thresholds of significance presented in Section 4.4.4 with respect to CO, VOC and NO_x (as ozone precursors), SO_2, PM10, and PM2.5 due to the following findings:

- Construction emissions would be significant for CO, VOC, NO_x, PM10, and PM2.5.
- Concentrations from construction-related sources would be significant for PM10, and may exceed the CAAQS for NO_2 (1-hour).
- On-airport emissions from Bradley West Project operational sources (in 2013) would be significant for CO, VOC, NO_x, and SO_2.

4.4.8 Mitigation Measures

LAWA is committed to mitigating temporary construction-related emissions to the extent practicable and has established some of the most aggressive construction emissions reduction measures in southern California, particularly with regard to requiring construction equipment to be equipped with emissions control devices. The specific means for implementing the mitigation measures described in Section 4.4.5 were first approved and implemented as part of the SAIP, and would also be applied to the Bradley West Project. Because these mitigation measures establish a commitment and process for incorporating all technically 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 Bradley West Project.

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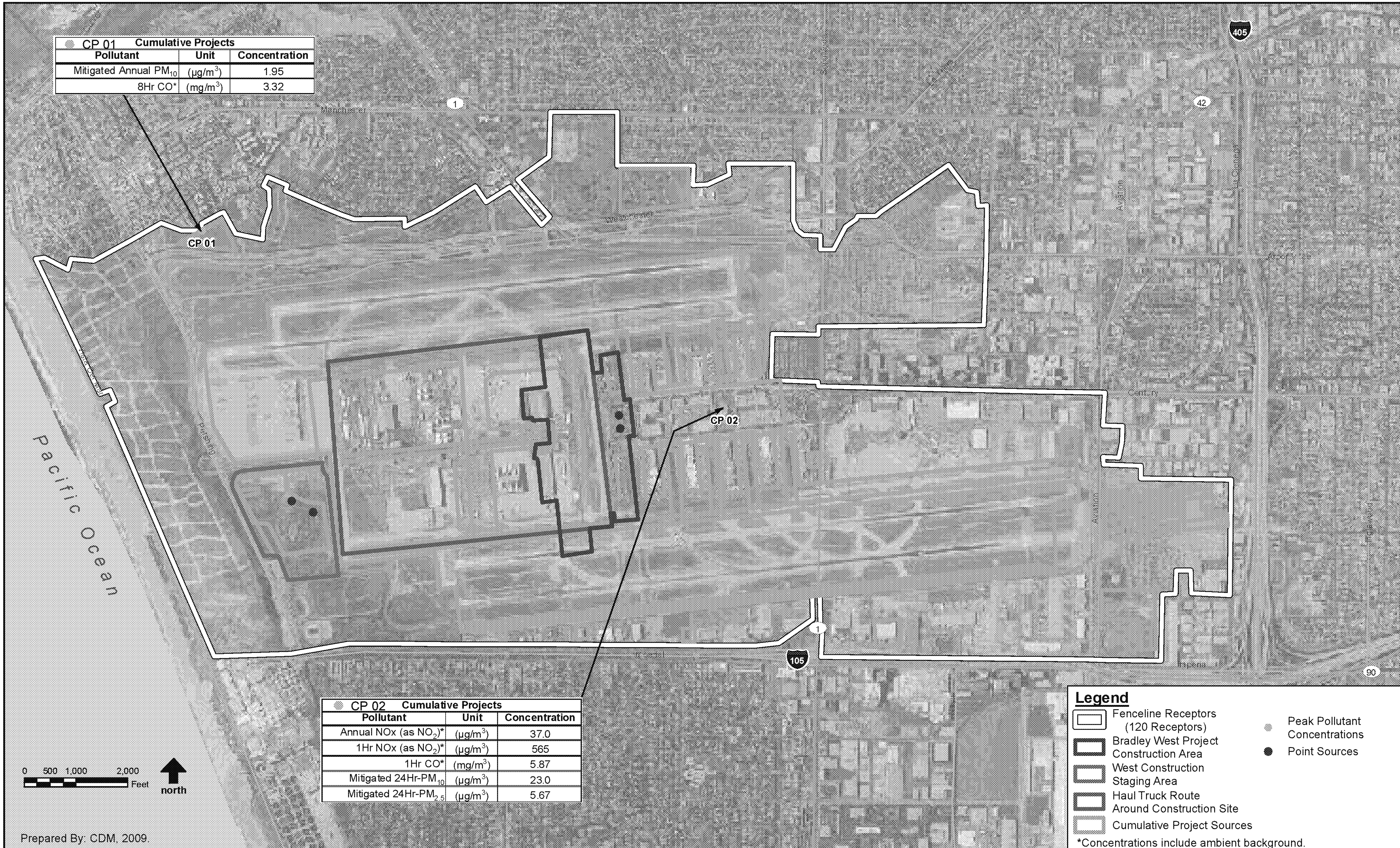
131 South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, June 2003.

132 South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, June 2003.



CP 01 Cumulative Projects

Pollutant	Unit	Concentration
Mitigated Annual PM_{10}	($\mu g/m^3$)	1.95
8Hr CO*	(mg/m^3)	3.32

CP 02 Cumulative Projects

Pollutant	Unit	Concentration
Annual NOx (as NO_2)*	($\mu g/m^3$)	37.0
1Hr NOx (as NO_2)*	($\mu g/m^3$)	565
1Hr CO*	(mg/m^3)	5.87
Mitigated 24Hr-PM_{10}	($\mu g/m^3$)	23.0
Mitigated 24Hr-$PM_{2.5}$	($\mu g/m^3$)	5.67

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Cumulative Projects Peak Criteria Pollutant Concentrations

Figure 4.4-4

4.4.9 Level of Significance After Mitigation

The maximum daily and maximum quarterly construction-related emissions associated with the Bradley West Project would be significant for CO, VOC, NO_x, PM10 and PM2.5. Bradley West Project construction-related concentrations would be significant for NO_2 and PM10. Cumulative construction-related emissions for CO, VOC, NO_x, PM10, and PM2.5 would also be significant. Cumulative construction-related concentrations would be significant for NO_2 and PM10. Cumulative airfield operations-related impacts for CO, VOC, NO_x, SO_2, PM10, and PM2.5 would be significant, based on 2013 airfield activity levels compared to 2008 conditions, notwithstanding that a comparable level of 2013 airfield activity emissions would occur even if the Bradley West Project was not implemented.

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4.5 Human Health Risk Assessment

4.5.1 Introduction

This Human Health Risk Assessment (HHRA) addresses potential health impacts for people exposed to toxic air contaminants (TACs) anticipated to be released during construction and operation of the Bradley West Project.[133] Construction is anticipated to start at the end of 2009 and extend through the beginning of 2015, while Bradley West Project-specific operational sources are anticipated to start in 2013, after most of the Bradley West Project construction is completed and the concourses are fully operational. As with all activities at facilities that accommodate vehicles and equipment that consume fuel, activities at LAX release TACs to the air. These TACs may come from aircraft, motor vehicles, 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[134] previously examined incremental health risks due to inhalation of TACs from operational sources associated with four build alternatives and the No Action/No Project Alternative. 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 impacts associated with construction activities of any of the individual Master Plan components, including the Bradley West Project.

Although the LAX Master Plan Final EIR analyzed future operational impacts, several operational sources are included in this Bradley West Project HHRA. The sources included are those that would have different operating characteristics after completion of the Bradley West Project than after full implementation of the LAX Master Plan. Specifically, the gates at the West Remote Pads would continue to be utilized after completion of the Bradley West Project, although at a much lower level than without the project. These gates would be taken out of service after full buildout of the LAX Master Plan. In addition, heating and cooling capacity would be added to TBIT as part of the project to address the incremental demand specific to the Bradley West Project. Therefore, operational emissions associated with aircraft activity on the ground at LAX, with transporting passengers between TBIT and the gates at the West Remote Pads, and with TBIT heating and cooling units were analyzed for 2013 with and without the project as well as for 2008 baseline conditions, as discussed in Section 4.4, *Air Quality*, of this EIR. Therefore, this EIR includes a quantitative evaluation of possible impacts to human health associated with both construction activities and subsequent Bradley West Project-specific operations. Emissions evaluated in the HHRA include emissions from on-airport construction sources (e.g., construction equipment, batch plant, rock crusher, and fugitive dust) and on-airport Bradley West Project-specific operational sources, including aircraft, in 2013, when the main Bradley West Project improvements are in place.

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133 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.

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

Possible impacts to human health were assessed through an HHRA, as required under State of California statutes and regulations.[135] The HHRA was conducted in four steps as defined in California Environmental Protection Agency (CalEPA) and U.S. Environmental Protection Agency (USEPA) guidance,[136,137] consisting of:

- 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 questions:

- Could potential chronic human health impacts due to release of TACs during the 5-year construction period of the Bradley West Project be above significance thresholds?
- Could potential acute human health impacts due to release of TACs during the 5-year construction period of the Bradley West Project be above significance thresholds?
- Could potential chronic human health impacts due to release of TACs during operation of the Bradley West Project be above significance thresholds?
- Could potential acute human health impacts due to release of TACs during operation of the Bradley West Project be above significance thresholds?

As indicated in the LAX Master Plan Final EIR, risk assessment is an evolving and uncertain process. Important uncertainties exist in the estimation of emissions of TACs from airport mobile sources, the dispersion of such TACs in the air, actual human exposure to such TACs, and health effects associated with such exposure. There are also uncertainties associated with evaluation of the combined effects of exposure to multiple chemicals, as well as interactions among pollutants, 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 Reports also apply to this health risk assessment, as further described below.

To help address uncertainties, conservative methods were used to estimate cancer risks and chronic non-cancer hazards. That is, methods were used that are much more likely to overestimate 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

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135 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Information and Assessment Act of 1987, Section 44300; California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003.

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

137 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.

individuals were assumed to be exposed to TACs for almost all days of the year and for several decades to maximize estimates of possible exposure.

Resulting risk estimates are therefore based on upper-bound predictions of exposure that may be associated with living near, and breathing TACs released during, LAX activities. By protecting hypothetical individuals that receive the highest exposures, the risk assessment is also protective for actual members of the population near LAX that would not be as highly exposed. Additional technical details of the analysis are provided in Appendix F of this EIR.

The HHRA for the Bradley West Project also evaluates potential short-term (1-hour) exposures and associated acute non-cancer health impacts. These estimates are also intentionally conservative; for example, maximum fence-line concentrations were used to assess possible hazards for receptors that live, work, go to school, or recreate[138] off-airport. Actual exposure concentrations in off-airport areas are, again, overestimated by this approach.

4.5.2 Methodology

The objective of this HHRA is to estimate health risks and hazards, if any, associated with construction and subsequent operation of the Bradley West Project. People working at the airport, and people living, recreating, working, or attending school in communities near the airport are target populations addressed in the assessment. The methodologies used in this analysis are summarized below. Details of the methodologies are provided in Appendix E and Appendix F of this EIR.

4.5.2.1 Methods for Estimating Possible Project Impacts to Human Health

The cumulative effect on airport operational TAC emissions of this project and others included in the LAX Master Plan was addressed in the LAX Master Plan Final EIR, as noted above. However, Bradley West Project-specific operational sources were not addressed in the LAX Master Plan Final EIR, including passenger busing to the West Gates and interim increases in heating and cooling to meet demands until the proposed Central Utility Plant Replacement project is completed. In addition, some changes in aircraft operations that would not reflect operations at buildout are also assessed. These operations are not expected to be active when the LAX Master Plan is complete. TAC releases from these operational sources are included in this HHRA, because they were not previously addressed as part of the program-level LAX Master Plan Final EIR. Therefore, this HHRA addresses emissions of TACs from construction sources during project implementation along with operational emissions associated with changes to aircraft operations, passenger busing, and increased heating and cooling demand once construction of the Bradley West Project is complete.

Cancer risk and chronic and acute non-cancer hazard assessments for this HHRA consisted of two components: (1) estimation of emissions of TACs associated with project construction and Bradley West Project-specific operations not previously assessed, and subsequent modeling of dispersion of those emissions to downwind receptor locations; and (2) estimation of health risks associated with those emissions. Specifically, this HHRA estimated possible future emission rates associated with Bradley West Project based on construction phasing for the Bradley West Project at LAX (i.e., late 2009 through early 2015) and some operational activities after most construction is complete in 2013. Estimated future emission rates were used, along with meteorological and geographic information, as inputs to an air dispersion model. The dispersion model predicted possible future concentrations of TACs within the study area around the airport.

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[138] Recreational users were not separately evaluated for the Bradley West Project. Recreational users would not be as exposed with respect to exposure frequency and duration as residents. Thus, conclusions based on the exposure of residents would be health-protective of recreational users in the vicinity of the airport, and further evaluation of recreational users was deemed unnecessary.

Subsequently, human health risks and hazards that might be associated with inhalation of TACs were predicted directly from estimated TAC concentrations in air. Although the LAX Master Plan Final EIR analyzed incremental impacts above baseline conditions, incremental impacts were not evaluated for construction in this EIR because, in the absence of Bradley West Project construction, construction emissions would be zero. Thus, all risk and hazard estimates for construction represent the full projected impact of construction activity. However, emissions associated with post-construction operational changes associated with the Bradley West Project that were not previously assessed, were evaluated as incremental impacts above 2008 baseline conditions. Health impacts were estimated for both potential cancer risks and non-cancer health hazards.

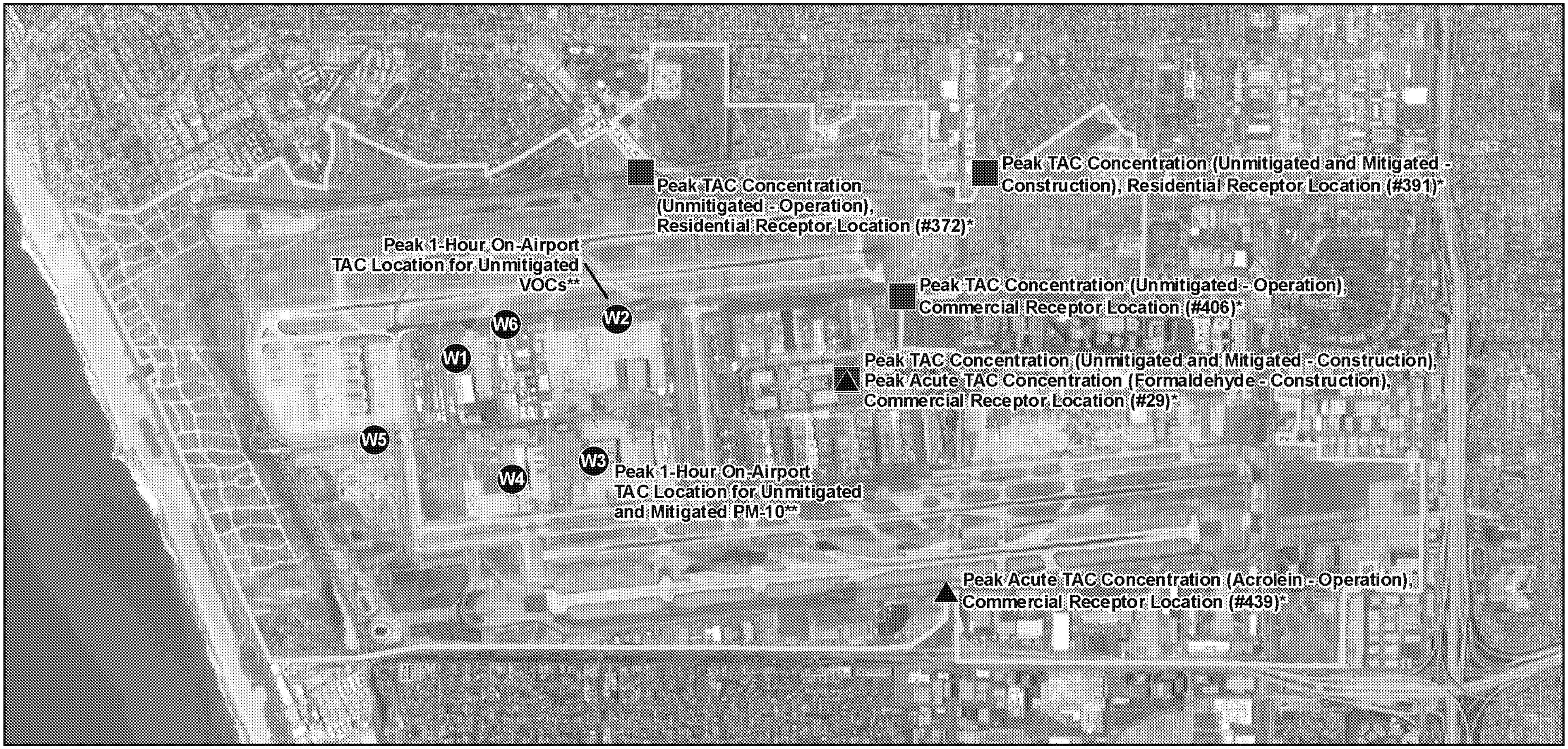
Results of the analysis were interpreted by comparing cancer risks and non-cancer hazards to regulatory thresholds. These comparisons were made for maximally exposed individuals (MEI) at locations where maximum concentrations of TACs were predicted by the air dispersion modeling, and for all modeled locations within the defined study area. An impact was considered significant[139] if cancer risks and/or hazards for MEI exceeded regulatory thresholds. Note that the analysis used maximum predicted impacts even if these impacts occurred at locations where no receptors (people) currently work, live, recreate or go to school (i.e., the LAX fence-line). This approach provides an additional level of conservatism in the estimates for health impacts.

For the assessment of possible cancer risks, and chronic and acute non-cancer hazards, 451 grid nodes in the study area were selected for quantitative assessment (see **Figure 4.5-1**). One hundred and twenty (120) of these nodes are located on the LAX property line. Concentrations at these fence-line locations represent maximum concentrations of TACs predicted by the air dispersion modeling. Maximum concentrations were used to evaluate MEI. As discussed above, risk and hazards for MEI provide a ceiling for off-airport residential, commercial, and student receptors.

Although the fence-line is the closest location with unrestricted access to Bradley West Project construction and operational emission sources, actual receptors would not be working or residing at these fence-line locations. Therefore, an additional 303 grid nodes set back approximately 25 meters from the property boundary were evaluated to represent possible locations of residences, commercial establishments, and schools. Another 28 grid nodes to the east and northeast of LAX were evaluated to provide additional spatial analysis of emissions in nearby residential communities along the prevailing wind direction. Seventeen of the 451 grid node locations that are located closest to the schools nearest the LAX fenceline (i.e., St. Bernard High School, and Visitation Elementary School located north of LAX and Imperial Avenue School located south of LAX) were selected to assess acute non-cancer health hazards for sensitive receptors attending or working at schools near the fence-line. The analysis for these seventeen grid nodes provides direct information on potential impacts on students, faculty and staff at these schools. To ensure a conservative analysis for school children, grid nodes were placed between the schools and construction and operational sources and somewhat closer to these TAC sources. Finally, six locations on the airport were evaluated to represent where on-airport workers might receive the greatest exposure to TACs. Risk and hazard estimates for these six additional locations were not used for significance determination; health and safety of on-airport workers is regulated under the California Occupational Safety and Health Administration (CalOSHA) and no risk or hazards are estimated for these workers. Instead, these estimates are used to provide additional perspective on possible impacts of construction emissions by comparison to the CalOSHA 8-hour Time-Weighted Average Permissible Exposure Levels (PEL-TWAs).[140]

139 The term "significant" is used as defined under CEQA regulations and does not imply an independent judgment of the acceptability of risks or hazards.

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



Legend

- W On-Site Worker Locations
- Maximum Annual Average Concentrations of TACs
- Peak TAC Concentration (Acute)
- Fence Line Receptors

* Peak locations labeled with modeling grid node in parenthesis
** Exceptions: mitigated and unmitigated selenium and sulfates are highest at W5, mitigated and unmitigated Diesel PM is highest at W2, and mitigated ammonium ion is highest at W2

0 5,400 ft.

1" = 2700 ft

north

Prepared by: CDM, 2009.

LAX Bradley West Project Draft EIR

Human Health Risk Assessment Receptors and Peak Toxic Air Contaminants Concentration Locations

Figure 4.5-1

Project-related concentrations for TACs from the Bradley West Project associated with construction and operational sources were estimated using the air dispersion model (AERMOD) with model options for annual and 1-hour maximum concentrations selected. Exposure estimates for people in the vicinity of the airport were then estimated from annual average concentrations using methods described in Appendix F of this EIR, to estimate cancer risk and chronic non-cancer hazards. Cancer risks and hazards were estimated by combining exposure estimates with cancer slope factors and chronic Reference Exposure Levels (RELs), respectively, again using methods described in Appendix F.

Possible acute non-cancer health hazards were estimated by comparing modeled 1-hour maximum concentrations with acute RELs. As discussed in the LAX Master Plan Final EIR,[141] acrolein is the TAC of concern that is responsible for essentially all predicted chronic non-cancer health hazards associated with LAX operations. This TAC is primarily associated with aircraft exhaust, although smaller amounts are also found in emissions from internal combustion engines. Acrolein is also the only TAC of concern in emissions from LAX that might be present at concentrations approaching a threshold for acute effects and was therefore the only TAC evaluated for potential acute effects in the LAX Master Plan Final EIR. However, for the Bradley West Project, all TACs with RELs, not just acrolein, were evaluated for potential acute health impacts since aircraft emissions, the major source of acrolein, would not contribute to construction emissions associated with the Bradley West Project.

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-III)[142] 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 made using generic conversion factors and the annual average estimates of TACs in air from USEPA. These estimates can be used to provide a semi-quantitative evaluation of the possible range of cumulative impacts.

In addition, cumulative impacts were assessed for construction impacts for several non-Master Plan projects that are expected to overlap the Bradley West Project construction. Construction emissions for these projects were obtained from environmental documents prepared for these projects, where such documents were available, or were developed based on estimated equipment inventories. Based on these data and analyses, it was possible to address the combined impacts of TAC emissions by a comparison of risks and hazards during the time when construction of cumulative projects would overlap.

4.5.2.2 Estimating Future Emissions of Toxic Air Contaminants

Both organic and particulate-bound TACs were analyzed in this HHRA. TACs exist in air as either reactive organic gases or particulate matter. For purposes of this EIR, organic emissions are represented by volatile organic compounds (VOC).[143] Emission rates of organic TACs were developed from VOC emission inventories for the same construction sources analyzed in Section 4.4 of this EIR. TACs associated with small particles, or those particles less than 10 microns in diameter (PM10), are the focus for particulate emissions, because this size fraction can deposit in the lung and is therefore primarily

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

142 The HHRA for the LAX Master Plan was completed prior to publication of MATES III results. Thus, cumulative risk assessment for the Master Plan HHRA used results from a previous and very similar study, MATES II.

143 As indicated in Section 4.4 of this EIR, the emissions of volatile organic compounds (VOC) and reactive organic gases (ROG) are essentially the same for the combustion emission sources that are considered in this EIR. This EIR will typically refer to organic emissions as VOC.

responsible for inhalation exposure. Emission rates of particulate-bound TACs were developed from the PM10 emission inventories also included in Section 4.4. Speciation profiles[144] for VOC and PM10 emissions from individual source types, primarily developed by the California Air Resources Board (CARB), were used to calculate TAC emissions.[145,146] These emissions form the basis for modeling concentrations of TACs in air on and around LAX.

Construction Emissions

Construction of the Bradley West Project would result in temporary emissions of various air pollutants from construction equipment, vehicles used by workers commuting to the job site, trucks used for haul/delivery trips, surface paving, taxiway stripping, and demolition (material crushing and grading). Methods for estimating source emissions are detailed in Section 4.4. For emissions estimating, the period of construction for the Bradley West Project was anticipated to be approximately 5 years. Initially, emissions controls for fugitive dust and PM10 from diesel construction equipment were not considered in emissions estimates. These "uncontrolled emissions" constitute an "unmitigated" scenario for the CEQA analysis.

As discussed in Section 4.4, emission controls for fugitive dust through implementation of SCAQMD Rule 403 under the LAX Master Plan Community Benefits Agreement constitutes a "controlled" scenario for the CEQA analysis under mitigated conditions. As used here, "controlled" indicates that emission reductions were considered for construction fugitive dust and for diesel particulate matter emissions.

Evaluation of both uncontrolled (unmitigated) and control (mitigated) scenarios for dust and PM10 emissions allows for a conservative assessment of possible health impacts (unmitigated conditions) and for an evaluation of the importance of mitigation in reducing exposures to TACs during the construction period.

The basis for analysis under mitigated conditions for human health risk assessment is that fugitive dust emissions would be reduced by approximately 61 percent with watering two to three times per day. Further, diesel particulate matter emissions from construction equipment would be reduced with installation of diesel PM filters. Not all construction equipment engines can be retrofitted with CARB-verified diesel PM filters. The overall project diesel PM reduction associated with these filters was conservatively estimated to be only 10 percent. Note, however, that retrofitting individual pieces of equipment with PM10 filters may achieve reductions of up to 85 percent. Actual PM10 emissions reductions would depend on the mix of diesel construction equipment that is used during Bradley West Project construction.

TAC inventories for construction equipment VOC emissions were developed from Organic Profile No. 818 for diesel-fueled equipment, Organic Profile No. 441 for gasoline vehicles, Organic Profile No. 715 for paving, and Organic Profile No. 1811 for taxiway/roadway painting and striping. TAC inventories for construction equipment PM emissions were developed from Profile No. 425 for diesel-fueled equipment and Profile No. 400 for gasoline vehicles. PM10 TAC emission rates from construction dust were estimated from CARB Profile No. 420. Finally, the concrete batch plant PM10 TAC emissions were developed from Profile No. 343. 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 2007 Model (EMFAC2007).[147] Detailed calculations for Bradley West Project

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144 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 PM10 and the chemical composition and reactive fractions of ROG for a variety of emission source categories. Speciation profiles are used to provide estimates of TAC emissions.

145 California Air Resources Board, Draft California Emission Inventory Development and Reporting System - Organic Gas Speciation Profiles, 2003, Available: http://www.arb.ca.gov/ei/speciate/ORGPROF_03_19_03.xls.

146 California Air Resources Board, California Emission Inventory and Reporting System - Particulate Matter Speciation Profiles, 2002, Available: http://www.arb.ca.gov/ei/speciate/PMPROF_09_27_02.xls.

147 California Air Resources Board, EMFAC2002 On-Road Emissions Inventory Estimation Model, Version 2.2, 2003.

construction VOC and PM10 pollutant emissions inventory are provided in Appendix E and Appendix F of this EIR.

Operational Emissions

As previously discussed, although the cumulative effect on airport operational TAC emissions of the Bradley West Project, together with the effects of all LAX Master Plan projects, was addressed in the LAX Master Plan Final EIR, emission estimates were not prepared for Bradley West Project-specific operational sources in the LAX Master Plan Final EIR. Bradley West Project-specific operational sources are those sources that would have different operating characteristics after completion of the Bradley West Project than after full implementation of the LAX Master Plan. These include operational emissions associated with aircraft activity on the ground at LAX, with transporting passengers between TBIT and the gates at the West Remote Pads, and with TBIT heating and cooling units. These emissions were analyzed for 2013 with and without the project as well as for 2008 baseline conditions in order to determine the incremental impact. Evaluation of potential impacts to human health associated with these Bradley West Project-specific operational sources (e.g., passenger busing, utility increases to meet demands, and aircraft operations) were assessed in this HHRA.

TAC inventories for operational source VOC emissions were developed from Organic Profile No. 3 for external combustion boilers fueled with natural gas, Organic Profile No. 818 for diesel-fueled equipment, and the FAA/EPA developed HAP profile for aircraft engine exhaust that is available in the FAA EDMS Version 5.1 model. TAC inventories for operation source PM emissions were developed from Profile No. 121 for natural gas combustion, Profile No. 425 for diesel-fueled equipment, and Profile No.2 for water evaporation from the cooling towers. Detailed calculations for Bradley West Project operational VOC and PM10 pollutant emissions inventory are provided in Appendix E and Appendix F of this EIR.

4.5.2.3 Exposure Concentrations (Dispersion)

Air dispersion modeling was used to estimate TAC concentrations for the Bradley West Project. Dispersion modeling analysis of TACs was conducted for emissions from construction sources during the construction period and for Bradley West Project-specific operational sources. TAC concentrations were estimated in two steps: first, dispersion modeling was used to estimate total VOC and PM10 concentrations, and then individual organic or particulate TAC concentrations were calculated using emissions profiles to speciate total VOC and PM10. For example, if total VOC at a given location was 0.1 ug/m^3 and a given TAC was expected to make up 1 percent of this total, the concentration of that TAC at that location would be 0.001 ug/m^3.

TAC concentrations were estimated in the USEPA AERMOD air dispersion model using options for 1-hour maximum and annual average concentrations. Short-term maximum concentrations from construction sources were estimated from peak daily emissions over a 5-year construction period, and those from operational sources were based an the anticipated level of Bradley West Project-specific operations in 2013. Annual exposure was evaluated using Bradley West Project construction emissions estimated for the period from late 2009 through 2014 divided by the total number of construction days during that period to yield a period-average daily emission rate. Annual exposure for operational emissions was based on the difference between emissions from Bradley West Project-specific operations in 2013 and baseline conditions in 2008. Specifically, the incremental difference in Bradley West Project-specific passenger bus trips and aircraft ground operations was determined by subtracting the 2008 baseline activity level from the 2013 with project activity level for these sources. The heating and cooling units that would be installed at TBIT are assumed to supply the incremental heating and cooling demand for the expanded concourses relative to the 2008 TBIT concourses. Therefore, all emissions from the new heating and cooling units were included in the incremental Bradley West Project-specific emissions. Details of the dispersion model analysis for the Bradley West Project emissions are provided in Appendix E and Appendix F of this EIR.

As identified in Section 4.5.2.1 above, receptors[148] included in the modeling analysis were located at or near the airport fence-line, along a line parallel to the fence-line and set approximately 25 meters farther out, and in residential areas to the east and northeast of the airport. Receptor type (i.e., residential, commercial, or school) for each grid node was based on the nearest land use identified. Since the fence-line is the closest location with unrestricted access to airport emission sources, modeled concentrations at the fence-line locations will be higher than concentrations modeled farther out from the airport where people currently reside, work, and go to school. The second row of receptors was modeled to provide some spatial perspective to the estimated emissions. Evaluation of current conditions is appropriate because of the relatively short time frame (approximately 5 years) over which construction would occur. As noted in the introduction to this section, the LAX Master Plan Final EIR addressed the long-term impacts from changes in airport operations associated with implementation of the LAX Master Plan.

For both cancer and chronic non-cancer analyses, the location with maximum annual average TAC concentrations was selected to represent MEI exposure concentrations for all off-airport receptors (residents, workers, and students). Six locations on the airport were modeled to evaluate potential impacts to on-airport construction workers. All off-airport grid nodes were evaluated for potential exposure and used in the cancer and chronic non-cancer analyses. For analysis of short-term (acute) exposure, maximum 1-hr concentrations were used and evaluated by simple comparison of estimated concentrations with a threshold concentration (the REL) that is protective for sensitive receptors. Acute risks apply to all human receptors and do not change with land use. However, each grid node was identified for its most likely receptor (residential, school, and occupational) for the acute hazard analysis. For fence-line locations, the closest land use to the airport at that location was used to identify the most likely receptor for the fence-line location. These land use designations provide some indication of likely receptors for different locations around the airport. For example, young children are likely receptors at fence-line locations nearest to schools. An exceedance of an acute REL at such locations might be considered differently, not because of higher risk, but because of the possible school child receptor population.

4.5.2.4 Overview of Risk Assessment

Selection of TACs of Concern

Not all chemicals released during construction and subsequent operation of the Bradley West Project 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, results of the LAX Master Plan HHRA, and a review of health risk assessments included in the Long Beach Airport Terminal Area Improvement Project Draft EIR,[149] LAX SAIP Draft EIR,[150] LAX CFTP Draft EIR,[151] Oakland International Airport - Airport Development Program (ADP) Draft Supplemental EIR,[152] and Orange County Civilian Reuse of MCAS El Toro Draft Supplemental EIR.[153] Selection of TACs of concern for the Bradley West Project was based initially on 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

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148 Receptors represent locations in the vicinity of the airport where people could potentially be exposed to the TACs by breathing the air.

149 City of Long Beach, Long Beach Airport Terminal Area Improvement Project Draft EIR, September 2005.

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

151 City of Los Angeles, Los Angeles World Airports, Draft Environmental Impact Report for Crossfield Taxiway Project, Los Angeles International Airport (LAX), September, 2008.

152 Port of Oakland, Draft Oakland International Airport - Airport Development Program (ADP) Supplemental Environmental Impact Report, September 2003.

153 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, April 2001.

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. Elimination of these TAC was supported by results presented in the Oakland and El Toro EIRs and in communication with CARB.[154] This list of TACs was further refined to include only TACs with chronic RELs, acute RELs, and cancer potency values identified by OEHHA. TACs not included in this list are discussed further in Appendix F of this EIR. Lack of quantitative analysis of these latter TACs is not anticipated to affect the conclusions of the risk assessment. Since the HHRA for the LAX Master Plan Final EIR did not address risks associated with construction, additional TACs (e.g., ammonium ion, and chlorine) identified as constituents in construction dust were included as TACs of concern to complete the analysis of construction-related acute risks. The resulting list of TACs of concern for the Bradley West Project HHRA is identified in **Table 4.5-1**.

Table 4.5-1

Toxic Air Contaminants of Concern for the Bradley West Project

Toxic Air Contaminant	Type
Acetaldehyde	VOC
Acrolein	VOC
Benzene	VOC
1,3-Butadiene	VOC
Ethylbenzene	VOC
Ethylene glycol	VOC
Formaldehyde	VOC
n-Hexane	VOC
Isopropyl alcohol	VOC
Methyl alcohol	VOC
Methyl ethyl ketone	VOC
Methyl t-butyl ether	VOC
Phenol	VOC
Propylene	VOC
Styrene	VOC
Toluene	VOC
Xylene (total)	VOC
Naphthalene	PAH
Antimony	PM-Metal
Arsenic	PM-Metal
Cadmium	PM-Metal
Chromium VI	PM-Metal
Copper	PM-Metal
Lead	PM-Metal
Manganese	PM-Metal
Mercury	PM-Metal
Nickel	PM-Metal
Selenium	PM-Metal
Silicon	PM-Metal
Vanadium	PM-Metal
Zinc	PM-Metal
Diesel PM	Diesel Exhaust
Ammonium Ion	PM-Inorganics
Bromine	PM-Inorganics
Chlorine	PM-Inorganics
Sulfates	PM-Inorganics

Source: CDM, 2009.

[154] Honcoop, Gary, California Air Resources Board, Personal Communication, June 23, 2005.

Exposure Assessment

For the Bradley West Project, receptors selected for quantitative evaluation were: off-airport workers, off-airport adult residents, off-airport child residents, and off-airport school children. Each receptor represents a unique population and set of exposure conditions. As a whole, they cover a range of exposure scenarios for the potentially most affected human receptors near LAX. Receptors for which exposure scenarios are prepared were selected to provide the most conservative, and therefore, protective, values for health impact assessment. By providing estimates for the most exposed individuals, the general population would also be protected.

Exposure scenarios include receptors and the various pathways by which they might be exposed to TACs of concern. A complete exposure pathway consists of four parts:

- A TAC source (e.g., construction equipment fuel combustion)
- A release mechanism (e.g., construction equipment engine exhaust)
- A means of transport from point of release to point of exposure (e.g., local winds)
- A route of exposure (e.g., inhalation)

If any of these elements of an exposure pathway is absent, no exposure can take place and the pathway is considered incomplete and was not evaluated. Numerous potentially complete exposure pathways exist for receptors at or near LAX. For this HHRA, the inhalation pathway was the most important complete exposure pathway, contributing the majority of risk associated with the project, and was therefore quantitatively evaluated for all receptors. Other exposure pathways - including deposition of TACs onto soils and subsequent exposure via incidental ingestion of this soil, uptake from soil into homegrown vegetables, and other indirect pathways - were addressed quantitatively in the programmatic HHRA developed for the LAX Master Plan EIR. No pathway other than inhalation was found to be an important contributor to exposure and risk/hazard. Based on this analysis, pathways other than inhalation were not assessed in the HHRA for the Bradley West Project.

Modeled concentrations were used to estimate human health risks and hazards, which serve as the basis of the significance determinations for the Bradley West Project. To estimate cancer risks and the potential for adverse non-cancer health hazards, TAC intakes via inhalation for each receptor were estimated. For cancer and non-cancer risk assessment, average long-term daily intakes are used to estimate risk and hazards. Cancer risk is evaluated as the lifetime average daily dose (LADD) according to CalEPA and USEPA guidance. Non-cancer hazards are evaluated as average daily dose (ADD) over the period of exposure, again, following CalEPA and USEPA guidance. Exposure assumptions and risk calculation equations are discussed further in Appendix F of this EIR.

Assessment of potential chronic human health impacts due to release of TACs associated with the Bradley West Project assumes that the exposure concentrations of TACs are constant over a 70-year period for residential receptors. Since Bradley West Project construction is expected to be completed in approximately 5 years, chronic health impacts estimated for construction are conservative and will substantially overestimate actual risk and hazards associated with the project. To provide a range of potential impacts, chronic health impacts are also calculated for the period of construction (i.e., approximately 5 years). This 5-year construction period analysis is provided in Section 5, *Uncertainties*, of Appendix F of this EIR. Exposure parameters used to calculate LADD and ADD for all receptors for the inhalation pathway are summarized in **Table 4.5-2**. Exposure parameters are based on the CalEPA Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities,[155] USEPA Exposure Factors Handbook,[156] and CalEPA Air Toxics Hot Spots

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

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

Program Guidance Manual for Preparation of Health Risk Assessments.[157] These exposure parameters were selected to maintain consistency with the health risk analyses conducted for the LAX Master Plan Final EIR,[158] the SAIP EIR,[159] and the CFTP EIR.[160] However, the CalEPA Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments recommends a range of exposure durations and inhalation rates be evaluated. Additional analyses, presented in Section 5, *Uncertainties*, of Appendix F of this EIR, verify that the sensitivity of the analyses to these variations in exposure durations and inhalation rates does not change the conclusions regarding potential impacts of the project.

Table 4.5-2

Parameters Used to Estimate Exposures to TACs of Concern

Exposure Pathway	Off-Airport Receptors			
	Off-Site Resident		Off-Site	Off-Site
Inhalation of Particulates and Gases	Adult	Child	School Child	Worker
Daily Breathing Rate (m^3/day)	20[2]	15[2]	6[2]	10[2]
Exposure Frequency (days/yr)	350[1,3]	350[1,3]	200[4]	245[1]
Exposure Duration (years)	70[1,5]	6[2]	6[4]	40[1]
Body Weight (kg)	70[1,6]	15[2]	40	70[1,6]
Averaging Time - Non-cancer (days)	25,550[1,6]	2,190[6]	2,190[6]	14,600[6]
Averaging Time - Cancer (days)	25,550[1,6]	25,550[1,6]	25,550[1,6]	25,550[1,6]

1 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003.
2 U.S. Environmental Protection Agency, Exposure Factors Handbook, USEPA/600/P-95/002Fa, 1997.
3 U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors, August, 1991.
4 Site-specific. See Appendix F, Attachment 3.
5 70 year exposure duration will be used as basis for determining significance.
6 U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual, Part A, USEPA/540/1-89/002, 1989.

Source: CDM, 2009.

Toxicity Assessment

Risks from exposure to TACs were calculated by combining estimates of potential exposure (LADD or ADD) with appropriate toxicity criteria. 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 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.

Cancer slope factors and chronic RELs developed by the State of California were used to characterize cancer risks and chronic non-cancer hazards associated with longer term exposure to construction emissions. Both types of toxicity criteria are based on studies of chronic exposure in animals or, in some

157 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003.
158 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004.
159 City of Los Angeles, Los Angeles World Airports, Draft Environmental Impact Report for South Airfield Improvement Project, Los Angeles International Airport (LAX), August 2005.
160 City of Los Angeles, Los Angeles World Airports, Draft Environmental Impact Report for Crossfield Taxiway Project, Los Angeles International Airport (LAX), September 2008.

cases, to people. Cancer slope factors and chronic RELs are presented in **Table 4.5-3** and **Table 4.5-4**, respectively.

Table 4.5-3

Cancer Slope Factors

TAC of Concern	Cal/EPA[1] Inhalation Cancer Slope Factor $[(mg/kg/day)^{-1}]$[2]	Tumor Site/ Inhalation	Cancer Classification[3]
VOC			
Acetaldehyde	0.01	Nasal, Larynx	B2
Acrolein	NA	NA	C
Benzene	0.1	Blood	A
1,3-Butadiene	0.6	Reproductive System, Blood, Lung, GI	A
Ethylbenzene	0.0087	Kidney	D
Formaldehyde	0.021	Respiratory System	B1
Methyl t-butyl ether	0.00091	NA	A
Naphthalene	0.12	Respiratory System	C
Diesel Exhaust			
Diesel Particulates	1.1	Lung	D
PM-Metal			
Arsenic	12	Skin	A
Cadmium	15	Lung	B1
Chromium VI	510	Lung	A
Lead	0.042	NA	B2
Nickel	0.91	NA	A

1 Cal/EPA, 2008.
2 mg/kg/day - milligram per kilogram per day
3 USEPA, EPA Weight of Evidence (EPA 1986, EPA 1996):
A Human carcinogen
B1 Probable human carcinogen - indicates limited evidence in humans
B2 Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans.
C Possible human carcinogen
D Not classifiable as human carcinogen

Source: CDM, 2009.

Table 4.5-4

Toxicity Criteria for Systemic Toxicants

TAC of Concern	USEPA Chronic Oral RfD[1,2] (mg/kg-day)[3]	Cal/EPA Chronic Inhalation RfD[4] (mg/kg-day)	Target Organ: Oral	Target Organ: Inhalation	Uncertainty Factor: Oral	Uncertainty Factor: Inhalation (Cal/EPA RfD)
VOC[6]						
Acetaldehyde	NA[7]	4.00×10^{-2} (11)	NA	Respiratory System	NA	300
Acrolein	5×10^{-4}	1.00×10^{-4} (11)	Decreased Survival	Respiratory System, Eye	100	200
Benzene	4×10^{-3}	1.71×10^{-2}	Decreased Lymphocyte Count	Hematopoietic System, Development, Nervous System, Immune System	300	10
1,3-Butadiene	NA	5.71×10^{-3} (11)	NA	Reproductive System	NA	30
Ethylbenzene	1×10^{-1}	5.71×10^{-1}	Liver, Kidney	Developmental, Liver, Kidney, Endocrine System	1,000	30
Ethylene glycol	2×10^{0}	1.14×10^{-1}	Kidney	Respiratory System, Kidney, Development	100	100
Formaldehyde	2×10^{-1}	2.57×10^{-3} (11)	Body Weight	Respiratory System, Eye	100	10
n-Hexane	NA	2.00×10^{0}	NA	Nervous System	NA	30
Isopropyl alcohol	NA	2.00×10^{0} (11)	NA	Kidney, Development	NA	NA
Methyl alcohol	5×10^{-1}	1.14×10^{0}	Increased SGPT,[8] SAP[9] Decrease Brain Weight	Developmental	1,000	30
Methyl ethyl ketone	6×10^{-1}	1.43×10^{0} (1)	Body Weight	Developmental (skeletal variations)	1,000	300
Methyl t-butyl ether	NA	2.29×10^{0} (11)	NA	Liver, Kidney, Eye	NA	100
Naphthalene	2×10^{-2}	2.57×10^{-3}	Body Weight	Respiratory System	3,000	1,000
Phenol	3×10^{-1}	5.71×10^{-2}	Decreased Maternal Weight Gain	Alimentary System, Cardiovascular System, Kidney, Nervous System	300	100
Propylene	NA	8.57×10^{-1}	NA	Respiratory System	NA	100
Styrene	2×10^{-1}	2.57×10^{-1}	Red Blood Cells, Liver	CNS[10]	1,000	3
Toluene	8×10^{-2}	8.57×10^{-2}	Kidney Weight	CNS, Respiratory System, Development	3,000	300
Xylene	2×10^{-1}	2.00×10^{-1}	Body Weight	CNS, Respiratory System	1,000	30
Diesel Exhaust						
Diesel Particulates	NA	1.43×10^{-3}	NA	Respiratory System	NA	NA
PM Metal						
Antimony	4×10^{-4}	NA	Blood	NA	1,000	NA
Arsenic	3×10^{-4}	4.29×10^{-6} (11)	Skin	Development, Cardiovascular System, Nervous System	3	30
Cadmium	1×10^{-3}	5.71×10^{-6}	Proteinuria	Respiratory System, Kidney	10	30
Chromium (VI)	3×10^{-3}	5.71×10^{-5} (11)	None Reported	Respiratory System	300	300
Copper	4×10^{-2} (5)	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA
Manganese	1.4×10^{-1}(Food)	2.57×10^{-5} (11)	CNS	Nervous System	1	300
Mercury	NA	8.57×10^{-6} (11)	NA	Nervous System	NA	300
Nickel	2×10^{-2}	1.43×10^{-5}	Body, Organ Weight	Respiratory System, Immune System	300	30
Selenium	5×10^{-3}	5.71×10^{-3} (11)	Clinical Selenosis	Alimentary System, Cardiovascular System, Nervous System	3	NA
Silicon	NA	NA	NA	NA	NA	00
Vanadium	9×10^{-3}	2.00×10^{-6} (1)	Decreased Hair Cystine	NA	100	NA
Zinc	3×10^{-1}	NA	Blood	NA	3	NA

Table 4.5-4

Toxicity Criteria for Systemic Toxicants

TAC of Concern	USEPA Chronic Oral RfD[1,2] (mg/kg-day)[3]	Cal/EPA Chronic Inhalation RfD[4] (mg/kg-day)	Target Organ		Uncertainty Factor	
			Oral	Inhalation	Oral	Inhalation (Cal/EPA RfD)
PM Inorganics						
Ammonium Ion	NA	5.71×10^{-2}	NA	Respiratory System	NA	10
Bromine	NA	NA	NA	NA	NA	NA
Chlorine	1×10^{-1}	5.71×10^{-5}	None Reported	Respiratory System	100	30
Sulfates	NA	NA	NA	NA	NA	NA

1 Values obtained from the USEPA Integrated Risk Information System (IRIS), 2008.
2 RfD = Reference Dose
3 mg/kg/day = milligram per kilogram per day
4 Calculated from RELs (REL = Reference Exposure Level) obtained from OEHHA Online Toxicity Criteria database, 2008. RELs are concentrations in air that would not result in toxic effects even if exposure continued for a lifetime. RELs can be converted to inhalation RfDs by multiplying by inhalation rate (20 m^3/d) and dividing by body weight (70 kg).
5 Values obtained from the USEPA Region 9 PRG Table, 2008.
6 VOC = Reactive Organic Gas
7 NA = Not available or not applicable.
8 SGPT = Serum glutamate pyruvate transaminase
9 SAP = Serum alkaline phosphatase
10 CNS = Central Nervous System
11 Values obtained from the CalEPA OEHHA, Air Toxics Hot Spots, Risk Assessment Guidelines, Technical Support Document for the Derivation of Noncancer Reference Exposure Levels, June 2008, Appendix B.

Source: CDM, 2009.

Acute RELs developed by the State of California were used in characterization of potential hazards associated with short-term exposure (usually from exposures on the order of 1-hour). RELs are based on the most sensitive, relevant, adverse health effect reported in the medical and toxicological literature. Since margins of safety are incorporated to address data gaps and uncertainties, exceeding the REL does not automatically indicate an adverse health impact. Acute RELs are applicable to all receptors, children and adults, and hazards are simply the ratio of estimated or measured concentrations and the REL. The acute RELs for the TACs of concern are provided in **Table 4.5-5**. TACs without acute RELs are discussed further in Appendix F.

Table 4.5-5

Acute RELs for TACs of Concern

TAC	Acute REL[1] (μg/m³)
Acetaldehyde	470[2]
Acrolein	2.5[2]
Benzene	1,300
Formaldehyde	55[2]
Toluene	37,000
Xylenes Total	22,000
Styrene	21,000
Methyl Alcohol	28,000
Methyl Ethyl Ketone	13,000
Phenol	5,800
Isopropyl Alcohol	3,200
Ammonia	3,200
Arsenic	0.20[2]
Chlorine	210
Copper	100
Mercury	0.6[2]
Nickel	6
Sulfates	120
Vanadium Pentoxide	30

1 Values obtained from OEHHA Online Toxicity Criteria database, 2008 unless otherwise indicated.

2 Values obtained from CalEPA OEHHA, Air Toxics Hot Spots, Risk Assessment Guidelines, Technical Support Document for the Derivation of Noncancer Reference Exposure Levels, Appendix D, December 2008.

Source: CDM, 2009.

Risk Characterization

Methodology for Evaluating Cancer Risks and Non-Cancer Health Hazard

Cancer risks were estimated by multiplying exposure estimates for carcinogenic chemicals (LADD) by corresponding cancer slope factors. The result is a risk estimate expressed as the odds of developing cancer. Cancer risks were based on an exposure duration of 70 years.

Non-cancer hazard estimates were calculated by dividing exposure estimates (ADD) by reference doses. Reference doses are estimates of the highest exposure levels that would not cause adverse health effects even if exposures continue over a lifetime.

Maximally Exposed Individuals (MEI)

For the Bradley West Project, approximately 451 grid points were analyzed along the airport fence-line and within the study area (**Figure 4.5-1**). Concentrations of each TAC at these nodes were used in the cancer risk and chronic and acute non-cancer hazard estimates. These calculations were used to identify locations with maximum cancer risks and maximum non-cancer hazards. These locations represent MEI and were used in significance determinations.

MEI estimates were land use specific. Land use designations (commercial, residential, etc.) were used to identify receptor type at each grid node used in the air dispersion analysis. For off-airport locations, surrounding land use was used to identify appropriate receptors. For fence-line grid points, land use designations in nearest off-airport areas were used to identify the receptor type. Risk and hazard calculations were based on receptors appropriate for the land use designations. For example, if a grid node was identified for commercial land use, exposure parameters appropriate for adult commercial workers were used to estimate exposures, risks and hazards at that grid point location.

Fence-line concentrations of TACs represent the highest or near-highest concentrations that could be considered "off-airport." Concentrations in areas where people actually work, live and attend school are predicted to be lower. Thus, potential impacts for residents, workers, and school children are likely to overestimate risks and hazards that may occur under current off-site conditions. The relatively short time of proposed construction activities for the Bradley West Project (i.e., approximately 5 years) suggests that these conditions are not likely to change notably during the project and that this evaluation of construction impacts can be considered conservative estimates of off-airport risks and hazards for the duration of construction.

Methodology for Evaluating Acute Impacts

Acute non-cancer risk estimates were calculated by dividing estimated maximum 1-hour TAC concentrations in air by acute RELs. An acute REL is a concentration in air below which adverse effects are unlikely, including in sensitive subgroups. In most cases, RELs were estimated on the basis of a 1-hour exposure duration. CalEPA's OEHHA has developed acute RELs for several of the TACs of concern identified in emissions from the airport. As noted in the LAX Master Plan Final EIR, acrolein is a TAC of concern and is responsible for essentially all predicted chronic non-cancer health hazards associated with LAX operations. Acrolein release is primarily due to aircraft emissions (i.e., operation emission estimates). Other TACs of concern associated with LAX operations, for which acute RELs are available, are unlikely to be present in concentrations that would represent an acute health threat. Because Bradley West Project has both construction and operational sources, acute adverse health impacts for all TACs with RELs, not just acrolein, were evaluated so that potential impacts from construction emissions would also be assessed.

Short-term concentrations for TACs associated with implementation of the Bradley West Project were estimated using the same AERMOD used to estimate annual average concentrations, but with the model option for 1-hour maximum concentrations selected. These concentrations represent the highest predicted concentrations of TACs. Acute hazards were then estimated at each grid point by comparison with acute RELs.

Evaluation of Health Effects for On-Airport Construction Workers

Potential impacts to construction workers were evaluated by comparing estimated acute 1-hour air concentrations of TACs during Bradley West Project construction to 8-hour standards referred to as PEL-TWAs, established by CalOSHA.[161] For pollutants with no PELs, Threshold Limit Values (TLVs) established by the American Conference of Governmental Industrial Hygienists (ACGIH)[162] were used.

To address potential acute impacts to construction workers from Bradley West Project-specific operations, 1-hour concentrations in the CTA were used to represent reasonable estimates of 8-hour concentrations in the Bradley West Project construction area.

4.5.3 Baseline Conditions

Evaluation of human health risk impacts associated with the Bradley West Project focuses on exposure to air pollutant emissions generated by construction activities and Bradley West Project-specific operational changes. Existing baseline risk associated with construction sources is zero because construction activities have not yet started and no construction emissions would occur under a no-project scenario.

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

162 American Conference of Governmental Industrial Hygienists, Documentation of the Threshold Limit Values and Biological Exposure Indices, 8th ed., 1998.

Although, due to market conditions, operations as a whole for LAX are forecasted to decrease in the short term compared to the 1996 baseline used for the LAX Master Plan Final EIR, by 2013, Bradley West Project-specific operations may result in an increase in emissions from aircraft compared to the 2008 baseline condition. These Bradley West Project-specific operational sources are those that would have different operating characteristics after completion of the Bradley West Project than after full implementation of the LAX Master Plan, and thus were not evaluated in the LAX Master Plan Final EIR. For this reason, operational emissions specific to the Bradley West Project are addressed in this HHRA, as incremental increases over 2008 baseline conditions.

4.5.4 CEQA Thresholds of Significance

A significant[163] impact relative to human health risk would occur if direct and indirect changes in the environment that may be caused by the Bradley West Project when compared to 2008 baseline conditions could result in one or more of the following future conditions listed below.

- An increased cancer risk greater than, or equal to, 10 in one million (10×10^{-6}) for potentially exposed residents or school children.
- A total chronic hazard index[164] greater than, or equal to, 1 for any target organ system[165] at any receptor location.
- A total acute hazard index greater than, or equal to, 1 for any target organ system at any receptor location.
- Exceedance of Permissible Exposure Limits - Time Weighted Average or Threshold Limit Values for workers.

The thresholds listed above are utilized for this HHRA based on SCAQMD guidance, namely SCAQMD's Air Quality Analysis Guidance Handbook[166] 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. Thresholds for workers are based on standards developed by CalOSHA, or, in the absence of CalOSHA standards for specific pollutants, standards developed by the American Conference of Governmental Industrial Hygienists.[167,168]

4.5.5 LAX Master Plan Commitments and Mitigation Measures

LAX Master Plan mitigation measures and commitments that are applicable to the Bradley West Project are discussed below. LAX Master Plan mitigation measures that address air quality impacts are summarized in Section 4.4 of this EIR. As indicated in that section, two LAX Master Plan mitigation measures would directly relate to the Bradley West Project and were accounted for in the TAC emissions and dispersion analysis. These measures, which are described in Section 4.4, include:

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163 The term "significant" is used as defined in CEQA regulations and does not imply an independent judgment of the acceptability of risk or hazard.

164 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.

165 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).

166 South Coast Air Quality Management District, Air Quality Analysis Guidance Handbook, July 2008, Available: http://www.aqmd.gov/ceqa/hdbk.html.

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

168 American Conference of Governmental Industrial Hygienists, Documentation of the Threshold Limit Values and Biological Exposure Indices, 8th ed., 1998.

- **MM-AQ-1. LAX Master Plan - Mitigation Plan for Air Quality.**
- **MM-AQ-2. Construction-Related Measure.**

These measures will reduce emissions of TACs bound to particulate matter (e.g., diesel particulate matter and metals) during construction of the LAX Master Plan primarily by reducing emissions from construction equipment and mobile sources. The calculation of TAC emissions and dispersion for the Bradley West Project EIR assumed the implementation of these measures. However, for this human health risk assessment, a scenario is included which assumes that these measures are not implemented. This "unmitigated" scenario provides a worst-case evaluation of risks and hazards.

4.5.6 Impact Analysis

This section describes potential environmental impacts of the Bradley West Project as they relate to impacts to human health caused by inhalation exposure to TACs released during project construction and operation. Environmental consequences considered are: cancer risks, non-cancer chronic (long-term) health hazards, and non-cancer acute (short-term) health hazards. Possible human health effects are discussed as they relate to releases of TACs during construction activities and Bradley West Project-specific operations and to associated risks and chronic and acute hazards for off-airport residents, school children, and workers. Possible effects for on-airport workers are also considered.

The discussion of TACs and associated health impacts addresses potential cancer risks, non-cancer chronic hazards, and non-cancer acute hazards for MEI. For this analysis, an MEI was conservatively identified as an individual that works, resides, or attends school within 25 meters of the LAX fence-line. Since no such individuals currently exist, all estimates of risk and hazard overestimate any health risk that may actually accrue as a result of the Bradley West Project. Risks and hazard estimates from construction reflect total risk associated with releases of TAC from construction sources; they assume that the 2008 baseline is zero. Risks and hazard estimates from operations evaluate incremental risk associated with releases of TAC from operational sources above the 2008 baseline. Bradley West Project construction is estimated to be completed within a 5-year timeframe, with peak construction for construction-related air quality emissions impacts anticipated to occur in the third quarter of 2010 and completion of construction estimated to occur by the beginning of 2015, while Bradley West Project-specific operations are not anticipated until 2013. Exposure to TACs associated with construction and operational emissions would thus occur largely sequentially rather than concurrently. This issue is key to understanding of health hazards, since these hazards are proportional to average daily dose. Concurrent exposure would mean higher average daily dose and thus higher estimates for hazard indices. The issue is not important for understanding cancer risks. These risks are amortized over a lifetime, and thus, within limits, high exposure over a short term and low exposure over a long term can be associated with the same risk.

Cancer risk and non-cancer health hazards are based on emission rates estimated for construction activities and Bradley West Project-specific operations as described above, and on basic exposure assumptions as used in the HHRA for the LAX Master Plan EIR, as revised to be consistent with recent CalEPA guidance.[169] MEI cancer risks and non-cancer health hazards were calculated for adult residents, child residents 0 to 6 years of age, adult workers, and elementary-aged school children near or at fence-line locations where 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 would hence be subject to the greatest potential risks and hazards. For the acute non-cancer health hazard impact analysis, receptors were assumed to be located at grid points near or at the fence-line. As noted above, this approach overestimates actual project-related risks.

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

Methods used in the HHRA are conservative. That is, the methods used are more likely to overestimate than underestimate possible health risks. For example, as noted above, risks were calculated for individuals that live or go to school near or at the LAX fence-line 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 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 Bradley West Project. By protecting hypothetical individuals that receive the highest exposures, the risk assessment is also protective for actual members of the population near LAX that would not be as highly exposed.

Calculations supporting the results presented in the following sections are provided in Attachments 3 and 4 of Appendix F. As described in the sections below, risk calculations indicate that estimates of health risk associated with emissions during and subsequent to the Bradley West Project would be below regulatory thresholds of significance.

4.5.6.1 Cancer Risks

Project-related cancer risks for the MEI are summarized in **Table 4.5-6**. As indicated in this table, construction emissions of the unmitigated Bradley West Project would result in a MEI cancer risk of 4 in one million for adult residents at the residential location with the maximum cancer risk. This means that if a population of adult residents was exposed to TAC concentrations at the MEI location for 70 years, an additional 4 cancer cases per million people exposed might occur. Operational emissions of the unmitigated Bradley West Project would result in a cancer risk of 1 in one million for adult residents at the residential MEI location. Overall, construction sources are associated with higher cancer risks than operational sources.

Total cancer risks from construction sources are estimated to be 1 in one million for child residents and 5 in one million for adult+child residents. Cancer risks for adults and children are due almost entirely to exposure to diesel particulate matter, which contributes about 82 percent of the risk estimate from construction sources. The remaining portion of the construction source risk is attributable to hexavalent chromium (12 percent) and vanadium (4 percent). These risks are greatly overestimated because (1) they assume that exposure occurs at locations of maximum concentrations even though no people reside at these locations and (2) they assume that exposure to TACs released during Bradley West Project construction would occur continuously over an entire lifetime. Concentrations of TAC associated with construction of the Bradley West Project would be much less at current residential locations and construction of the Bradley West Project would require only approximately 5 years. The spatial distribution of risks is further discussed below. Cancer risk estimates based on actual construction duration are provided in Section 5, *Uncertainties*, of Appendix F.

Cancer risks from Bradley West Project-specific operational sources for child residents (0.4 in one million) and adult+child residents (2 in one million) are due primarily to exposure to 1,3-butadiene, which contributes about 59 percent of the risk estimate, with the remaining portion attributable to formaldehyde (15 percent) and benzene and diesel particulate matter (10 percent each).

Although the construction and operation periods of the Bradley West Project would overlap for approximately two years (2013 and 2014), combining cancer risks estimates from these two phases is not reasonable, since it would assume that both construction of the Bradley West Project and post-construction operational changes would co-occur for 70 years. As mentioned above, construction of the Bradley West Project would require only approximately 5 years. Cancer risk estimates evaluating concurrent Bradley West Project construction and operation for 70 years is discussed in Section 5, *Uncertainties*, of Appendix F.

Table 4.5-6

Cancer Risks and Chronic Non-Cancer Human Health Hazards for Maximally Exposed Individuals for the Bradley West Project - Pre-Mitigation

Receptor Type	Construction	Operations[2]
Cancer Risks[1] (per million people) Unmitigated		
Child Resident	1	0.4
School Child	0.1	0.04
Adult + Child Resident[3]	5	2
Adult Resident	4	1
Adult Worker	4	0.6
Non-Cancer Chronic Health Hazards[4] Unmitigated		
Child Resident	0.03	0.09
School Child	0.003	0.008
Adult Resident	0.009	0.03
Adult Worker	0.02	0.02

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 Maximum concentrations for each scenario are not at the same location (grid point).
3 Includes exposure to TACs released from LAX from childhood (ages 0-6) through adulthood (ages 7-70).
4 Hazard indices are totals for all TACs that may affect the respiratory system. This hazard index is essentially equal to the total for all TACs.

Source: CDM, 2009.

Cancer risks for children attending schools within the study area are estimated to be 0.1 in one million from construction sources and 0.04 from operational sources. Cancer risks for adult workers within the study area are estimated to be 4 in one million from construction sources and 0.6 from operational sources. Diesel particulate matter from construction sources and 1,3-butadiene from operational sources contributed the majority of the cancer risk for both these receptors.

Project-related cancer risks for all adult receptors and for young children are predicted to be below the threshold of significance (10 in one million).

4.5.6.2 Non-Cancer Chronic Health Hazards

Project-related non-cancer chronic hazard indices for construction impacts associated with the Bradley West Project are provided in **Table 4.5-6**. Hazard indices for adult residents and child residents living at the peak TAC concentration location under the unmitigated scenario are estimated to be 0.009 and 0.03, respectively. The hazard index for school children is estimated to be 0.003. The hazard index for adult workers is estimated to be 0.02. Hazard index estimates are higher for children than adults, because they are normalized to body weight, which is lower for children than for adults. Diesel particulate matter contributes 23 percent to the hazard index from construction sources for all residential receptors, with the remaining portion of the total hazard index attributable to vanadium (34 percent), chlorine (18 percent), formaldehyde (6 percent), and manganese (10 percent). For adult workers, contributions are slightly different, with diesel particulate matter contributing 17 percent to the hazard index from construction sources and the remaining portion of the total hazard index attributable to vanadium (41 percent), chlorine (21 percent), formaldehyde (4 percent), and manganese (11 percent). The source of diesel particulate matter is mainly construction equipment. Vanadium emissions are primarily from fugitive dust.

Unlike cancer risks, operational sources contribute more to chronic hazards than construction sources. This is likely due to acrolein in aircraft emissions. Acrolein contributes 81 percent to the hazard index from operational sources for all residential receptors and formaldehyde contributes 16 percent. Hazard indices for exposure to operational sources for adult residents and child residents living at the peak TAC concentration location under the unmitigated scenario are estimated to be 0.03 and 0.09, respectively. The hazard index for school children is estimated to be 0.008. The hazard index for adult workers is estimated to be 0.02.

Project-related chronic non-cancer health hazards for all receptor types are below the threshold of significance (HI of 1).

4.5.6.3 Non-Cancer Acute Health Hazards

A hazard index equal to or greater than 1, the threshold of significance for acute effects, indicates some potential for acute adverse health effects. A hazard index less than 1 suggests that acute adverse health effects are not expected. 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. Acute hazards were evaluated for all residents, on-airport and off-airport occupational workers, and school children.

Acute hazards are substantially below 1 for all selected grid nodes within the study area under both mitigated and unmitigated scenarios. However because no additional mitigation was assumed for VOC emissions, mitigated and unmitigated concentrations of acrolein and formaldehyde are the same. The maximum acute hazards associated with construction activities and operations for the Bradley West Project are shown in **Table 4.5-7** and are based on potential exposure to acrolein and formaldehyde. That is, acute risks for other TACs for which acute toxicity criteria exist are much lower. Acute exposures to acrolein may result in mild irritation of eyes and mucous membranes.[170] For formaldehyde, if acute effects occurred, they would typically include irritation to the eye and respiratory system and potentially adverse effects to the immune system.[171] The primary source of acrolein from operations is aircraft emissions. Primary sources of formaldehyde and acrolein associated with construction activities are emissions from gasoline and diesel powered equipment. Hazards due to acute exposure to other TACs are provided in Attachment 4 of Appendix F of this EIR. The peak 1-hour TAC location is shown in **Figure 4.5-1**.

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170 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, OEHHA Toxicity Criteria Database, Available: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp, May 1, 2008.

171 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, OEHHA Toxicity Criteria Database, Available: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp, May 1, 2008.

Table 4.5-7

Maximum Acute Hazard Indices for the Bradley West Project

	Summary of Acute Hazard Indices Bradley West Project			
	Formaldehyde		Acrolein	
	Const.	Operation[2]	Const.	Operation[2]
Residential				
Maximum HI[1]	0.07	0.02	0.0003	0.08
Minimum HI	0.005	0.005	0.00002	0.02
Average HI	0.03	0.01	0.0001	0.05
Off-Airport Worker				
Maximum HI	0.07	0.02	0.0003	0.09
Minimum HI	0.006	0.008	0.00003	0.04
Average HI	0.02	0.01	0.0001	0.05
School Child				
Maximum HI	0.03	0.02	0.0002	0.07
Minimum HI	0.02	0.01	0.00007	0.05
Average HI	0.02	0.01	0.00009	0.05
Overall Off-Airport Maximum HI	0.07	0.02	0.0003	0.09
On-Airport Construction Worker				
Maximum HI	0.1	NE[3]	0.0006	NE
Minimum HI	0.04	NE	0.0002	NE
Average HI	0.08	NE	0.0004	NE

1 HI = Hazard Index
2 Note maximum concentrations for each scenario are not at the same location (grid point).
3 NE = Not evaluated, see text

Source: CDM, 2009.

4.5.6.4 Health Effects for On-Airport Workers

Effects to on-airport workers were evaluated by comparing estimated maximum air concentrations of TACs for the Bradley West Project to the CalOSHA 8-hour PEL-TWAs.[172] Receptor locations evaluated for on-airport workers are shown in **Figure 4.5-1**. For pollutants with no PELs, TLVs established by the ACGIH[173] were used. Estimated on-airport air concentrations and PEL-TWAs for TACs of concern for LAX are presented in **Table 4.5-8**.

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

173 American Conference of Governmental Industrial Hygienists, Documentation of the Threshold Limit Values and Biological Exposure Indices, 8th ed., 1998.

Table 4.5-8

Comparison of CalOSHA Permissible Exposures Limits to the Bradley West Project Maximum Estimated 8-Hour On-Airport Air Concentrations

Toxic Air Contaminant[1]	Project Construction Unmitigated (mg/m³)[2]	Project Construction Mitigated (mg/m³)[2]	Project Operations Unmitigated (mg/m³)[2,7]	CAL OSHA PEL-TWA (mg/m³)[3]
Acetaldehyde	0.0032605	0.0032605	0.0002115	45
Acrolein	0.0000014	0.0000014	0.0001210	0.25
Benzene	0.0009143	0.0009143	0.0000951	0.32[4]
Butadiene, 1-3-	0.0000900	0.0000900	0.0000834	2.2
Ethylbenzene	0.0001464	0.0001464	0.0000086	435
Ethylene Glycol	0.0000000	0.0000000	0.0000000	100
Formaldehyde	0.0065374	0.0065374	0.0006330	0.37[4]
Hexane, n-	0.0000862	0.0000862	0.0000000	180
Isopropyl Alcohol	0.0000000	0.0000000	0.0000000	980
Methyl Alcohol	0.0000176	0.0000176	0.0000000	260
Methyl Ethyl Ketone	0.0006546	0.0006546	0.0000000	590
Methyl t-butyl ether	0.0000204	0.0000204	0.0000000	144
Naphthalene	0.0000382	0.0000382	0.0000267	50
Phenol	NE[6]	NE	0.0000358	19
Propylene	0.0011835	0.0011835	0.0002242	NA[5]
Styrene	0.0000270	0.0000270	0.0000152	215
Toluene	0.0007144	0.0007144	0.0000377	188
Xylene (total)	0.0005128	0.0005128	0.0000222	435
Antimony	0.0000093	0.0000045	0.0000000	0.5
Arsenic	0.0000111	0.0000049	0.0000000	0.01
Cadmium	0.0000204	0.0000095	0.0000000	0.005
Chromium VI	0.0000176	0.0000078	0.0000000	0.005
Copper	0.0000662	0.0000297	0.0000000	1
Lead	0.0003255	0.0001429	0.0000000	0.05
Manganese	0.0005329	0.0002340	0.0000000	0.2
Mercury	0.0000097	0.0000046	0.0000000	0.025
Nickel	0.0000375	0.0000171	0.0000000	1
Selenium	0.0000059	0.0000029	0.0000000	0.2
Vanadium	0.0001530	0.0000672	0.0000000	0.05[7]
Zinc	0.0003151	0.0001432	0.0000000	NA
Ammonium Ion	0.0001259	0.0000972	0.0000000	18
Bromine	0.0000168	0.0000079	0.0000000	0.7
Chlorine	0.0020226	0.0009413	0.0000000	1.5
Diesel PM	0.0175962	0.0225691	0.0000063	NA
Silicon	0.1130968	0.0495228	0.0000000	5
Sulfates	0.0044125	0.0022934	0.0000387	NA

1 All TACs for which PEL-TWAs are available are listed. PEL-TWAs are not available for diesel exhaust, propylene, zinc, and sulfates.
2 Maximum 1-hour concentrations at on-airport location. (W2 for VOCs and W3 for inorganics, except for ammonium ion, sulfates and diesel PM, which is W2)
3 California Occupational Safety and Health Administration, Permissible Exposure Limits for Chemical Contaminants, Table AC-1, 2008, Available: http://www.dir.ca.gov/title8/5155table_ac1.html.
4 CalOSHA does not have a value; value is from American Conference of Governmental Industrial Hygienists, Documentation of the Threshold Limit Values and Biological Exposure Indices, 8th ed., 1998.
5 NA = Not Available
6 NE = Not Estimated
7 Value listed for vanadium is for vanadium pentoxide.
8 Values listed are 1-hour concentrations in the CTA which represent reasonable estimates of 8-hour concentrations in the Bradley West Project construction area.

Source: CDM, 2009.

Estimated maximum air concentrations at on-airport locations under the Bradley West Project for both unmitigated and mitigated construction and operational scenarios are a few to several orders of magnitude below PELs or TLVs for all TACs. This result suggests that air concentrations from airport emissions with or without implementation of the Bradley West Project would not exceed those considered "acceptable" by CalOSHA standards.

4.5.6.5 Discussion of Impacts

Several factors contribute to the cancer risks and non-cancer health hazards associated with the Bradley West Project. Construction of the Bradley West Project would result in temporary emissions of various TACs from construction equipment, worker commuting vehicles, truck haul/delivery trips, surface paving, taxiway stripping, and demolition/material crushing and grading activities. Operation of the Bradley West Project would result in emissions of various TACs from passenger busing, utility changes to meet increases in demand for heating and cooling, and aircraft ground operations (taxi and idle).

Consistent with the results for the LAX Master Plan Final EIR, modeling results for the Bradley West Project indicate that diesel particulate matter from trucks and construction equipment is responsible for nearly all potential cancer risks posed by Bradley West Project construction activities as well as a substantial portion of non-cancer chronic health hazards (see Appendix F, Attachment 3). Specifically, diesel particulates account for nearly 82 percent of cancer risk and 23 percent of chronic non-cancer health hazard from construction sources. Fugitive dust contributes the greatest to non-cancer chronic health hazards, and gasoline and diesel powered equipment contributes the greatest to non-cancer acute health hazards from construction sources.

Aircraft emissions contribute the greatest to non-cancer chronic and acute health hazards from operational sources, with acrolein contributing 82 percent of chronic health hazards followed by formaldehyde, contributing 16 percent. Cancer risks from operational sources are driven primarily by exposure to 1,3-butadiene.

Estimated risks and health hazards, however, are less than significance thresholds for unmitigated conditions. Given the conservative (protective) approach used to estimate the magnitude of potential impacts to human health, no significant risks or hazards under CEQA are anticipated. Additional discussion of uncertainties is provided in Appendix F to support this conclusion.

4.5.7 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.

4.5.7.1 Cumulative Cancer Risks

The SCAQMD conducted an urban air toxics monitoring and evaluation study for the South Coast Air Basin from April 2004 through March 2006 called MATES-III. Recently released results of MATES-III provide a follow up to MATES-II and update the general evaluation of cancer risks associated with TACs from all sources within the South Coast Air Basin developed in MATES-II. According to the study, cancer risks in the Basin range from 870 in a million to 1,400 in a million, with an average of 1,200 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 substantial. The MATES-III 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 small decrease in cumulative risks for many people living closest to the airport.

Although project-specific construction activities of the Bradley West Project were not analyzed in the LAX Master Plan Final EIR, total estimated cancer risks for the Bradley West Project are less than those estimated for the No Action/No Project Alternative in 2005 in the LAX Master Plan Final EIR. Therefore, cumulative impacts for the project would also be less than those identified for this No Action/No Project Alternative. This conclusion is based on the assumption that impacts associated with the Bradley West Project would be less than impacts estimated for the SAIP. The HHRA for the SAIP concluded that the incremental contribution to cumulative cancer risk for both operational and construction sources would not be measurable against urban background conditions in the South Coast Air Basin. Based on this conclusion, the Bradley West Project can be expected to result in an extremely small increase in cumulative human cancer risks and the increase would probably not be measurable against urban background conditions in the South Coast Air Basin.

With regard to reasonably foreseeable projects, continued growth and development in the region, as well as other construction projects at LAX, may result in additional emissions of TACs. Future emissions of TACs in the airshed in general cannot be quantitatively assessed; emissions associated with other projects at LAX that may be constructed concurrently with the Bradley West Project can be estimated to assess how they compare to estimated mitigated Bradley West Project emissions during construction. Projects at LAX that were included in this evaluation are: Bradley West Project (Taxiway S and ARFF demolition), Crossfield Taxiway Project, Airfield Operating Area (AOA) Perimeter Fence Enhancements - Phase III, Security Program - In-Line Baggage Screening Systems (T6), TBIT Interior Improvements Program, Airfield Intersection Improvements - Phase 2, Airport Operations Center (AOC)/Emergency Operation Center (EOC), K-9 Training Facility, Central Utilities Plant (CUP) Replacement Program, Passenger Boarding Bridge Replacement, Bus Wash Rack Facility, CTA Elevators and Escalators Replacement, CTA Seismic Retrofits, Sewer Line Replacement, CTA Joint Repair, Roadway Improvements, and Security Barriers, Korean Air Cargo Terminal Improvement Project, West Aircraft Maintenance/Aircraft Parking Area, Westchester Golf Course 3-Hole Expansion Project, Westchester Rainwater (Stormwater) Improvement Project, and Metro Bus Maintenance and Operations Facility. Cumulative cancer risks and hazards from the estimated emissions of these projects at LAX are summarized in **Table 4.5-9**.

Table 4.5-9

Cumulative Incremental Cancer Risks and Chronic Non-Cancer Human Health Hazards for Maximally Exposed Individuals for Construction of Other Concurrent Projects at LAX Compared to the Bradley West Project

Receptor Type	Concurrent Other Projects at LAX Mitigated[2,3]	Bradley West Project Mitigated[4]	
		Construction	Operation
Incremental Cancer Risks[1] (per million people)			
Child Resident	9	1	0.4
School Child	0.8	0.1	0.04
Adult + Child Resident[5]	38	5	2
Adult Resident	31	4	1
Adult Worker	31	3	0.6
Incremental Non-Cancer Chronic Hazards[6]			
Child Resident	0.3	0.02	0.09
School Child	0.03	0.002	0.008
Adult Resident	0.09	0.006	0.03
Adult Worker	0.09	0.01	0.02

1 Values provided are changes in the number of cancer cases per million people exposed as compared to baseline conditions. Cancer and hazard estimates are rounded to one significant figure.
2 Includes Bradley West Project (Taxiway S and ARFF demolition), Crossfield Taxiway Project, Airfield Operating Area (AOA) Perimeter Fence Enhancements - Phase III, Security Program - In-Line Baggage Screening Systems (T6), TBIT Interior Improvements Program, Airfield Intersection Improvements - Phase 2, Airport Operations Center (AOC)/Emergency Operation Center (EOC), K-9 Training Facility, Central Utilities Plant (CUP) Replacement Program, Passenger Boarding Bridge Replacement, Bus Wash Rack Facility, CTA Elevators and Escalators Replacement, CTA Seismic Retrofits, Sewer Line Replacement, CTA Joint Repair, Roadway Improvements, and Security Barriers, Korean Air Cargo Terminal Improvement Project, West Aircraft Maintenance/Aircraft Parking Area, Westchester Golf Course 3-Hole Expansion Project, Westchester Rainwater (Stormwater) Improvement Project, and Metro Bus Maintenance and Operations Facility.
3 Concurrent Other Projects at LAX Mitigated includes both Bradley West Project construction and operation even though construction of Bradley West Project and operation of Bradley West Project will only overlap a couple of years. The uncertainty arising from combining the risks and hazards from these two phases is further discussed in the uncertainties section of Appendix F of this EIR.
4 Values shown are unmitigated risks and hazards for Bradley West Project specific operations. Because mitigation measures only address PM10 emissions, projected air emissions for Bradley West Project specific operations after mitigation were not modeled since the unmitigated risks and hazards for this scenario are below the levels of significance and primarily attributable to VOCs, which would not be affected by the proposed mitigation measures.
5 Includes exposure to TACs released from LAX from childhood (ages 0-6) through adulthood (ages 7-70).
6 Hazard indices are totals for all TACs that may affect the respiratory system. This incremental hazard index is essentially equal to the total for all TACs.

Source: CDM, 2009.

As shown in **Table 4.5-9**, cancer risks from the mitigated Bradley West Project construction comprise approximately 14 to 27 percent of cancer risks from the combined other projects at LAX anticipated to be under construction concurrent with the Bradley West Project. Thus, risks and hazards associated with Bradley West Project construction after mitigation combined with the risks and hazards of other concurrent projects at LAX would result in a small increase in cumulative human cancer risks and health hazards. This increment would still not be measurable against urban background conditions in the South Coast Air Basin. Risks and hazards associated with Bradley West Project-specific operations would have an even smaller impact on cumulative human cancer risks and health hazards against urban background conditions in the South Coast Air Basin.

Meaningful quantification of future cumulative health risk exposure in the entire South Coast Air Basin is not possible. Moreover, the threshold of significance used in this analysis is based on the cancer risks associated with individual projects; this threshold is not appropriately applied to conclusions regarding cumulative cancer risk in the Basin. However, based on the relatively high cancer risk level associated with past and present projects in the Basin, as represented by the environmental baseline (i.e., an additional 1,200 cancer cases per million), the Bradley West Project would not add incrementally to the already high cumulative impacts in the South Coast Air 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 and implemented. Since diesel particulate matter is the major contributor to estimated cancer risks, substantial reductions in diesel emissions would result in substantial reductions in cumulative cancer risks. These, and other such regulations intended to reduce TAC emissions within the 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 Bradley West Project cannot be ascertained.

4.5.7.2 Cumulative Non-Cancer Chronic Health 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-III 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 Bradley West Project construction and Bradley West Project-specific operational impacts were estimated to be one to two orders of magnitude less than the threshold of significance of one. Hence, the Bradley West Project is not expected to significantly add to possible chronic human health hazards. Maximum incremental hazard indices from other TACs of concern were also significantly below the regulatory threshold for significance.

As discussed in the LAX Master Plan Final EIR (Section 4.24.1.2), limited data are available describing acrolein emissions. Therefore, estimates of non-cancer hazards are very uncertain. Non-cancer hazards associated with the Bradley West Project should only be used to provide a relative comparison to basin-wide conditions. 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.

4.5.7.3 Cumulative Non-Cancer Acute Health Hazards

Predicted concentrations of TACs released from construction and operational activities for the Bradley West Project suggest that non-cancer acute health hazards would not be expected. The assessment of cumulative acute hazards follows the methods used to evaluate cumulative acute hazards presented in the LAX Master Plan Final EIR. USEPA modeled emission estimates by census tract were used to estimate annual average ambient air concentrations. These census tract emission estimates are subject to high uncertainty, and USEPA warns against using them to predict local concentrations. Thus, for the analysis of cumulative risks, estimates for each census tract within the study area were identified, and the range of concentrations was used as an estimate of the possible range of annual average concentrations in the general vicinity of the airport. This range of concentrations was used to estimate a range of acute non-cancer hazard indices using the same methods as described in the Final EIR (Section 4.24.1.7 and Technical Report S-9a, Section 6.1). This range of hazard indices was then used as a basis for comparison with estimated maximum acute hazards for the Bradley West Project. The relative magnitude of acute hazards calculated on the basis of the USEPA estimates and maximum hazards estimated for Bradley West Project were taken as a general measure of relative cumulative impacts. Emphasis must be placed on the relative nature of these estimates. Uncertainties in the analysis preclude estimation of absolute impacts; uncertainties in the methods are further discussed in Appendix F of this EIR.

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 2 to 120, with an average of 23, for locations within the study area. Predicted maximum incremental acute hazards associated with acrolein for Bradley West Project construction and operation are 0.0003 and 0.09, respectively. Thus, the Bradley West Project would be expected to contribute significantly less than 1 percent to cumulative impacts of acrolein at residential locations and commercial off-airport locations. Acute hazard indices associated with formaldehyde exposure are estimated to range from 0.07 to 1.7, with an average of 0.55, for locations within the EPA study area. Predicted maximum acute hazards associated with formaldehyde for the Bradley West Project construction and operation are 0.07 and 0.02, respectively. Thus, the Bradley West Project might be expected to contribute less than 13 percent to cumulative impacts of formaldehyde at residential locations and commercial off-airport locations.

Similar to cumulative cancer risks, cumulative acute hazards from TACs released from construction activities for other projects at LAX that may be constructed concurrently with the Bradley West Project were assessed and compared to acute hazards for the Bradley West Project construction and Bradley West Project-specific operations. Cumulative acute hazards remain small and substantially less than the threshold of 1, even considering the impacts from several concurrent construction projects. Although acute formaldehyde hazards are much lower for the Bradley West Project than for the cumulative projects, the cumulative acute acrolein hazards are in the same range as that for the Bradley West Project alone. This observation reflects modeling for cumulative acute emissions from TACs released from other projects at LAX which only addressed construction activities from these cumulative projects; operational activities from these cumulative projects were not included because operations are evaluated in the LAX Master Plan Plan Final EIR.[174] As mentioned previously, acrolein is the TAC of concern that is responsible for essentially all predicted chronic non-cancer health hazards associated with LAX operations. This TAC is primarily associated with aircraft exhaust, although smaller amounts are also found in emissions from internal combustion engines.

Cumulative acute hazards from LAX projects are summarized in **Table 4.5-10**. Calculations for cumulative incremental cancer risks and hazards are provided in Attachment 5 to Appendix F of this EIR.

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

Table 4.5-10

Cumulative Acute Hazard Indices for Construction of Other Concurrent Projects at LAX Compared to the Bradley West Project

	Summary of Acute Hazard Indices					
	Concurrent Other Projects at LAX Mitigated[2,3]		Bradley West Project[3]			
			Construction		Operation	
	Formaldehyde	Acrolein	Formaldehyde	Acrolein	Formaldehyde	Acrolein
Residential						
Maximum HI[1]	0.1	0.08	0.07	0.0003	0.02	0.08
Minimum HI	0.02	0.02	0.005	0.00002	0.005	0.02
Average HI	0.07	0.05	0.03	0.0001	0.01	0.05
Off-Airport Worker						
Maximum HI	0.2	0.09	0.07	0.0003	0.02	0.09
Minimum HI	0.02	0.04	0.006	0.00003	0.008	0.04
Average HI	0.06	0.05	0.02	0.0001	0.01	0.05
School Child						
Maximum HI	0.09	0.07	0.03	0.0002	0.02	0.07
Minimum HI	0.04	0.05	0.02	0.00007	0.01	0.05
Average HI	0.05	0.05	0.02	0.00009	0.01	0.05
Overall Off-Airport Maximum HI	**0.2**	**0.09**	**0.07**	**0.0003**	**0.02**	**0.09**

1 HI = Hazard Index
2 Includes Bradley West Project (Taxiway S and ARFF demolition), Crossfield Taxiway Project, Airfield Operating Area (AOA) Perimeter Fence Enhancements - Phase III, Security Program - In-Line Baggage Screening Systems (T6), TBIT Interior Improvements Program, Airfield Intersection Improvements - Phase 2, Airport Operations Center (AOC)/Emergency Operation Center (EOC), K-9 Training Facility, Central Utilities Plant (CUP) Replacement Program, Passenger Boarding Bridge Replacement, Bus Wash Rack Facility, CTA Elevators and Escalators Replacement, CTA Seismic Retrofits, Sewer Line Replacement, CTA Joint Repair, Roadway Improvements, and Security Barriers, Korean Air Cargo Terminal Improvement Project, West Aircraft Maintenance/Aircraft Parking Area, Westchester Golf Course 3-Hole Expansion Project, Westchester Rainwater (Stormwater) Improvement Project, and Metro Bus Maintenance and Operations Facility.
3 Since no additional mitigation was assumed for VOC emissions, mitigated and unmitigated concentrations of acrolein and formaldehyde are the same.

Source: CDM, 2008.

4.5.8 Mitigation Measures

LAWA is committed to mitigating emissions from both construction activities and temporary changes in operations associated with the Bradley West Project, 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 Bradley West Project. Although developed to address air quality impacts, this program will also reduce impacts to human health associated with exposure to TACs. Because (1) this mitigation program establishes a commitment and process for incorporating all feasible air quality mitigation measures into each component of the LAX Master Plan, and (2) the unmitigated project risks/hazards as well as cumulative risks/hazards are below levels of significance, no additional project-specific mitigation measures are recommended in connection with the Bradley West Project.

Projected air emissions for Bradley West Project construction after mitigation were modeled and the risks and hazards after mitigation were estimated. As shown in **Table 4.5-11**, chronic risks and hazards after mitigation are slightly lower than under the unmitigated scenario. Mitigation measures only address PM10 emissions; therefore, under the mitigated scenario, concentrations from VOC emissions remain the same as the unmitigated scenario. Total estimated cancer risk for adult residents and child residents for the mitigated Bradley West Project construction were 4 in one million and 1 in one million, respectively. Total estimated cancer risks for a young child through adulthood (adult + child) at the location with maximum residential cancer risks was 4.9 in one million. Cancer risks under the Bradley West Project after mitigation due to construction impacts are still almost entirely due to predicted exposure to diesel particulate matter contributing -- about 90 percent of the risk estimate. Cancer risks for children attending schools and adult workers within the study area under the mitigated scenario are estimated to be 0.10 in one million and 3.3 in one million, respectively.

Table 4.5-11

Cancer Risks and Chronic Non-Cancer Human Health Hazards for Maximally Exposed Individuals for Bradley West Project Construction - Pre- and Post-Mitigation

Receptor Type	Unmitigated	Mitigated
Cancer Risks[1] (per million people)		
Child Resident	1.3	1.2
School Child	0.11	0.10
Adult + Child Resident[2]	5.1	4.9
Adult Resident	4.2	4.0
Adult Worker	3.6	3.3
Non-Cancer Chronic Hazards[3]		
Child Resident	0.03	0.02
School Child	0.003	0.002
Adult Resident	0.009	0.006
Adult Worker	0.02	0.01

1 Values provided are changes in the number of cancer cases per million people exposed as compared to baseline conditions. Cancer estimates are rounded to two significant figures to show difference between mitigated and unmitigated. Hazard 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.

Source: CDM, 2009.

Chronic hazard indices from Bradley West Project construction for adult residents and child residents living at the location with maximum residential cancer risks under mitigated conditions are estimated to be 0.006 and 0.02, respectively. HIs for MEI school children and adult workers are 0.002 and 0.01, respectively, for construction impacts under the mitigated Bradley West Project. The contribution of the constituents after mitigation are as follows: diesel particulate matter contributes 38 percent (17 percent for the adult worker), formaldehyde contributes 8 percent (4 percent for the adult worker), chlorine contributes 16 percent (21 percent for the adult worker), vanadium contributes 24 percent (41 percent for the adult worker), and manganese contributes 7 percent (10 percent for the adult worker).

Because mitigation measures only address PM10 emissions, projected air emissions for Bradley West Project-specific operations after mitigation were not modeled since the unmitigated risks and hazards for this scenario are below the levels of significance and primarily attributable to VOCs, which would not be affected by the proposed mitigation measures.

4.5.9 Level of Significance After Mitigation

The TAC emissions inventory developed for the Bradley West Project, 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 construction of the Bradley West Project is initiated (fourth quarter of 2009). Specifically, as indicated in Section 4.4.5 of this EIR, construction-related mitigation measures associated with LAX Master Plan Mitigation Measure MM-AQ-2 were assumed to be in place during Bradley West Project construction (see Table 4.4-7). The TAC emissions inventory thereby represents "mitigated" conditions.

Master Plan mitigation measures could potentially reduce emissions of TACs, in particular emission of diesel particulate matter associated with Bradley West Project construction, thereby reducing related health risks below levels estimated for unmitigated conditions. Levels of significance for the Bradley West Project are summarized below:

- Project-related cancer risks for Bradley West Project construction and Bradley West Project-specific operational impacts would be below the level of significance of 10 in one million for potentially exposed residents (adults and young child through adulthood [adult + child]), school children, and adult workers within the study area.
- Project-related chronic non-cancer hazard indices for Bradley West Project construction and Bradley West Project-specific operational impacts would be below thresholds of significance for all receptor types (i.e., child resident, school child, adult resident, and adult worker).
- Project-related acute non-cancer hazard indices would not exceed the threshold of significance of 1 for any target organ system at any modeled receptor location.
- Estimated maximum air concentrations for all TACs at on-airport locations would not exceed PEL-TWA or TLVs for workers.
- Estimated cumulative risks and hazards from emissions for concurrent construction projects at LAX would not be measurable against urban background conditions in the South Coast Air Basin.

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4.6 Global Climate Change

This section addresses the potential impacts of the Bradley West Project related to global climate change, particularly with regard to the generation of "greenhouse gases." While the subject matter has been widely researched, discussed, and debated worldwide for many years, it is only recently that the issue has advanced to the point of warranting detailed consideration in CEQA documents. As a relatively new issue within the CEQA context, very limited interim guidelines and protocols have been developed[175,176] on how to address the issue in a CEQA document. Additionally, there are no commonly accepted thresholds, such as those often derived from Appendix G of the CEQA Guidelines, applicable to mobile source infrastructure projects which can be used in defining significant impacts related to global climate change. As such, the analysis presented in this section represents LAWA's independent judgment at this time as to how the issue of global climate change relates specifically to the Bradley West Project, with the objective of providing the public and decision-makers with a basic understanding of the issue, a quantitative and qualitative estimate of the impacts of the Bradley West Project, and an analysis of how those impacts may be considered in different contexts.

4.6.1 Introduction

Since completion of the LAX Master Plan Final EIR, worldwide concerns about greenhouse gases and global climate change have increased substantially. In particular, the State of California has passed the California Global Warming Solutions Act of 2006 (California Assembly Bill 32, or AB 32) requiring, among other objectives, facilities and organizations to begin reporting greenhouse gas (GHG) emissions. A number of GHG reporting exchanges have gained prominence including the California Climate Action Registry (CCAR) and The Climate Registry (TCR).

4.6.1.1 Global Climate Change

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

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission projections of GHGs needed to stabilize global temperatures and climate change impacts. The IPCC predicted that the range of global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.4 to 5.8° Celsius (C).[177] Regardless of analytical methodology, global average temperature and mean sea level are expected to rise under all scenarios.

Climate models applied to California's conditions project that, under different scenarios, temperatures in California are expected to increase by 3 to 10.5 degrees F.[178] Almost all climate scenarios include a continuing trend of warming through the end of the century given the substantial amounts of greenhouse gases already released, and the difficulties associated with reducing emissions to a level that would

175 State of California, Governor's Office of Planning and Research, Preliminary Draft CEQA Guideline Amendments for Greenhouse Gas Emissions, and Public Workshop Announcement, January 8, 2009.

176 California Air Resources Board, Preliminary Staff Report -- Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act, October 24, 2008.

177 Intergovernmental Panel on Climate Change, Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change, 2001. Although the IPCC has published a fourth assessment report (IPCC Fourth Assessment Report, Climate Change 2007: Impacts, Adaptation, and Vulnerability, Working Group II Report, 2007), subsequent to the 2001 report, the updated assessment still predicts a 1 to 5° C global temperature increase.

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

stabilize the climate. According to the 2006 California Climate Action Team Report, the following climate change effects are predicted in California over the course of the next century.[179]

- A diminishing Sierra snowpack declining by 70 to 90 percent, threatening the State's water supply.
- Increasing temperatures, as noted above, of up to approximately ten degrees F under the higher emission scenarios, leading to a 25 to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas.
- Coastal erosion along the length of California and seawater intrusion into the Delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions.
- Increased vulnerability of forests due to pest infestation and increased temperatures.
- Increased challenges for the State's important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Delta.
- Increased electricity demand, particularly in the hot summer months.

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

4.6.1.2 Greenhouse Gases

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

Climate change is driven by "forcings" and "feedbacks." A feedback is "an internal climate process that amplifies or dampens the climate response to a specific forcing." Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas." Individual GHG species have varying GWP and atmospheric lifetimes. The carbon dioxide equivalent (CO_2e) -- the mass emissions of an individual GHG multiplied by its GWP -- is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent metric. The reference gas for GWP is carbon dioxide; carbon dioxide has a GWP of one. Compared to methane's GWP of 21, methane has a greater global warming effect than carbon dioxide on a molecule-per-molecule basis. **Table 4.6-1** identifies the GWP of several select GHGs.

[179] California Environmental Protection Agency, Climate Action Team, Report to Governor Schwarzenegger and the California Legislature, March 2006.

Table 4.6-1

Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases

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

Source: EPA, 2006.

According to a white paper on GHG emissions and GCC prepared by the Association of Environmental Professionals (AEP), total worldwide GHG emissions in 2004 were estimated to be 20,135 teragrams (Tg)[180] CO_2e, excluding emissions/removals from land use, land use change, and forestry.[181] In 2004, GHG emissions in the U.S. were 7,074.4 Tg CO_2e. California is a substantial contributor of GHG, as it is the second largest contributor in the U.S. and the sixteenth largest in the world (as compared to other nations). In 2004, California produced 494 Tg CO_2e,[182] which is approximately seven percent of U.S. emissions. The major source of GHG in California is transportation, contributing 41 percent of the State's total GHG emissions. Electricity generation is the second largest source, contributing 22 percent of the State's GHG emissions.

In estimating the GHG emissions of an individual business or facility, the GHG Protocol Corporate Accounting and Reporting Standard, developed by the World Business Council for Sustainable Development and World Resources Institute, provides standards and guidance for companies and other organizations preparing a GHG emissions inventory. The standard is written primarily from the perspective of a business developing a GHG inventory. The GHG Protocol provides the accounting framework for nearly every GHG standard and program in the world from the International Standards Organization to the EU Emissions Trading Scheme to the CCAR, as well as hundreds of GHG inventories prepared by individual companies.

The GHG Protocol divides GHG emissions into three source types or "scopes," ranging from GHGs produced directly by the business to more indirect sources of GHG emissions, such as employee travel and commuting. Direct and indirect emissions can be generally separated into three broad scopes as follows:

- Scope 1. All direct GHG emissions.
- Scope 2. Indirect GHG emissions from consumption of purchased electricity, heat, or steam (i.e., GHG emissions generated at the power plant that provides electricity at the demand of the site/facility). For the purposes of this EIR, Scope 2 also includes the indirect GHG emissions that are

180 One teragram (Tg) is equal to one million metric tons or approximately 2,204,600,000 pounds (lbs).

181 Association of Environmental Professionals, Final Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents, June 29, 2007.

182 California's estimated Gross Greenhouse Gas emissions without forestry or land use (emissions or sinks) as reported by the California Energy Commission on January 23, 2007 in Revisions to the 1990 to 2004 Greenhouse Gas Emissions Inventory Report, (CEC-600-2006-013), December 2006.

embodied in the provision of water to the project site, which, for much of southern California, is largely imported from other regions, requiring the use of large electric pumps.

- Scope 3. Other indirect (optional) GHG emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g., transmission and distribution losses) not covered in Scope 2, outsourced activities, waste disposal, and construction.

4.6.1.3 CEQA Evaluation of Climate Change and Greenhouse Gases

There are currently no established CEQA thresholds of significance or regulatory thresholds for GHG emissions on a local, state, or national basis for mobile source infrastructure projects. That being said, with the issuance of AB 32, which will move toward the establishment of GHG reporting requirements and GHG reduction mechanisms as further described in Section 4.6.3.1 below, the GHG emissions, and relative increases or decreases in operational GHG emissions following implementation of this proposed project, have been included here for informational purposes.

In the context of CEQA, the Governor's Office of Planning and Research (OPR) is working towards the establishment of regulatory guidance for CEQA documents to analyze and recommend mitigation measures related to the potential effects of greenhouse gas emissions. OPR released a Technical Advisory in June, 2008,[183] to provide interim advice to lead agencies regarding the analysis of greenhouse gas emissions in environmental documents. The Technical Advisory encourages lead agencies to follow three basic steps: (1) identify and quantify the greenhouse gas emissions that could result from a proposed project; (2) analyze the effects of those emissions and determine whether the effect is significant; and (3) if the impact is significant, identify feasible mitigation measures or alternatives that will reduce the impact below a level of significance.

While the Technical Advisory provided examples of mitigation measures that could be employed by lead agencies to reduce those emissions, it recognized that mitigating greenhouse gas emissions at a project level may not be as effective as implementing a programmatic approach to mitigation. This approach requires public agencies to adopt a program of mitigation measures that apply broadly within the agency's jurisdiction and which are implemented at the project level when CEQA review is required.

On January 8, 2009, OPR released for public review and comment preliminary draft State CEQA Guidelines amendments that include provisions related to greenhouse gas emissions. In accordance with California Senate Bill 97, such revisions to the Guidelines must be finalized and adopted by January 1, 2010. The preliminary draft Guideline amendments are intended and designed by OPR to be consistent with the existing CEQA framework for environmental analysis, including but not limited to the determination of baseline conditions, determination of significance, and evaluation of mitigation measures. For those reasons, OPR did not identify a threshold of significance for greenhouse gas emissions, nor did OPR prescribe assessment methodologies or specific mitigation measures. The preliminary draft amendments encourage lead agencies to consider many factors in performing a CEQA analysis, but preserve the discretion granted by CEQA to lead agencies in making their own determinations based on substantial evidence. The preliminary draft amendments also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses.

4.6.2 Methodology

For this project, the GHG of concern is primarily CO_2. Emissions of CO_2 from construction and operational sources are estimated to represent 98 percent or more of the project-related GHG emissions, as CO_2 is the predominant GHG emission (with only negligible amounts of N_2O and CH_4 also being

[183] State of California, Governor's Office of Planning and Research, Technical Advisory - CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review, June 19, 2008.

emitted) associated with combustion sources such as internal combustion engines, on-site boilers for hot water/steam, and off-site power plants for electricity. The analysis presented herein provides estimates of the amount of CO_2 from existing uses within the project site and the amount of CO_2 associated with the construction and long-term operation of the proposed Bradley West Project. The estimate of CO_2 emissions associated with long-term operation of the project not only identifies new emissions from the new facilities that are proposed, but also accounts for the elimination of emissions from existing uses and activities that would be removed or reduced as part of the project. As such, the analysis includes a "baseline" that characterizes and estimates the amount of GHG emissions from existing uses at the site, and an estimate of GHG emissions associated with the proposed project improvements.

4.6.2.1 Construction Sources

The parameters used to develop construction GHG emissions are the same as those presented in Section 4.4, *Air Quality*, for construction criteria air pollutant emissions. Essentially, CO_2 is emitted from the combustion of fuels used in on-site construction equipment, material delivery trucks, and worker vehicles. Details regarding the specific types of equipment and operating assumptions are included in Appendix E.

The emissions from off-road construction equipment are based on CO_2 emission rates developed by SCAQMD[184] for the South Coast Air Basin using the California Air Resources Board (CARB) OFFROAD2007 model.[185] The emissions from on-road vehicles (including vehicles with on-road-equivalent engines) were calculated from CO_2 emission factors (grams/mile) developed by SCAQMD[186] for the South Coast Air Basin using the CARB EMFAC2007 model.[187]

The analysis context considered in the evaluation of GHG emissions from construction sources generally includes the on-airport areas where construction equipment would operate and the off-airport environment relative to construction-related vehicle trips.

4.6.2.2 Operational Sources

Overview of Operational Sources at LAX

Aircraft are the largest source of GHG emissions at LAX. LAWA does not operate the aircraft and is prohibited under federal law from regulating the types of, and schedules for, aircraft that use LAX, and therefore has no direct control related to aircraft emissions. However, LAWA provides the infrastructure (airfield and terminals) and services that support the aircraft operations, and can thereby affect, to a limited degree, aviation fuel use on the ground, particularly as related to efficiently accommodating arriving and departing aircraft. Further, ground transportation access on the airfield, such as that associated with the busing of passengers and crews to and from the west remote gates, and ground access to and from the airport for passengers and crews using LAX affects emissions related to traffic congestion and idling. The following describes the methodology used in estimating the CO_2 emissions associated with each of those operational sources, while also accounting for CO_2 emissions associated with the elimination or reduction of certain existing structures and/or activities.

Building/Lighting Operations

Implementation of the Bradley West Project would include the removal of several existing nearby buildings, which directly and indirectly generate GHG emissions, and the construction of the reconfigured TBIT. The natural gas and electricity usage in each building was estimated from the building's area

184 South Coast Air Quality Management District, Available: http://www.aqmd.gov/ceqa/handbook/offroad/offroadEF07_25.xls, accessed April 11, 2008.

185 California Air Resources Board, Available: http://www.arb.ca.gov/msei/offroad/offroad.htm, accessed April 11, 2008.

186 South Coast Air Quality Management District, Available: http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html, accessed April 11, 2008.

187 California Air Resources Board, Available: http://www.arb.ca.gov/msei/onroad/latest_version.htm, accessed April 11, 2008.

(square feet). Natural gas usage factors from the Urban Emissions (URBEMIS) air quality model, Version 9.2.4 were used for all buildings. Usage factors for natural gas were obtained from the 1999 Commercial Buildings Energy Consumption Survey (CBECS) results by the Energy Information Administration (EIA). Electricity usage factors were obtained from the CBECS for all buildings. In addition to buildings, operational sources of energy consumption for this project include the high intensity discharge lighting (i.e., floodlights) applied around the reconfigured TBIT or added in the vicinity of other nearby facility improvements.

Emission factors were obtained from The Climate Registry's General Reporting Protocol (May 2008) for all pollutants with the exception of CO_2 from electricity. The CO_2 electricity emission factor was obtained from the 2007 CCAR emissions report for the Los Angeles Department of Water & Power (LADWP). Since the LADWP uses a higher percentage of coal than the rest of the state in its electricity generation, this method produced a more accurate estimate of emissions than using the default factors from The Climate Registry.

The analysis context considered in the analysis of GHG emissions from building operations was generally defined as the area encompassing the existing structures that would be removed or relocated as a result of project construction. Those structures are described in Section 2.4.2 of this EIR.

Aircraft Operations

The completion of the Bradley West Project would have a slight beneficial impact on the taxi/idle times of aircraft that need to move around the airfield at LAX, based on an analysis of arriving and departing aircraft that could use the new contact gates on the west side of TBIT instead of having to use the west remote gates. As described earlier in Sections 2.4.5 and 4.4.6.2 of this EIR, no other operational aviation source would be affected by the Bradley West Project, and only taxi/idle emissions from aircraft would be impacted by this project. Therefore, only aircraft emissions during taxi/idle modes on the airport following completion of the project were analyzed for the Bradley West Project. The aircraft types used in airport simulation modeling with and without the Bradley West Project are listed in Appendix E.[188]

The analysis of aircraft taxi/idle emissions was conducted by estimating taxi/idle times with and without the Bradley West Project using airfield simulation modeling. The resulting taxi/idle times were summarized by aircraft type (fleet mix), and fuel use was calculated using the Version 5.1 of the FAA EDMS model.[189] Once the total fuel consumed was determined, CO_2 emissions were calculated in accordance with the 2006 IPCC guidelines.[190] The IPCC allows for the use of one of three different calculation methods, with the first two being dependent on fuel use/consumption data and the last one being dependent on movement data for individual flights. The second tier of analysis (Tier 2), which relies on fuel use and the number of landing/take-off cycles (LTOs), is recommended for all jet aircraft. Taxi/idle emissions only occur in the LTO cycle, thus no change to cruise GHG emissions are associated with the Bradley West Project. The mass of fuel consumed during aircraft taxi/idle, as calculated by EDMS, was multiplied by a factor of 3.16 mass of CO_2/mass of fuel[191] and to obtain the quantity of CO_2 produced. No substantial quantity of aviation gasoline is consumed at LAX, and as of 2007, aviation gasoline is no longer provided at the airport by LAX fuel suppliers.[192] The incremental change in fuel use between with and without the Bradley West Project would be the project's impact on CO_2 emissions.

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188 The aircraft fleet mix assumed for the SIMMOD modeling is based on the flight operations and schedules in 2008, which represents the most recent full-year of aircraft flight data at LAX under normal operations.

189 Federal Aviation Administration, Available: http://www.faa.gov/about/office_org/headquarters_offices/aep/models/edms_model/, September 2008.

190 Intergovernmental Panel on Climate Change, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, 2006, Available: http://www.ipccnggip.iges.or.jp/public/2006gl/index.htm.

191 Intergovernmental Panel on Climate Change, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2 -- Energy, 2006, Available: http://www.ipccnggip.iges.or.jp/public/2006gl/index.htm.

192 Jack, Raymond, Chief of Operations II, Los Angeles World Airports, Personal Communication, February 4, 2008.

The analysis context considered in the analysis of GHG emissions from aircraft operations was generally defined as the airport's airfield area, where aircraft taxi between the runways and TBIT.

Busing Operations

As discussed in Section 4.4 of this EIR, the proposed new contact gates on the west side of TBIT would reduce the need for busing passengers between the existing gates at the West Remote Pads and TBIT compared to 2013 conditions without the Bradley West Project. However, even with this reduction in future busing, with the forecast increase in international operations between 2008 and 2013, the total daily bus trips would still increase from 113 in 2008 to 160 in 2013. (Without the Bradley West Project, the number would increase to 273 daily bus trips.) Therefore, while bus trips would increase as result of increased travel, operation of the proposed project would result in fewer bus trips between the West Remote Pads and TBIT than would occur under conditions in 2013 without the project. The EMFAC2007[193] model, Version 2.3, for urban buses was used to obtain emission factors for criteria pollutants.

Total emissions from buses were calculated using the same methodology assumed for on-road on-site construction vehicles. The EMFAC2007 emissions factors were multiplied by the total daily busing distance to obtain emissions in pounds per day. Quarterly and annual emissions were then calculated for the baseline year 2008 and the interim project year 2013 with and without the Bradley West Project.

Off-Airport Passenger Travel

Vehicles with passengers traveling to and from LAX for travel through TBIT are also an additional source of CO_2 emissions. As described in Section 2.4.5, the level of passenger activity at TBIT in 2013, when the proposed improvements at TBIT are proposed to be complete, is expected to be the same with or without the proposed project. Implementation of the Bradley West Project is intended and designed to improve the quality of service for passengers utilizing TBIT, but would not increase the number of flights projected for 2013 and would not result in an appreciable increase in the number of passengers in 2013 (i.e., increase in number of passengers with the project in 2013 would be less than one-half percent compared to 2013 projections without the project).

The LAX Master Plan Final EIR addressed the air quality impacts of vehicles with passengers traveling to and from LAX, including as related to projected increases in passenger activity levels. That analysis did not, however, include CO_2 emissions pertaining to GHG and climate change, as that issue was not considered a CEQA topic at the time. As such, the analysis provided in this section addresses CO_2 emissions from off-airport vehicle travel associated with an increase in activity levels at TBIT projected to occur between 2008 and 2013, notwithstanding that the increase is projected to occur with or without the Bradley West Project.

The emissions associated with off-airport vehicle travel were calculated in a manner similar to that described above for busing operations. EMFAC2007 emissions factors were multiplied by the total daily vehicle miles traveled (VMT), as determined by multiplying the estimated daily trip generation for TBIT (25,175 for 2008, 43,016 with the Bradley West Project in 2013 and 42,737 without the Bradley West Project in 2013) times an average trip length of 30.7 miles per trip.

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193 California Air Resources Board, Research Division, EMFAC 2007 On-Road Emissions Inventory Estimation Model, Version 2.3. 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. 73, No. 13, pp. 3464-3467, January 18, 2008.

4.6.3 Baseline Conditions

4.6.3.1 Regulatory Setting

International and Federal Regulations and Directives

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

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

The Kyoto Protocol is a treaty made under the UNFCCC. Countries can sign the treaty to demonstrate their commitment to reduce their emissions of GHGs or engage in emissions trading. More than 160 countries, accounting for 55 percent of global emissions, are under the protocol. Former United States Vice President Al Gore symbolically signed the Protocol in 1998. However, in order for the Protocol to be formally ratified, it must be adopted by the U.S. Senate, which has not been done to date.

The United States Environmental Protection Agency (USEPA) currently does not regulate GHG emissions; however, Massachusetts v. USEPA (549 U.S. 497 [2007]) was argued before the U.S. Supreme Court on November 29, 2006, in which it was petitioned that USEPA regulate four GHGs, including carbon dioxide, under §202(a)(1) of the Clean Air Act. The Court issued an opinion on April 2, 2007, in which it held that petitioners have standing to challenge the USEPA and that the USEPA has statutory authority to regulate emissions of GHGs from motor vehicles.

In November 2007 and August 2008, the Ninth Circuit U.S. Court of Appeals ruled that a NEPA document must contain a detailed GHG analysis. (*Center for Biological Diversity v. National Highway Safety Administration* 508 F. 3d 508 [2007] was vacated and replaced by *Center for Biological Diversity v. National Highway Safety Administration* 2008 DJDAR 12954 [August 18, 2008]). Despite the Supreme Court and circuit court rulings, to date there are no promulgated federal regulations limiting GHG emissions.

State Regulations and Directives

Title 24 Energy Standards: Although not originally intended to reduce GHG emissions, California's Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. The latest amendments were made in October 2005. The premise for the standards is that energy efficient buildings require less electricity, natural gas, and other fuels. Electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in GHG emissions. Therefore, increased energy efficiency in buildings results in fewer GHG emissions on a building-by-building basis.

California Assembly Bill No. 1493 (AB 1493): Enacted on July 22, 2002, this bill required the CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Regulations adopted by CARB will apply to 2009 and later model year vehicles. CARB estimates that the regulation will reduce GHG emissions from the light-duty/passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030, compared to recent years.

Executive Order S-3-05: California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, GHG emission reduction targets for all of California are as follows: by

2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050, reduce GHG emissions to 80 percent below 1990 levels.

California Assembly Bill 32 (AB 32): CARB has jurisdiction over several air pollutant emission sources that operate in the State. Specifically, CARB has the authority to develop emission standards for on-road motor vehicles, as well as for stationary sources and some off-road mobile sources. In turn, CARB has granted authority to the regional air pollution control and air quality management districts to develop stationary source emission standards, issue air quality permits, and enforce permit conditions.

AB 32, titled The California Global Warming Solutions Act of 2006, signed by Governor Schwarzenegger in September 2006, requires CARB to adopt regulations to require the reporting and verification of statewide GHG emissions and to monitor and enforce compliance with the program. In general, the bill requires CARB to reduce statewide GHG emissions to the equivalent of those in 1990 by 2020. CARB adopted regulations in December 2007 for mandatory GHG emissions reporting and adopted a scoping plan in December 2008 indicating how emission reductions will be achieved. Major rulemakings for reducing GHGs must be developed by January 1, 2011, while the rules and market mechanisms adopted by CARB do not take effect until January 1, 2012. Since CARB is still in the rulemaking process for AB 32, information about project compliance at the state-level is currently not available.

Executive Order S-01-07: This Order was set forth by the Governor on January 18, 2007. The Order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least ten percent by 2020. It also requires that a Low Carbon Fuel Standard for transportation fuels be established for California.

In general terms, California's goals and overall strategies for the systematic statewide reduction of GHG emissions are embodied in the combination of Executive Order S-3-05 and AB 32, which call for the following reductions of GHG emissions:

- 2000 levels by 2010 (11 percent below business-as-usual)
- 1990 levels by 2020 (25 percent below business-as-usual)
- 80 percent below 1990 levels by 2050

California Senate Bill 97: Senate Bill 97 (SB 97) requires the OPR to prepare guidelines to submit to the California Resources Agency regarding feasible mitigation of GHG emissions or the effects of GHG emissions as required by CEQA. The California Resources Agency is required to certify and adopt these revisions to the State CEQA Guidelines by January 1, 2010. The Guidelines will apply retroactively to any incomplete environmental impact report, negative declaration, mitigated negative declaration, or other related document.

Executive Order (EO) S-13-08. Given the serious threat of sea level rise to California's water supply and coastal resources and the impact it would have on our state's economy, population and natural resources, Governor Arnold Schwarzenegger issued an Executive Order (EO) S-13-08 to enhance the state's management of climate impacts from sea level rise, increased temperatures, shifting precipitation and extreme weather events.

There are four key actions in the EO including: (1) initiate California's first statewide climate change adaptation strategy that will assess the state's expected climate change impacts, identify where California is most vulnerable and recommend climate adaptation policies by early 2009; (2) request the National Academy of Science establish an expert panel to report on sea level rise impacts in California to inform state planning and development efforts; (3) issue interim guidance to state agencies for how to plan for sea level rise in designated coastal and floodplain areas for new projects; and (4) initiate a report on critical existing and planned infrastructure projects vulnerable to sea level rise.

Local Regulations and Directives

Green LA: In May 2007, the City of Los Angeles introduced Green LA - An Action Plan to Lead the Nation in Fighting Global Warming.[194] Green LA presents a framework targeted to reduce the City's GHG emissions by 35 percent below 1990 levels by 2030. The plan calls for an increase in the City's use of renewable energy to 35 percent by 2020 in combination with promoting water conservation, improving the transportation system, reducing waste generation, greening the ports and airports, creating more parks and open space, and greening the economic sector. Green LA identifies objectives and actions in various focus areas, including airports. The goal for airports is to "green the airports," and the following actions are identified: 1) fully implement the Sustainability Performance Improvement Management System (SPIMS) (discussed below); 2) development and implementation of policies to meet the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) green building rating standards in future construction; 3) improve recycling, increase use of alternative fuel sources, increase use of recycled water, increase water conservation, reduce energy needs, and reduce GHG emissions; and 4) evaluate options to reduce aircraft-related GHG emissions.

Climate LA: In 2008, the City of Los Angeles followed up Green LA with an implementation plan called Climate LA - Municipal Program Implementing the Green LA Climate Action Plan.[195] A Departmental Action Plan for LAWA is included in Climate LA, which identifies goals to reduce CO_2 emissions 35 percent below 1990 levels by 2030 at LAX and the other three LAWA airports, implement sustainability practices, and develop programs to reduce the generation of waste and pollutants. Actions are specified in the areas of aircraft operations, ground vehicles, electrical consumption, building, and other actions.

Sustainability Vision and Principles Policy: In 2007, the Los Angeles Board of Airport Commissioners adopted a Sustainability Vision and Principles Policy that includes a commitment to integrating sustainable practices into operations and administration processes under a set of six principles related to environmental stewardship, economic growth, and social responsibility.[196] LAWA has since adopted several plans and policies aimed at implementing the Sustainability Vision and Principles Policy.

Sustainability Performance Improvement Management System (SPIMS): LAWA adopted SPIMS in August 2007 as a tool for identifying sustainability objectives, implementing actions to achieve the objectives, establishing targets and continual monitoring of progress. As part of the SPIMS process, the following fundamental objectives were identified to help LAWA achieve its goal of being the global leader in airport sustainability.

- Increase water conservation in all airport facilities and for all operations.
- Increase use of environmentally and socially responsible products.
- Increase recycling and source reduction efforts at all facilities and for all operations.
- Reduce energy usage and increase usage of green power at all airport facilities and in all operations.
- Reduce emissions from all operations including stationary and mobile sources.
- Reduce single occupancy trips to, from, and within LAWA airports.
- Incorporate sustainable planning, design, and construction practices into all airport projects.
- Promote sustainability awareness to airport employees and the greater community.
- Integrate sustainable practices into internal policies, business processes, and written agreements.

Los Angeles World Airports Sustainability Plan: LAWA's Sustainability Plan[197] developed in April 2008 describes LAWA's current sustainability practices and sets goals and actions that LAWA will undertake to implement the initiatives described above (Green LA, Climate LA, Sustainability Visions and Principles

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194 City of Los Angeles, Green LA -- An Action Plan to Lead the Nation in Fighting Global Warming, 2007.

195 City of Los Angeles, Climate LA -- Municipal Program Implementing the Green LA Climate Action Plan, 2008.

196 Los Angeles World Airports, Sustainability Vision and Principles, 2007.

197 Los Angeles World Airports, Final Sustainability Plan, April 2008.

Policy, and SPIMS). The Sustainability Plan presents initiatives for the fiscal year 2008-2009 and long-term objectives and targets to meet the fundamental objectives identified above.

Sustainable Airport Planning, Design and Construction Guidelines: LAWA has developed Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects.[198] The Guidelines were developed to provide a comprehensive set of performance standards focusing on sustainability specifically for airport projects on a project-level basis. A portion of the Guidelines is based on the LEED rating systems for buildings. The Guidelines incorporate a "LAWA-Sustainable Rating System" based on the number of planning and design points and construction points a project achieves, as based on the criteria and performance standards defined in the Guidelines.

Based on the above, LAWA has taken steps to increase its sustainability practices related to daily airport operations, many of which directly or indirectly contribute to a reduction in GHG emissions. Actions that LAWA has been undertaking include promoting and expanding the FlyAway non-stop shuttle service to the airport in an effort to reduce the number of vehicle trips to the airport, establishment of an employee Rideshare Program, use of alternative fuel vehicles,[199] purchasing renewably generated Green Power from LADWP, and reducing electricity consumption by installing energy efficient lighting, variable demand motors on terminal escalators, and variable frequency drive on fan units at terminals and LAWA buildings.[200]

LAWA is currently conducting a comprehensive GHG emission inventory that will be used to quantify emissions, identify areas for improvement, and assess the effectiveness of reduction measures, Additionally, LAWA is currently in the process of conduction an Air Quality Apportionment Study (AQAS) that seeks to quantify contribution by LAX to the total emissions and concentrations of air pollutants in the surrounding communities. The AQAS will provide an updated baseline to be used for measuring the effectiveness of LAWA's efforts to reduce adverse air emissions.

4.6.3.2 Existing GHG Emissions

Building/Lighting Operations

An estimate of GHG emissions associated with existing building/lighting operations was prepared for those facilities that are proposed to be reconfigured or removed/relocated as a result of the Bradley West Project. The estimate focused primarily on direct and indirect emissions from the consumption of natural gas and electricity, respectively. Appendix G provides a technical memorandum delineating the assumptions, approach, and factors used in estimating energy consumption and GHG generation. Based on the information provided therein, it is estimated that natural gas consumption from existing buildings generates approximately 3,596 metric tons of CO_2e and electricity consumption generates approximately 20,367 metric tons of CO_2e, for a total of 23,964 metric tons.

Aircraft Operations

Based on the existing midfield taxiway systems, gate configurations, and aircraft taxiing movements, it is estimated that approximately 607,944 metric tons of CO_2 are generated annually (see Section 4.6.6.2 below for details regarding the calculation of this estimate).

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198 Los Angeles World Airports, Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects, Version 3.1, January 2008.

199 Over 60 percent of LAWA owned fleet vehicles use alternative fuel (compressed natural gas (CNG), liquid natural gas (LNG), propane, hydrogen, solar, hybrid electric and pure electric.

200 City of Los Angeles, Climate LA - Municipal Program Implementing the Green LA Climate Action Plan, LAWA Departmental Action Plan, 2008.

Busing Operations

Based on 113 bus trips daily between the gates at the West Remote Pads and TBIT in the baseline year of 2008, it is estimated that approximately 350 metric tons of CO_2 are generated annually (see Section 4.6.6.2 below for details regarding the calculation of this estimate).

Off-Airport Ground Access Vehicle Travel

Based on an annual VMT of 1,380,130 estimated for TBIT activity in the baseline year of 2008, it is estimated that approximately 268,374 metric tons of CO_2 are generated annually.

4.6.4 CEQA Thresholds of Significance

As previously indicated in Section 4.6.1.3, there are no widely-established or readily accepted thresholds of significance for GHG. The preliminary draft amendments to the CEQA Guidelines that were published by OPR in January 2009 do not identify a threshold of significance for greenhouse gas emissions, but, instead, allow lead agencies to exercise discretion and make their own determinations of significance.

OPR has asked CARB technical staff to recommend a method for setting thresholds of significance that encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state. If CARB makes recommendations for setting a threshold that is supported by substantial evidence, lead agencies may take the CARB recommendations into consideration as part of their independent processes in adopting thresholds of significance for GHG emissions. In the meantime, however, each lead agency must make its own determination as to an appropriate threshold of significance related to GCC and GHG emissions, and may undertake a project-by-project analysis in so doing.

For the purpose of this EIR, LAWA has taken into consideration OPR's proposed amendments to Appendix G of the CEQA Guidelines, which presents an environmental checklist form that is often used by lead agencies in identifying and evaluating potentially significant impacts of a project. The January 2009 preliminary draft CEQA Guidelines amendments propose to add the following questions for evaluating a project's potential impacts related to greenhouse gases.

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance?

b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

As noted above, there are currently no widely-established or readily accepted thresholds of significance for GHG. Therefore, LAWA has modified the first question above to establish the following threshold of significance for evaluating the GHG emissions associated with the Bradley West Project:

- A significant impact relative to GCC and GHG is considered to occur if the project would: (a) result in a substantial increase in GHG emissions compared to current emission levels; and (b) conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

4.6.5 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)*. Of the three commitments and four mitigation measures that were designed to address air quality impacts related to implementation of the LAX Master Plan, two are applicable to the Bradley West Project 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.

- **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 construction-related 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 included one that could also reduce CO_2 emissions: Specify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using "cleaner burning diesel" fuel and exhaust emission controls. In the subsequent completion of the more detailed implementation plan for MM-AQ-2, the specification was set forth that a minimum of 33 percent of electricity required for construction activities be provided by electric line power (i.e., power drops/poles). Based on the construction equipment list developed for the Bradley West Project, at least one small (50 kW) portable diesel generator is anticipated to be required for the project. There will also be limited use of portable light stands. The generators and light stands have been accounted for in the construction emission estimates. Some components of MM-AQ-2 are not readily quantifiable, but will be implemented as part of the Bradley West Project. Several of these mitigation strategies, presented in **Table 4.6-2**, are expected to further reduce construction-related CO_2 emissions associated with the Bradley West Project.

Table 4.6-2

Construction-Related GHG Mitigation Measures

Measure	Type of Measure
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 construction vehicle idling in excess of ten minutes.	Non-road Mobile
Utilize on-site rock crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck haul trips.	Non-road 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
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 review, and investigations of complaints.	Administrative

Source: CDM, 2008.

The following Master Plan commitment designed to address impacts to solid waste disposal, and which also addresses related air quality impacts from truck haul trips, is applicable to the Bradley West Project.

- **SW-3. Requirements for the Recycling of Construction and Demolition Waste**. This measure requires that contractors recycle a specified minimum percentage of waste materials generated during construction and demolition. The percentage of waste materials required to be recycled will be specified in the construction bid documents. Waste materials to be recycled may include, but are not limited to, asphalt, concrete, drywall, steel, aluminum, ceramic tile, and architectural details. This measure was successfully applied on the South Airfield Improvement Project (SAIP) relative to the use of an on-site rock crusher to recycle demolition waste (old concrete and asphalt) into aggregate base material. This reduced both the need to export demolition waste and the need to import aggregate base. In turn, the amount of truck haul trips, with associated fuel consumption and GHG generation, was reduced. Similar to the SAIP, the Bradley West Project is well-suited to this type of on-site recycling.

4.6.6 Impact Analysis

4.6.6.1 Construction Emissions

The construction source CO_2 emissions, by calendar year, are presented in **Table 4.6-3**. Over the duration of the project, the on-site construction equipment would generate 46 percent of the project construction CO_2 emissions, and deliveries of construction materials would generate 13 percent of the project construction CO_2 emissions. Trucks that transfer materials from the staging area to the Bradley

West Project site and worker trips would generate 8 percent and 31 percent of the project construction CO_2 emissions respectively.

Table 4.6-3

Bradley West Project Annual Construction Emissions by Equipment Type

Total CO_2 Emissions (metric tons)	2009 Total	2010 Total	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Project Total
Off-road, On-site Equipment	38	15,059	13,489	7,375	6,319	2,521	248	45,049
On-road, On-site Trucks	353	1,411	1,411	1,411	1,411	1,411	353	7,761
On-road, Off-site Deliveries	609	2,434	2,434	2,434	2,434	2,434	609	13,388
On-road, Off-site Workers	1,398	5,592	5,592	5,592	5,592	5,592	1,398	30,753
Total[1]	**2,397**	**24,496**	**22,926**	**16,812**	**15,756**	**11,958**	**2,607**	**96,952**

1 Numbers may not total due to rounding.

Source: CDM, 2009.

Given that under 2008 baseline conditions (i.e., conditions at the time the Notice of Preparation was published), there are no construction activities within the project area, implementation of the project would result in the generation of between approximately 2,400 and 24,500 metric tons of new construction-related CO_2 per year and a total of approximately 97,000 metric tons of CO_2 over the total course of project construction. Those emissions are considered to represent a substantial increase in GHG emissions compared to baseline conditions.

4.6.6.2 Operational Emissions

Table 4.6-4 delineates the CO_2 emission estimate associated with each major aspect of long-term operation of the Bradley West Project, with discussion of those emissions provided below.

Table 4.6-4

Annual Operations - Related CO_2 Emissions (Metric Tons)

	Building/Lighting						
	Natural Gas	Electricity	Total	Aircraft	Busing	Off-Airport Vehicles	Grand Total
2008 Baseline	3,596	20,367	23,963	607,944	350	268,374	632,257
2013 With Project	4,263	24,277	28,540	791,894	490	444,568	820,924
Increase from Baseline	19%	19%	19%	30%	40%	66%	30%
2013 Without Project	3,596	20,367	23,963	812,846	836	441,684	837,645
Increase from Baseline	0%	0%	0%	34%	139%	65%	32%

Source: CDM, 2009.

Building/Lighting Operations

With implementation of the Bradley West Project, an expanded TBIT facility would be responsible for increased energy demand, and several existing nearby facilities would be demolished, which would terminate the energy consumption associated with their operation; however, inasmuch as some of the existing activities would be relocated to another existing facility, a certain amount of existing energy demands would be transferred over to the recipient buildings. With the assumed adjustments described in Appendix G, it is anticipated that the future (with-project) natural gas consumption would generate approximately 4,263 metric tons of CO_2e and the future electricity consumption would generate approximately 24,277 metric tons of CO_2e, for a total of 28,541 metric tons. This represents an increase of 4,577 metric tons of CO_2e, compared to existing conditions - a 19 percent increase over 2008 baseline emissions.

Aircraft Operations

Upon completion of the Bradley West Project, aircraft movements around the airfield would see an improvement (reduction) in taxi/idle times. When averaged over 640,000 total operations, based on SIMMOD airfield modeling of representative baseline conditions, this reduction is approximately 50 seconds per LTO. Based on the fleet mix listed in Section 4.6.2.2 above, the annual CO_2e emission reductions with the project would be approximately 20,952 metric tons per year over the without project scenario, as shown in **Table 4.6-4**. However CO_2 emissions would increase by 183,950 metric tons over 2008 baseline conditions.

Busing Operations

Implementation of Bradley West Project would reduce the need for bus transport of passengers from remote gates to TBIT over the 2013 without project scenario, and therefore, bus emissions for the 2013 with project scenario would decrease by 346 metric tons compared to those for the 2013 without project scenario. However, emissions would increase by approximately 140 metric tons CO_2e per year over baseline conditions due to increased demand for international air travel. The annual CO_2e emissions associated with busing passengers from TBIT to the remote gates are summarized in **Table 4.6-4**.

Off-Airport Passenger Travel

Passenger activity levels at TBIT are expected to increase by 2013 regardless of whether the proposed project is implemented. Based on an annual VMT of 2,358,198 estimated for TBIT activity in 2013, it is estimated that approximately 444,568 metric tons of CO_2 would be generated annually.

4.6.6.3 Impacts to Climate Change

Based on the information presented above in Section 4.6.6.1, implementation of the proposed Bradley West Project would result in the generation of approximately 96,952 metric tons of construction-related GHG, primarily in the form of CO_2 (emissions of construction-related CH_4 and N_2O would be negligible), over the approximately 5-year construction period. Project construction would occur in accordance with the Sustainable Airport Planning Design and Construction Guidelines, to meet a minimum rating of LAWA-Sustainable: Level 1. "Construction points" needed to achieve a Level 1 rating include various required and optional performance standards. The list of performance standards that would be implemented has not yet been finalized; however, performance standards that may be incorporated to directly or indirectly reduce GHG emissions include, but are not limited to, the following: (1) provide alternative transportation options during construction to reduce personal vehicle emissions (optional); (2) reduce construction vehicle emissions, including GHG emissions, by use of technologically feasible and fuel-efficient options (optional); (3) implement refrigerant management and ozone protection by reducing use of chemicals that contribute to ozone depletion during construction (required); and (4) recycle and reuse construction materials to the greatest degree possible to avoid use of landfills and eliminate waste to reduce demand for raw materials and reduce need for off-site travel of materials. Also required is a GHG inventory of all construction emissions from combustion emission sources and estimate of electricity consumption expected during construction, followed by an assessment of the feasibility of including GHG reduction measures in the construction phase to achieve a targeted 25 percent reduction in actual construction GHG emissions, as compared to the GHG inventory.

The approximately 96,952 metric tons of construction-related GHG emissions represent a substantial increase in GHG emissions compared to baseline emission levels, even though construction activities would comply with LAWA's current program for sustainability and reducing GHG emissions in project design and construction. As such, construction-related impacts related to climate change are considered to be significant.

Similarly, the operations-related CO_2 emissions of the Bradley West Project in 2013 are a substantial increase over 2008 baseline levels, even though they are notably less than the 2013 levels that would otherwise occur if the project was not implemented. With implementation of the Bradley West Project, the placement of new contact gates on the west side of TBIT would result in reduced taxi/idle times for arriving and departing aircraft at TBIT compared to use of the west remote gates. Use of the new contact gates instead of gates at west remote pads would reduce the number of bus trips between TBIT and the west remote gates, which, in turn, would reduce GHG emissions. These types of reductions are consistent with the intent of the City's Green LA and Climate LA plans for reducing CO_2 emissions, and with LAWA's plans related to sustainability and associated CO_2 emission reductions.

Development of new buildings proposed for the Bradley West Project would be consistent with LAWA's plans related to sustainability. The increase in terminal square footage under the proposed project would create a larger energy demand associated with heating, cooling, and lighting, with a resulting increase in GHG emissions; however, the new and the renovated terminal areas would be the first major new construction to implement LAWA's sustainability policies and principles that have been developed within the past three years, including the Sustainable Airport Planning Design and Construction Guidelines. In accordance with LAWA's policies, the new and renovated terminal square footage would be constructed according to LEED standards with a goal to achieve a LEED Silver rating. Under the LEED Silver rating, a 9 percent increase in energy efficiency is assumed over California's Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6). By incorporating LEED standards, the new terminal and concourse would achieve greater energy efficiency than the existing facility, with associated decreases in GHG emissions on a per square footage basis. While implementation of the proposed project would more than double the amount of building floor area at TBIT, the future energy consumption at build out of the project would only be 19 percent more than 2008 baseline conditions.

LEED provides a variety of requisite and optional elements that can be incorporated into building and site design to achieve a LEED rating. The precise list of features to be incorporated into the proposed project has not yet been determined; however, anticipated elements to be incorporated that would directly or indirectly reduce GHG emissions include converting a portion of existing parking stalls to priority parking for zero emission vehicles (ZEVs), increasing the number of LAX fleet vehicles using alternative fuel, using materials designed to reduced the heat island effect of the roof and non-roof areas, optimizing energy efficiency, and providing controllability of heating and cooling systems for thermal comfort. Additionally, currently 13 percent of LAX's energy purchases are from green power sources. The percent of green power purchased for TBIT use would be raised to 35 percent.

Implementation of LAWA's sustainability policies for the proposed project, would serve to support and increase the effectiveness of LAWA's overall program for LAX and other LAWA airports, as well as increase the visibility of the program and LAWA's goal to be a leader in airport sustainability by becoming one of the few LEED certified airport terminals in the country. It would also contribute to LAWA's goal of reducing CO_2 emissions.

Therefore, operation of the proposed project would result in a substantial increase in GHG emissions, even though it would be a substantial step in the implementation of LAWA's overall program for sustainability and reducing GHG emissions. As such, operations-related impacts related to climate change are considered to be significant.

4.6.6.4 Impacts from Climate Change

As indicated above in Section 4.6.1.1, temperature increases anticipated to occur in conjunction with climate change would lead to environmental impacts in a wide variety of areas, including: sea level rise, reduced snow pack resulting in changes to existing water resources, increased risk of wildfires, and public health hazards associated with higher peak temperatures, heat waves, and decreased air quality.

Of these potential climate change-related impacts, sea level rise is most relevant to the Bradley West Project.

The Bradley West Project site has surface elevations of between approximately 108 and 118 feet above sea level and is located within approximately one mile of the coast. It is not anticipated that the project site would be subject to a 100+ foot (30+ meter) increase in sea level rise in the foreseeable future. Additionally, it is not feasible to design and construct the project at a higher elevation (i.e., adaptive management for long-term GCC impacts such as sea level rise), due to the need for the project to maintain elevations comparable to those of the existing taxiway/runway system at LAX.

4.6.7 Cumulative Impacts

The construction of several on-going and anticipated future projects at LAX would potentially occur simultaneously with the Bradley West Project construction. The construction source CO_2 emissions from cumulative projects are presented in **Table 4.6-5**. Projects that were considered in the cumulative GCC analysis include: (1) Crossfield Taxiway Project (CFTP), (2) Airfield Operating Area (AOA) Perimeter Fence Replacement -- Phase III, (3) Security Program - In-Line Baggage Screening Systems, (4) TBIT Interior Improvements Program; (5) Airfield Intersection Improvements - Phase 2, (6) Airport Operations Center (AOC)/Emergency Operation Center (EOC), (7) K-9 Training Facility, (8) Central Utilities Plant (CUP) Replacement Program, (9) Passenger Boarding Bridge Replacement, (10) Bus Wash Rack Facility, (11) CTA Elevators/Escalators Replacement; (12) CTA Seismic Retrofits; (13) Sewer Line Replacement, (14) CTA Joint Repair, Roadway Improvements, and Security Barriers, (15) Korean Air Cargo Terminal Improvement Project, (16), West Aircraft Maintenance/Aircraft Parking Area, (17) Westchester Golf Course 3-Hole Expansion Project, (18) Westchester Rainwater (Stormwater) Improvement Project, and (19) Metro Bus Maintenance and Operations Facility. Calculation sheets for these emissions are included in Appendix E, Attachment 3. As indicated in **Table 4.6-5**, CO_2 emissions associated with the Bradley West Project would represent the majority (i.e., approximately 83 percent) of the cumulative emissions. Notwithstanding that the project's compliance with LAWA's Sustainable Airport Planning, Design and Construction Guidelines would serve to reduce potential greenhouse gas emissions, the project's contribution to cumulative global climate change impacts is cumulatively considerable.

Table 4.6-5
Cumulative Construction Projects Total Emissions Estimates

Construction Project[1]	% Overlap[2]	CO_2 (metric tons)
Crossfield Taxiway Project[3]	62%	8,633
AOA Perimeter Fence Replacement (World Way West) - Phase III[6]	40%	5
Security Program - In-Line Baggage Screening Systems (T6)[4]	100%	73
TBIT Interior Improvements Program[6]	17%	815
Airfield Intersection Improvements - Phase 2[5]	100%	2,048
Airport Operations Center (AOC) Emergency Operation Center (EOC)[6]	100%	136
K-9 Training Facility[6]	100%	47
Central Utilities Plant (CUP) Replacement Program[6]	100%	1,526
Passenger Boarding Bridge Replacement (T1, T3, T6, Remotes)[6]	33%	30
Bus Wash Rack Facility[6]	100%	170
CTA Elevators and Escalators Replacement[6]	100%	528
CTA Seismic Retrofits[6]	100%	555
Sewer Line Replacement (T1, T6)[6]	80%	21
CTA Joint Repair, Roadway Improvements, and Security Barriers[6]	83%	428
Korean Air Cargo Terminal Improvement Project[6]	100%	207
West Aircraft Maintenance/Aircraft Parking Area[6]	100%	1,448
Westchester Golf Course 3-Hole Expansion Project	50%	387
Westchester Rainwater (Stormwater) Improvement Project[6]	50%	389
Metro Bus Maintenance and Operation Facility[6]	100%	1,568
Other Construction Worker Vehicle Trips[7]	100%	543
Total from Other Construction Projects, metric tons		19,555
Total Bradley West Project Emissions, metric tons		96,952
Total Cumulative Construction Project Emissions, metric tons		**116,507**

1 Emissions presented in this table represent total estimated emissions for each construction project over the duration which the project overlaps with TBIT construction.
2 Percentage of project construction that occurs during the TBIT construction period.
3 City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Crossfield Taxiway Project, Los Angeles International Airport, January 2009.
4 City of Los Angeles, Los Angeles World Airports, Final Mitigated Negative Declaration: Security Program - In-Line Baggage Screening System, Terminals 1 - 8, prepared by PCR Services Corporation, March 2006.
5 City of Los Angeles, Los Angeles World Airports, Airfield Intersections Improvement Project Equipment Inventory - Peak Day Jan 2009-Jan 2010, May 22, 2008.
6 Equipment estimates developed by CDM in consultation with LAWA.
7 Includes worker trips for projects that have no other construction equipment.

Sources: CDM, 2009.

4.6.8 Mitigation Measures

The project includes mitigation measures to reduce construction equipment operations/duration, as described above. Additionally, the proposed project would implement various performance standards from LAWA's Sustainable Airport Planning, Design and Construction Guidelines, some of which would directly or indirectly reduce GHG emissions. There are no other feasible mitigation measures to reduce construction-related GHG emissions other than those already identified above and in Section 4.4, *Air Quality*, of this EIR.

For operational impacts, the proposed project would comply with LAWA policies related to sustainability and reducing GHG emissions, which are being implemented on project-specific and on an airport-wide basis. As noted in OPR's Technical Advisory on CEQA and Climate Change, LAWA's programmatic efforts to address GHG emissions can be a more effective approach than mitigating GHG emissions at a project level.[201] **Tables 4.6-6** and **4.6.7** present a comprehensive list of suggested mitigation measures for new development projects throughout the state of California. The list presented in **Table 4.6-6** is prepared by the California Office of the Attorney General relative to addressing GHG emissions and climate change impacts within an EIR.[202] The list presented in **Table 4.6-7** is prepared by the Governor's Office of Planning and Research (OPR) and presents examples of measures that have been used by some public agencies to reduce greenhouse gas emissions.[203] The tables below describe how the proposed project, as well as LAWA's overall sustainability actions and objectives, relates to each of the applicable mitigation measures. As indicated in **Tables 4.6-6** and **4.6-7**, the proposed project responds to those measures that are within the scope/control of the project.

Table 4.6-6

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Transportation	
Limit idling time for commercial vehicles, including delivery and construction vehicles.	Included in project - see Table 4.6-2.
Use low or zero-emission vehicles, including construction vehicles.	LAWA is in the process of converting its entire vehicle fleet to run on alternative power, with a goal of having 100 percent of the fleet vehicle operating on alternative power or have similar emissions by 2015. As part of compliance with LAWA's sustainable construction guidelines, use of low emission construction vehicles is one performance standard that is currently being considered.
Promote ride sharing programs e.g., by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger loading and unloading and waiting areas for ride sharing vehicles, and providing a website or message board for coordinating rides.	Such ridesharing programs are already in-place for employees at LAX and would not be affected by, or be applicable to, the development of new buildings at TBIT.
Create local "light vehicle" networks, such as neighborhood electrical vehicle (NEV) systems.	NA - Beyond the scope/control of the project.
Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations).	A portion of the existing parking spaces within the parking structures near TBIT would be converted to priority parking for zero emission vehicles.
Increase the cost of driving and parking private vehicles by e.g., imposing tolls and parking fees.	NA - Beyond the scope/control of the project.
Institute a low-carbon fuel vehicle incentive program.	NA - Beyond the scope/control of the project.
Build or fund a transportation center where various public transportation modes intersect.	NA - Beyond the scope/control of the project.

201 State of California, Governor's Office of Planning and Research, Technical Advisory - CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review, June 19, 2008.

202 State of California Department of Justice, Office of the California Attorney General, The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level, December 9, 2008, Available: http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf, accessed March 4, 2009.

203 State of California, Governor's Office of Planning and Research, Technical Advisory - CEQA and Climate Change Addressing Climate Change Through California Environmental Quality Act (CEQA) Review, Attachment 3, June 19, 2008.

Table 4.6-6

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Provide shuttle service to public transit.	A shuttle would be used to transport construction workers between the work area and construction employee parking areas in the northwest and southeast portions of the airport. The shuttle route for worker parking areas in the southeast portion of the airport travels along Imperial Highway and passes directly by the Metro Green Line station, which also has local bus access. The project shuttle can, upon request, make a stop at the Metro station if/as workers choose to use public transit for their work commute.
Provide public transit incentives such as free or low-cost monthly transit passes.	NA - Beyond the scope/control of the project.
Promote "least polluting" ways to connect people and goods to their destinations.	NA - Beyond the scope/control of the project.
Incorporate bicycle lanes and routes into street systems, new subdivisions, and large developments.	NA - Beyond the scope/control of the project.
Incorporate bicycle-friendly intersections into street design.	NA - Beyond the scope/control of the project.
For commercial projects, provide adequate bicycle parking near building entrances to promote cyclist safety, security, and convenience. For large employers, provide facilities that encourage bicycle commuting, including e.g., locked bicycle storage or covered or indoor bicycle parking.	Such facilities are already available at the airport.
Create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.	NA - Beyond the scope/control of the project.
Work with the school district to restore and/or expand school bus services.	NA - Beyond the scope/control of the project.
Provide information on all options for individuals and businesses to reduce transportation-related emissions. Provide education and information about public transportation services.	NA - Beyond the scope/control of the project.
Institute a telecommute and/or work hours program. Provide information, training, and incentives to encourage participation. Provide incentives for equipment purchases to allow high-quality teleconferences.	NA - Basic nature of project requires physical presence of workers.
Energy Efficiency	
Design buildings to be energy efficient.	The Bradley West concourse improvements would be designed and constructed to LEED Silver certification.
Install efficient lighting and lighting control systems. Site and design building to take advantage of daylight.	As indicated above, the Bradley West concourse improvements would be designed and constructed to LEED Silver certification.

Table 4.6-6

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Use trees, landscaping and sun screens on west and south exterior building walls to reduce energy use.	See above.
Install light colored "cool" roofs and cool pavements.	One optional element being considered to help the project achieve a LEED Silver rating is the use of materials designed to reduce the heat island effect of the roof and non-roof areas.
Provide information on energy management services for large energy users.	NA - No such uses proposed as part of the project.
Install energy efficient heating and cooling systems, appliances and office equipment, and control systems.	Energy efficient heating and cooling systems are one of the key measures within the project's provisions for LEED Silver certification.
Install Light Emitting Diode (LED) for traffic, street, and other outdoor lighting.	NA - Beyond the scope/control of the project.
Provide education on energy efficiency.	The new concourses and improved Central Core would include public information kiosks that can provide educational materials related to energy efficiency.
Renewable Energy	
Install solar, wind, and geothermic power systems and solar hot water heaters. Educate consumers about existing incentives.	Based on land constraints and airfield safety considerations, it is generally infeasible to install alternative energy systems at the airport. The project does, however, include a commitment to increase the amount of energy purchased from off-site green power sources.
Install solar panels on carports and over parking areas.	See above.
Use on-site generated biogas, including methane, in appropriate applications.	See above.
Use combined heat and power in appropriate applications.	See above.
Land Use Measures	
Include mixed-use, infill, and higher density in development project to support the reduction of vehicle trips, promote alternatives to individual vehicle travel and promote efficient delivery of services and goods.	NA - Project does not involve land use planning and development.
Educate the public about the benefits of well-designed, higher density development.	See above.
Incorporate public transit into project design.	Provisions for public transit already exist at LAX and would not be affected by the Bradley West Project.
Preserve and create open space and parks. Preserve existing trees and plant replacement trees at a set ratio.	The nature of the project does not involve open space or parks. Improvements proposed for the Northwest Construction Parking/Staging Area may involve the removal of some mature trees. Any mature trees in this area that are removed would be replaced at a 2:1 ratio in accordance with the LAX Master Plan Mitigation Monitoring and Reporting Program.

Table 4.6-6

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Develop "brownfields" and other underused or defunct properties located near existing public transportation and jobs.	NA - The project site is not a "brownfield."
Include pedestrian and bicycle-only streets and plazas within developments. Create travel routes that ensure destinations may be reached conveniently by public transportation, walking, or bicycling.	NA - Project does not involve land use planning and development.
Water Conservation and Efficiency	
Create water efficient landscapes.	NA - The Bradley West Project involves airfield and terminal improvements. Minimal ornamental landscaping is anticipated to occur in light of potential bird strike hazards. Any new landscaping projects would incorporate native or drought resistant vegetation in accordance with LAWA's sustainability plan.
Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.	LAX has water efficient computer controlled irrigation systems.
Encourage the use of reclaimed water for landscape irrigation in new developments and on public property. Install the necessary infrastructure to deliver and use reclaimed water.	See above. Thirty-five percent of landscaping at LAX is currently irrigated with reclaimed water and a target has been established to increase use to 50 percent in 2012.
Design buildings to be water efficient. Install water-efficient fixtures and appliances.	Energy efficient utility systems, including water conservation, are acknowledged in the LEED-certification program, which would be applied to the Bradley West concourse improvements.
Use graywater. (Graywater is untreated household waste water from bathtubs, showers, bathroom wash basins, and water from clothes washing machines.) For example, install dual plumbing in all new development allowing graywater to be used for landscape irrigation.	The project would comply with LAWA's sustainable planning, design, and construction guidelines, which include the provision for using stormwater and graywater for non-potable uses such as landscaping and irrigation. Additionally, LAWA has established targets for increasing the use of reclaimed water.
Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and controls on runoff.	Minimal landscaping anticipated. However, if landscaping is installed it would include drought resistant vegetation and computerized irrigation.
Restrict the use of water for cleaning outdoor surfaces and vehicles.	As part of compliance with LAWA's sustainable planning, design, and construction guidelines, only non-potable water can be used to rinse vehicles during construction. LAWA's fleet vehicle car wash uses recycled water; fresh water is added as needed to make up for evaporation.
Implement low-impact development practices that maintains the existing hydrologic character of the site to manage storm water and protect the environment. (Retaining storm water runoff on-site can drastically reduce the need for energy-intensive imported water at the site).	LAX Conceptual Drainage Plan developed as a result of Master Plan Commitment HWQ-1 sets forth basic hydrology and water quality design considerations for individual projects such as Bradley West Project. LAWA's sustainable planning, design, construction guidelines also contain provisions for reducing stormwater run-off and retaining on-site for non-potable uses.
Provide education about water conservation and available programs and incentives.	The new concourses and improved Central Core would include public information kiosks that can provide educational materials related to water conservation.

Table 4.6-6

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Devise a comprehensive water conservation strategy appropriate for the project and location. The strategy may include many of the specific items above, plus other innovative measures that are appropriate to the specific project.	Energy efficient utility systems are included as key measures within the LEED-certification program, which would include Bradley West concourse improvements designed and constructed to LEED Silver certification.
Solid Waste Measures	
Reuse and recycle construction and demolition waste (including but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).	Waste minimization and efficiency related to the new concourse areas would be addressed through LEED-certification and LAWA's sustainability principles and policies. The project proposes an on-site rock crusher for the recycling of demolition debris to use as aggregate base.
Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.	LAWA has committed to diverting 70 percent of its waste from the landfill by 2015. The proposed project would provide recycling containers and storage areas to support this target.
Recover by-product methane to generate electricity.	NA - Beyond the scope/control of the project.
Provide education and publicity about reducing waste and available recycling services.	NA - Beyond the scope/control of the project. However LAWA has committed to diverting 70 percent of its waste from the landfill by 2015, and developing new programs to collect recyclables, expand airline recycling programs, and educate employees about reducing waste.
Off-Site Mitigation	
In, after analyzing and requiring all reasonable and feasible on-site mitigation measures for avoiding or reducing greenhouse gas-related impacts, the lead agency determines that additional mitigation is required, the agency may consider additional off-site mitigation. The project proponent could, for example, fund off-site projects (e.g., alternative energy projects, or energy or water audits for existing projects) that will reduce carbon emissions, conduct an audit of its other existing operations and agree to retrofit, or purchase carbon "credits" from another entity that will undertake mitigation. The topic of offsets can be complicated, and a full discussion is outside the scope of this summary document. Issues that the lead agency should consider include: ♦ The location of the off-site mitigation. (If the off-site mitigation is far from the project, any additional, non-climate related benefits of the mitigation will be lost to the local community.) ♦ Whether the emissions reductions from off-site mitigation can be quantified and verified. ♦ Whether the mitigation ratio should be greater than 1:1 to reflect any uncertainty about the effectiveness of the offset.	As indicated above and discussed throughout this section, the project includes the implementation of the LEED-certification program and LAWA's sustainability principles and policies for the Bradley West concourse improvements. See also other measures described above.

Source: CDM, 2009.

Table 4.6-7

Evaluation of Potential GHG Reduction Measures from the Governor's Office of Planning and Research

Measure	Discussion
Land Use and Transportation	
Implement land use strategies to encourage jobs/housing proximity, promote transit-oriented development, and encourage high density development along transit corridors. Encourage compact, mixed-use projects, forming urban villages designed to maximize affordable housing and encourage walking, bicycling and use of public transit systems.	NA - Project does not involve land use planning and development.
Encourage infill, redevelopment, and higher density development, whether in incorporated or unincorporated settings.	NA - Project does not involve land use planning and development.
Encourage new developments to integrate housing, civic and retail amenities (jobs, schools, parks, shopping opportunities) to help reduce VMT resulting from discretionary automobile trips.	NA - Project does not involve land use planning and development.
Apply advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services.	LAWA's Sustainability Plan includes an objective to reduce single occupancy vehicle trips to, from, and within LAX by measures such as an employee Rideshare program, the LAX FlyAway shuttles, hotel shuttle consolidation, plans for a consolidated rental car facility, and traffic mitigation program.
Incorporate features into project design that would accommodate the supply of frequent, reliable and convenient public transit.	As part of LAWA's *Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects*,[1] LAWA will be promoting and expanding the FlyAway non-stop shuttle service.
Implement street improvements that are designed to relieve pressure on a region's most congested roadways and intersections.	NA - Beyond the scope/control of the project.
Limit idling time for commercial vehicles, including delivery and construction vehicles.	The LAX Master Plan Mitigation Monitoring & Reporting Program (MMRP) commits to prohibiting construction vehicle idling in excess of ten minutes (see Table 4.6).
Urban Forestry	
Plant trees and vegetation near structures to shade buildings and reduce energy requirements for heating/cooling.	NA - Minimal ornamental landscaping is anticipated to be installed in light of potential bird strike hazards.
Preserve or replace on-site trees (that are removed due to development) as a means of providing carbon storage.	Improvements proposed for the Northwest Construction Parking/Staging Area may involve the removal of some mature trees. Any mature trees in this area that are removed would be replaced at a 2:1 ratio in accordance with the LAX Master Plan MMRP.
Green Buildings	
Encourage public and private construction of LEED (Leadership in Energy and Environmental Design) certified (or equivalent) buildings.	The Bradley West concourse improvements would be designed and constructed to LEED Silver certification.
Energy Conservation Policies and Actions	
Recognize and promote energy saving measures beyond Title 24 requirements for residential and commercial projects.	The Bradley West concourse improvements would be designed and constructed to LEED Silver certification.

Table 4.6-7

Evaluation of Potential GHG Reduction Measures from the Governor's Office of Planning and Research

Where feasible, include in new buildings facilities to support the use of low/zero carbon fueled vehicles, such as charging of electric vehicles from green electricity sources.	The promotion of the use of alternative fuel vehicles[2] at LAX is part of LAWA's *Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects*. Additionally, the new contact gates to be constructed as part of the Bradley West Project would be equipped with the electrical infrastructure necessary to support charging stations for electric ground service equipment (eGSE).
Educate the public, schools, other jurisdictions, professional associations, business and industry about reducing GHG emissions.	The new concourses and improved Bradley West Core would include public information kiosks that can provide educational materials related to energy efficiency.
Replace traffic lights, street lights, and other electrical uses to energy efficient bulbs and appliances.	As part of the *Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects*[3] LAWA is reducing electricity consumption by installing energy efficient lighting, variable demand motors on terminal escalators and variable frequency drive on fan units at terminals and LAWA buildings.
Purchase Energy Star equipment and appliances for public agency use.	Energy efficient heating and cooling systems are one of the key measures within the project's provisions for LEED Silver certification.
Incorporate on-site renewable energy production, including installation of photovoltaic cells or other options.	Based on land constraints and airfield safety considerations, it is generally infeasible to install alternative energy systems at the airport. The project does, however, include a commitment to increase the amount of energy purchased from off-site green power sources.
Execute an Energy Savings Performance Contract with a private entity to retrofit public buildings. This type of contract allows the private entity to fund all energy improvements in exchange for a share of the energy savings over a period of time.	NA - Beyond the scope/control of the project.
Design, build, and operate schools that meet the Collaborative for High Performance Schools (CHPS) best practices.	NA - Beyond the scope/control of the project.
Retrofit municipal water and wastewater systems with energy efficient motors, pumps and other equipment, and recover wastewater treatment methane for energy production.	LAX has water efficient computer controlled irrigation systems. Energy efficient utility systems, including water conservation, are acknowledged in the LEED-certification program, which would be applied to the Bradley West concourse improvements.
Convert landfill gas into energy sources for use in fueling vehicles, operating equipment, and heating buildings.	NA - Beyond the scope/control of the project.

Table 4.6-7

Evaluation of Potential GHG Reduction Measures from the Governor's Office of Planning and Research

Purchase government vehicles and buses that use alternatives fuels or technology, such as electric hybrids, biodiesel, and ethanol. Where feasible, require fleet vehicles to be low emission vehicles. Promote the use of these vehicles in the general community.	LAWA is in the process of converting its entire vehicle fleet to run on alternative power, with a goal of having 100 percent of the fleet vehicle operating on alternative power or have similar emissions by 2015. As part of compliance with LAWA's sustainable construction guidelines, use of low emission construction vehicles is one performance standard that is currently being considered. Additionally, the new contact gates to be constructed as part of the Bradley West Project would be equipped with the electrical infrastructure necessary to support charging stations for electric ground service equipment (eGSE).
Offer government incentives to private businesses for developing buildings with energy and water efficient features and recycled materials. The incentives can include expedited plan checks and reduced permit fees.	NA - Beyond the scope/control of the project.
Offer rebates and low-interest loans to residents that make energy-saving improvements on their homes.	NA - Beyond the scope/control of the project.
Create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.	NA - Beyond the scope/control of the project.
Programs to Reduce Vehicle Miles Traveled	
Offer government employees financial incentives to carpool, use public transportation, or use other modes of travel for daily commutes.	LAWA's Rideshare program offers financial incentives and discounts to participating employees.
Encourage large businesses to develop commute trip reduction plans that encourage employees who commute alone to consider alternative transportation modes.	LAWA's Sustainability Plan includes an objective to reduce single occupancy vehicle trips to, from, and within LAX by measures such as an employee Rideshare program that encourages employees to carpool and provides extensive resources for ride-sharing, the LAX FlyAway shuttles, hotel shuttle consolidation, plans for a consolidated rental car facility, and traffic mitigation program.
Develop shuttle systems around business district parking garages to reduce congestion and create shorter commutes.	A shuttle would be used to transport construction workers between the work area and construction employee parking areas in the northwest and southeast portions of the airport. The shuttle route for worker parking areas in the southeast portion of the airport travels along Imperial Highway and passes directly by the Metro Green Line station, which also has local bus access. The project shuttle can, upon request, make a stop at the Metro station if/as workers choose to use public transit for their work commute.
Create an online ridesharing program that matches potential carpoolers immediately through email.	LAWA's Rideshare Program uses RideMatch.info which provides one-stop ride-matching services to employees.
Develop a Safe Routes to School program that allows and promotes bicycling and walking to school.	NA - Beyond the scope/control of the project.

Table 4.6-7

Evaluation of Potential GHG Reduction Measures from the Governor's Office of Planning and Research

Programs to Reduce Solid Waste	
Create incentives to increase recycling and reduce generation of solid waste by residential users.	NA - Beyond the scope/control of the project.
Implement a Construction and Demolition Waste Recycling Ordinance to reduce the solid waste created by new development.	Waste minimization and efficiency related to the new concourse areas would be addressed through LEED-certification and LAWA's sustainability principles and policies. The project proposes an on-site rock crusher for the recycling of demolition debris to use as aggregate base.
Add residential/commercial food waste collection to existing greenwaste collection programs.	LAWA has committed to diverting 70 percent of its waste from the landfill by 2015, and developing new programs to collect recyclables, expand airline recycling programs, and educate employees about reducing waste.

1 Los Angeles World Airports, Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects, Version 3.1, January 2008.
2 Over 60 percent of LAWA owned fleet vehicles use alternative fuel (compressed natural gas (CNG), liquid natural gas (LNG), propane, hydrogen, solar, hybrid electric and pure electric.
3 Los Angeles World Airports, Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects, Version 3.1, January 2008.

Source: CDM, 2009.

Similar to **Tables 4.6-6** and **4.6-7** above, **Table 4.6-8** below presents a list of GHG reduction strategies recommended by the Climate Action Team (CAT)[204] regarding activities that should be undertaken in the state agencies to ensure the Governor's GHG emission reduction targets are met.[205] The table below describes how the proposed project, as well as LAWA's overall sustainability actions and objectives, relates to each of the applicable strategies.[206] As indicated in **Table 4.6-8**, the proposed project responds to those strategies that are within the scope/control of the project.

204 The Climate Action Team (CAT) is led by the Secretary of the California Environmental Project Agency (CalEPA) and includes members of various other state agencies to implement global warming emission reduction programs and report on the progress made toward meeting the statewide greenhouse gas targets that were established in the executive order.
205 California Environmental Protection Agency, Climate Action Team, Report to Governor Schwarzenegger and the Legislature, March 2006.
206 Strategies that are not remotely related to the Bradley West Project are not included in Table 4.6-8.

Table 4.6-8

Project Consistency with 2006 CAT Report Greenhouse Gas Emission Reduction Strategies

Strategy	Discussion
California Air Resources Board	
Vehicle Climate Change Standards. AB 1493 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by CARB in September 2004.	**Consistent**. Any vehicles to which this rule applies that access the project and/or are used on-site are required to comply with the applicable standards.
Diesel Anti-Idling. In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	**Consistent**. The LAX Master Plan MMRP commits to prohibiting construction vehicle idling in excess of ten minutes. Additionally, the Sustainable Airport Planning, Design, and Construction Guidelines commit to reducing idling time and complying with the CARB heavy-duty vehicle idling emissions reduction program.
Other New Light Duty Vehicle Technology Improvements. In September 2004, CARB adopted a measure to reduce climate change emissions from new motor vehicles. The regulations apply to new passenger vehicles and light duty trucks starting with the 2009 model year.	**Consistent**. Any vehicles to which this rule applies that access the project and/or are used on-site are required to comply with the applicable standards.
Hydrofluorocarbon Reduction Strategies. 1) Ban retail sale of HFC in small cans. 2) Require that only low GWP refrigerants be used in new vehicular systems. 3) Adopt specifications for new commercial refrigeration. 4) Add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs. 5) Enforce federal ban on releasing HFCs.	**Consistent**. Products used and retail items sold on-site (concessions) would comply with applicable standards.
Off-road Electrification. Off-road electrification would likely be achieved using a combination of regulatory and incentive approaches. ARB could conduct outreach to encourage replacement of diesel engines with electric motors to take advantage of the incentive rate structure and Moyer funding, and to comply with District and pending ARB regulations.	**Consistent**. The new contact gates to be constructed as part of the Bradley West Project would be equipped with the electrical infrastructure necessary to support charging stations for electric ground service equipment (eGSE). LAWA is committed to efforts towards the conversion of gasoline and diesel powered GSE to eGSE.
Alternative Fuels: Biodiesel Blends. CARB would develop regulations to require the use of 1 to 4 percent biodiesel displacement of California diesel fuel.	**Consistent**. Any vehicles to which this rule apply that access the project and/or are used on-site are required to comply with the applicable standards.
Alternative Fuels: Ethanol. Increase the use of E-85 fuel.	**Consistent**. LAWA plans on increasing the number of LAX fleet vehicles using alternative fuel, which may include the use of ethanol based gasoline.
Heavy-Duty Diesel Emission Reduction Measures. Reduce emissions from the heavy duty vehicle sector through a variety of means such as vehicle weight reduction and improved aerodynamics.	**Consistent**. The LAX Master Plan MMRP prohibits construction vehicle idling in excess of ten minutes. Additionally, the Sustainable Airport Planning, Design, and Construction Guidelines commit to reducing idling time and complying with the CARB heavy-duty vehicle idling emissions reduction program.
Hydrogen Highway. The California Hydrogen Highway Network (CA H2 Net) is a State initiative to promote the use of hydrogen to diversify transportation energy sources.	**Consistent**. One percent of LAWA's vehicle fleet currently uses hydrogen. LAWA plans on increasing the number of LAX fleet vehicles using alternative fuel, which may include the further use of hydrogen vehicles. Additionally, LAX currently has a hydrogen generation station, which is the only airport in the world with such a facility on-site.

Table 4.6-8

Project Consistency with 2006 CAT Report Greenhouse Gas Emission Reduction Strategies

Integrated Waste Management Board	
Achieve 50 percent Statewide Recycling Goal. Achieving the State's 50 percent waste diversion mandate as established by the Integrated Waste Management Act of 1989 (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emissions from landfills. A diversion rate of 48 percent has been achieved on a statewide basis. Therefore, a 2 percent additional reduction is needed.	**Consistent**. Waste minimization and efficiency related to the new concourse areas would be addressed through LEED-certification and LAWA's sustainability principles and policies. The project proposes an on-site rock crusher for the recycling of demolition debris to use as aggregate base. In addition, LAWA has committed to diverting 70 percent of its waste from the landfill by 2015, and developing new programs to collect recyclables, expand airline recycling programs, and educate employees about reducing waste.
Zero Waste - High Recycling. Efforts to exceed the 50 percent goal would allow for additional reductions in climate change emissions.	**Consistent**. See above.
Department of Forestry	
Urban Forestry. A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	**Consistent**. Improvements proposed for the Northwest Construction Parking/Staging Area may involve the removal of some mature trees. Any mature trees in this area that are removed would be replaced at a 2:1 ratio in accordance with the LAX Master Plan MMRP.
Department of Water Resources	
Water Use Efficiency. Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute, and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.	**Consistent**. LAWA has water efficient computer controlled irrigation systems, irrigates with reclaimed water, and has committed to using non-potable water to rinse vehicles during construction. LAWA's sustainable planning, design, construction guidelines also contain provisions for reducing stormwater run-off and retaining on-site for non-potable uses.
Energy Commission (CEC)	
Building Energy Efficiency Standards in Place and in Progress. Public Resources Code Section 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards that apply to newly constructed building sand additions to and alterations to existing buildings.	**Consistent**. The Bradley West concourse improvements would be designed and constructed to LEED Silver certification which includes provisions for energy efficiency.
Appliance Energy Efficiency Standards in Place and in Progress. Public Resources Code Section 25402 authorizes the Energy Commission to adopt and periodically update its appliance energy efficiency standards that apply to devices and equipment using energy that are sold or offered for sale in California.	**Consistent**. Appliances installed as part of the project would be consistent with CEC energy efficiency standards in place at the time of purchase.
Fuel-Efficient Replacement Tires & Inflation Programs. State legislation established a statewide program to encourage the production and use of more efficient tires.	**Consistent**. The LAX Master Plan MMRP (see Table 4.6) requires that all construction equipment working on-site is properly maintained at all times in accordance with manufacturers' specifications and schedules.

Table 4.6-8

Project Consistency with 2006 CAT Report Greenhouse Gas Emission Reduction Strategies

Municipal Utility Renewable Portfolio Standard. California's Renewable Portfolio Standard (RPS), established in 2002, requires that all load serving entities achieve a goal of 20 percent of retail electricity sales from renewable energy sources by 2017, within certain cost constraints	**Consistent**. LAWA participates in the Los Angeles Department of Water and Power's (DWP) "Green Power for LA" program to purchase electricity from renewable resources. Through this program, LAWA currently purchases 13 percent of its power from renewable energy sources and has committed to expanding this to 25 percent.
Municipal Utility Combined Heat and Power. Support the application of on-site power production to meet heat and electricity loads through use of various policy instruments including regulatory incentives to encourage utilities to promote customer and utility-owned combined heat and power facilities.	**Consistent**. LAWA has operated a cogeneration facility for steam and electricity on-site at the LAX Central Utilities Plant (CUP) for over 20 years. The cogeneration facility reduces fuel usage by 10 to 30 percent compared to separate electricity and heat processes.[1] Electricity in excess of what is used for LAX facilities is sold at a reduced rate to the DWP.
Alternative Fuels: Non-Petroleum Fuels. Increasing the use of non-petroleum fuels in California's transportation sector, as recommended in the CEC's 2003 and 2005 Integrated Energy Policy Reports.	**Consistent**. LAWA is in the process of converting its entire vehicle fleet to run on alternative power, with a goal of having 100 percent of the fleet vehicle operating on alternative power or have similar emissions by 2015.
Business, Transportation, and Housing	
Measures to Improve Transportation Energy Efficiency. Builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools, and information that advance cleaner transportation and reduce climate change emissions such as measures to diversity transportation energy infrastructure and reduce excessive use of petroleum and reduce vehicle miles travels.	**Consistent**. See above regarding LAWA's use of alternative vehicle power. Additionally, LAWA's Sustainability Plan includes an objective to reduce single occupancy vehicle trips to, from, and within LAX by measures such as an employee Rideshare program, the LAX FlyAway shuttles, hotel shuttle consolidation, plans for a consolidated rental car facility, and traffic mitigation program.
Smart Land Use and Intelligent Transportation Systems (ITS). Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. ITS is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods and services.	**Consistent**. While the project does not involve land use planning and development, as discussed above, LAWA does have objectives to improve the transportation efficiency and movement
State and Consumer Services Agency	
Green Buildings Initiative. Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, as compared with 2003 levels.	**Consistent**. The Bradley West concourse improvements would be designed and constructed to LEED Silver certification.
Public Utilities Commission	
Accelerated Renewable Portfolio Standard to 33% by 2020. The Governor has set a goal of achieving 33 percent renewables in the State's resource mix by 2020.	**Consistent**. LAWA supports the use of renewable energy sources through participation in DWP's "Green Power for LA" program to purchase electricity from renewable resources. Through this program. LAWA currently purchases 13 percent of its power from renewable energy sources and has committed to expanding this to 25 percent.

Table 4.6-8

Project Consistency with 2006 CAT Report Greenhouse Gas Emission Reduction Strategies

California Solar Initiative. The solar initiative includes installation of 1 million solar roofs or an equivalent 3,000 MW by 2017 on homes and businesses, increased use of solar thermal systems to offset the increasing demand for natural gas, use of advanced metering in solar applications, and creating a funding source that can provide rebates over 10 years through a declining incentive schedule	**Consistent**. Based on land constraints and airfield safety considerations, it is generally infeasible to install alternative energy systems at the airport. The project does, however, include a commitment to increase the amount of energy purchased from off-site green power sources.

1 Los Angeles World Airports, Final Sustainability Plan, April 2008, page 16.

Source: CDM, 2009.

4.6.9 Level of Significance After Mitigation

Based on the discussion above, the amount of greenhouse gas emissions associated with construction and operation of the proposed project would be substantial. Although the project would comply with LAWA's Sustainable Airport Planning, Design and Construction Guidelines that serve to reduce greenhouse gas emissions, the project and cumulative potential impacts related to global climate change are considered to be significant and unavoidable.

4.7 Biotic Communities

4.7.1 Introduction

The LAX Master Plan Final EIR evaluated potential impacts on biotic communities[207] 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 Bradley West Project. Operational aspects of the Bradley West Project 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 Bradley West Project are not further addressed herein.

The 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 Bradley West Project are:

- Implementation of the LAX Master Plan would result in the conversion of open areas containing non-native grassland/ruderal and disturbed/bare ground habitats and would result in the associated loss/displacement of sensitive wildlife species then-present on the site, including San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), western spadefoot (*Spea hammondii*), loggerhead shrike (*Lanius ludovicianus*), and burrowing owl (*Athene cunicularia*). Mitigation Measures MM-BC-8, Replacement of Habitat Units, and MM-BC-9, Conservation of Faunal Resources, were adopted to reduce these impacts to sensitive habitat and associated sensitive wildlife species to a less than significant level.
- Implementation of LAX Northside would result in the removal of approximately 300 mature trees that are utilized by raptors for nursery sites.
- Construction activities, including staging and stockpiling of materials proximal to the Los Angeles/El Segundo Dunes, including the El Segundo Blue Butterfly 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. 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, were adopted 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 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 Bradley West Project construction activities to impact biotic communities.

4.7.2 Methodology

Existing sensitive biotic communities[208] 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 within the unpaved/undeveloped portions of the Bradley West Project which may contain sensitive biotic communities. On November 24, 2008, an on-site survey of the proposed Bradley West Project work, staging, and parking areas was conducted by BonTerra Consulting to document existing biological resources and map vegetation for each area. Prior to the survey, the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California

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[207] Biotic communities are regional assemblages of vegetation (flora) and associated wildlife (fauna) and sensitive plant and animal species.

[208] Sensitive species include candidate, sensitive, or special status species, or species which meet the CEQA definition of endangered, rare or threatened (14 Cal. Code Reg. Section 15380(b)).

and the California Department of Fish and Game's (CDFG) California Natural Diversity Data Base (CNDDB) were reviewed to identify special status plants, wildlife, and habitats known to occur in the vicinity of the Bradley West Project work, staging, and parking areas. The results of the BonTerra Consulting biological resources survey are included in Appendix H and described below. On March 9, 2009, a survey of mature trees within the Northwest Construction Staging/Parking Area was conducted and on March 23 and April 7, 2009, surveys for the western spadefoot were conducted in the West Construction Staging Area. The results of these surveys are included in Appendix H and described below.

4.7.3 Baseline Conditions

Descriptions of existing conditions relative to biotic communities are presented in Section 4.10 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 and summarized below. The discussion below updates the findings on the LAX Master Plan Final EIR to incorporate discussion of mitigation for impacts to biological resources associated with the LAX Master Plan that has occurred to date as well as the results of the November 24, 2008 and March 9, March 23 and April 7, 2009 surveys of the Bradley West Project site and construction staging and parking areas.

4.7.3.1 Habitat Restoration for LAX Master Plan Impacts

As described in Section 4.7.1 above, implementation of the LAX Master Plan would result in the conversion of open areas containing non-native grassland/ruderal and disturbed/bare ground habitats. LAX Master Plan Mitigation Measure MM-BC-8, Replacement of Habitat Units (see Section 4.7.5 below for full text of this measure), was adopted to reduce this impact to a less than significant level. In accordance with Mitigation Measure MM-BC-8, a habitat restoration plan to preserve and restore 21 acres of coastal sage scrub and native perennial grassland habitats within the Three Sisters Reserve located on the Palos Verdes Peninsula has been prepared[209] and implemented. The Three Sisters Reserve, owned by the City of Rancho Palos Verdes and managed by the Palos Verdes Peninsula Land Conservancy, is approximately 98 acres. Implementation of the Three Sisters Reserve habitat restoration plan also fulfills the habitat replacement requirements associated with MM-BC-9 pertaining to the loss of habitat for the San Diego black-tailed jackrabbit and loggerhead shrike associated with the LAX Master Plan.

4.7.3.2 Overview of Baseline Conditions

The majority of the airport property, including most of the Bradley West Project site, is developed. However, the north and south airfields and some vacant, disturbed areas of the airport contain biotic communities classified as non-native grassland/ruderal and disturbed ground. The largest area of open space within airport property is the 307-acre Los Angeles/El Segundo Dunes (Dunes), which includes the El Segundo Blue Butterfly Habitat Restoration Area, located west of Pershing Drive. Biotic communities within the Dunes include southern foredune, southern dune scrub, valley needlegrass grassland, disturbed dune scrub/foredune, and non-native grassland/ruderal.

No sensitive species were observed on or near the airfield portion of the Bradley West Project site during site visits conducted in November 2008. However, many of the sensitive species previously identified at LAX would not be observable at that time of year. Surveys will be conducted at appropriate times to determine the presence or absence of sensitive species from the Bradley West Project areas. Spring surveys for western spadefoot were conducted within the West Construction Staging Area on March 23 and April 7, 2009. Western spadefoot had been observed in this area during surveys of the airport conducted in 1996 and 1998 as part of the LAX Master Plan. However, no western spadefoot were observed on the site during either of the 2009 surveys and no breeding habitat exists on-site. Based on

[209] Earthworks Restoration, Inc., Final Three Sisters Reserve Habitat Restoration Plan, August 2008.

the results of the spring surveys, and the absence of breeding habitat, western spadefoot are not expected to occur on-site and no additional surveys are required. Another sensitive species observed on the Bradley West Project areas during the LAX Master Plan surveys in 1996 and 1998 include the loggerhead shrike, a CDFG designated Species of Special Concern, adjacent to the Bradley West Project Northwest Construction Staging/Parking Area and within the Bradley West Project West Construction Staging Area and Materials/Plant Area. As noted above, this species was not observed at any of the Bradley West Project work, staging, or parking areas during the November 24, 2008 survey. In addition, the San Diego black-tailed jackrabbit utilizes the open space area located in the southwestern corner of the airfield. Further, a number of sensitive plant and animal species, including loggerhead shrike, burrowing owl, San Diego horned lizard (*Phrynosoma coronatum blainvillii*), silvery legless lizard (*Anniella pulchra pulchra*), California spineflower (*Mucronea californica*; CNPS List 4.2), and Lewis' evening primrose (*Camissonia lewisii*; CNPS List 3) were identified west of the Bradley West Project West and Northwest Construction Staging/Parking Areas, beyond Pershing Drive in the Dunes, during the 1996 and 1998 surveys. Finally, during the November 24, 2008 survey, southern tarplant (*Centromadia parryi* ssp. *australis*), a CNPS List 1B.1 species, was observed on the Bradley West Project Southeast Construction Staging/Parking Area, as further discussed below.

California spineflower is associated with sandy soils in coastal scrub, coastal dunes, chaparral, cismontane woodland, and valley and foothill grasslands and occurs on the Dunes. It is rare in southern California and is known from Kern, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Luis Obispo, San Diego and Ventura counties. Lewis' evening-primrose is found in association with coastal scrub, coastal dunes, cismontane woodland, and valley and foothill grasslands with sandy or clay soils and is widely distributed over the 200-acre Habitat Restoration Area of the Dunes. It is known from Los Angeles, Orange and San Diego counties and Baja California.

4.7.3.3 Bradley West Project Site Conditions

The following describes the results of the November 24, 2008 biological resources survey conducted for the Bradley West Project (see Appendix H-1). A complete tree survey is provided in Appendix H-2.

Vegetation Types and Other Areas

As indicated in **Table 4.7-1** and described below, vegetation types and other areas found on the Bradley West Project areas consist of southern willow scrub, mule fat scrub, non-native grassland, ruderal, ornamental, disturbed/ruderal, disturbed, disturbed/developed, and developed areas.

Table 4.7-1

Vegetation Types and Other Areas within the Bradley West Project Areas

	Bradley West Project Site	Northwest Construction Staging/ Parking Area	West Construction Staging Area	Materials/ Plant Area	East Contractor Employee Parking Area	Southeast Construction Staging/ Parking Area
Southern Willow Scrub						X
Mule Fat Scrub			X			X
Non-Native Grassland						X
Ruderal	X	X	X		X	X
Ornamental		X	X	X		
Disturbed			X			X
Disturbed/Developed				X		
Developed	X	X			X	X

Source: BonTerra Consulting, 2008.

Southern willow scrub was dominated by arroyo willow (*Salix lasiolepis*) and Goodding's black willow (*Salix gooddingii*). A small patch of this vegetation type was noted in a drainage on the Southeast Construction Staging/Parking Area. Mule fat scrub was dominated by mule fat (*Baccharis salicifolia*) and sandbar willow (*Salix exigua*). This vegetation was identified on both the Southeast Construction Staging/Parking Area and the West Construction Staging Area. Southern willow scrub and mule fat scrub are often vegetation types that are regulated by the resource agencies if they are associated with a "waters of the U.S." or "waters of the State." Please see Section 5.6, *Wetlands*, of this EIR for further discussion.

Non-native grassland vegetation was dominated by wild oat (*Avena fatua*), black mustard (*Brassica nigra*), wild radish (*Raphanus sativus*), and foxtail chess (*Bromus madritensis* ssp. *rubens*). This vegetation type was observed on the Southeast Construction Staging/Parking Area.

Ruderal vegetation was dominated by black mustard, telegraph weed (*Heterotheca grandiflora*), common plantain (*Plantago major*), common horseweed (*Conyza canadensis*), shortpod mustard (*Hirschfeldia incana*), wild oat, and foxtail chess. This vegetation type was the most common and is located on all of the Bradley West Project work, staging and parking areas, with the exception of the Materials/Plant Area.

Ornamental vegetation was dominated by acacia (*Acacia* sp.) and gum tree (*Eucalyptus* sp.) This vegetation type was identified on the Northwest Construction Staging/Parking Area, West Construction Staging Area, and Materials/Plant Area.

The remaining areas of the Bradley West Project contain disturbed, disturbed/developed, and developed areas.

No tree species classified by a City of Los Angeles ordinance were identified within the Bradley West Project areas. However, 34 trees with a diameter at breast height greater than 8 inches are located within the Northwest Construction Staging/Parking Area. Of these trees, 24 are blue gum (*Eucalyptus globulus*), 3 are magnolia (*Magnolia* sp.), 2 are pines (*Pinus* sp.), 4 are Mexican fan palms (*Washingtonia robusta*) and 1 is a Canary Island date palm (*Phoenix canariensis*).

Wildlife Habitat

Vegetation on the project areas provides little habitat for native wildlife species. Wildlife species observed or expected to occur on the project areas include species associated with urban habitats. The only reptile species observed was the western fence lizard (*Sceloporus occidentalis*). Bird species observed include the Cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), killdeer (*Charadrius vociferus*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), Anna's hummingbird (*Calypte anna*), northern flicker (*Colaptes auratus*), black phoebe (*Sayornis nigricans*), American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), yellow-rumped warbler (*Dendroica coronata*), white-crowned sparrow (*Zonotrichia leucophrys*), western meadowlark (*Sturnella neglecta*), house finch (*Carpodacus mexicanus*), and house sparrow (*Passer domesticus*). Mammals, or their sign, observed on the project areas include California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and red fox (*Vulpes vulpes*).

Sensitive Plant and Wildlife Species

Suitable habitat is not present at any of the Bradley West Project areas for any Threatened or Endangered plant or wildlife species, with the exception of the Riverside fairy shrimp (*Stretocephalus wootton*i) that could potentially occur at the Southeast Construction Staging/Parking Area as discussed further in Section 5.5, *Endangered and Threatened Species of Flora and Fauna*, of this EIR. Therefore, with the possible exception of Riverside fairy shrimp, no other Threatened or Endangered plant or wildlife species are expected to occur on the Bradley West Project areas.

One special status species, the southern tarplant was observed on the Southeast Construction Staging/Parking Area and East Contractor Employee Parking Area during the field survey in November 24, 2008 (see **Figure 4.7-1**). Southern tarplant is a CNPS List 1B.1 species and typically blooms from May to November. This annual herb occurs in disturbed areas in the margins of marshes and swamps,

LAX Bradley West Project Draft EIR	Southern Tarplant Locations	Figure 4.7-1

valley and foothill grasslands, and vernal pools below 1,500 feet mean sea level. It occurs in Los Angeles, Orange, Santa Barbara, San Diego, and Ventura counties. The number of individuals in a population can be highly variable from year to year, based on timing and amount of annual rainfall. Very little is known about pollinators for this species; however, they are likely pollinated by native honey bees and bumblebees. Approximately 300 individuals were observed in two patches (approximately 0.76 acre total) within the Southeast Construction Staging/Parking Area. Only a single individual was identified in the East Contractor Employee Parking Area. Although not formally listed by the resource agencies (i.e., U.S. Fish and Wildlife Service and CDFG), this species may be considered a constraint on development per Section 15380 of the CEQA Guidelines.

No other special status plant or wildlife species were observed on the Bradley West Project areas during the November 24, 2008 survey. However, special status plant and wildlife species have the potential to occur within the Bradley West Project areas, as such species were observed during surveys conducted in the late 1990s as part of the LAX Master Plan Final EIR environmental analysis and/or potentially suitable habitat for such species is present. Such special status plant and wildlife species include: Lewis' evening primrose, California spineflower, burrowing owl, loggerhead shrike, and San Diego black-tailed jackrabbit. **Table 4.7-2** identifies the specific project areas on which these species may occur. Surveys will be conducted at appropriate times to determine the presence or absence of sensitive species from the Bradley West Project areas.

Table 4.7-2

Special Status Plant and Wildlife Species with the Potential to Occur on the Bradley West Project Areas

	USFWS	CDFG	CNPS	Bradley West Project Site	Northwest Construction Staging/ Parking Area	West Construction Staging Area	Materials/ Plant Area	East Contractor Employee Parking Area	Southeast Construction Staging/ Parking Area
Plant Species									
Lewis' evening primrose	--	--	3[1]	X	X	X	X		X
California spineflower	--	--	4.2[2]	X	X	X	X		X
Wildlife Species									
Burrowing owl	--	SSC[3]	NA[4]						X
Loggerhead shrike	--	SSC	NA		X	X	X		X
San Diego black-tailed jackrabbit	--	SSC	NA		X	X	X		X

1 CNPS List 3: Plants About Which We Need More Information - A Review List.
2 CNPS List 4, with Threat Code Extension 2: Plants of Limited Distribution - A Watch List; Fairly Endangered in California (20-80 percent of occurrences threatened).
3 Species of Special Concern.
4 Not applicable

Source: BonTerra Consulting, 2008.

Other Considerations

Migratory Bird Treaty Act and Nesting Raptors

Portions of the project site have the potential to support birds subject to the Migratory Bird Treaty Act (MBTA). These include the Northwest Construction Staging/Parking Area, West Construction Staging Area, and Southeast Construction Staging/Parking Area. The MBTA prohibits activities that result in the direct take (defined as killing or possession) of a migratory bird. This includes the nests of all native bird species, including common species such as mourning dove (*Zenaida macroura*), Anna's hummingbird

(*Calypte anna*), and house finch (*Carpodacus mexicanus*). In addition, regulations prohibit activities that "take, possess or destroy" any raptor nest or egg (CDFG Code §3503, §3503.5, and §3513).

4.7.4 CEQA Thresholds of Significance

Significant impacts to biotic communities would occur if direct and indirect changes in the environment, which may be caused by the Bradley West Project, potentially could result in one or more of the following future conditions:

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

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

4.7.5 LAX Master Plan Commitments and Mitigation Measures

LAX Master Plan commitments and mitigation measures are described in the LAX Master Plan MMRP. Of the mitigation measures that were designed to address biotic communities, the following are applicable to the Bradley West Project 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.**

  FAA is responsible for conservation measures related to the relocation of navigational aids, while LAWA is responsible for all other conservation measures. All necessary steps shall be taken to ensure that the state-designated sensitive habitats within and adjacent to the Habitat Restoration Area are conserved and protected during construction, operation, and maintenance.

These steps shall, at a minimum, include the following:

Implementation of construction avoidance measures in areas where construction or staging are adjacent to the Habitat Restoration Area. Prior to the initiation of construction of LAX Master Plan components to be located adjacent to the Habitat Restoration Area, a pre-construction evaluation shall be conducted to identify and flag specific areas of state-designated sensitive habitats located within 100 feet of construction areas. Subsequent to the pre-construction evaluation, a pre-construction meeting shall be conducted and 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, provisions shall be included 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-BC-1 requires the implementation of construction avoidance measures in areas where construction or staging are adjacent to the Habitat Restoration Area.

- **MM-BC-3. Conservation of Floral Resources: Mature Tree Replacement.**

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

- **MM-BC-8. Replacement of Habitat Units.**

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

Valley Needlegrass Grassland restoration efforts consist of site preparation, propagation and planting of species characteristic of the Valley Needlegrass Grassland community at the Los Angeles/El Segundo Dunes, and maintenance and monitoring of the restoration site. The species to be planted include native perennials as described in the Long-Term Habitat Management Plan for Los Angeles Airport/El Segundo Dunes. The characteristic species include nodding needlegrass (*Nassella cernua*): 1,500 plants/habitat unit; white everlasting (*Gnaphalium microcephalum*): 40 plants/habitat unit; doveweed (*Eremocarpus setigerus*): 40 plants/habitat unit; California croton (*Croton californicus*): 45 plants/habitat unit; and dune primrose (*Camissonia chieranthifolia*): 70 plants/habitat unit. Site preparation includes physical demarcation of the site, mapping of the restoration site onto a one inch equals 40 feet aerial photograph, and removal of all non-native species (weed abatement). Removal of non-native herbaceous species shall take place by mowing prior to seed set, raking to remove cut material, and hand-pulling the remainder. Removal of non-native shrubs shall be undertaken by cutting and daubing with herbicide. Propagation and planting of nodding needlegrass shall be accomplished by propagation from seed collected on-site during late spring/early summer. Seed shall be properly cleaned, dried, and stored until used. In late summer, nodding needlegrass seed shall be propagated at an on-site nursery in two-inch thimble pots and properly maintained. Nodding needlegrass shall be planted at a rate of 1,500 plants per habitat unit within Non-Native Grassland/Ruderal community, within the Los Angeles/El Segundo Dunes, which has undergone site preparation as described above. Planting shall take place in the fall or after the first welling rain. Maintenance of restoration plantings shall consist of adequate irrigation and weed abatement. Given the irregularity of rainfall in southern California, supplemental irrigation shall be provided for two years to ensure the successful establishment of mitigation plantings. Irrigation of the site shall be adjusted to adequately provide for the establishment of the out-plantings. Weed abatement shall take place on a quarterly basis for a period of five years. Monitoring shall be undertaken on a quarterly basis for the first three years following planting, and twice a year thereafter. Monitoring shall consist of qualitative and quantitative monitoring; quantitative monitoring shall take place once a year. Performance criteria to be met include the attainment of at least a 10 percent cover of native cover in the first year and 20, 30, 40 and 45 percent cover of native species over a five-year period as determined by the point-intercept transect method (the CDFG has adopted a 10 percent threshold of native cover as its criteria for significance of native grasslands). This plan assumes the performance criteria outlined below shall be met. If monitoring discerns any failure in performance goals, remedial plantings shall be undertaken. Habitat restoration shall be conducted by a qualified habitat restoration specialist.

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

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

- **MM-BC-9. Conservation of Faunal Resources.**

  FAA is responsible for conservation measures related to the relocation of navigational aids, while LAWA is responsible for all other conservation measures. LAWA or its designee shall develop and implement a relocation and monitoring plan to compensate for the loss of 1.34 habitat units (0.3 habitat units + 1.04 habitat units) of occupied western spadefoot toad habitat and for the loss of western spadefoot toad individuals currently in the southwestern portion of the AOA. LAWA or its designee shall identify possible relocation sites in consultation with the CDFG and USFWS and shall develop and implement a monitoring plan to monitor the success of the relocated tadpoles for a period of not more than five years. LAWA or its designee shall relocate the western spadefoot toad population currently inhabiting three locations on the AOA. One potential site is the Madrona Marsh Nature Center in Torrance, 20 miles south of LAX, which supports several vernal pools and one large pond capable of supporting western spadefoot toads. Spadefoot toad experts suggest the best approach to accomplish relocation is to transport tadpoles and metamorphs only, as adults return to their birth site. Site preparation shall include confirmation by a permitted biologist that no predators, such as mosquitofish or bullfrogs, are present within the proposed relocation site or in waterways surrounding the relocation site. The CDFG has suggested that if the first relocation effort is not successful, another attempt should be made the following year. Therefore, western spadefoot toads shall be collected two consecutive years prior to construction activities taking place in existing occupied spadefoot toad habitat. In addition, since the western spadefoot toad is known to become reproductively mature within three years, an additional performance criterion shall be the identification of tadpoles at the relocation site between years three and four. The success criteria should be 50 percent survival of all tadpoles and metamorphs for the first, second, and third years following the last relocation. This shall be accomplished through a five-year monitoring plan, with bi-monthly monitoring between January 31 and June 1, to document the success of this relocation effort.

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

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

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

The FAA or LAWA as appropriate, or the respective designee of each, shall conduct pre-construction surveys to determine the presence of individuals of sensitive arthropod species, the silvery legless lizard, the San Diego horned lizard, and the burrowing owl within the proposed area of impact within the Los Angeles/El Segundo Dunes. Surveys will be conducted at the optimum time to observe these species as described in Section 6.1 of the "Los Angeles/El Segundo Dunes Habitat Restoration Plan." Should an individual be observed, they will be relocated to suitable habitat for that species within the Habitat Restoration Area. Prior to construction, the FAA or its designee shall develop and implement a relocation plan to avoid the potential loss of individuals from the installation of navigational aids and associated service roads. This relocation plan is provided in the "Los Angeles/El Segundo Dunes Habitat Restoration Plan." Relocation efforts shall be undertaken by a qualified biologist, in coordination with CDFG.

- **MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control.**

  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 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.

4.7.6 Impact Analysis

As described above, one special status plant species, southern tarplant, was observed on the Southeast Construction Staging/Parking Area and East Contractor Employee Parking Area. Southern tarplant is a CNPS List 1B.1 species. Construction of the Bradley West Project would directly impact approximately 300 southern tarplant individuals, which would be a significant impact.

Special status plant and wildlife species that have the potential to occur within the Bradley West Project areas include Lewis' evening primrose, California spineflower, burrowing owl, loggerhead shrike, and San Diego black-tailed jackrabbit. Additional field surveys in support of this EIR will be conducted when these species are expected to occur to determine their presence or absence at the project work, staging and parking areas. If any of these species is determined to be present as a result of these surveys, construction of the Bradley West Project could directly impact individuals of these sensitive plant and wildlife species.

If burrowing owl, loggerhead shrike or San Diego black-tailed jackrabbit are present on the project staging or parking areas, project implementation would have a significant impact on these species. To compensate for the loss of habitat occupied by the San Diego black-tailed jackrabbit and loggerhead shrike identified as part of the LAX Master Plan, a habitat restoration plan to preserve and restore 21 acres of coastal sage scrub and native perennial grassland habitats within the Three Sisters Reserve was implemented pursuant to LAX Master Plan Mitigation Measure MM-BC-8, as described in Section 4.7.3.1 above. This plan consists of the restoration of Non-Native Grassland/Ruderal habitat to Valley

Needlegrass Grassland. Additional mitigation for impacts to these species is provided in Section 4.7.8 below.

If Lewis' evening primrose or California spineflower are present on the project work, staging, or parking areas, project implementation may have a significant impact on these species, depending upon the number of individuals that would be affected by the project relative to the species' rarity and abundance. As noted previously in this section, neither of these species was identified on the project site during past surveys conducted for the LAX Master Plan, and the presence or absence of these species was not able to be determined during preparation of this EIR because field surveys were not conducted when the plants are expected to occur. Moreover, the number and distribution of the species could be extremely variable from year to year. For purposes of this EIR, it is assumed that a significant impact to these species may occur. Mitigation for this impact is provided in Section 4.7.8 below.

Activities within the Northwest Construction Staging/Parking Area, West Construction Staging Area, and Southeast Construction Staging/Parking Area have the potential to impact nesting birds/raptors subject to the MBTA, which would be a significant impact. In addition, use of the Northwest Construction Staging/Parking Area has the potential to result in the removal of up to 34 mature trees within the area known as LAX Northside. Although none of these trees is covered by a City of Los Angeles ordinance, they provide nursery sites for raptors. In accordance with the LAX Master Plan Final EIR, removal of mature trees within the LAX Northside area would constitute a significant impact.

Construction of the Bradley West Project, including staging and stockpiling of materials in close proximity to the Los Angeles/El Segundo Dunes and the El Segundo Blue Butterfly 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 Mitigation Measures MM-BC-1 and MM-ET-3 would reduce this impact to a less than significant level.

4.7.7 Cumulative Impacts

Implementation of the Bradley West Project would result in the loss of approximately 300 southern tarplant individuals. With implementation of MM-BC (BWP)-1 described below, project-related impacts to the southern tarplant would be reduced to a level less than significant. There are no southern tarplant individuals currently located at any of the on-airport cumulative project sites or their associated staging areas. Twenty nine plants were identified on the Crossfield Taxiway Project (CFTP) project site. These plants have been relocated in accordance with Mitigation Measure MM-BC (CFTP)-1 included in the Mitigation Monitoring and Reporting Program adopted for the CFTP project. Therefore, no cumulative impacts to southern tarplant would occur.

4.7.8 Mitigation Measures

To address the potential significant fugitive dust impacts on sensitive biotic communities, Master Plan 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, would be applicable to the Bradley West Project.

Off-site habitat restoration efforts undertaken by LAWA in fulfillment of Master Plan Mitigation Measure MM-BC-8, Replacement of Habitat Units, address potential loss of sensitive species habitat associated with the Bradley West Project. In addition, Master Plan Mitigation Measure MM-BC-9, Conservation of Faunal Resources, addresses potential impacts to sensitive species associated with the Bradley West Project and Master Plan Mitigation Measure MM-BC-3, Conservation of Floral Resources: Mature Tree Replacement, addresses impacts to mature trees. This EIR provides more specific mitigation for potential impacts to faunal and floral resources associated with the Bradley West Project.

The following project-specific mitigation measures are proposed to address impacts to the southern tarplant, as well as potential impacts to Lewis' evening primrose, California spineflower, burrowing owl, loggerhead shrike, San Diego Black-tailed jackrabbit, and nesting birds/raptors:

♦ **MM-BC (BWP)-1. Conservation of Floral Resources: Southern Tarplant.**

LAWA or its designee shall prepare a special status plant mitigation program for the southern tarplant. The loss of the southern tarplant individuals shall be mitigated through seed collection and seeding into a suitable mitigation site within undeveloped property owned by LAWA or at a suitable off-site location, determined based on habitat, soil type, moisture levels, and other relevant conditions. One suitable off-site location is the Three Sisters Reserve located on the Palos Verdes Peninsula.

A qualified Seed Collector shall monitor the tarplant phenology to determine the appropriate timing for seed collection. Tarplant seed shall be collected from all tarplants within the impact area, which shall be delineated in the field with lath and flagging by a qualified biologist. The biologist shall ensure that seed shall only be collected from plants that will be impacted by the Bradley West Project. Upon completion of seed collection, the seed collector shall clean the seeds to prepare for the seeding effort.

A mitigation plan shall be developed at a level of detail necessary for successful program implementation by a landscape contractor. The detailed program shall contain the following items:

- *Responsibilities and qualifications of the personnel to implement and supervise the plan.* The plan shall specify the responsibilities and qualifications of the personnel who will supervise and implement the mitigation plan, including LAWA, Technical Specialists, and Maintenance Personnel.
- *Site selection.* The site for the mitigation shall be determined in coordination with LAWA, and shall be located in a suitable area within the boundaries of LAX or at a suitable off-site location. The appropriate site shall consist of approximately 0.76 acre and shall have suitable hydrology, soils, and other factors necessary for the establishment of the southern tarplant. Such suitable sites exist within the boundaries of LAX, including but not limited to areas within LAX Northside and in the southwestern portion of the airport, west of the south airfield complex. If a site at LAX is selected, site selection will occur in consultation with LAWA's USDA Wildlife Hazard Biologist and will be consistent with FAA Advisory Circular No. 150/5200-33 "Hazardous Wildlife Attractants on or Near Airports" and LAWA's "LAX Wildlife Hazard Mitigation Plan" to avoid increasing wildlife hazards to aircraft.
- *Site preparation and planting implementation.* The plan shall include specifications for seed collection and storage and guidelines for on-site preparation. The guidelines shall contain specifications for (1) existing native species protection; (2) trash and weed removal; (3) soil treatments (e.g., imprinting and decompacting); (4) temporary irrigation installation as needed; (5) erosion control measures (e.g., rice or willow wattles); and (6) seed application.
- *Schedule.* A schedule shall be developed, which includes planting, to occur in late fall and early winter (between October and January 30).
- *Maintenance plan/guidelines.* A three to five year maintenance plan shall include (1) weed control; (2) herbivory control; (3) trash removal; (4) irrigation system maintenance; (5) maintenance training; and (6) replacement seeding, if necessary. Ten percent of the original seed collected shall be stored in the event it is needed for replacement seeding.
- *Monitoring plan.* The monitoring plan shall include the following success criteria:
  - Germination, flowering and seed set of 60 percent of the original population size in year one;
  - Germination, flowering and seed set of 80 percent of the original population size by year three;
  - Germination, flowering and seed set of 100 percent of the original population size by year five.

If these success criteria are not met, or are unlikely to be met within the required time periods, remedial measures will be required. Such measures could include reseeding, transplanting container plants or selection of an alternative site if required.

This plan may include qualitative and quantitative monitoring. Qualitative monitoring includes site visits at regular intervals (i.e., monthly, quarterly, etc.) to determine the overall general performance of the site and maintenance needs. Quantitative monitoring is conducted on an annual basis and includes data collection specific to the performance standards established in the monitoring plan.

- *Long-term preservation*. Long-term preservation of the site shall also be outlined in the conceptual mitigation plan to ensure that future development does not impact the mitigation site.

- **MM-BC (BWP)-2. Conservation of Floral Resources: Lewis' Evening Primrose.**

  Prior to any work activities (i.e., vegetation clearing, invasive species removal and/or spraying, and sediment removal) on the project site, including construction staging areas, pre-construction focused surveys shall be conducted during the period of March through May by a qualified biologist to determine the presence or absence of Lewis' evening primrose. Known populations of this species shall be monitored to determine the best time to conduct the surveys. The surveys shall follow guidelines developed by the CNPS and the CDFG. If this species is not observed, no further mitigation shall be required. If this plant species is observed on-site, a qualified botanist and LAWA shall evaluate the number of individuals, their location and the type of impact that would occur to determine if the anticipated impact would result in a substantial adverse effect or substantial net reduction in the population, given the species' rarity and abundance. If impacts are deemed not significant, no additional measures are warranted.

  If it is determined that a substantial net reduction in population would occur, LAWA or its designee shall prepare and implement a plan to compensate for the loss of individuals of the sensitive Lewis' evening primrose. LAWA or its designee shall collect seed from those plants to be removed, and properly clean and store the collected seed until used. A mitigation site of suitable habitat equal to the area of impact shall be delineated within the boundaries of LAX or at a suitable off-site location. If a site at LAX is selected, site selection will occur in consultation with LAWA's USDA Wildlife Hazard Biologist and will be consistent with FAA Advisory Circular No. 150/5200-33 "Hazardous Wildlife Attractants on or Near Airports" and LAWA's "LAX Wildlife Hazard Mitigation Plan" to avoid increasing wildlife hazards to aircraft. Collected seed shall be broadcast (distributed) after the first wetting rain. LAWA or its designee shall implement a monitoring plan to monitor the establishment of individuals of Lewis' evening primrose for a period of not more than five years. Performance criteria shall include the establishment of an equal number of plants as that impacted in the first year following the distribution of seed within the mitigation site. Performance criteria shall also include confirmation of recruitment for two years following the first year flowering is observed and establishment of individuals throughout the mitigation area within three years following the first year flowering is observed.

- **MM-BC (BWP)-3. Conservation of Floral Resources: California Spineflower.**

  Prior to any work activities (i.e., vegetation clearing, invasive species removal and/or spraying, and sediment removal) on the project site, including construction staging areas, pre-construction focused surveys shall be conducted during the period of March through July by a qualified biologist to determine the presence or absence of California spineflower. Known populations of this species shall be monitored to determine the best time to conduct the surveys. The surveys shall follow guidelines developed by the CNPS and the CDFG. If this species is not observed, no further mitigation shall be required. If this plant species is observed on-site, a qualified botanist and LAWA shall evaluate the number of individuals, their location and the type of impact that would occur to determine if the anticipated impact would result in a substantial adverse effect or substantial net reduction in the population, given the species' rarity and abundance. If impacts are deemed not significant, no additional measures are warranted.

If impacts to California spineflower are found to be adverse, LAWA or its designee shall prepare and implement a plan to compensate for the loss of individuals of the sensitive California spineflower. LAWA or its designee shall collect seed from those plants to be removed, and properly clean and store the collected seed until used. A mitigation site of suitable habitat equal to the area of impact shall be delineated within the boundaries of LAX or at a suitable off-site location. If a site at LAX is selected, site selection will occur in consultation with LAWA's USDA Wildlife Hazard Biologist and will be consistent with FAA Advisory Circular No. 150/5200-33 "Hazardous Wildlife Attractants on or Near Airports" and LAWA's "LAX Wildlife Hazard Mitigation Plan" to avoid increasing wildlife hazards to aircraft. Collected seed shall be broadcast (distributed) after the first wetting rain. LAWA or its designee shall implement a monitoring plan to monitor the establishment of individuals of California spineflower for a period of not more than five years. Performance criteria shall include the establishment of an equal number of plants as that impacted in the first year following the distribution of seed within the mitigation site. Performance criteria shall also include confirmation of recruitment for two years following the first year flowering is observed and establishment of individuals throughout the mitigation area within three years following the first year flowering is observed.

- **MM-BC (BWP)-4. Conservation of Faunal Resources: Burrowing Owl.**

  Prior to any work activities (i.e., vegetation clearing, invasive species removal and/or spraying, and sediment removal) within the Southeast Construction Staging/Parking Area (also known as the Continental City site), a survey for burrows by a qualified biologist will be conducted by walking through the suitable habitat within the site in accordance with CDFG-accepted protocols. If the site contains burrows that could be used by burrowing owls, four surveys will be conducted during the burrowing owl breeding season (April 15 through July 15). If an active burrow is observed during the nesting season, disturbance of the owls would constitute a significant impact and the burrow will be protected until nesting activity has ended to ensure compliance with Section 3503.5 of the California Fish and Game Code. Nesting activity for burrowing owl normally occurs from February 1 through August 31. To protect any active burrow, the following restrictions are required between February 1 and August 31 (or until burrows are no longer active as determined by a qualified biologist): (1) clearing limits will be established a minimum of 300 feet in any direction from any occupied nest and (2) access and surveying will be restricted within 200 feet of any occupied nest. Any encroachment into the 300/200 foot buffer area around the known nest will only be allowed if it is determined by a qualified biologist that the proposed activity will not disturb the nest occupants. These avoidance measures will be coordinated with LAWA's USDA Wildlife Hazard Biologist and will be consistent with FAA Advisory Circular No. 150/5200-33 "Hazardous Wildlife Attractants on or Near Airports" and LAWA's "LAX Wildlife Hazard Management Plan."

  If nesting individuals are observed, LAWA or its designee will develop and implement a habitat replacement plan to compensate for the loss of habitat associated with use of the site for construction staging and parking. The objective of the habitat replacement plan will be to replace the habitat value to be lost with equal or greater habitat value. The habitat replacement will occur at an off-site location to avoid potential conflicts with aircraft activities at LAX. Off-site locations for habitat replacement may include Madrona Marsh Nature Center in Torrance, Three Sisters Reserve located on the Palos Verdes Peninsula, or another location deemed appropriate.

  Whether or not any nesting burrowing owls are identified on-site, after the end of the nesting period (August 31), LAWA or its designee will remove all burrows from the site on a monthly basis between September and January. Removal may include physically collapsing the burrows or installing one-way doors in burrow entrances. Such maintenance will continue annually until such time as the entire staging area is in active use.

- **MM-BC (BWP)-5. Conservation of Faunal Resources: Loggerhead Shrike.**

  If construction is scheduled to occur during the nesting season for the loggerhead shrike (March 15 to August 15), vegetation that will be impacted by the proposed project shall be removed outside the nesting season if feasible. If this is not feasible, a qualified biologist shall inspect the shrubs/trees at least 14 days prior to construction activities to ensure that no nesting shrike are present. If a nest is present, construction avoidance measures shall include flagging of all active nests and a 300-foot wide buffer area around the active nests. These construction avoidance measures will be coordinated with LAWA's USDA Wildlife Hazard Biologist and will be consistent with FAA Advisory Circular No. 150/5200-33 "Hazardous Wildlife Attractants on or Near Airports" and LAWA's "LAX Wildlife Hazard Mitigation Plan" to avoid increasing wildlife hazards to aircraft. In addition, a Biological Monitor shall be present to ensure the buffer area is not infringed upon and vegetation clearing within the designated 300-foot buffer only takes place from August 16 to March 14.

- **MM-BC (BWP)-6. Conservation of Faunal Resources: San Diego Black-Tailed Jackrabbit.**

  Prior to the commencement of clearing operations or other activities involving significant soil disturbance at locations identified in Table 4.7-2 with suitable habitat, a survey shall be conducted to locate black-tailed jackrabbits within 100 feet of the outer extent of projected soil disturbance activities. The locations of any observed jackrabbits shall be clearly marked and identified on the construction plans. If this species is present, a monitoring biologist shall be on-site during any clearing to flush the jackrabbit from occupied habitat areas immediately prior to brush-clearing and earth-moving activities. The monitoring biologist shall have authority to halt construction activities until individual jackrabbits can be removed from the construction impact areas to assure that the jackrabbit shall not be directly impacted by brush-clearing and earth-moving equipment in a manner that also allows for construction activities on a timely basis.

- **MM-BC (BWP)-7. Conservation of Floral Resources: Mature Tree Replacement.**

  LAWA or its designee shall compensate at a ratio of 2:1 for the loss of mature trees, which would occur as a result of implementation of Northwest Construction Staging/Parking Area. The species of newly planted replacement trees shall be local native tree species to the extent feasible. Each mitigation tree shall be at least a 15-gallon or larger specimen. The replacement will be implemented within the boundaries of LAX or at a suitable off-site location. It mitigation occurs within LAX boundaries, the replacement site and tree species will be determined in consultation with LAWA's USDA Wildlife Hazard Biologist and will be consistent with FAA Advisory Circular No. 150/5200-33 "Hazardous Wildlife Attractants on or Near Airports" and LAWA's "LAX Wildlife Hazard Mitigation Plan" to avoid increasing wildlife hazards to aircraft.

- **MM-BC (BWP)-8. Conservation of Faunal Resources: Nesting Birds/Raptors.**

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

4.7.9 Level of Significance After Mitigation

Implementation of Master Plan Mitigation Measures MM-BC-1, MM-ET-3, and Bradley West Project Mitigation Measures MM-BC (BWP)-1 through MM-BC (BWP)-8 would reduce all significant and potentially significant impacts to biological resources to a less than significant level.

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4.8 Noise

4.8.1 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 and Master Plan commitments to address potentially significant noise impacts. The analysis of noise impacts provided in this project-level tiered EIR was prepared to examine, at a greater level of detail, the potential impacts on noise-sensitive uses associated with construction of the Bradley West Project.

The key findings and mitigation measures from Section 4.1, *Noise*, of the LAX Master Plan Final EIR that relate to this section and the Bradley West Project are:

- Master Plan-related construction activities located within the vicinity of noise-sensitive uses include the development of airport property north of Westchester Parkway and west of Sepulveda Boulevard, the Consolidated Rental Car (RAC) Facility, the Aircraft Noise Mitigation Program (ANMP) acquisition area (Belford), the GTC (Manchester Square), and on-site cargo facilities near the airport's southern boundary and construction staging areas (LAX Master Plan Final EIR Figure F4.20-2). Land uses potentially affected by significant construction 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. Even with Master Plan Mitigation Measures MM-N-7, Construction Noise Control Plan, MM-N-8, Construction Staging, MM-N-9, Equipment Replacement, and MM-N-10, Construction Scheduling, LAX Master Plan construction equipment operations would create noise levels over extended periods of time that are more than 5 dBA[210] L_{eq}[211] higher than ambient levels near sensitive residential areas and schools, particularly as related to construction activities occurring in close proximity to the boundary of airport property, such as at the northern edge of LAX Northside or at the southern edge of the south airfield complex. This is a significant and unavoidable impact.
- Construction traffic noise would be generated by both trucks and employee vehicles. As part of the LAX Master Plan, commitments were made that would shift trips to off-peak hours, encourage remote parking, and minimize employee car trips. Additionally, construction-related trucks 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.

  If traffic conditions on a road are good (LOS A or B) sound levels increase at a rate of 3 dBA per doubling of traffic volume. However, when traffic conditions are already 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. 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. Traffic would have to increase even more on roads with poor operating conditions to reach the 5 dBA CEQA threshold of significance (see Section 4.8.4 below).

  The construction routes for the LAX Master Plan would be intentionally designated for freeways and major arterials around the airport, avoiding minor arterials and local streets. These freeways and major arterials are high-volume routes that are already at LOS C or worse. Therefore, construction traffic is not expected to trigger an exceedance of either the CEQA construction traffic noise threshold

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210 Decibel A-Weighted. 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.

211 For this analysis, in addition to CNEL, noise levels were measured in terms of equivalent energy level (L_{eq}). L_{eq} is the basic building block for highway and other transportation noise prediction models, the most stable of all the noise descriptors, and the principal metric used to evaluate transportation noise for periods of less than 24 hours. It is the amount of constant energy that contains the same amount of energy as a time varying sound level, over a given time period.

or the federal standards for substantial increase in traffic noise and the noise impact would be less than significant.

The purpose of this analysis is to examine at a more precise project-level of detail the potential for Bradley West Project construction activities to impact noise-sensitive uses, and either reaffirm or modify the Master Plan EIR conclusions described above based on the specific characteristics of the proposed project.

Implementation of the Bradley West Project would not materially affect the overall airport noise contours for LAX that are reflected in the LAX Master Plan Final EIR. Those contours are defined primarily by aircraft takeoff and landing operations, which would not be affected by the Bradley West Project. The Bradley West Project would not cause in increase an the number of daily flights arriving and departing from LAX, and the ambient growth in aviation activity at LAX that is projected to occur between 2008 and 2013, independent of the Bradley West Project, is below the future activity level addressed in the LAX Master Plan Final EIR. Therefore, the potential operational noise impacts from aircraft takeoff and landing operations are not further addressed herein.

Comments received on the Notice of Preparation for the Bradley West Project Draft EIR expressed concern that implementation of the proposed project would encourage airlines to increase operations of new large aircraft (NLA) at LAX, which, in turn, would lead to increased use of Runway 25L for departures of new large aircraft. LAWA's preferential runway policy gives preference to the use of Runways 24L and 25R for aircraft departures and Runways 24R and 25L for aircraft arrivals. Runway 25L has been often used for departures of the A380, although Runway 24L is now starting to be used more for A380 departures. Notwithstanding, the operational characteristics of NLA at LAX, as related to which runways are used for departures, are based on FAA standards and decisions by the FAA Air Traffic Control Tower (ATCT) completely independent of the Bradley West Project. Aircraft ground movements have a negligible effect upon the noise contours at LAX. Nevertheless, the following discussion addresses, for general information purposes, changes in aircraft ground operations relative to aircraft taxiing and engine "run-ups." Implementation of the Bradley West Project would not materially affect noise levels associated with aircraft ground operations, such as those associated with aircraft taxiing or aircraft maintenance ground "run-ups." One of the primary features of the Bradley West Project is the addition of new contact gates on the west side of TBIT, including gates specifically designed to accommodate next generation aircraft such as the Airbus A380 and Boeing 787 and 747-8. These new contact gates would reduce the use of the existing remote gates located at the west end of the airport (referred to as the "West Remote Pads"). As such, the aircraft ground taxiing characteristics with implementation of the Bradley West Project would be different than conditions without the proposed improvements. Based on airfield operations levels anticipated to occur at LAX in 2013, when the proposed TBIT improvements would be completed, it is estimated that without the Bradley West Project an average of 97 aircraft operations per day would be accommodated at the West Remote Pads, and with the Bradley West Project the number of daily operations that would be accommodated at the West Remote Pads would be reduced to 56.

As noted above, the West Remote Pads are located at the western edge of the airport approximately one mile from TBIT. This area offers relatively easy access for aircraft arriving from the northern runways, however aircraft arriving from the southern runways must taxi further than if they were parking at TBIT. Aircraft departing from the West Remote Pads must taxi further than most aircraft departing from TBIT regardless of which runway they use.

An airfield simulation model (i.e., SIMMOD) analysis of conditions with and without the addition of the new contact gates at TBIT was conducted to quantify the changes in aircraft ground taxiing operations, as related to noise from aircraft engines. The SIMMOD analysis included the proposed relocation of existing Taxiways S and Q.[212] In 2013 without the new contact gates at TBIT, the average arrival ground

212 The SIMMOD analysis completed for the Bradley West Project did not include Taxiway C-13 because that taxiway improvement is separate from the Bradley West Project and had not yet been approved at the time of the SIMMOD analysis. If Taxiway C-13 were to have been included in the analysis, it is anticipated that the estimated taxi/idle times would be comparable to or better than those presented above, as it would provide an additional taxi route available to the ATCT.

operating time was determined to be 11.35 minutes per aircraft using the West Remote Pads; this time includes taxi time, delay time, and staging time. With the Bradley West Project, the average arrival ground operating time for aircraft using gates located on the west side of TBIT was 10.21 minutes per aircraft. Relative to departures, conditions without the new contact gates at TBIT resulted in an average departure ground operating time of 14.74 minutes per operation for aircraft departing the West Remote Pads. The average departure ground operating time for aircraft using the west side of TBIT in the Bradley West Project simulation was 12.77 minutes per operation. Given the level of operations simulated, the reconfigured TBIT gates represent a reduction of 1.14 minutes of ground operating time for arrivals and 1.97 minutes for departures. This reduction is considered beneficial from a noise perspective in that it represents less time that the aircraft engine is operating and generating noise.

Without the new contact gates and associated taxiway improvements at TBIT by 2013, which include gates specifically designed to accommodate NLA such as the A380, there are nine NLA arrivals per day and only three gates capable of serving them. This results in an average ground operating time of 23.27 minutes per arrival. This is largely due to the aircraft needing to wait for an available gate. In the Bradley West Project simulation there are nine available NLA gates for 13 NLA arrivals. The average ground operating time was 8.77 minutes per arrival. The additional NLA capable gates result in a 14.5 minute reduction in ground operating time for NLA aircraft.

The results of the simulations indicated that the duration of ground movements is reduced with the Bradley West Project, both for NLA operations and those operations moved from the West Remote Pads to the west side of TBIT. The reduction in the duration of ground movements (jet engines under operation) would result in a slight reduction in overall aircraft taxiing noise levels. The noise reductions associated with the reduced duration of ground movements are not expected to affect the noise environment for the surrounding communities as the noise from arriving and departing aircraft exceeds the noise from taxing aircraft on the ground.

Presently, aircraft maintenance ground run-ups at LAX are conducted at unenclosed blast-fence/wall areas situated near the maintenance operations for Federal Express, Continental Airlines, American Airlines, Delta Airlines, and at the former TWA Hangar area. Future development of ground run-up enclosures (GREs) would provide a "U"-shaped enclosure to serve as a noise barrier. The LAX Master Plan includes the future development of two GREs, one of which would be in the midfield area for replacement ancillary facilities displaced in conjunction with the proposed future Midfield Satellite Concourse. Implementation of the Bradley West Project, specifically construction of Taxiway T which is last component to occur in the construction phasing program for TBIT, would require removal of the American Airlines Low Bay Hangar and the former TWA Hangar, each of which has an unenclosed blast-fence/wall used for aircraft maintenance run-ups.

The existing blast-fence/wall at the American Airlines Low Bay Hangar would be relocated to either the apron area of the American Airlines High Bay Hangar immediately to the west, with no change in existing noise characteristics, or alternatively would be replaced with construction of a new GRE near the Continental Airlines Maintenance Hangar, which would reduce ground run-up noise compared to existing conditions, A location for that future GRE is identified in the aircraft Remain Overnight (RON) proposed as part of the Crossfield Taxiway Project (CFTP). The potential GRE location near the Continental Airlines Maintenance Hangar was designated as available for future construction of an aircraft ground run-up enclosure as part of the CFTP.

The existing blast-fence/wall at the former TWA Hangar area would be relocated slightly west of its current location if only the eastern portion of the hangar requires demolition, with no appreciable change in existing noise characteristics. If demolition of the entire Hangar is required and maintenance operations are relocated to the American Airlines High Bay Hangar, it is anticipated that the ground run-up operations from the former TWA Hangar area would be relocated to the new GRE to ensure that there would not be an increase in noise on the south side of the midfield area due to relocation of run-up activities from the north side of the midfield area. It is anticipated that the new GRE could accommodate replacement of both of the existing blast fences/walls described above, if necessary. In general, the aircraft maintenance ground run-up activities and noise levels following implementation of the Bradley West Project are anticipated to be the same as, or less than, those of existing conditions.

During the initial phase of construction for the Bradley West Project, it is anticipated that the northern portion of Taxiway Q would be closed and existing Taxiway S and Taxiway AA would be the only crossfield taxiways available to provide aircraft access between the north runway complex and the south runway complex. During that time, the southern portion of Taxiway Q would remain open and would have a lateral connection to Taxiway S. This would allow the ATCT to route aircraft to or from the southern portion of Taxiway Q while the southern portion of Taxiway S is occupied and keep most aircraft moving with minimal construction-related delays. Once Taxiway C-13 is constructed, which was approved as part of the CFTP and would be completed around June/July 2010, a new full-length taxiway between the north and south runway complexes would be available and the construction-related closure of Taxiway Q would have no effect on the ability of the FAA ATCT to route aircraft between the north and south runway complexes. The increased use of Taxiway S, when Taxiway Q is closed, would have no notable effect on aircraft taxiing noise given the proximity of Taxiway S to Taxiway Q and the fact that additional aircraft engine run-ups associated with aircraft having to stop, hold, and then resume movement after Taxiway S clears, would be isolated in nature and would only occur occasionally over a six-month period. When existing Taxiway S is closed in order to construct proposed Taxiway T, no notable noise impacts related to aircraft taxiing are expected to occur, given that Taxiway C-13 would be completed well before that time and, in conjunction with existing Taxiway AA and proposed Taxiway S would provide full access between the north and south runway complexes. Given the proximity of the alignments of proposed Taxiways T and S to the alignments of existing Taxiways S and Q, no notable change in operational noise is expected to occur from the subject taxiway relocations.

Based on the above, no notable changes in operational noise at LAX is expected to occur as a result of the Bradley West Project; hence, the noise impacts analysis presented in this section focuses on potential construction-related impacts.

4.8.2 Methodology

Sound is generally characterized by frequency and intensity. Frequency describes the sound's pitch and is measured in hertz (Hz); intensity describes the sound's level, volume, or loudness and is measured in decibels (dB). Sound frequency is a measure of how many times the crest of a sound pressure wave passes a fixed point each second. For example, when a drummer beats a drum, the skin of the drum vibrates at a certain number of times per second. Sound frequencies between 20 Hz and 20,000 Hz are within the range of perception for a sensitive human ear.

The method commonly used to quantify environmental sounds consists of evaluating all the frequencies of a sound according to a weighting system that reflects the reduced sensitivity of human hearing to low frequencies and extremely high frequencies. This frequency-dependent modification is called A-weighting, and the decibel level measured is called the A-weighted sound level (dBA). In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA curve. A sound level of 0 dBA is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal conversational speech has a sound level of approximately 60 dBA. Sound levels above about 120 dBA begin to be felt inside the human ear as discomfort and eventually pain at still higher levels.

In general, humans find a change in sound level of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving sound level. Because of the logarithmic scale of the decibel unit, sound levels cannot be added or subtracted arithmetically. If a sound's physical intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. For example, 60 dB plus 60 dB equals 63 dB, 80 dB plus 80 dB equals 83 dB. However where ambient noise levels are high in comparison to a new noise source, there will be a small change in noise levels. For example, 70 dB ambient noise levels are combined with a 60 dB noise source; the resulting noise level equals 70.4 dB.

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. A representative ambient noise level (non-construction noise) at the noise-sensitive uses were determined based on information contained in the LAX Master Plan Final EIR[213] and the airport noise contours shown on a recent quarterly noise monitoring report (i.e., 4th Quarter 2007, which is the most recent report on www.lawa.org).[214] Construction noise levels were based on typical levels as derived from a U.S. Environmental Protection Agency (USEPA) document.[215] 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.

The majority of construction activities would occur during daytime hours; however, it is anticipated that there would be periods when construction activities would be scheduled to occur both during the daytime and nighttime hours, as second and third shifts would be used for work activities that cannot be accomplished during the daytime shift (i.e., during large-scale pours of concrete, such as for substantial areas of the taxiways, when it would be necessary to maintain a continuous stream of concrete deliveries through multiple shifts, or, as another example, when completing improvements near active taxiway areas for which less interference with airfield operations would occur if the improvements were completed at night when taxiway use is low or nil) due to coordination or interference issues (i.e., airport operations, safety, delivery of materials and equipment). To evaluate the potential noise impacts of such occurrences, the Community Noise Equivalent Level (CNEL)[216] metric was chosen to quantify the 24-hour noise levels and include a noise weighting "penalty" for noise occurring during evening and nighttime hours. In order to calculate a construction CNEL, hourly activity or utilization factors (i.e., the percentage of normal construction activity that would occur, or construction equipment that would be active, during each hour of the day) were estimated. 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.[217] The hourly activity factors were used in computing average hourly construction L_{eq} levels, which were then applied a penalty-weighting of 5 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.).

Construction Traffic Noise

Construction traffic noise was evaluated by comparing the number of construction vehicles anticipated to use the Bradley West Project 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, and cannot be added or subtracted arithmetically. For example, when the energy is doubled, the SPL increases by

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213 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.1.

214 The ambient noise levels indicated in the LAX noise contour map for 4th Quarter 2007 are considered to be generally representative of current noise levels, given that locations of the contours relative to nearby communities have not changed substantially over the past five years. This can be seen in comparing the 4th Quarter contours for each of the last five years, as can be accessed through http://www.lawa.org/welcome_lax.aspx?id=1090 (Accessed April 11, 2009).

215 U.S. Environmental Protection Agency, Noise from Construction Equipment & Operations, December 31, 1971.

216 CNEL is used in this analysis to describe annual average day noise levels. CNEL, an average sound level expressed in terms of average day A-weighted decibels (dBA) such as "65 dBA CNEL," or simply "65 CNEL," considers both the loudness and duration of exposure.

217 The use of 86 dBA Leq at 50 feet as an overall construction noise level is based on Section 4.1.3.3 (page 4-49) of the LAX Master Plan Final EIR.

three decibels. Therefore, while the energy is doubled when the second truck appears, the SPL would increase from 50 to 53 dBA. 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. If traffic conditions on a road are good (LOS A or B) sound levels increase at a rate of 3 dBA per doubling of traffic volume. However, when traffic conditions are already 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. 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. Traffic would have to increase even more on roads with poor operating conditions to reach the 5 dBA CEQA threshold of significance (see Section 4.8.4 below).

4.8.3 Baseline Conditions

The existing setting relative to construction equipment and traffic noise is provided in Sections 4.1 and 4.20 of the LAX Master Plan Final EIR. This information is incorporated herein by reference and summarized below.

In general, as briefly described earlier in Section 3.2 of this EIR, the noise setting at and around the Bradley West Project site is characterized by airport-related uses including aircraft and ground equipment. The existing aircraft noise levels at LAX are comparable to those reflected in the LAX Master Plan Final EIR, as can be seen by comparing the airport noise contours for the year 2000 (see Figure F4.1-6 of the LAX Master Plan Final EIR) to the airport noise contours shown on a recent quarterly noise monitoring report (i.e., 4th Quarter 2007, which is the most recent report on www.lawa.org).

There are no noise sensitive uses immediate to the project site (i.e., within 1,000+ feet of the project's construction site). In the area surrounding LAX, the noise setting is characterized by several major highways including I-405 and I-105, and several major arterial roads including, but not limited to, Imperial Highway, Sepulveda Boulevard, Century Boulevard, and Lincoln Boulevard. Noise sensitive receptors in proximity to LAX include residential uses in El Segundo to the south, Inglewood and Lennox to the east, and Westchester to the north. Of these sensitive noise receptors, residential development in Westchester and El Segundo is the closest to the site. Residential development in Westchester is approximately 0.45 mile from the northern boundary of the Bradley West Project site, and approximately 650 feet from the northern boundary of the Northwest Construction Staging/Parking Area. (For greater detail on noise sensitive receptors see LAX Master Plan Final EIR, Section 4.1, Figures F4.1-2 through F4.1-5.) Daytime ambient noise levels in Westchester are estimated to range between approximately 62 dBA L_{eq} and 69 dBA L_{eq},[218] with higher noise levels being at the southern end of the community near airport and roadway noise sources. Existing ambient noise levels in terms of airport-related CNEL are estimated to be between approximately 69 dBA and 71 dBA along the southern edge of Westchester.[219]

Residential development in El Segundo is approximately 0.75 mile from the southern boundary of the Bradley West Project site, and approximately 1,800 feet from the southern tip of the West Construction Staging Area where the Materials/Plant Area is proposed to be located. Daytime ambient noise levels in El Segundo next to the airport are estimated to be 65 dBA L_{eq} or higher, owing to both road traffic and aircraft noise, and nighttime noise levels would be about 5 dBA lower than during the day.[220] Existing

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218 LAX Master Plan Final EIR, page 4-104 indicates daytime ambient noise levels to be between 62 dBA L_{eq} and 66 dBA L_{eq}. Westchester-Playa del Rey Community Plan Update Draft EIR (City of Los Angeles EIR No.2003-1922), Table 4.7-2 indicates the sound level measured near Westchester Parkway at Pershing Drive to be 69.5 dBA.

219 LAX Airport Impact Area: CNEL 65, 70, and 75 dB Contours, 3Q07, Available: http://www.lawa.org/welcome_LAX.aspx?id=1090, accessed January 30, 2009.

220 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.1, page 4-103.

ambient noise levels in terms of airport-related CNEL range between approximately 67 dBA to 77 dBA along the northern edge of El Segundo.[221]

Although well removed from the Bradley West Project construction site, residential development located at the northern end of the unincorporated community of Del Aire is located approximately 1,000 feet from the Bradley West Project Southeast Construction Staging/Parking Area. This area experiences considerable ambient noise from the I-405 freeway, the Burlington Northern and Santa Fe railroad, the MTA Green Line, aircraft, and Imperial Highway. Projected ambient noise levels are estimated to be 65 dBA L_{eq}.[222] The existing ambient noise level in terms of airport-related CNEL is estimated to be approximately 65 dBA along the northern edge of Del Aire.[223]

4.8.4 CEQA Thresholds of Significance

Construction Equipment Noise

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

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise-sensitive use;
- Construction activities lasting more than 10 days in a three month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise-sensitive use; or,
- Construction activities would exceed the ambient exterior noise level by 5 dBA at a noise-sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at anytime on Sunday.

These thresholds were utilized because they address physical impacts on the environment and are included in the L.A. CEQA Thresholds Guide.

Construction Traffic Noise

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

- The project results in a noise sensitive receptor newly experiencing an increase of 5 dBA $L_{eq}(h)$ in peak hour noise levels compared with baseline conditions.

This threshold was adopted because it addresses the physical impacts of the environment and because it is contained in the L.A. CEQA Thresholds Guide.

4.8.5 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 noise impacts, the following are applicable to the Bradley West Project and are considered in the noise analysis.

- **MM-N-7. Construction Noise Control Plan.**

  A Construction Noise Control Plan will be prepared to provide feasible measures to reduce significant noise impacts throughout the construction period for all projects near noise sensitive uses. For example, noise control devices shall be used and maintained, such as equipment mufflers,

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221 LAX Airport Impact Area: CNEL 65, 70, and 75 dB Contours, 3Q07, Available: http://www.lawa.org/welcome_LAX.aspx?id=1090, accessed January 30, 2009.

222 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.20, page 4-1153.

223 LAX Airport Impact Area: CNEL 65, 70, and 75 dB Contours, 3Q07, Available: http://www.lawa.org/welcome_LAX.aspx?id=1090, accessed January 30, 2009.

enclosures, and barriers. Natural and artificial barriers such as ground elevation changes and existing buildings may be used to shield construction noise.

- **MM-N-8. Construction Staging.**

  Construction operations shall be staged as far from noise-sensitive uses as feasible.

- **MM-N-9. Equipment Replacement.**

  Noisy equipment shall be replaced with quieter equipment (for example, rubber tired equipment rather than track equipment) when technically and economically feasible.

- **MM-N-10. Construction Scheduling.**

  The timing and/or sequence of the noisiest on-site construction activities shall avoid sensitive times of the day, as feasible (9 p.m. to 7 a.m. Monday -Friday; 8 p.m. to 6 a.m. Saturday; anytime on Sunday or Holidays).

- **ST-16. Designated Haul Routes.**

  Every effort will be made to ensure that haul routes are located away from sensitive noise receptors.

- **ST-22. Designated Truck Routes.**

  For dirt and aggregate and all other materials and equipment, truck deliveries will be on designated routes only (freeways and non-residential streets). Every effort will be made for routes to avoid residential frontages. The designated routes on City of Los Angeles streets are subject to approval by LADOT's Bureau of Traffic Management and may include, but will not necessarily be limited to: Pershing Drive (Westchester Parkway to Imperial Highway); Florence Avenue (Aviation Boulevard to I-405); Manchester Boulevard (Aviation Boulevard to I-405); Aviation Boulevard (Manchester Avenue to Imperial Highway); Westchester Parkway/Arbor Vitae Street (Pershing Drive to I-405); Century Boulevard (Sepulveda Boulevard to I-405); Imperial Highway (Pershing Drive to I-405); La Cienega Boulevard (north of Imperial Highway); Airport Boulevard (Arbor Vitae Street to Century Boulevard); Sepulveda Boulevard (Westchester Parkway to Imperial Highway); I-405; and I-105.

4.8.6 Impact Analysis

Construction Equipment/Activity Noise

Construction activities typically generate noise from the operation of equipment required for demolition and construction of various facilities. **Table 4.8-1** lists the range of typical noise levels associated with basic construction equipment types. The actual noise level would vary, depending upon the equipment model and the type of work activity being performed.

Table 4.8-1

Typical Construction Equipment Noise Levels

Equipment	Noise Level (dBA) at 50 feet
Compactor (Rollers)	72 - 74
Front Loaders	72 - 84
Backhoes	72 - 93
Tractors	72 - 95
Scrapers, Graders	80 - 93
Pavers	85 - 87
Trucks	81 - 95
Concrete Mixers	74 - 87
Concrete Pumps	81 - 84
Cranes (Moveable)	74 - 88
Cranes (Derrick)	86 - 88
Pumps	69 - 71
Generators	72 - 82
Compressors	74 - 88
Pneumatic Wrenches	82 - 88
Jack Hammers and Rock Drills	81 - 95
Pile Driver (Peaks)	93 - 108
Vibrator	69 - 81
Saws	72 - 81

Source: U.S. Environmental Protection Agency, Noise from Construction Equipment & Operations, December 31, 1971.

Noise levels from outdoor construction activities, independent of background ambient noise levels, indicate that the noisiest phases of construction are typically during excavation and grading, and that noise levels from equipment with mufflers are typically 86 dBA L_{eq} at 50 feet from the noise source. As described in Section 4.1.2.4 of the LAX Master Plan EIR, this type of sound typically dissipates at a rate of 4.5 dBA to 6.0 dBA for each doubling of distance. For the LAX Master Plan noise analysis, the more conservative attenuation rate of 4.5 dBA was used. As such, a sound level of 86 dBA at 50 feet from the noise source would be approximately 81.5 dBA at a distance of 100 feet, 77 dBA at a distance of 200 feet, and so on. That sound drop-off rate does not take into account any intervening shielding or barriers such as structures or hills between the noise source and noise receptor.

Unlike improvements included in the LAX Master Plan that are located along the southern and northern boundaries of the airport, the Bradley West Project site improvements are located near the middle of the airport at a distance well removed (i.e., approximately one-half mile or more) from noise-sensitive land uses. At that distance, construction noise levels of 86 dBA L_{eq} at 50 feet from the source would drop-off to approximately 60 dBA L_{eq} or less, which would be less than existing ambient noise levels within noise-sensitive areas adjacent to the airport.

As indicated in Section 4.8.2 above, the majority of Bradley West Project construction activities would occur during daytime hours; however, it is anticipated that there would be periods when construction activities would be scheduled to occur both during the daytime and nighttime hours, as second and third shifts would be used for work activities that cannot be accomplished during the daytime shift. To evaluate the potential noise impacts of such occurrences, the CNEL metric was chosen to quantify the 24-hour noise levels and include a noise weighting "penalty" for noise occurring during evening and nighttime hours. In order to calculate a construction CNEL, hourly activity or utilization factors were estimated. 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 4.8-2**. The hourly activity factors were used in computing average hourly construction L_{eq} levels, which were then applied a penalty-weighting of 5 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 4.8-2

Estimate of Bradley West Project Hourly Construction Activity Levels

	Hour[1]	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%

1 No activity expected on Sundays.

Source: CDM, 2009.

Table 4.8-3 presents the estimated daily average CNEL construction noise level for the entire period of construction at the construction site boundary. Each hourly L_{eq} value identified in **Table 4.8-2** was weighted according to CNEL weighting factors and averaged together to determine a 24-hour construction site CNEL of 89.0 dBA at 50 feet from the source.

Table 4.8-3

Estimated Bradley West Project Daily CNEL Construction Noise

	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**

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 L_{eq} 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)).

Source: CDM, 2009.

Based on a 24-hour construction site CNEL of 89 dBA at 50 feet from the source, the projected noise level at the nearest noise-sensitive use (i.e., residential development) in Westchester from construction activity along the northern edge of the project site would be 64 dBA CNEL. The existing ambient CNEL at that location is approximately 71 dBA; hence, the construction-related noise, estimated in terms of CNEL with noise penalties applied to construction activity occurring during evening and nighttime periods, would be less than significant (i.e., construction activity would last more than 10 days in a three month period or would occur during the nighttime hours specified in the significance threshold, but the resultant noise level would not exceed ambient noise level by 5 dBA or more at a noise-sensitive use). At the nearest noise-sensitive use (i.e., residential development) in El Segundo, the 24-hour noise level from construction activities occurring along the southern edge of the project site would be 63 dBA CNEL, and the existing ambient CNEL at the nearest area of residential development is approximately 70 dBA; hence, the construction-related noise would be less than significant.

Construction Staging/Parking Areas

West Construction Staging Area - This 70-acre construction staging area is located south of World Way West between Pershing Drive and Taxiway AA, west of the project site (see Figure 2-7 in Chapter 2 of this EIR). Based on its size, proximity to the project site, and distance from communities adjacent to the airport, this area would be the most intensively used of the three construction staging areas proposed for the Bradley West Project. It is anticipated that the area would be occupied by several of the project's contractors and would include construction trailers/portable offices and associated parking, areas for construction equipment staging and mobilization, areas for materials/aggregate transfer and storage, and check-in and check-out areas for delivery/haul trucks. Additionally, a materials processing plant(s) is proposed for the West Construction Staging Area and would include a rock crushing plant(s) to recycle and reuse demolition materials and a batch plant(s) for the production of concrete. Given the nature and level of activities anticipated for this staging area, including operation of the materials processing plant, the noise level associated with operation of the West Construction Staging Area is conservatively estimated to be 86 dBA L_{eq} at 50 feet from the source. Development and operation of the West Construction Staging Area would occur in an area generally removed from the communities near LAX. The nearest noise-sensitive land use is residential development approximately 1,800 feet to the south in El Segundo. Based on a noise attenuation rate of 4.5 dBA per doubling of distance, the noise levels from operations within the West Construction Staging Area would be approximately 63 dBA L_{eq}. The existing daytime ambient noise level at the nearest sensitive receptor (i.e., residential development in El Segundo south of Imperial Highway) is approximately 65 dBA L_{eq} or higher, with the nighttime ambient noise level being approximately 5 dBA lower. The noise level from activity within the West Construction Staging Area would not exceed the existing ambient noise level by 5 dBA and is therefore considered to be a less-than-significant noise impact. The combined noise level of noise from the West Construction Staging Area and noise from the construction site for the Bradley West Project, located approximately 5,000 feet east of the staging area, would be approximately 63.8 dBA L_{eq} at the nearest noise sensitive receptor in El Segundo. Similar to above, that noise level would be a less-than-significant noise impact (i.e., said construction activities would last more than 10 days in a three month period or would occur during the nighttime hours specified in the significance threshold, but the resultant noise level would not exceed ambient noise level by 5 dBA or more at a noise-sensitive use).

The northern and eastern portions of the subject staging area were previously improved for construction staging in conjunction with the South Airfield Improvement Project (SAIP) and the CFTP. Excavation and grading would be required for the western and southern portions of the staging area. Based on such activities having a noise level of 86 dBA L_{eq} at 50 feet from the source, the resultant noise level at the nearest residential development in El Segundo would be approximately 63 dBA L_{eq}. This noise level would not exceed the existing ambient noise level by 5 dBA and is therefore considered to be a less-than-significant noise impact.

Northwest Construction Staging/Parking Area - This 29-acre construction staging/parking area is located south of Westchester Parkway, extending approximately 4,700 feet east from Pershing Drive. The western half of this staging/parking area, between Pershing Drive and a point approximately 300 feet east of Falmouth Avenue, was previously improved as a construction staging area and is currently being used for the Terminal 3 In-Line Baggage Screening Systems Project. Development of the eastern half of the site as a staging area, which comprises approximately 17 acres of the total site, would require ground clearing and excavation and the placement of gravel/millings. The closest residential development is approximately 650 feet from the northeast edge of the area to be graded. Daytime ambient noise levels in the vicinity of the subject residential area is estimated to be approximately 66 dBA L_{eq}.[224] Based on an estimated noise level of 86 dBA L_{eq} at 50 feet from the source for grading activities,[225] the noise level at

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224 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Appendix K, Table 4.6-2 in conjunction with Figure 4.6-1.

225 U.S. Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, December 1971.

the nearest noise-sensitive use would be approximately 69 dBA L_{eq}. Given that this noise level would not exceed the existing ambient noise level by 5 dBA, no significant noise impact would occur from development of the eastern portion of the Northwest Construction Staging/Parking Area (i.e., construction activity would last more than 10 days in a three month period or would occur during the nighttime hours specified in the significance threshold, but the resultant noise level would not exceed ambient noise level by 5 dBA or more at a noise-sensitive use). The combined noise level of noise from the Northwest Construction Staging/Parking Area and noise from the construction site for the Bradley West Project, located approximately 5,400 feet southeast of the subject staging/parking area, would be approximately 69.2 dBA L_{eq} at the nearest noise sensitive receptor in Westchester. Similar to above, that noise level would be a less-than-significant noise impact. It should be noted that the project-related noise level estimates described above do not take into account the additional noise reduction associated with the intervening topography and dense vegetation between the Northwest Construction Staging/Parking Area and the residential development located to the northeast.

It is anticipated that the Northwest Construction Staging/Parking Area would be used primarily for construction worker parking, construction trailers/portable offices, enclosed storage bins for contractors to keep tools, supplies, and materials, and outdoor storage and laydown areas. No materials processing, including use of a rock crusher or concrete batch plant, is proposed for the Northwest Construction Staging/Parking Area. Operation of the Northwest Construction Staging/Parking Area would include noise from workers arriving at and departing from the parking area, noise from trucks traveling to and from the staging area, and noise from on-site activities such as loading and unloading trucks. It is anticipated that noise from vehicle activity within the subject area would be the most notable overall noise source. Inasmuch as the vehicles accessing the staging/parking area must be street legal, and therefore must meet on-road noise level requirements, the noise from such vehicles at the subject staging/parking area would be much less than that from the off-road construction equipment considered in the above analysis. Table 4.3-6 presented in Section 4.3 of this EIR provides a breakdown of vehicle trips occurring throughout the day during the peak construction period. From a noise perspective, the highest potential noise levels would occur at the beginning of the daytime work shift when workers are arriving at the employee parking lot (481 passenger vehicle trips), shuttle vans are transporting workers from the parking area to the construction site (28 shuttle trips characterized as medium truck relative to noise), and a limited amount of materials delivery trucks (13 heavy truck trips). With a conservative speed assumption of 30 miles per hour (the posted speed limit would be 20 miles per hour), the combined noise level associated with this vehicle mix would be approximately 68 dBA L_{eq} at a distance of 50 feet. The resultant noise level at the nearest noise sensitive land use, which is residential development located approximately 650 feet from the northeast edge of the Northwest Construction Staging/Parking Area, would be approximately 51.3 dBA L_{eq}. The existing daytime ambient noise level in the vicinity of this residential area is estimated to be approximately 66 dBA L_{eq}. As such, the noise level associated with vehicle activity within the Northwest Construction Staging/Parking Area would not exceed the existing ambient noise level by 5 dBA and the noise impact would be less than significant.

Southeast Construction Staging/Parking Area - This 28-acre construction staging/parking area is located at the northeast corner of Imperial Highway and Aviation Boulevard. With the exception of a Los Angeles Department of Water and Power building located in the southern portion of the site, it is currently vacant and unused. As discussed in Section 4.8.3 above, the closest noise sensitive use is the Del Aire residential development with an existing ambient noise level of 65 dBA L_{eq}. Development of the site for use as a construction staging/parking area would primarily involve excavation and grading, including the transfer of approximately 80,000 cubic yards of soil and aggregate that is currently stockpiled in the western portion of the airport, which would be used to fill the existing depression in the western portion of the site and provide a level surface for use as a storage/staging area. The eastern portion of the site includes areas that are already level and paved; hence, only minor to moderate grading and improvements are proposed for that area. Similar to the other areas described above, noise levels associated with grading and excavation are estimated to be 86 dBA L_{eq} at 50 feet from the source. At 1,000 feet, which is the distance to the nearest noise sensitive use (i.e., residential development in Del Aire), the construction noise level would be approximately 66.5 dBA L_{eq}. It should be noted that this estimated noise level does not take into account the noise reduction provided by an existing eight-foot concrete block wall located along the north side of 116th street that fronts the subject residential development. Between that and the many other structures that exist between the Southeast Construction Staging/Parking Area and the subject residential development, including the Metro Green Line Station/Transit Center and several on- and off-ramps that extend to and from the elevated I-105 freeway, it is estimated that noise emanating from grading of the proposed staging/parking area would be further reduced by approximately 5 to 8 dBA (i.e., the noise level at the residential receptors would be approximately 58.5 to 61.5 dBA L_{eq} based on the combination of sound drop-off over distance and the attenuation provided by the wall). Even without accounting for the noise reduction provided by the wall, an unattenuated grading-related noise level of 66.5 dBA L_{eq} would be less than a 5 dBA increase over the existing ambient noise level of 65 dBA L_{eq}; hence, the noise impact would be less than significant (i.e., construction activity would last more than 10 days in a three month period or would occur during the nighttime hours specified in the significance threshold, but the resultant noise level would not exceed ambient noise level by 5 dBA or more at a noise-sensitive use). The combined noise level of noise from the Southeast Construction Staging/Parking Area and noise from the construction site for the Bradley West Project, located approximately 10,000 feet northwest of the subject staging/parking area, would be approximately 66.6 dBA L_{eq} at the nearest noise sensitive receptor in Del Aire. Similar to above, that noise level would be a less-than-significant noise impact.

It is anticipated that the Southeast Construction Staging/Parking Area would be used primarily for construction worker parking, especially if and when the existing La Cienega construction worker parking lot (also the site of the proposed Bradley West Project East Contractor Employee Parking Area) is closed due to development of a Metro bus maintenance facility, and for construction trailers/portable offices, enclosed storage bins for contractors to keep tools, supplies, and materials, and outdoor storage and laydown areas. Additionally, the placement and use of a materials processing plant (i.e., rock crushing plant and concrete batch plant) in the Southeast Construction Staging/Parking Area may be necessary during the initial phase of construction when preparation for, and development of, the new (relocated) Taxiway S is underway, but full use of the West Construction Staging Area for the Bradley West Project is not yet possible because it is still being used for the final stages of the CFTP. Noise levels associated with operation of the materials processing plant are estimated to be approximately 86 dBA L_{eq} at 50 feet from the source. At 1,000 feet, which is the distance to the nearest noise sensitive use, the noise level would be approximately 66.5 dBA L_{eq}. This would be less than a 5 dBA increase over the existing ambient noise level of 65 dBA L_{eq}; hence, the noise impact would be less than significant (i.e., construction-related activity would last more than 10 days in a three month period or would occur during the nighttime hours specified in the significance threshold, but the resultant noise level would not exceed ambient noise level by 5 dBA or more at a noise-sensitive use). As described above for the Northwest Construction Staging/Parking Area, the noise level associated with delivery trucks and construction worker parking is estimated to be approximately 68 dBA L_{eq}, which would be substantially less than those associated with site excavation and materials processing (i.e., 86 dBA L_{eq} at 50 feet) and are not expected to contribute substantially to the overall activity noise levels at the site.

Construction Traffic Noise

As indicated above in Section 4.8.2, traffic volumes on roads with good operating conditions (i.e., Level of Service of B or better) would have to increase at more than a 3-fold rate to reach the CEQA threshold of significance of a 5 dBA increase, and would need to increase even more on roads with poor operating conditions (i.e., Level of Service C or worse). Based on a review of the traffic data compiled for the construction traffic impacts analyses presented in Section 4.3 of this EIR, the highest increase in traffic volumes due to project-related construction traffic would be at the intersection of Pershing Drive and Westchester Parkway during the peak construction period (Fourth Quarter 2011) under analysis Scenario 3, where traffic in the A.M. construction peak hour would increase by approximately 38 percent compared to 2008 baseline conditions. The noise level increase associated with this additional traffic would be approximately 1.25 dBA.

The Bradley West Project construction traffic would, therefore, not trigger an exceedance of the CEQA construction traffic noise threshold (5 dBA) for a substantial increase in traffic noise. As a result, this noise impact would be less than significant (i.e., construction traffic would last more than 10 days in a three month period or would occur during the nighttime hours specified in the significance threshold, but the resultant noise level would not exceed ambient noise level by 5 dBA or more at a noise-sensitive use).

4.8.7 Cumulative Impacts

The cumulative noise impacts analysis is based on the "list approach" recognized in Section 15130(b)(1)(A) of the CEQA Guidelines and takes into consideration the projects identified in Section 3.3 of this EIR. The analysis presented herein focuses on construction-related impacts because cumulative operational noise impacts are addressed in the LAX Master Plan Final EIR. The geographic scope of the cumulative noise analysis includes the noise sensitive uses located immediately north of Westchester Parkway and south of Imperial Highway, inasmuch as the construction activities associated with the Bradley West Project are generally limited to the central portion of the airport and only construction noise from those projects in the nearby area pose the potential to combine with the construction noise from the Bradley West Project to result in cumulative impacts.

The most notable potential for cumulative noise impacts would occur during the approximately six- to nine-month period of overlap when the CFTP is in the final stages of construction and the Bradley West Project is in the initial stages of construction. Assuming a conservative (worst-case) scenario of full equipment operations occurring simultaneously between the two projects, the combined noise level of 86 dBA L_{eq} at 50 feet from the source for each project would be 89 dBA L_{eq} at 50 feet from the source. Both projects are located near the middle of the airport approximately one-half mile or more from noise-sensitive land uses, as measured from the closest area of construction. At that distance, construction noise levels of 89 dBA L_{eq} at 50 feet from the source would drop-off to approximately 63 dBA L_{eq} or less, which would be less than a 5 dBA increase over existing ambient noise levels within noise-sensitive areas adjacent to the airport (i.e., approximately 65 dBA L_{eq} in El Segundo and 65 dBA L_{eq} in Westchester). As such, the noise impact would be less than significant (i.e., cumulative construction activity would last more than 10 days in a three month period or would occur during the nighttime hours specified in the significance threshold, but the resultant noise level would not exceed ambient noise level by 5 dBA or more at a noise-sensitive use). In terms of CNEL, a combined noise level of 89 dBA CNEL at 50 feet from the source for each of the two projects would be 92 dBA CNEL. The projected noise level at the nearest noise-sensitive use (i.e., residential development) in Westchester from construction activity along the northern edge of the project site would be 67 dBA CNEL. The existing ambient CNEL at that location is approximately 71 dBA; hence, the construction-related noise would be less than significant (i.e., cumulative construction activity would last more than 10 days in a three month period or would occur during the nighttime hours specified in the significance threshold, but the resultant noise level would not exceed ambient noise level by 5 dBA or more at a noise-sensitive use). At the nearest noise-sensitive use (i.e., residential development) in El Segundo, the 24-hour noise level from construction activities occurring along the southern edge of the project site would be 66 dBA CNEL, and the existing ambient CNEL at the nearest area of residential development is approximately 70 dBA; hence, the construction-related noise would also be less than significant.

It is not anticipated that there would be a cumulative noise impact associated with construction staging and parking for the CFTP and the Bradley West Project. The assumptions and analysis completed for the Bradley West Project impacts already account for the CFTP construction staging being located in the West Construction Staging Area (i.e., only a portion of that staging area would be available for the Bradley West Project while the CFTP is still using that staging area) and CFTP parking is occurring at the East Contractor Employee Parking Area (i.e., similar to staging, the Bradley West Project analysis already took into account that parking area would not be used for Bradley West Project parking while still being used for CFTP parking, if/as fully utilized).

Another project in the local vicinity that has the potential to combine with the noise levels of the Bradley West Project to result in a significant cumulative impact is the Westchester Rainwater (Stormwater) Improvement Project. The location of that project is near the northwest edge of the airport, north of Westchester Parkway, east of Pershing Drive. Based on preliminary design concepts regarding the nature and location of proposed improvements, it is estimated that grading and construction activities associated with the Westchester Rainwater (Stormwater) Improvement Project could occur within 200-300 feet of residential development located to the north of that project site. Based on a construction noise level of 86 dBA L_{eq} at 50 feet from the source, the noise level at the nearby residential area would be approximately 74 to 77 dBA L_{eq}. That noise level, which does not include any form of construction noise barrier to reduce noise levels, would be more than a 5 dBA increase over the existing ambient noise level of 65 dBA L_{eq}, which assuming construction activities would occur more than 10 days in a three month period or would occur during the nighttime hours specified in the significance threshold, would be a significant noise impact. The additional noise contribution of 69 dBA L_{eq} from activities within the Bradley West Project Northwest Construction Staging/Parking Area would result in a combined noise level of between 75.2 and 77.6 dBA L_{eq}. The project-related increase of between 0.6 and 1.2 dBA is not, however, considered to be cumulatively considerable given that level of increase would be largely imperceptible (see Section 4.8.2 above regarding how humans find a change in sound level of 3 dB is just noticeable). Relative to noise impacts associated with a cumulative increase in construction-related traffic, a review of the traffic data compiled for the construction traffic impacts analyses presented in Section 4.3 of this EIR, indicates the highest increase in traffic volumes would be 47 percent, under analysis Scenario 3, over existing baseline conditions during the A.M. construction peak hour. The noise level increase associated with this additional traffic would be approximately 1.85 dBA, which would be less than the 5 dBA threshold of significance.

4.8.8 Mitigation Measures

As delineated above in Section 4.8.5, several Master Plan commitments and mitigation measures specified in the MMRP would address potential construction noise impacts associated with the project. In particular, Mitigation Measure MM-N-7 requires preparation of a Construction Noise Control Plan 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 Bradley West Project. As appropriate, the contractor would 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 Construction Noise Control Plan would be based on general construction noise guidelines provided by LAWA and would include specific noise control techniques spelled out in the other applicable mitigation measures and Master Plan commitments identified in Section 4.8.5 including 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 would 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. The measures identified in Section 4.8.5 above and described herein, including preparation of a Construction Noise Control Plan, are the same as those required and implemented during construction of the SAIP, and are also required and being implemented during construction of the CFTP. With implementation of these measures, no significant impacts on noise-sensitive uses from Bradley West Project construction equipment operation or traffic are expected to occur. Therefore, no additional mitigation measures are required beyond those already provided in the LAX Master Plan Final EIR.

5. OTHER ENVIRONMENTAL RESOURCES

The environmental resource areas in Chapter 5 are within the scope of the LAX Master Plan EIR, and no further environmental documentation is required. In accordance with Sections 15152(a) and 15168 of the CEQA Guidelines, the information presented in this chapter is primarily for disclosure and informational purposes. See Section 1.2.3 of this EIR for greater detail regarding this methodology. The construction and operations impacts of the Bradley West Project were accounted for and addressed in the LAX Master Plan Final EIR and Addenda to the Final EIR and no new significant impacts have been identified for those resource areas in Chapter 5. This chapter therefore provides an assessment of environmental impacts associated with the construction and operation of the Bradley West Project, with the exception of impacts associated with surface transportation, air quality, human health risks, global climate change, biotic communities, and noise which are addressed in Chapter 4 of this EIR. Significant effects related to the operation of the airport after the completion of the Bradley West Project are addressed in the LAX Master Plan Final EIR or Chapter 4 of this EIR. Certain Master Plan commitments[226] and mitigation measures delineated in the LAX Master Plan Final EIR are applicable to the Bradley West Project, as described below for each environmental resource area. Some of the measures previously defined as part of the LAX Master Plan Final EIR call for the preparation of more detailed mitigation plans that apply airport-wide. As such, this chapter also includes some new mitigation measures related to archaeological and paleontological resources, reflecting mitigation plans that were adopted by LAWA subsequent to the approval of the LAX Master Plan. In addition, construction of the Bradley West Project has the potential to affect endangered and threatened species and waters of the United States. Although these impacts are also addressed in the LAX Master Plan Final EIR, mitigation specific to the Bradley West Project is included in this chapter. For the other environmental resources addressed in this chapter, no other mitigation measures are required beyond those associated with the LAX Master Plan Final EIR, as reflected in the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP).

Overall impacts were addressed at a programmatic level of detail in the LAX Master Plan Final EIR and related technical reports and appendices. 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 impacts of the Bradley West Project. An assessment is then made as to whether the evaluation and mitigation of impacts presented in the LAX Master Plan Final EIR for a given resource are adequate to address the impacts of the Bradley West Project.

Each of the 14 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 environmental setting (baseline) as it relates to the respective resource category.
- The **CEQA Thresholds of Significance** are quantitative or qualitative measures used to determine whether a significant environmental impact would occur as a result of the Bradley West Project. This subsection includes an explanation of the thresholds of significance and their origins. Where possible, validation of the choice of thresholds is provided by federal, state, and local guidelines,

226 As indicated in the introduction to Chapter 4, besides mitigation measures, the Mitigation Monitoring and Reporting Program 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.

particularly the *Guidelines for California Environmental Quality Act* (State CEQA Guidelines)[227] and the *L.A. CEQA Thresholds Guide*,[228] published by the City of Los Angeles.

- The **LAX Master Plan** discussion summarizes impacts that are relevant to the Bradley West Project 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 impacts associated with the LAX Master Plan that would remain significant after mitigation.
- The **Bradley West Project** 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 Bradley West Project. 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 impacts of the Bradley West Project. This Bradley West Project discussion also identifies any impacts that would remain significant after mitigation.

5.1 Land Use

5.1.1 Introduction

Potential significant effects related to land use incompatibilities or inconsistencies with applicable federal, state, and local regulations, plans and policies from operation of the airport after the completion of the Bradley West Project were adequately addressed in the LAX Master Plan Final EIR (see Chapter 4 of LAX Master Plan Final EIR, particularly Section 4.2, *Land Use*). Nevertheless, this section provides a review and discussion of any notable changes to relevant plans, policies, and regulations that have occurred subsequent to publication of the LAX Master Plan Final EIR to determine if the proposed Bradley West Project, as part of the overall LAX Master Plan, would result in an inconsistency with applicable plans, policies and regulations. This section also addresses potential land use incompatibilities related to surface transportation disruption, noise, air quality, and degraded views that could result from Bradley West Project 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
- LAX Master Plan Final EIR, Section 4.20, *Construction Impacts*, April 2004

5.1.2 Setting

Land Use Setting

Descriptions of existing conditions relative to land uses in the vicinity of the airport are presented in Section 4.2 of the LAX Master Plan Final EIR. This information is incorporated herein by reference. The City of El Segundo is located south of the airport boundary and south of Imperial Highway. Along

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227 State of California, Guidelines for California Environmental Quality Act (State CEQA Guidelines), California Code of Regulations, Title 14, Chapter 3, Sections 15000-15387.

228 City of Los Angeles, Department of City Planning, L.A. CEQA Thresholds Guide, Your Resource for Preparing CEQA Analysis in Los Angeles, 2006. Many of the CEQA thresholds of significance used in the LAX Master Plan Final EIR environmental evaluation were derived from thresholds included in the City of Los Angeles' Draft L.A. CEQA Thresholds Guide (1998). The relevant thresholds of significance contained in the 1998 Draft L.A. CEQA Thresholds Guide are essentially identical to similar thresholds included in the 2006 L.A. CEQA Thresholds Guide. Further, the 2006 L.A. CEQA Thresholds Guide does not contain any new (developed since publication of the 1998 Draft L.A. CEQA Thresholds Guide) thresholds of significance relevant to the Bradley West Project.

Imperial Highway, commercial uses are located between the I-405 and Sepulveda Boulevard; primarily 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.[229]

Specific to the Bradley West Project site, the surrounding land uses are comprised solely of on-airport airfield operations areas and facilities. As described in Section 4.8 of this EIR, noise sensitive receptors in proximity to LAX include residential uses in El Segundo to the south, Inglewood and Lennox to the east, and Westchester to the north. Of these sensitive noise receptors, residential developments in Westchester and El Segundo are closest to the site. Residential development in Westchester is approximately 0.45 mile from the northern boundary of the Bradley West Project site, and approximately 650 feet from the northern boundary of the Northwest Construction Staging/Parking Area. Residential development in El Segundo is approximately 0.75 mile from the southern boundary of the Bradley West Project site, and approximately 1,800 feet from the southern tip of the West Construction Staging Area where the Materials/Plant Area is proposed to be located. Although well removed from the Bradley West Project construction site, residential development located at the northern end of the unincorporated community of Del Aire is located approximately 1,000 feet from the Bradley West Project Southeast Construction Staging/Parking Area.

Regulatory Setting

Regional Plans

SCAG Regional Comprehensive Plan

The LAX Master Plan Final EIR discussed consistency of the LAX Master Plan with the 1996 Regional Comprehensive Plan and Guide. The 2008 Regional Comprehensive Plan (RCP)[230] was subsequently adopted by SCAG. The 2008 RCP serves as an advisory plan to address important regional issues such as housing, traffic/transportation, water, and air quality. The RCP serves as an advisory document to local agencies in the Southern California region for their information and voluntary use for preparing local plans and handling local issues of regional significance. The chapter of the RCP most relevant to the LAX Master Plan is the Transportation chapter, which includes a section on aviation. According to the Transportation chapter of the RCP, SCAG's Regional Aviation Strategy would accommodate a total regional passenger aviation demand of 170 million annual passengers (MAP), with the future air travel demand being largely served by using available capacity at airfields located in the Inland Empire and north Los Angeles County. SCAG's strategy calls for constraining LAX to its estimated physical capacity of approximately 78 MAP, increasing the Ontario International Airport to 30 MAP, and the development of a new passenger airport at Palmdale that will accommodate 12.8 MAP.[231]

SCAG Regional Transportation Plan

The LAX Master Plan Final EIR discussed consistency of the LAX Master Plan with the 2001 Regional Transportation Plan. The 2008 Regional Transportation Plan (RTP)[232] was subsequently adopted by SCAG. The 2008 RTP addresses growth forecasts, transportation finance, and the future of airports in the region through the Year 2035. In order to meet regional aviation demand, SCAG has adopted a

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229 Windshield survey by CDM conducted on July 29, 2008.

230 Southern California Association of Governments, Final Regional Comprehensive Plan, 2008, Available: http://www.scag.ca.gov/rcp.

231 Southern California Association of Governments, Final Regional Comprehensive Plan, 2008, pages 115 and 116, Available: http://www.scag.ca.gov/rcp.

232 Southern California Association of Governments, Regional Transportation Plan, May, 2008, Available: http://www.scag.ca.gov/rtp2008.

Regional Aviation Decentralization Strategy which focuses on airport ground access improvements to establish a pattern of decentralization, by attracting a critical mass of passengers and airline service at emerging airports in the Inland Empire and north Los Angeles County. As part of this strategy, SCAG is evaluating a system of express buses to airports, the locations of which can be optimized by taking advantage of the region's developing HOV and light and heavy rail networks. The LAX Master Plan improvements, including the reconfiguration of TBIT, are included as part of the Regional Aviation Decentralization Strategy.[233]

SCAG Regional Transportation Improvement Program

The Regional Transportation Improvement Program (RTIP) is the short-range program that implements the long-range RTP. Federal law (23 USC, Section 134) requires that the RTIP be updated at least every 2 years and that it be consistent with the RTP. The LAX Master Plan Final EIR discussed consistency of the LAX Master Plan with the 2002 RTIP. The 2008 RTIP[234] was subsequently adopted by SCAG. The 2008 RTIP is a capital listing of transportation projects proposed in the SCAG region over the next 6-year period. The RTIP includes the following projects in the LAX vicinity: 1) Study Report for Interchange Improvements at LAX Airport; 2) Conversion of the Nash Street/Douglas Street one-way couplet system to two, two-way streets; 3) Douglas Street gap closure/railroad grade separation; 4) widen Aviation Boulevard from 4 to 6 lanes from Manhattan Beach Boulevard to Arbor Vitae; 5) South Bay Bike Trail pedestrian access ramps/sidewalks to provide access at Dockweiler State Beach; 6) ITS and intersection improvements in and near LAX, which may include restriping, signal phase changes, and the addition of intelligent transportation system equipment; 7) Purchase of six alternative fueled vehicles to be used in the expansion of the LAX FlyAway system; 8) Intermodal Transportation Center for LAX; 9) funding for projects within and near LAX to eliminate traffic bottlenecks funding; 10) I-105 westbound off-ramp widening at northbound Sepulveda Boulevard; 11) Westchester Transportation Management Enhancements - upgrade existing automated traffic surveillance and control system (ATCS); 12) improve Sepulveda Boulevard between Lincoln Boulevard and Howard Hughes Parkway; 13) widen Arbor Vitae Street to provide for 2 lanes in each direction and a two-way left-turn lane from La Cienega Boulevard to Airport Boulevard; and 14) Arbor Vitae/I-405 Freeway interchange project (southern half).[235] Projects 2, 3, 7 and 11 listed above are completed. Projects 10 and 12 listed above are currently under construction.

South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP)

The Federal Clean Air Act (CAA) establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS) and specifies future dates for achieving compliance. In addition, the CAA mandates that each state submit and implement a State Implementation Plan (SIP) for local areas not meeting these standards. The California SIP is comprised of plans developed at the regional or local level, which includes the South Coast Air Quality Management District's (SCAQMD) Air Quality Management Plan (AQMP). The LAX Master Plan Final EIR discussed consistency of the LAX Master Plan with the Draft 2003 AQMP. SCAQMD and the California Air Resources Board (CARB) have subsequently adopted the 2007 AQMP and have submitted it to the U.S. Environmental Protection Agency (USEPA) for approval. Additional description of the 2007 AQMP, and a discussion of air quality standards and emission control measures and consistency of the Bradley West Project with the AQMP, is provided in Section 4.4, *Air Quality*, of this EIR.

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233 Southern California Association of Governments, Regional Transportation Plan, May, 2008, Supplemental Report 8, Aviation and Airport Ground Access, pages 17 through 20, Available: http://www.scag.ca.gov/rtp2008.

234 Southern California Association of Governments, Final 2008 Regional Transportation Improvement Program, November 2008, Available: http://www.scag.ca.gov/rtip2008/adopted/htm.

235 Southern California Association of Governments, Final 2008 Regional Transportation Improvement Program - Volume III, November 2008, Project ID LAE1609, LA0C8079, LA996330, LA0B414, LA996289, LAE3764, LAE0566, LAE0567, LA0F073, LA974313, LA996299, LA996390, LA996408, 49160, respectively.

Caltrans Airport Land Use Planning Handbook

The LAX Master Plan EIR discussed consistency of the LAX Master Plan with the 2002 *Caltrans Airport Land Use Planning Handbook* (Caltrans Handbook),[236] which facilitates the development and training of Airport Land Use Commissions (ALUCs), provides guidance to the ALUC for preparing airport land use compatibility plans and policies, and presents procedures for ALUC's review of local actions near airports. The Caltrans Handbook has not been updated since preparation of the LAX Master Plan Final EIR.

Los Angeles County Airport Land Use Plan (ALUP)

In 1967, the State of California enacted a law requiring the formation of an Airport Land Use Commission ("ALUC") in each county containing a public airport. Within the County of Los Angeles, the Los Angeles County Regional Planning Commission serves as the ALUC. The legislative findings and declarations set forth in Section 21670, also referred to as the State Aeronautics Act, of the California Public Utilities Code define the goals of the California Legislature and delineate the parameters and limitations of this law:

> (a)(1) It is in the public interest to provide for the orderly development of each public use airport in this state and the area surrounding these airports so as to promote the overall goals and objectives of the California airport noise standards adopted pursuant to Section 21669 and to prevent the creation of new noise and safety problems.
>
> (2) It is the purpose of this article to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.
>
> (b) In order to achieve the purposes of this article, every county in which there is located an airport which is served by a scheduled airline shall establish an airport land use commission. Every county, in which there is located an airport which is not served by a scheduled airline, but is operated for the benefit of the general public, shall establish an airport land use commission . . .

The California Legislature also set forth important parameters on the ALUC statutory requirements. First, it states expressly that the principal purpose of the land use planning mandated by the statute is to foster the "orderly expansion" of airports by protecting against new development encroachments by incompatible land uses in areas affected by aircraft noise. Therefore, the ALUC statutory scheme is intended to provide appropriate prospective land use planning through, for example, the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports, to the extent that such areas do not already contain incompatible uses. Such measures are typically reflected in an airport land use plan or Comprehensive Land Use Plan (CLUP) adopted by the ALUC. In conjunction with the CLUP, the ALUC is empowered to establish height restrictions for naturally occurring objects (i.e., trees), man-made temporary objects (i.e., cranes), and structures (i.e., buildings), specify future land uses, and determine future building standards, including sound attenuation standards in the environs of airports, in order to facilitate the prevention of future encroachments of incompatible land uses. The ALUC, however, has no authority over existing land uses or the operation of airports.

While the primary role of the ALUC is to review development plans proposed in the vicinity of airports, relative to land use compatibility, the ALUC also has responsibility to review airport master plans, specific plans, general plan amendments, zoning ordinances, related development proposals and airport expansion plans for consistency with the adopted CLUP. Airport land use compatibility plans are distinct from airport master plans in function and content. In simple terms, the issues addressed by airport master plans are primarily on-airport whereas those of concern in a compatibility plan are mostly off-airport. The purpose of airport master plans is to assess the demand for airport facilities and to guide the

[236] State of California, Department of Transportation, Division of Aeronautics, California Airport Land Use Planning Handbook, January 2002.

development necessary to meet those demands. An airport master plan is prepared for and adopted by the entity that owns and/or operates the airport. In contrast, the major purpose of a compatibility plan is to ensure that incompatible development does not occur on lands surrounding the airports. The responsibility for preparation and adoption of compatibility plans lies with each county's airport land use commission. This distinction notwithstanding, the relationship between the two types of plans is close. Specifically, Public Utilities Code Section 21675(a) requires that ALUC plans be based upon a long-range airport master plan adopted by the airport owner/proprietor. If such a plan does not exist for a particular airport, an airport layout plan may be used subject to approval by the California Division of Aeronautics.

The LAX Master Plan, of which the Bradley West Project is a part, was approved and adopted by the Los Angeles City Council on December 7, 2004. Prior to that approval, the Los Angeles County ALUC indicated that the LAX Master Plan was inconsistent with the Los Angeles County CLUP dated December 19, 1991; however, that determination was overruled by the Los Angeles City Council in accordance with the procedures and requirements of the State Aeronautics Act, which included the adoption of specific detailed findings that the LAX Master Plan is consistent with the purposes of the Aeronautics Act. As a result of this overruling, the LAX Master Plan took effect just as if the ALUC had approved it or found it consistent with the compatible plan. Subsequent ALUC review of individual development projects related to the overruling of the determination are voluntary. (Public Utilities Code Section 21676.5(b).)

Long Range Transportation Plan for Los Angeles County

The LAX Master Plan Final EIR discussed consistency of the LAX Master Plan with the 2001 Long Range Transportation Plan for Los Angeles County (LRTP). The Los Angeles County Metropolitan Transportation Authority (Metro) has subsequently prepared a Draft 2008 LRTP.[237] Metro's Draft 2008 LRTP addresses mobility needs of the County through 2030. Once adopted by the Metro Board of Directors, the Plan will establish priorities for funding a balanced transportation system that addresses transportation needs throughout the County, including closing gaps in the freeway carpool lane network, expanding Metro Rail and bus service, improving arterial capacity and speeds, bicycle and pedestrian improvements, and rideshare opportunities. The 2008 Draft LRTP proposes transportation improvements at and near LAX including an extension of the Metro Green Line to LAX, widening of the I-105 Freeway off-ramp at Sepulveda Boulevard, and expanding express bus service to LAX.

On-Airport Land Use Plans and Zoning

LAX Plan

The Los Angeles International Airport Interim Plan, described in the LAX Master Plan Final EIR, has been superseded by the LAX Plan,[238] adopted as part of the LAX Master Plan Program, approved by the Los Angeles City Council in December 2004. The LAX Plan, which is a part of the General Plan of the City of Los Angeles, is intended to promote an arrangement of airport uses that encourages and contributes to the modernization of LAX in an orderly and flexible manner within the context of the City and region. It provides goals, objectives, policies, and programs that establish a framework for the development of facilities that promote the movement and processing of passengers and cargo within a safe and secure environment.

As described in the LAX Plan, LAX is comprised of four general areas: Airport Airside, Airport Landside, LAX Northside,[239] and Open Space. The Bradley West Project, including the proposed construction staging/parking areas, is located within the Airport Airside, Airport Landside, and LAX Northside areas of LAX.

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237 Los Angeles County Metropolitan Transportation Authority, Draft 2008 Long Range Transportation Plan, Available: http://www.metro.net/projects_studies/lrtp/lrtp/htm.

238 City of Los Angeles, LAX Plan, September 29, 2004, Available: http://www.ourlax.org/pub_LAXPlan.cfm.

239 LAX Northside, part of the LAX Master Plan approved by the City of Los Angeles in 2004, is an airport collateral development project that includes future development of 4.5 million square feet of commercial and airport-related industrial land uses to be built on 340 acres of vacant land located north of Runway 6L/24R (the northern most runway at LAX) along and north of Westchester Parkway.

The Airport Airside area includes those aspects of passenger and cargo movement that are associated with aircraft operating under power and related airfield support services. Uses may include four runways, taxiways, aircraft gates, maintenance areas, airfield operation areas, air cargo areas, passenger handling facilities, fire protection facilities, and other ancillary airport facilities.

The Airport Landside area functions as the interface between Airport Airside and the regional ground transportation network, establishing access portals for the efficient processing of people and goods. This area includes the Central Terminal Area (CTA). Aircraft are not permitted under power in this area. Uses include passenger handling services, airport administrative offices, parking areas, cargo facilities, and other ancillary airport facilities.

The LAX Northside area provides for the development of uses that are consistent with airport needs and neighborhood conditions, while also serving as an airport buffer zone for the Westchester community.

The following discussion summarizes the development guidelines applicable to the Bradley West Project as defined in the LAX Plan. These development guidelines are organized into two groups, "LAX Plan Goals and Objectives" and "LAX Plan Policies and Programs" developed to implement the goals and objectives.

LAX Plan Goals and Objectives

The following goals and supporting objectives have been developed to advance the LAX Plan vision and guide airport development and are applicable to the Bradley West Project.

- LAX Plan/Goal #1 - Strengthen LAX's unique role within the regional airport network as the international gateway to the Southern California region.
  - Objective #1: Provide superior facilities, services, and operations to meet the position of LAX as the principal airport and international gateway to the region.
  - Objective #2: Improve airport facilities and operations in order to provide world-class service for travelers and other airport users (i.e., employees, public service personnel, etc.)
  - Objective #3: Provide and upgrade needed facilities to accommodate current and next-generation larger aircraft associated with international and long-haul domestic travel.
  - Objective #4: Encourage other airports in the region to absorb growth in commercial service that is not essential to LAX's international gateway role.
  - Objective #5: Lead the effort to regionalize air service in Southern California by forging strategic partnerships that connect LAX and other regional airports.
- LAX Plan/Goal #2 - Develop and maintain the highest standards of air traffic safety and passenger security through design and the latest innovations.
  - Objective #1: Reduce the possibility of runway incursions.
  - Objective #2: Promote safe air navigation.
  - Objective #3: Update and improve security for passengers, cargo, and surrounding communities through physical modifications and by using the most efficient available airport security systems as feasible, including multiple layers of security checks.
- LAX Plan/Goal #3 - Optimize LAX's critical role in supporting the economy as a major generator of economic activity.
  - Objective #1: Operate LAX in an efficient and competitive manner to benefit local, regional, and state economies.

- LAX Plan/Goal #4 - Recognize the responsibility to minimize intrusions on the physical environment.
  - Objective #1: Minimize negative impacts to the Los Angeles Airport/El Segundo Dunes and protect plant and animal species, to the extent practical for safe airport operation.
  - Objective #2: Where feasible, implement measures to improve air quality or limit the extent to which air quality is degraded by auto, aircraft, and construction equipment emissions.
  - Objective #3: Incorporate mitigation measures and master plan commitments from LAX Master Plan environmental analyses into project design and operation.
- LAX Plan/Goal #5 - Acknowledge neighborhood context and promote compatibility between LAX and the surrounding neighborhoods.
  - Objective #1: Minimize negative impacts to surrounding residential land uses.
  - Objective #3: Provide opportunities for community participation in Master Plan Program decisions that could affect stakeholders by consultation with an LAX Master Plan Stakeholder Liaison who will communicate with stakeholders, including: adjacent residential and business communities; airline representatives; airport concessionaires; cargo and freight forwarders; labor representatives; business organizations and neighborhood councils.

LAX Plan Policies and Programs

The following policies and programs have been developed to implement the LAX Plan goals and objectives to guide airport development and are applicable to the Bradley West Project. These policies and programs are organized into various topics that address functional and operational aspects of the airport and potential impacts to adjacent land uses.

- Safety
  - Policy and Program #1: Study and address runway realignment and taxiway separation to provide for larger aircraft maneuvering areas and clearances.
  - Policy and Program #2: Provide for adequate aircraft queue space at departure ends of the runways.
  - Policy and Program #3: Construct center taxiways to reduce the possibility of runway incursions.
  - Policy and Program #4: Provide parallel taxiways between all new structures for improved aircraft maneuvering and reduced taxi times.
  - Policy and Program #5: Improve taxiway spacing into gate locations to reduce gate congestion and improve taxi times and efficiency.
  - Policy and Program #6: Consult with the Los Angeles Fire Department during the design phase of facilities to review plans and incorporate recommendations that enhance airport safety.
  - Policy and Program #7: Establish runway protection zones contiguous to the ends of each runway. These runway protection zones shall be identical to the FAA's runway protection zone (clear zone).
  - Policy and Program #8: Prohibit uses within a designated runway protection zone that will create safety hazards.
  - Policy and Program #9: Prohibit uses that would attract large concentrations of birds, emit smoke, or which may otherwise affect safe air navigation.
  - Policy and Program #10: Prohibit uses that would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

- Security
  - Policy and Program #1: Evaluate, develop, and improve, as necessary, Central Terminal Area, Intermodal Transportation Center, and Satellite Terminal FlyAway security - both physical and operational - as part of overall security improvements at LAX.
  - Policy and Program #2: Develop entry security improvements in the Central Terminal Area by limiting access by non-secure private, public, and commercial vehicles.
  - Policy and Program #3: Design and construct facilities that provide for security of passengers by providing multiple levels of security screening procedures while maintaining ease of use.
  - Policy and Program #4: Consult with the Los Angeles Police Department, the Los Angeles World Airports Police Department, other law enforcement agencies, and security experts, as appropriate, during the facility planning, design, and review phase so that potential environmental contributors to criminal activity are reduced and to ensure the security of the airport, airline passengers, and the surrounding community.
  - Policy and Program #5: Provide law enforcement and fire facilities to enhance the ability to respond to emergency situations and facilitate coordination with other emergency response agencies.
  - Policy and Program #6: Provide flexibility in facility design to allow for the incorporation of new technologies in security.
- Land Use (Airport Airside)
  - Policy and Program #1: Develop a balanced airfield to provide for more efficient and effective use of airport facilities.
  - Policy and Program #2: Limit airport capacity by restricting the number of gates (including remote gates) to no more than 153 at Master Plan build-out.
  - Policy and Program #4: Locate airport uses and activities with the potential to adversely affect nearby residential land uses through noise, light spillover, odor, vibration, and other consequences of airport operations and development, as far from them as feasible.
  - Policy and Program #5: Provide and maintain landscaped buffer areas along the southern boundary of Airport Airside that include setbacks, landscaping, screening, or other appropriate view sensitive uses with the goal of avoiding land use conflicts, shielding lighting, enhancing privacy, and better screening view of airport facilities from adjacent residential uses.
  - Policy and Program #6: No aircraft under power shall enter the Imperial Terminal Area located on the south side of the airport generally used for cargo and fixed-base operations. Continue the use of tug and tow procedures in this area.
- Land Use (Airport Landside)
  - Policy and Program #l: Ensure that the scale and activity level of airport facilities appropriately relates to any abutting neighborhood edges.
  - Policy and Program #6: Locate airport uses and activities with the potential to adversely affect nearby land uses through noise, light spill-over, odor, vibration, and other consequences of airport operations and development as far from, or oriented away from adjacent residential neighborhoods as feasible.

- Land Use (LAX Northside)
  - Policy and Program #l: Provide and maintain landscaped buffer areas along the northern boundary of LAX Northside that includes setbacks, landscaping, screening, or other appropriate view sensitive uses with the goal of avoiding land use conflicts, shielding lighting, enhancing privacy, and better screening view of airport facilities from adjacent residential uses.
  - Policy and Program #2: Provide community outreach efforts to property owners and occupants through measures such as public notification and public meetings, when new development on airport property is in proximity to, and could potentially affect, nearby residential uses.
  - Policy and Program #3: Orient LAX Northside development to encourage access from Westchester Parkway and other roadways internal to LAX Northside.
- Open Space
  - Policy and Program #1: Protect existing state-designated sensitive habitat areas.
  - Policy and Program #2: Provide sites for habitat restoration or replacement by native habitat.
- Biotic Communities
  - Policy and Program #1: Protect the existing state-designated sensitive habitat areas.
  - Policy and Program #2: Provide sites for habitat restoration or replacement by native habitat.
- Conservation/Energy
  - Policy and Program #1: Design and provide new facilities to meet or exceed energy prescriptive standards required under Title 24.
  - Policy and Program #2: Enhance and expand current waste reduction programs to promote recycling at terminals and enhance recycling procurement practices.
- Economic Benefits
  - Policy and Program #2: Modernize, upgrade, and improve LAX in order to sustain the airport's economic benefits.
- Noise
  - Policy and Program #2: Update facilities, gates, and runways, to accommodate the New Large Aircraft (NLA) and the next generation of quieter jets.
  - Policy and Program #3: Minimize the impacts of aircraft and airport noise through runway orientation.
  - Policy and Program #4: Move nighttime noise-creating activities to the interior of the airfield and away from noise-sensitive areas situated north and south of the airport.
  - Policy and Program #5: Continue use of tug and tow procedures in the Imperial Terminal Area.
  - Policy and Program #6: Use over-ocean procedures during nighttime, when weather permits.
  - Policy and Program #7: Conduct departures to the west along the runway heading until reaching the coastline.
  - Policy and Program #8: Update and expand LAX's Aircraft Noise Mitigation Program (ANMP) to mitigate noise impacts to land uses that would be rendered incompatible (residences, schools, hospitals, churches, and libraries).
  - Policy and Program #9: Locate airport uses and activities with the potential for noise impacts as far from adjacent residential neighborhoods as feasible.
  - Policy and Program #10: Require new uses to adhere to applicable state airport land use compatibility regulations.

- Air Quality
  - Policy and Program #1: Modify runways and taxiways to reduce airfield delays and congestion in order to lessen air emissions through reduced idle time.
- Design
  - Policy and Program #2: Appropriately relate those airport facilities that are adjacent to community land uses to the scale and level of activity of those uses.
  - Policy and Program #3: Relate Airport Landside facilities to the existing airport infrastructure in a clear, well-organized, functional, and compatible manner.

LAX Specific Plan

The LAX Specific Plan[240] establishes the zoning and development regulations and standards consistent with the LAX Plan for the airport and LAX Northside. It is a principal mechanism by which the goals and objectives of the LAX Plan are achieved and the policies and principals are implemented. The LAX Specific Plan is divided into three subareas: Airport Airside, Airport Landside, and LAX Northside. The Bradley West Project site is located within the LAX - L Zone: Airport Landside Subarea, LAX - A Zone: Airport Airside Subarea, and LAX - N Zone: Northside Subarea (specifically Area 4A and 4B).

Permitted uses in LAX - L Zone include, but are not limited to airport-related uses such as: passenger handling facilities; airline maintenance and support; air cargo facilities; commercial passenger vehicle staging and holding areas; and other ancillary airport facilities.

Permitted uses in LAX - A Zone include, but are not limited to, the airport-related uses listed above for the LAX - L Zone as well as aircraft under power and runways, taxiways, aircraft parking aprons and service roads.

Permitted uses in LAX - N Zone are defined through Ordinance No. 159,526. Principal and accessory uses in development areas 4A and 4B generally include light industrial uses, airline and airport support services, business park and research and development center, and offices.

As described in Chapter 3 of this EIR, the LAX Specific Plan establishes procedures for approval of all projects defined in the LAX Master Plan Program. The approval procedures are different for a subset of the LAX Master Plan projects. These projects are commonly referred to as the Yellow Light Projects. As discussed in Chapter 3, the Bradley West Project is not a Yellow Light Project as identified in the LAX Specific Plan. In January 2005, a number of lawsuits challenging the approval of the LAX Master Plan Program were filed. In early 2006, the City of Los Angeles and plaintiffs gave final approval to a settlement of the subject lawsuits. As part of the Stipulated Settlement, LAWA is proceeding with the Specific Plan Amendment Study (SPAS) process to identify potential alternative designs, technologies, and configurations for the LAX Master Plan Program that would provide solutions to the problems that the Yellow Light Projects were designed to address, consistent with a practical capacity of LAX at 78.9 million annual passengers, the same practical capacity as included in the approved LAX Master Plan. The outcome of the SPAS process is a potential amendment to the approved LAX Specific Plan. LAWA is in the process of preparing a Draft EIR for the SPAS, including giving further consideration to the range of alternatives to be addressed in the Draft EIR.

Additionally, the location and design of the Bradley West Project as currently proposed are not dependent on implementation of any of the Yellow Light projects or alternatives to the Yellow Light projects that will be evaluated in the SPAS.

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240 City of Los Angeles, Los Angeles International Airport Specific Plan, September 29, 2004, Available: http://www.ourlax.org/docs/lax_SpecificPlan/FinalLAXSpecificPlan_092904.pdf.

Los Angeles Airport/El Segundo Dunes Specific Plan, Ordinance 167,940

The Los Angeles Airport/El Segundo Dunes Specific Plan[241] (Dunes Specific Plan) was established to preserve the Los Angeles/El Segundo Dunes sand dunes, a unique landform, consisting of approximately 307 acres within the western portion of LAX. The Los Angeles Airport/El Segundo Dunes Specific Plan has not been updated since preparation of the LAX Master Plan Final EIR.

Land Use and Land Use Plans in the Surrounding Cities and Communities

The LAX Master Plan Final EIR addressed consistency with a number of general and community plans for areas surrounding LAX, with a resulting focus primarily on land use compatibility related to aircraft noise exposure. A review was conducted in 2009 to assess whether the land use designations for areas identified in the LAX Master Plan Final EIR have been substantially revised such that the basic conclusions of the Final EIR would be materially changed relative to land use compatibility. Particular attention was given to the potential for local areas (i.e., uses within the central and southern portions of Inglewood, uses in the northern and central portions of Lennox and uses within the southernmost portion of Westchester) to be newly exposed to significant aircraft noise from future aircraft activity levels at LAX. Such areas are shown in Figures F4.2-28 and F4.2-30 and summarized in Table F4.2-50 in Section 4.2 of the LAX Master Plan Final EIR. It should be noted that implementation of the Bradley West Project would not change the number or general nature of daily flights anticipated to occur at LAX in the future, as described in Section 2.4.5, and consequently would not materially change the future noise contours that would occur with or without the proposed project.

Based on a review of the current land use designation maps for the City of Inglewood and the communities of Westchester and Lennox, there have been no substantial changes to overall land use designations relative to LAX and the Bradley West Project.[242]

5.1.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of impacts to land use associated with the LAX Master Plan, Final EIR Section 4.2.4, and are also applicable to the Bradley West Project land use impacts analysis.

A significant land use impact 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:

- 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.
- Create physical or functional incompatibility with existing land uses through increased safety hazards, noise exposure, or other environmental effects.

The first threshold is derived from the State CEQA Guidelines Initial Study Checklist and the L.A. CEQA Thresholds Guide to address conflicts with plans that could result in physical impacts. The second threshold was developed specifically to address potential impacts associated with the Master Plan alternatives relative to safety hazards and noise exposure and combined effects that would conflict with existing land uses. The significance of safety and noise effects is defined by 14 CFR Part 150; FAA Order 5050.4A; Title 21, California Code of Regulations; Caltrans Airport Land Use Planning Handbook; and the Los Angeles County Airport Land Use Plan.

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241 City of Los Angeles, Department of City Planning, Los Angeles Airport/El Segundo Dunes Specific Plan (Ordinance No. 167,940), June 28, 1992.

242 City of Inglewood, General Plan Update Technical Background Report, August 2006, Available: http://www.cityofinglewood.org/generalplan/technical_backround_report.pdf; County of Los Angeles, Los Angeles General Plan, Draft Lennox Land Use Policy Map, Available: http://planning.lacounty.gov/assets/upl/project/gp_maps-lennox.pdf; City of Los Angeles, Westchester - Playa Del Rey Community Plan, General Plan Land Use Map, March 20, 2007, Available: http://cityplanning.lacity.org/complan/westla/PDF/wchplanmap.pdf.

Thresholds relevant to land use compatibility in terms of surface transportation disruption, noise, air quality, and degraded views during construction are included in Sections 4.3, *Construction Surface Transportation*, 4.4, *Air Quality*, 4.8, *Noise*, and 5.9, *Aesthetics*, respectively.

5.1.4 LAX Master Plan

5.1.4.1 Impacts Identified in the Final EIR

Construction Impacts

Major construction activities associated with the LAX Master Plan include runway and airfield modifications, and new and modified terminal facilities. In conjunction with such construction activities, the establishment and use of construction staging areas was contemplated as part of the LAX Master Plan, as described in Section 4.20 of the LAX Master Plan Final EIR and shown specifically in Figure F4.20-2. 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, buildings, and other facilities. The majority of construction activities associated with the LAX Master Plan would occur during daytime hours, with second and third shifts used for work activities that cannot be accomplished during the daytime shift (i.e., during large-scale pours of concrete, such as for substantial areas of taxiways, when it would be necessary to maintain a continuous stream of concrete deliveries through multiple shifts, or, as another example, when completing improvements near active taxiway areas for which less interference with airfield operations would occur if the improvements were completed at night when taxiway use is low or nil) 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.[243]

Construction haul routes would be located away from residential streets and noise-sensitive parcels as provided for under Master Plan Commitment ST-16, Designated Haul Routes. Construction staging areas would be located away from residential areas, as stated in Master Plan Mitigation Measure MM-N-8, Construction Staging; and Master Plan Commitment ST-12, Designated Truck Delivery Hours, would limit construction delivery hours.

The effects of construction from noise, air emissions, 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. Noise-sensitive land uses closest to the construction areas for LAX Master Plan projects that could potentially be affected by significant construction noise levels would primarily be residential uses located to the south of the airport in El Segundo and to the north of the airport in Westchester.[244] As further described in Section 4.1 of the LAX Master Plan Final EIR, even with the implementation of Master Plan Mitigation 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.

Construction activities for the LAX Master Plan would result in emissions from construction equipment, haul vehicles, earth-moving activities, and employee vehicles. Unpaved construction haul roads would be periodically watered-down to reduce fugitive dust, and construction equipment would be properly maintained to reduce vehicle emissions. Mitigation Measure MM-AQ-2, Construction Related Measure, is proposed to reduce construction-related air quality impacts on sensitive uses; however, construction-related air quality impacts would remain significant and unavoidable.

As described in Section 4.21 of the LAX Master Plan Final EIR, construction activities would create a visual contrast around the airport and although construction would be phased, it would cause areas of the

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243 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.20, page 4-1173.

244 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.1, page 4-103, 4-104 and Figure F4.1-10.

airport environs to have an incomplete, disrupted, and unattractive quality. Construction in the central airfield/CTA would primarily be visible from I-105 and upper stories of hotels and businesses on Century Boulevard and Imperial Highway. The short-term aesthetic effects of construction on surrounding uses and airport visitors are considered to be significant. Impacts would be reduced to a less than significant level with implementation of Master Plan Mitigation Measure MM-DA-1, Construction Fencing. Additionally Master Plan Commitment DA-1, Provide and Maintain Airport Buffer Areas, would provide for screening to reduce views of construction.

With respect to surface transportation, traffic and lane closures due to construction activities would temporarily disrupt normal traffic flows. Implementation of Master Plan Commitments C-1, ST-9, ST-12, ST-14, ST-16 through ST-18, and ST-22 would minimize potential incompatibilities associated with construction traffic; however, construction-related traffic would, at times, result in significant and unavoidable impacts on Century Boulevard east of Sepulveda Boulevard.

Consistency with Land Use Plans

SCAG Regional Comprehensive Plan and Guide

The LAX Master Plan would not meaningfully contribute to SCAGs regional forecast in terms of job growth, infrastructure growth (i.e., utilities and services), and indirect housing demands. Under the LAX Master Plan, changes in employment, infrastructure, and indirect housing growth would not be in conflict with SCAG forecasts. The LAX Master Plan would facilitate growth management policies to enhance and redevelop underutilized parcels, to support regional transit, and to encourage the use of alternative transportation. With the incorporation of Master Plan commitments and mitigation measures related to air quality, water quality, cultural and archaeological resources, wetlands, and geological hazards, potential conflicts with 1996 Regional Comprehensive Plan and Guide policies would be avoided.

SCAG Regional Transportation Plan

The LAX Master Plan would be consistent with the policy framework of the Regional Aviation Plan of the 2001 RTP, which calls for no expansion of LAX (i.e., the nature and design of the improvements included in the LAX Master Plan are intended to limit future growth to the activity levels that would otherwise occur if no improvements are made).

SCAG Regional Transportation Improvement Program

The LAX Master Plan does not involve, nor would it conflict with, the transportation projects identified in the 2002 RTIP.

Los Angeles County Airport Land Use Plan (ALUP)

The improvements to the airport being proposed under the LAX Master Plan, including modifications to the runways, development of the GTC and ITC, as well as development of new uses within acquisition areas, would require changes to the airport planning boundary and existing Runway Protection Zones (RPZs) as defined by the 1991 ALUP for LAX. The improvements to the airport proposed under Alternative D were designed in conformance with FAA safety requirements set forth by FAR Part 77, and also in accord with ALUP policies that address RPZs and limit uses within these zones. Therefore, the LAX Master Plan EIR determined that the uses proposed under the Master Plan would not conflict with ALUP safety policies.

It also determined that with implementation of mitigation measures, the LAX Master Plan would not conflict with the general and noise related policies contained in the ALUP. These policies generally focus on ensuring that new development in areas surrounding the airport is compatible with airport operations, encouraging the recycling of incompatible land uses, and encouraging local agencies to inform prospective property owners of aircraft noise exposure in areas where high noise levels exist or are anticipated. In compliance with ALUP policy, LAWA would continue to adhere to the guidelines of the California Airport Noise Standards, and would take steps to accelerate the ANMP to achieve full compatibility of all eligible land uses affected by aircraft noise.

As discussed above, the Los Angeles City Council overruled the ALUC's determination that the LAX Master Plan was inconsistent with the 1991 CLUP. As a result of this overruling, the LAX Master Plan took effect just as if the ALUC found it consistent with the compatible plan.

Long Range Transportation Plan for Los Angeles County (LRTP)

The LAX Master Plan includes improvements to facilitate and enhance the use of public transit, and includes improvements to the surrounding roadway system and was determined to be consistent with the 2001 LRTP for Los Angeles County.

On-Airport Land Use Plans and Zoning

Los Angeles International Airport Interim Plan

The LAX Master Plan EIR addresses the relationship between the LAX Master Plan and the 1981 Interim Plan, and the necessary changes to the City General Plan and zoning, as described in Section 4.2.6.5 of the Final EIR. As described therein, the LAX Master Plan, now reflected in the LAX Plan approved in December 2004, fulfills and supersedes the purpose of the Interim Plan by addressing major policy issues regarding capacity, roadway access, land use compatibility, and measures to reduce other environmental impacts. The LAX Plan establishes land use designations, goals, objectives, and policies that would supersede those contained in the Interim Plan. The LAX Plan encompasses a larger area than was shown on the Interim Plan due to the incorporation of acquisition areas and other recent purchases. Circulation patterns have also changed since the development of the Interim Plan. While approved for a total potential buildout of 4.5 MSF of commercial, recreational, and airport-related uses, under the LAX Master Plan, traffic associated with the development of LAX Northside would be reduced through the implementation of a trip cap (as described in Chapter 3 of the LAX Master Plan Final EIR). An LAX Zone/LAX Specific Plan that includes LAX Northside incorporates, to the extent feasible, development and performance standards, included as specific zoning [Q] conditions adopted under Ordinance 159,526, to regulate types of uses, building setbacks, building height, and landscape buffers. Incorporation of the requirements of these [Q] conditions ensures compatibility with adjacent residential uses to the north.

Los Angeles Airport/El Segundo Dunes Specific Plan

Under the LAX Master Plan, removal and installation of replacement navigational aids would occur within the Specific Plan area, including a portion of the 203 acre El Segundo Blue Butterfly Habitat Restoration Area (HRA). Permitted uses within the HRA include existing airport navigational and safety facilities. Development of additional navigational and safety facilities would affect 66,675 SF (1.53 acres) of state-designated sensitive habitat within the Los Angeles/El Segundo Dunes, including 33,334 SF (0.77 acre) within the HRA, including 10,597 SF (0.24 acre) of habitat occupied by the El Segundo Blue Butterfly. Although this conversion is considered to be a significant biological impact, Mitigation Measures MM-BC-13, Replacement of State-Designated Sensitive Habitats and MM-ET-4, El Segundo Blue Butterfly Conservation: Habitat Restoration would preserve habitat values by providing for the replacement of El Segundo blue butterfly habitat. Therefore, with additional navigational aids and associated service roads permitted within the Specific Plan area (including the HRA), and with mitigation fully offsetting the loss of occupied habitat, there would be no conflict with the Specific Plan.

Land Use Incompatibility

Residential and other noise sensitive uses, as identified in the LAX Master Plan EIR and reflected on existing local general plans, may be newly exposed to high noise levels or experience significant increases in high noise levels due to aircraft operations at buildout of the LAX Master Plan, of which the Bradley West Project is a part. Implementation of mitigation identified in the LAX Master Plan Final EIR would reduce such impacts; however, aircraft noise-related impacts would remain significant and unavoidable.

5.1.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

The following is a list of the Master Plan commitments and mitigation measures relevant to land use compatibility in terms of surface transportation disruption, air quality, noise, and degraded views during construction of the Bradley West Project. The full text of each commitment and measure is provided in Sections 4.3, *Construction Surface Transportation*, 4.4, *Air Quality*, 4.8, *Noise*, and 5.9, *Aesthetics*, respectively.

- **C-1. Establishment of a Ground Transportation/Construction Coordination Office**
- **C-2. Construction Personnel Airport Orientation**
- **ST-9. Construction Deliveries**
- **ST-12. Designated Truck Delivery Hours**
- **ST-14. Construction Employee Shift Hours**
- **ST-16. Designated Haul Routes**
- **ST-17. Maintenance of Haul Routes**
- **ST-18. Construction Traffic Management Plan**
- **ST-22. Designated Truck Routes**
- **MM-AQ-2. Construction-Related Measure**
- **MM-N-7. Construction Noise Control Plan**
- **MM-N-8. Construction Staging**
- **MM-N-9. Equipment Replacement**
- **MM-N-10. Construction Scheduling**
- **MM-DA-1. Construction Fencing**

In addition, the following LAX Master Plan commitment relevant to land use is applicable to the Bradley West Project:

- **LU-4. Neighborhood Compatibility Program.**

  Ongoing coordination and planning will be undertaken by LAWA to ensure that the airport is as compatible as possible with surrounding properties and neighborhoods. Measures to enforce this policy will include:

  - Along the northerly and southerly boundary areas of the airport, LAWA will provide and maintain landscaped buffer areas that will include setbacks, landscaping, screening or other appropriate view sensitive uses with the goal of avoiding land use conflicts, shielding lighting, enhancing privacy and better screening views of airport facilities from adjacent residential uses. Use of existing facilities in buffer areas may continue as required until LAWA can develop alternative facilities.
  - Locate airport uses and activities with the potential to adversely affect nearby residential land uses through noise, light spill-over, odor, vibration and other consequences of airport operations and development as far from adjacent residential neighborhoods as feasible.
  - Provide community outreach efforts to property owners and occupants when new development on airport property is in proximity to and could potentially affect nearby residential uses.

5.1.5 Bradley West Project

5.1.5.1 Impacts

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 due to Bradley West Project construction activities. This section provides additional analysis of potential project-specific construction impacts related to surface transportation disruption, air quality, construction noise, and degraded views.

Construction Impacts

Construction activities associated with the Bradley West Project would include demolition and relocation of existing facilities, excavation and grading, utility relocation and replacement, construction of new north and south concourses at TBIT, construction of aircraft gates and associated passenger loading bridges and apron areas along the west side of the new concourses at TBIT, improvements within the central core of TBIT, the use of a concrete batch plant and rock crushing facility, parking/staging areas, and paving for relocated taxiways. 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 (i.e., for large pours of concrete or for construction activities occurring near active taxiway areas, as described earlier). As described in Section 4.3 of this EIR, construction of the Bradley West Project would not require roadway lane closures; however, project construction would result in significant traffic-related impacts at up to four intersections during the peak construction period, depending on which construction staging/parking areas are used: La Cienega Boulevard and Century Boulevard, Imperial Highway and Main Street, Imperial Highway and Pershing Drive, and Sepulveda Boulevard and Manchester Avenue. As a result, residents and businesses located to the north, east, and south of the airport near these intersections within the community of Westchester and the City of El Segundo would experience disruption of normal traffic flows during construction of the Bradley West Project. In accordance with LAX Master Plan Commitment LU-1, LAWA has, and will continue to provide community outreach efforts to property owners and occupants prior to and during construction activities of projects at LAX, including the Bradley West Project, to minimize construction-related adverse impacts to the surrounding community.

Construction-related noise, air quality, traffic and degraded views would potentially affect those land uses closest to the Bradley West Project construction and staging areas and along the haul route for the Bradley West Project specifically, land uses located along the southern and northern boundaries of LAX. As described in Section 4.3, with respect to surface transportation, implementation of Master Plan Commitments C-1, C-2, ST-9, ST-12, ST-14, ST-16 through ST-18, and ST-22, along with the mitigation measures presented in Section 4.3.9, would minimize potential incompatibilities associated with construction traffic; however, construction-related traffic could, at times, result in significant and unavoidable impacts at the following intersections: La Cienega Boulevard and Century Boulevard, and Sepulveda Boulevard and Manchester Avenue. As discussed in Section 4.8, construction noise impacts on sensitive land uses would be less than significant. As concluded below in Section 5.9, aesthetic impacts from construction activities would be less than significant.

Construction activities for the Bradley West Project would result in emissions from on-site and off-site construction equipment, earth-moving activities, fugitive dust, and worker vehicle trips. Unpaved construction haul roads would be periodically watered-down to reduce fugitive dust, and construction equipment would be properly maintained to reduce vehicle emissions. Mitigation Measure MM-AQ-2, Construction Related Measures, is proposed to reduce construction-related air quality impacts on sensitive uses; however, construction-related air quality impacts would remain significant and unavoidable.

In summary, with the exception of construction surface transportation and air quality impacts, as described in detail in Section 4.3 and Section 4.4 of this EIR, respectively, construction-related land use impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

Consistency with Land Use Plans

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 related to land use incompatibilities or inconsistencies with applicable federal, state, and local regulations, plans and policies from operation of the airport after the completion of the Bradley West Project. This section provides additional analysis of potential project-specific impacts related consistency with applicable plans, policies, and regulations.

SCAG Regional Comprehensive Plan

As described in Section 5.2 of this EIR, the LAX Master Plan would not meaningfully contribute to SCAGs regional forecast in terms of job growth, infrastructure growth (i.e., utilities and services), and indirect housing demands. The LAX Master Plan is reflected in SCAG's Regional Aviation Strategy, which calls for limiting LAX to its estimated physical capacity of approximately 78 MAP. As indicated in Chapter 2 of this EIR, the subject improvements would not increase or otherwise affect the overall operational capacity of the airport. The Bradley West Project would not alter airspace traffic, runway operational characteristics, or the practical capacity of the airport; hence, the Bradley West Project would not conflict with SCAG's 2008 RCP.

SCAG Regional Transportation Plan

As described in Section 5.1.2 above, the LAX Master Plan improvements, including the reconfiguration of TBIT, are included as part of the Regional Aviation Decentralization Strategy which focuses on airport ground access improvements to establish a pattern of decentralization, by attracting a critical mass of passengers and airline service at emerging airports in the Inland Empire and north Los Angeles County. As part of this strategy, SCAG is working with LAWA on planning and programming a regional system of FlyAways, the locations of which can be optimized taking advantage of the region's developing HOV and light and heavy rail networks. Implementation of the Bradley West Project would not affect that effort or conflict with SCAG's 2008 RTP.

SCAG Regional Transportation Improvement Program

The Bradley West Project would not conflict with the transportation projects identified in the 2008 RTIP.

Los Angeles County Airport Land Use Plan (ALUP)

The Los Angeles City Council overruled the Los Angeles County ALUC's determination regarding consistency with the 1991 CLUP. ALUC review of the Bradley West Project is therefore voluntary. The Bradley West Project would not conflict with the ALUP, and implementation of the Bradley West Project would not affect the two main issue areas of concern expressed by the ALUC regarding the LAX Master Plan. One of those issues pertained to a slight shift in the location of the noise impact area that is shown in comparing the 65 CNEL noise contours of the 1991 CLUP and the Master Plan 2015 horizon year. Implementation of the Bradley West Project would not involve any change in runway locations or result in an increase in aircraft activity levels, as would influence noise contour locations. The second main issue of concern pertained to the areas that would be located in the RPZs associated with the LAX Master Plan. Implementation of the Bradley West Project would not involve any runway improvements or relocations and, therefore, would not affect that issue of concern.

Long Range Transportation Plan for Los Angeles County (LRTP)

The Bradley West Project would not conflict with proposed transportation improvements at and near LAX including an extension of the Metro Green Line to LAX, widening of the I-105 Freeway off-ramp at Sepulveda Boulevard, and expanding express bus service to LAX. Thus, the Bradley West Project would be consistent with the 2008 Draft LRTP.

On-Airport Land Use Plans and Zoning

LAX Plan

The Bradley West Project would not conflict with the development guidelines applicable to the Bradley West Project as defined in the LAX Plan and provided in Section 5.1.2 above. In particular, the Bradley West Project would be consistent with LAX Plan/Goal #1 - Strengthen LAX's unique role within the regional airport network as the international gateway to the Southern California region by 1) providing new gates specifically designed to accommodate new generation aircraft such as the Airbus A380; 2) providing new concourses area with new larger holdrooms, and improved and expanded concessions, airline lounges, passenger corridors, and administrative offices; and 3) renovating, improving, and enlarging existing concessions areas, office areas, and operations areas within the central core of TBIT. The Bradley West Project includes renovation, improvement, and enlargement of the existing federal inspection services of Customs and Border Protection (CBP) areas within the central core of TBIT, consistent with LAX Plan Security Policy and Program #1: Evaluate, develop, and improve, as necessary, Central Terminal Area, Intermodal Transportation Center, and Satellite Terminal FlyAway security - both physical and operational - as part of overall security improvements at LAX. Finally, the Bradley West Project would modernize, upgrade and improve TBIT, consistent with LAX Plan Economic Benefits Policy and Program #2: Modernize, upgrade, and improve LAX in order to sustain the airport's economic benefits.

The temporary use of the Northwest Construction Staging/Parking Area would not conflict with the development guidelines for LAX Northside. Relative to Land Use Policy and Program #1, the subject site is south of, and removed from, the northern boundary of LAX and would not conflict with the residential uses near that northern boundary. Relative to Land Use Policy and Program #2, extensive public notification has occurred relative to the preparation and publication of the Bradley West Project Draft EIR, which provided information regarding the proposed location, nature and use, and potential environmental effects of the Northwest Construction Staging/Parking Area. Such notification included e-mail notices, postcards, newspaper publications, and posting of information on LAWA's website, as well as the direct mailing/delivery of documents such as the Notice of Preparation and the Draft EIR to several community members and organizations. Additionally, a public workshop was held during the review period for the Notice of Preparation and a public workshop will be held during the review period for the Draft EIR. With regard to Land Use Policy and Program #3, access to and from the Northwest Construction Staging/Parking Area would be via Westchester Parkway.

LAX Specific Plan

The Bradley West Project is consistent with the permitted uses within the LAX - L Zone, LAX A - Zone, and LAX - N Zone: Northside Subarea as identified in the LAX Specific Plan.

Los Angeles Airport/El Segundo Dunes Specific Plan

The Bradley West Project does not include development within the Los Angeles/El Segundo Dunes and would thus not conflict with the Los Angeles Airport/El Segundo Dunes Specific Plan.

Land Use Incompatibility

As indicated in Chapter 2 of this EIR, the subject improvements would not increase or otherwise affect the overall operational capacity of the airport. The Bradley West Project would not alter airspace traffic, runway operational characteristics, or the practical capacity of the airport. Thus, operation of the Bradley West Project would not affect the land use compatibility impacts associated with exposure to high noise levels from aircraft operations as identified in the LAX Master Plan Final EIR.

Construction and operation of the Bradley West Project would not 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, with the exception of the project-related traffic impacts identified and addressed in Sections 4.1, 4.2, and 4.3 and the air quality impacts identified and addressed in Section 4.4. Additionally, the Bradley West Project would not create physical or functional incompatibility with existing land uses through increased safety hazards, noise exposure, or other environmental effects, with the exception of the traffic and air quality impacts noted above.

5.1.5.2 Mitigation Measures

As delineated above in Section 5.1.4.2, several Master Plan commitments and mitigation measures specified in the MMRP would address potential land use impacts associated with construction of the Bradley West Project. No significant impacts to land use would occur relative to noise or views; hence, no other mitigation measures relating to these resources are required. Mitigation for traffic impacts is provided in Sections 4.1.9, 4.2.9, and 4.3.9 of this EIR. Mitigation for air quality impacts is provided in Section 4.4.9. Even with mitigation, however, traffic and air quality impacts associated with the Bradley West Project would be significant and unavoidable.

5.2 Population, Housing, Employment and Growth-Inducement

5.2.1 Introduction

This section addresses the potential for the Bradley West Project 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 Bradley West Project construction activities to displace existing housing or off-airport 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*, June 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 include 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 Bradley West Project is construction and operational employment and related growth-inducing effects. The Bradley West Project would not require relocation of residences or off-airport businesses. The assumptions used to estimate 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 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 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of population, housing, employment and growth-inducement impacts for the LAX Master Plan, Final EIR Sections 4.4.1.4, 4.4.2.4, and 4.5.4, respectively, and are also applicable to the Bradley West Project population, housing, employment and growth-inducement impacts analyses.

Employment/Socio-Economics

The State CEQA Guidelines, Section 15131, Economic and Social Effects, states that "economic or social effects shall not be treated as significant effects on the environment." As a result, there are no CEQA significance thresholds for employment/socio-economic impacts. State CEQA Guidelines, Section 15131(b) does state that the "economic or social effects of a project may be used to determine the significance of physical changes caused by the project." This assessment is provided as part of the Induced Socio Economic Impacts (Growth Inducement) analysis; please see relevant thresholds below.

Relocation of Residences or Businesses

A significant impact 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 future conditions listed below.

- ♦ Substantial numbers of people and/or housing are displaced, necessitating the construction of replacement housing elsewhere.
- ♦ Extensive relocation of residents, where comparable, decent, safe and sanitary replacement housing within the financial means of displaced persons is not available; and, the construction of such is not feasible in a timely manner in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Act and implementing regulations.
- ♦ Extensive relocation of community businesses that would create substantial economic hardship for the affected communities.
- ♦ Displacement of a substantial number of businesses in the absence of suitable relocation sites, resulting in business closures and a loss of jobs and tax revenue. This applies specifically to businesses that are uniquely dependent on airport proximity.
- ♦ Displacement of business that would create a substantial loss in community tax base.

These CEQA thresholds of significance were utilized because they address relocation concerns and potential impacts on residences and businesses that stem from LAX Master Plan. The thresholds are derived in part from guidance contained in Federal Aviation Administration's (FAA) Order 5050.4B, National Environmental Policy Act Implementing Instructions for Airport Actions,[245] and from Appendix G, Environmental Checklist Form, of the State CEQA Guidelines.

Induced Socio-Economic Impacts (Growth Inducement)

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

- ♦ Directly or indirectly foster population or economic growth that would cause significant physical impacts on the environment by triggering the need for development of substantial new land uses and/or associated public facilities or infrastructure.

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[245] U.S. Department of Transportation, Federal Aviation Administration, Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, April 28, 2006.

- Removal of obstacles to population growth or new development that would lead to significant physical impacts on the environment (for example, extending a new highway or utility infrastructure into an undeveloped area, thereby resulting in housing growth and associated physical impacts).

These thresholds were utilized to address the growth-inducing impacts of the project. Both thresholds are derived from language contained in CEQA Guidelines, Section 15126.2(d).

5.2.4 LAX Master Plan

5.2.4.1 Impacts Identified in the Final EIR

Under the LAX Master Plan, residential acquisition of approximately nine to twelve dwelling units could occur with the implementation of Master Plan Mitigation Measure MM-ST-13, Create A New Interchange at I-405 and Lennox Boulevard.[246] Residential acquisition could also occur if the ANMP voluntary land acquisition for Manchester Square is not 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.[247]

The LAX Master Plan would yield a direct economic output of $63.7 billion and would support about 350,000 jobs throughout the region by 2015. Taking into account the multiplier effect[248] the LAX Master Plan's impact would be $93.8 billion in total economic output and 629,000 jobs by 2015.[249] The project direct regional employment in 2015 represents a net decrease of 57,113 jobs compared to baseline (1996) conditions. The decline in employment, which applies to all portions of the study area in spite of increasing aviation activity, reflects productivity increases within manufacturing industries related to LAX that would outpace increases in employment.[250] The LAX Master Plan would provide an estimated 447 more jobs in the five county study area, 349 jobs within a 20-mile radius, and 179 more jobs within a 10-mile radius as compared to the No Action/No Project Alternative. Total LAX on-airport employment with implementation of the LAX Master Plan would be 49,705 in 2015. As with regional employment, this represents a decline compared to 1996 conditions due to productivity improvements.[251]

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 is applied, construction of the LAX Master Plan would generate 102,244 construction-related jobs.[252] 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[253] 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

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[246] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.4.2, page 4-555.

[247] City of Los Angeles, Addendum to the Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, September 2004, page 2-2.

[248] 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).

[249] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.4.1, page 4-526.

[250] Productivity increases are the result of more economic output produced per worker.

[251] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.4.1, page 4-527.

[252] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.4.1, page 4-528.

[253] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.5, page 4-649.

significant. This is primarily due to the overall projected net decrease in LAX-related employment for the region and the characteristics of the approved LAX Master Plan. 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.

5.2.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

As noted below, no property acquisition would be required for the Bradley West Project and construction-related and operational employment would not induce growth in the area. Therefore, Master Plan commitments and mitigation measures identified in the LAX Master Plan MMRP related to these impacts are not relevant to the Bradley West Project. However, the following Master Plan commitments presented in the LAX Master Plan MMRP to address environmental justice are relevant to the Bradley West Project, as they would apply to construction and operational jobs:

- **EJ-1. Aviation Curriculum.**

  LAWA will work with local school districts to offer aviation-related curriculum at elementary schools, middle schools, high schools and colleges in affected communities near the Los Angeles International Airport. Potential pilot schools could include: Beulah Payne Elementary School, Lennox Middle School, Hillcrest Continuation School, Inglewood High School, Morningside High School, and Los Angeles Southwest College.

- **EJ-2. Aviation Academy.**

  LAWA will work with local school districts to provide comprehensive educational and trade training for aviation-related careers, targeting students in the affected communities to provide them with increased career opportunities.

- **EJ-3. Job Outreach Center.**

  Construction and Other LAX-Related Job Outreach - LAWA will create or utilize an existing resource center to assist historically underrepresented and at-risk local residents to find construction and other substantive jobs with LAWA and surrounding airport-related businesses through training and comprehensive outreach. Written materials regarding job training and placements should be compiled and disseminated from the existing LAWA Job Outreach Center.

  The Job Outreach Center will accomplish the following:

  - Fund outreach efforts;
  - Encourage minority firms within the affected communities to participate in each phase of the plan, including the design phase;
  - Coordinate with local organizations (including, among others, The Urban League, National Association for the Advancement of Colored People (NAACP), Southern Christian Leadership Conference (SCLC), Watts Labor Community Action Committee (WLCAC), Brotherhood Crusade, First African Methodist Episcopal (FAME) Renaissance, Concerned Citizens of South Central Los Angeles (CCSCLA), Black Business Association (BBA), Greater Los Angeles African American Chamber of Commerce (GLAAACC), and LAX Coalition for Economic, Environmental and Educational Justice) regarding job training, outreach and incubator programs to ensure expansive outreach;
  - Establish specific outreach and/or training programs for special targeted populations such as local ex-offenders, welfare recipients, homeless person, and low-income area residents;
  - Hold workshops and training classes for professional development across disciplines that may provide service to LAX pre-and post-employment;
  - Establish educational/training/internship programs for local students;

- Provide referrals and linkages to manufacturing (assembly line) job opportunities in impacted communities, especially South Los Angeles, that produce materials and/or devices used by the airport. This would help to revitalize the community through the provision of long-term work for existing industrial businesses.

Community Job Database - LAWA will coordinate data gathering, outreach and counseling through the following:

- Research and assess existing specialties and current capabilities of local work force to assist with targeted training and outreach efforts;
- Develop and manage a complete database of minority contractors;
- Produce a database of potential jobs and specialties needed, per Master Plan phase, and disseminate the information throughout the communities and to local Minority Business Enterprises/Disadvantaged Business Enterprises (MBE/DBE) companies.

MBE/DBE Business Outreach - LAWA will implement proactive measures that further State and local initiatives to ensure meaningful contract participation of MBE/DBE firms as follows:

- Research and assess existing specialties and capabilities of local MBE/DBE firms to assist with targeted training and outreach efforts;
- Good Faith Effort (GFE) Outreach Training - to assist prime contractors with their outreach to local and MBE/DBE firms by providing them use of relevant databases and referring them to other local organizations that may be able to assist them in their efforts;
- Encourage use of MBE/DBE local subcontractors;
- LAWA shall adopt policies to promote the use of MBE/WBE/DBE subcontractors by requiring Prime Contractors to document outreach to MBE/WBE/DBEs; dividing projects into smaller component parts, or tasks to permit maximum participation by smaller entities; placing qualified MBE/WBE/DBEs on solicitation lists available to Prime Contractors; and advertising the availability of services of the Small Business Administration and Minority Business Development Agency of the Department of Commerce to Prime Contractors;
- Monitor and implement specific GFE guidelines for outreach to MBE/DBE firms.

Small Business Outreach - LAWA will establish the below-listed proactive measures to ensure meaningful contract participation of small businesses. The resources obtained through small business outreach will be compiled in a user-friendly brochure or report and disseminated from the existing LAWA Job Outreach Center. Contacts and loan conditions will be included where available. Counselors will be available to provide one-on-one assistance.

- Fund and institute sub-contractor training/apprentice programs to be instituted pre-construction and during construction;
- Establish sensitivity training - educate prime contractors of the concerns and needs of the local business owners and MBE/DBE contractors;
- Develop special work packages to provide small businesses prime contracting opportunities;
- Establish loan assistance information programs that would provide counseling to small businesses in need of loans and, through potential partnerships with local banks, facilitate relationships with lenders;
- Establish incentives to large businesses for mentorship of, or partnering with local small businesses;
- Provide bonding assistance;
- Provide licensing assistance;

  Ensure prime and subcontracting opportunities for local small businesses.

- **EJ-4. Community Mitigation Monitoring.**

  LAWA will include community participation in monitoring the implementation of the final Mitigation Measures and Master Plan Commitments in order to ensure agency compliance and accountability. The community participation will include a diverse group of residents, stakeholders, environmental specialists and community leaders that will convene on a regular basis.

The above Master Plan commitments include provisions for LAWA to work with local school districts and low-income and minority communities that would be disproportionately adversely affected by the LAX Master Plan to provide aviation related-curriculum, training, and outreach to increase career opportunities, including aviation-related jobs, for affected residents.

5.2.5 Bradley West Project

5.2.5.1 Impacts

The information, analysis, and Master Plan commitments provided in the LAX Master Plan Final EIR adequately address the potential population, housing, employment, and growth-inducing impacts due to the Bradley West Project construction activities. As described in Chapter 2, *Project Description*, of this EIR, although the Bradley West Project would require the internal relocation of a number of on-airport tenants and uses, no property acquisition of residences or off-airport businesses would be required to implement the Bradley West Project. Therefore, there would be no residential or business-related property acquisition impacts associated with construction of the Bradley West Project. Chapter 2 also identifies on-airport tenants and uses that would be affected by the Bradley West Project. As indicated in that chapter, the majority of displaced tenants and uses would be relocated within the airport or to off-site facilities, depending upon the business plans of the individual tenants. It is possible that one use, a liquid gas and fueling station, may not be reestablished by the operator of the facility.

The Bradley West Project would provide approximately 1,425 temporary construction-related jobs over the approximately 63-month construction period. Two shifts of construction workers would work for 10 hours per day, six days a week. The number of employees on-site at any given time would fluctuate depending upon the nature of the work being undertaken. The greatest employment would occur during the fourth quarter of 2011. During the peak period of construction, approximately 690 workers would be employed on-site, based on an assumption that Bradley West Project construction during the peak period would occur on a double-shift work schedule, with 10-hour days, and six-day work-weeks. Under a more intense single shift or five-day work week, a worst-case scenario temporary surge could result in up to an estimated 1,100 peak day construction employees. Other industries that would indirectly benefit from construction activities associated with the Bradley West Project include those that 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. Therefore, few construction workers are expected to move into the area due to temporary construction jobs at LAX, and there would be no substantial increase in demand for housing, utilities, or other development to the area. As such, construction of the Bradley West Project 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.

Estimated construction costs associated with the Bradley West Project would be approximately $2 billion. As stated earlier, the Bradley West Project would provide temporary construction-related employment opportunities for approximately 690 workers, or up to 1,100 workers under a single shift or five-day work week scenario, during the peak period of the approximately 63-month construction period. As required by Master Plan Commitment EJ-3, Job Outreach Center, LAWA would make special efforts to offer construction jobs to minority, women-owned and disadvantaged business enterprise subcontractors and historically underrepresented and at-risk local residents within affected communities.

Operationally, it is anticipated that an increase in on-airport employment would occur to staff the enlarged concessions areas and expanded U.S. Customs and Border Protection (CBP) areas within the Bradley

West Core. The LAX Master Plan assumed an overall increase in passenger terminal space at LAX of 2,803,000 square feet. Under the Bradley West Project, the terminal area would increase by 1,046,987 square feet. Therefore, the Bradley West Project is consistent with the operational employment analysis conducted for the LAX Master Plan Final EIR. As described in Section 5.2.3, economic or social effects do not constitute a significant effect on the environment.

Because it is consistent with the LAX Master Plan operational employment analysis, the Bradley West Project is, by extension, consistent with the analysis of LAX Master Plan-related impacts attributable to growth inducement. As with the LAX Master Plan, operation of the Bradley West Project would not induce substantial demand for housing, utilities, or other development to the area. Furthermore, construction of the Bradley West Project would not create a net new demand for public utilities or services in excess of that assumed under the LAX Master Plan Final EIR, nor would it extend development to undeveloped areas. As a result, operations-related growth-inducing impacts would be less than significant.

Population, employment, and housing impacts and related growth-inducing effects of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

5.2.5.2 Mitigation Measures

No significant impacts on population, housing, employment, and related growth-inducing effects would occur as a result of Bradley West Project construction. Therefore, no mitigation measures are required.

5.3 Hydrology/Water Quality

5.3.1 Introduction

This section addresses the potential for the Bradley West Project to result in adverse hydrology/water quality impacts. The determinations and assessments are based primarily on information presented in:

- LAX Master Plan Final EIR, Section 4.7, *Hydrology and Water Quality*, April 2004
- LAX Master Plan Final EIR, Section 4.20, *Construction Impacts*, April 2004
- LAX Master Plan Final EIR, Technical Report 6, *Hydrology and Water Quality Technical Report*, January 2001
- LAX Master Plan Final EIR, Technical Report S-5, *Supplemental Hydrology and Water Quality Technical Report*, June 2003

5.3.2 Setting

Descriptions of existing conditions relative to hydrology are presented in Section 4.7 and Technical Report 6 of the LAX Master Plan Final EIR. This information is incorporated herein by reference. Subsequent to publication of the LAX Master Plan Final EIR, and in accordance with the LAX Master Plan Mitigation Monitoring and Reporting Program, a Conceptual Drainage Plan (CDP)[254] was prepared for LAX. The CDP provides the basis by which detailed drainage improvement plans associated with LAX Master Plan projects are to be designed in conjunction with site engineering specific to each Master Plan improvement project. In addition, following approval of the Master Plan and in conjunction with implementation of the South Airfield Improvement Project (SAIP), drainage facilities within the south airfield were modified to accommodate the airfield improvements. These modifications included upgrading the facilities to accommodate a 25-year storm event[255] and incorporating Best Management

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254 City of Los Angeles, Los Angeles World Airports, Los Angeles International Airport Conceptual Drainage Plan, June 2005.

255 A 25-year, 24-hour storm event means the maximum 24-hour precipitation event with a probable recurrence interval of once in 25 years.

Practices (BMPs) to improve water quality. These improvements were local to the south airfield and do not extend to the drainage infrastructure that serves the Bradley West Project site.

Drainage at LAX

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 Bay, 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 existing drainage system at LAX consists of catch basins, subsurface storm drains and open channels, and outfalls.[256] The principal storm water outfalls for surface water captured on the airport property are the Dominguez Channel, the Argo Drain, the Imperial Drain, and the Culver Drain. The service boundaries for each of these outfalls form distinct sub-basins that collect surface water runoff. These sub-basins extend off airport property and collect surface water runoff from surrounding communities. Within the airport, the CDP divides the Imperial sub-basin into two separate sub-basins: the Imperial Sub-basin and the Pershing Sub-basin. In addition, the Vista del Mar Sub-basin provides drainage for the portion of the airport west of Pershing Drive (i.e., the Dunes). Surface water flow from the Argo, Imperial, Culver, and Vista del Mar sub-basins contributes to the total surface water flow in the Santa Monica Bay Watershed. With the exception of the Dominguez Channel Sub-basin, which discharges to San Pedro Bay, the sub-basins at LAX discharge to Santa Monica Bay.

The total amount of impervious area within the Master Plan study area is 3,510 acres. The 116-acre Bradley West Project area that is proposed for redevelopment with new (replacement) concourses at TBIT and improvements on the west side of the TBIT existing central core, as well as the related relocation of Taxiways Q and S, consists almost entirely of impervious surfaces. The one exception is a 5.3-acre unpaved strip of land situated between Taxiways Q and S.

Drainage within the Bradley West Project Area

Figure 5.3-1 delineates the boundaries of the drainage sub-basins at LAX and indicates the relative location of the Bradley West Project area. As shown, the Bradley West Project extends across portions of two sub-basins; the Pershing Sub-basin and the Imperial Sub-basin.

The Pershing Sub-basin includes the area generally west of the existing TBIT and the CTA, south of Taxiway E, north of Taxiway B and west including World Way West and portions of Pershing Drive. Runoff within the Pershing Sub-basin generally flows, via a network of storm drain lines, north or south to World Way West and then west along World Way West. The main drainage collection trunk line in World Way West increases in size from a 42-inch diameter pipe at the east side of the sub-basin area to a 72-inch diameter pipe near Pershing Drive. The World Way West trunk line connects to a City of Los Angeles 11'-high by 9.2'-wide drainage box in Pershing Drive. The Pershing Drive drainage system flows south and combines with the Imperial Sub-basin drainage channel. In general, the existing drainage system within the Pershing Sub-basin has adequate conveyance capacity; however, there is an area along World Way West at the Taxiway AA overcrossing that experiences localized flooding/ponding. In this area, where World Way West is depressed to pass beneath Taxiway AA, the hydraulic grade line created by routing the storm flows through the existing reinforced concrete box (RCB) storm drain that follows the alignment and elevation of World Way West creates approximately 2.5 feet of ponding in the roadway, based on the modeling of a 25-year design storm. The Pershing Sub-basin includes a water quality retention basin located in the southwestern corner of the airport, east of Pershing Drive. The primary purpose of this retention basin is to provide collection and treatment of all dry weather runoff and the initial portion ("first flush") of wet weather runoff from the airport. Flows from the retention basin are ultimately discharged to Hyperion Treatment Plant. Under wet weather conditions, the basin captures less than 0.1 inch of rainfall.

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256 An outfall is the point at which drainage conveyance facilities discharge.

The Imperial Sub-basin includes the central and southwestern areas of the airport, as well as the northern and western portions of the City of El Segundo. 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 8.5'-wide by 10'-high box culvert that passes diagonally through the south airfield from northeast to southwest. The existing drainage system in the Imperial Sub-basin has adequate conveyance capacity and there are no areas of flooding.

None of the project site is located within a floodplain, as mapped and identified under the National Flood Insurance Program of the Federal Emergency Management Agency.[257]

Recharge at LAX

Surface recharge occurs when precipitation or surface water runoff contacts pervious surfaces and infiltrates through the subsurface to replenish groundwater in aquifers below. Groundwater occurs beneath LAX within what is known as the West Coast Groundwater Basin. Designated beneficial uses for groundwater, as defined by the Los Angeles Regional Water Quality Control Board (LARWQCB) in the *Water Quality Control Plan (Basin Plan)* for the Los Angeles Region, include municipal, industrial, process, and agricultural.[258] However, groundwater beneath LAX is not used for municipal or agricultural purposes and industrial and process uses are limited to the removal of small amounts of groundwater extracted incidental to free hydrocarbon product (FHP) recovery.

To characterize the components that contribute to the groundwater supplies in the Basin, a water budget was developed as part of a water management study of the West Coast Basin Barrier Project by the West Basin Municipal Water District. Based on this water budget, 6,700 acre-feet/year of groundwater inflows to the Basin are attributed to surface recharge. This is approximately 13 percent of the total estimated inflows. Sources for this recharge include precipitation, surface water streams, irrigation water from field and lawns, industrial and commercial wastes, and other applied surface waters. Within the LAX area there are no surface water streams and industrial and commercial waste discharges are prohibited on the airport. Sources for recharge at the airport include precipitation and its associated runoff, and applied irrigation.[259]

The estimated surface recharge volume within the Basin is approximately 6,700 acre-feet/year, and the total pervious area within the West Coast Groundwater Basin is 28,271 acres. Using these figures, the estimated recharge rate through the pervious surfaces of the West Coast Groundwater Basin is approximately 0.24 feet/year. Within the Master Plan study area, pervious surfaces are estimated to provide 171 acre-feet/year of surface recharge, or approximately 0.3 percent of the total inflows estimated for the Basin.[260]

Recharge within the Bradley West Project Site

Most of the surfaces within the Bradley West Project site are impervious, with the exception of a 5.3-acre strip of land between Taxiways Q and S. Recharge associated with this parcel is less than 2 acre-feet/year, or 0.004 percent of total Basin inflows.

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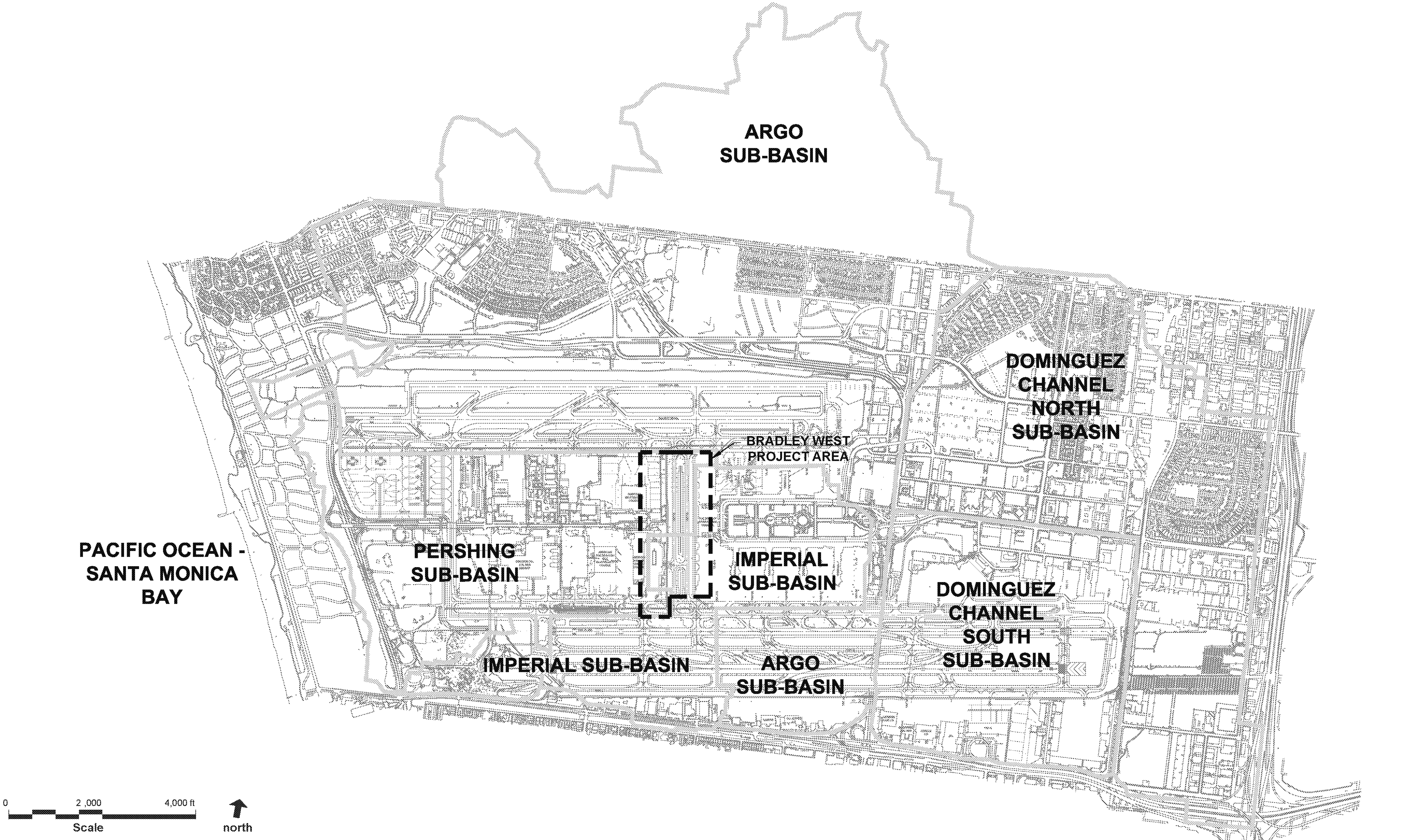
257 Flood Insurance Rate Map (FIRM) Panels 1760F and 1770F, Available: http://www.msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1&userType=G.

258 California Regional Water Quality Control Board, Los Angeles Region 4, Water Quality Control Plan, Los Angeles Region - Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, June 13, 1994.

259 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.7, page 4-759.

260 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.7, page 4-759.



Source: Hatch Mott MacDonald, 2009.
Prepared by: CDM, 2009.

LAX Bradley West Project Draft EIR	LAX Surface Hydrology Sub-Basins	Figure 5.3-1

5.3.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of hydrology/water quality impacts for the LAX Master Plan, Final EIR Section 4.7.4, and are also applicable to the Bradley West Project hydrology/water quality impacts analysis.

Hydrology

A significant hydrology impact 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:

- An increase in runoff that would cause or exacerbate flooding with the potential to harm people or damage property.
- Substantial interference with groundwater recharge such that there would be a net decrease in the aquifer volume or a change in groundwater storage that would adversely affect the quantity, water level, or flow of the underlying groundwater relative to beneficial uses of the basin.
- Substantial alteration of the existing drainage pattern of the site in a manner which would result in substantial erosion or siltation on- or off-site.

These thresholds of significance were utilized because they address potential concerns relative to flooding and recharge associated with the LAX Master Plan. These thresholds reflect those contained in the L.A. CEQA Thresholds Guide that are relevant to this project, as well as relevant issues identified in Appendix G, Environmental Checklist Form, of the State CEQA Guidelines.

Water Quality

A significant water quality impact would occur if the direct and indirect changes in the environment that may be caused by the 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 considered impaired. The threshold is based on guidance provided by the L.A. CEQA Thresholds Guide as well as relevant issues identified in Appendix G, Environmental Checklist Form, of the State CEQA Guidelines.

5.3.4 LAX Master Plan

5.3.4.1 Impacts Identified in the Final EIR

Operational Impacts

The Master Plan would increase the total impervious area within the study area by 163 acres compared to baseline conditions, an increase of less than 5 percent. To address this increase, Master Plan Commitment HWQ-1 required LAWA to develop a CDP for LAX. This plan was developed in 2005. The CDP provides the basis by which detailed drainage improvement plans for individual Master Plan projects will be designed. With implementation of project-level design in accordance with the CDP, potential impacts from flooding associated with the Master Plan would be less than significant.

With implementation of the Master Plan, all facilities receiving and conveying storm water from the airport would be concrete lined and, therefore, any increase in storm water peak flow rates or changes in the drainage infrastructure would not result in substantial erosion or siltation either on-site or off-site. Therefore, the impact of erosion or siltation due to runoff from the airport would be less than significant.

With implementation of the Master Plan, the volume of surface recharge within the study area would decrease by approximately 40 acre-feet/year to 131 acre-feet. The reduction in surface recharge would represent a change of less than 0.1 percent in the total groundwater inflows estimated for the West Coast Basin. No groundwater production occurs within the Master Plan study area relative to the beneficial uses designated for the Basin. Therefore, the impact of the projected reduction in the volume of surface recharge would be less than significant.

Construction Impacts

Construction of the LAX Master Plan facilities could create sources of pollution that could potentially affect water quality. As these construction activities would affect an area greater than one acre, LAWA's existing construction policy would require the development and implementation of a construction Storm Water Pollution Prevention Plan (SWPPP) in compliance with the statewide National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharges associated with construction activities (General Permit for Construction).[261] Temporary construction BMPs specified in LAWA's existing Construction SWPPP for LAX 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

By following the procedures contained in the SWPPP and employing the appropriate BMPs, impacts to water quality associated with construction activities under the LAX Master Plan, including erosion and siltation, would be less than significant.

5.3.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **HWQ-1. Conceptual Drainage Plan.**

  Once a Master Plan alternative is selected, and in conjunction with its design, LAWA will develop a conceptual drainage plan of the area within the boundaries of the Master Plan alternative (in accordance with FAA guidelines and to the satisfaction of the City of Los Angeles Department of Public Works, Bureau of Engineering). The purpose of the drainage plan will be to assess area-wide drainage flows as related to the Master Plan project area, and at a level of detail sufficient to identify the overall improvements necessary to provide adequate drainage capacity to prevent flooding. The conceptual drainage plan will provide the basis and specifications from which detailed drainage improvement plans will be designed in conjunction with site engineering specific to each Master Plan project. 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 resulting from the selected Master Plan alternative.

  To evaluate drainage capacity, LAWA will use either the Peak Rate Method specified in Part G - Storm Drain Design of the City of Los Angeles' Bureau of Engineering Manual or the Los Angeles County Modified Rational Method, both of which are acceptable to the LADPW. In areas within the

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[261] California State Water Resources Control Board, 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.

boundary of the selected alternative where the surface water runoff rates are found to exceed the capacity of the storm water conveyance infrastructure with the potential to cause flooding, LAWA will take measures to either reduce peak flow rates or increase the structure's capacity. These drainage facilities will be designed to ensure that they adequately convey storm water runoff and prevent flooding by adhering to the procedures set forth by the Peak Rate Method/Los Angeles County Modified Rational Method.

- Methods to reduce the peak flow of surface water runoff could include:
  - Decreasing impervious area by removing unnecessary pavement or utilizing porous concrete or modular pavement
  - Building storm water detention structures
  - Diverting runoff to pervious areas (reducing directly-connected impervious areas)
  - Diverting runoff to outfalls with additional capacity (reducing the total drainage area for an individual outfall)
  - Redirecting storm water flows to increase the time of concentration
- Measures to increase drainage capacity could include:
  - Increasing the size and slope (capacity) of storm water conveyance structures (pipes, culverts, channels, etc.).
  - Increasing the number of storm water conveyance structures and/or outfalls.

To evaluate the effect of the selected Master Plan alternative on surface water quality, the Conceptual Drainage Plan will address water quality and drainage issues by specifying source control, structural, and treatment control BMPs with the objective of reducing the discharge of pollutants from the stormwater conveyance system to the maximum extent practicable. Once BMPs are identified, an updated pollutant load estimate will be calculated that takes into account reductions from treatment control BMPs.

These BMPs will be applied to both existing and future sources with the goal of achieving no net increase in loadings of pollutants of concern to receiving water bodies. Subsequently, LAWA will prepare Standard Urban Stormwater Mitigation Plans (SUSMP) for individual projects associated with the selected alternative during project design and review based on the Conceptual Drainage Plan, as required by the LARWCQB. The purpose of these SUSMPs will be to evaluate water quality impacts associated with individual project components at a design level of detail, as required by LARWQCB, and to identify specific BMPs that will be incorporated into the project design. LAWA will therefore address water quality issues, including erosion and sedimentation, and comply with the SUSMP requirements by designing the storm water system through incorporation of the structural and treatment control BMPs specified in the SUSMP.

The following list includes some of the BMPs that could be employed to infiltrate or treat storm water runoff and dry weather flows, and control peak flow rates.

- Vegetated swales and strips
- Oil/Water separators
- Clarifiers
- Media filtration
- Catch basin inserts and screens
- Continuous flow deflective systems
- Bioretention and infiltration
- Detention basins
- Manufactured treatment units
- Hydrodynamic devices

Other structural BMPs may also be selected from the literature and the many federal, state and local guidance documents available. Performance of structural BMPs varies considerably based on their design. USEPA has published estimated ranges of pollutant removal efficiencies for structural BMPs based on substantial document review.

It should be noted that subsequent to the approval of the LAX Master Plan, LAWA completed a Conceptual Drainage Plan in accordance with the provisions of HWQ-1 above. The *Los Angeles International Airport Conceptual Drainage Plan* is available at www.ourlax.org within Appendix A of the SAIP Draft EIR. The development of project-specific improvements for the Bradley West Project has taken into consideration the Conceptual Drainage Plan, as described in Appendix I of this Draft EIR.

5.3.5 Bradley West Project

5.3.5.1 Impacts

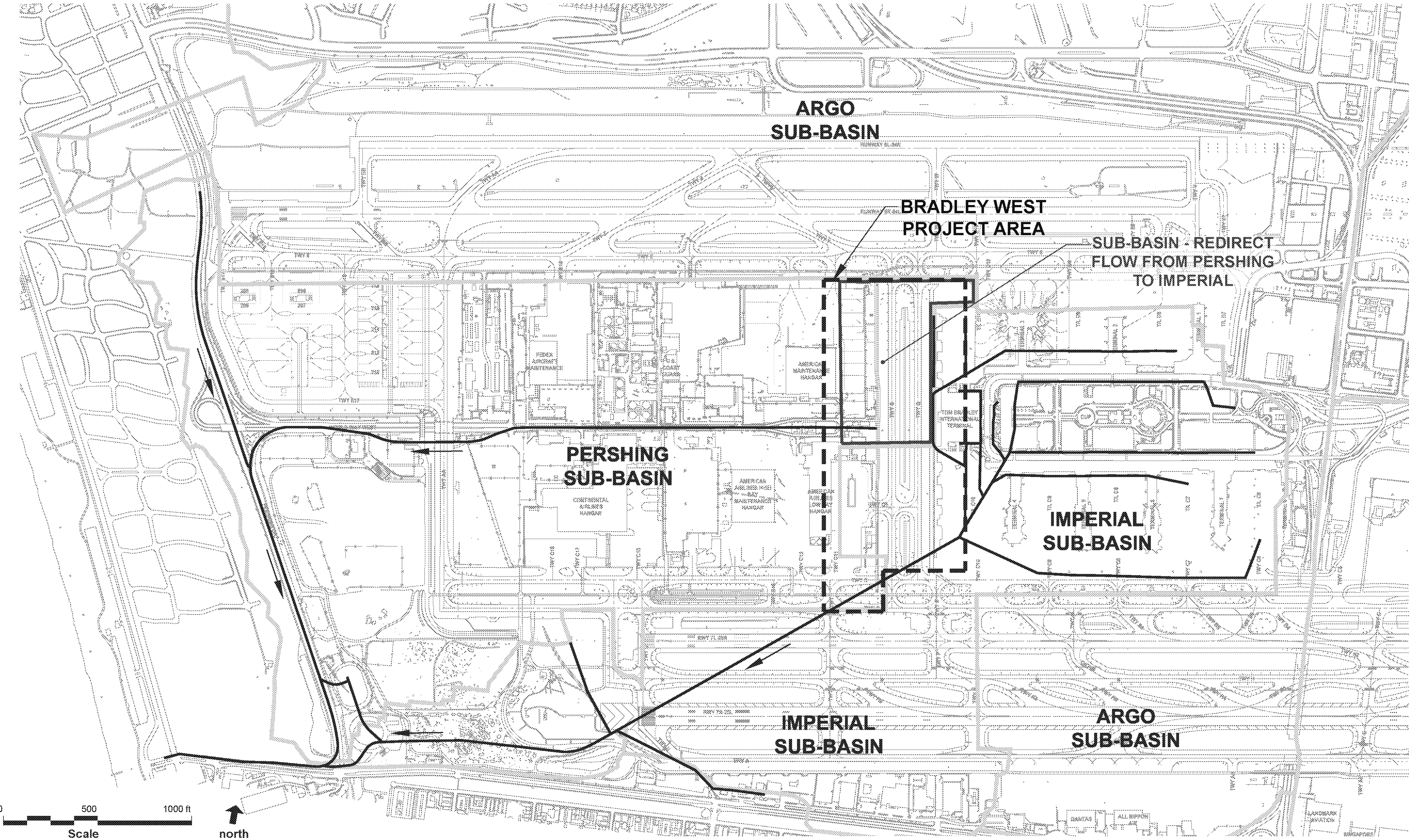
The Bradley West Project would result in an alteration to existing drainage facilities. As generally anticipated in the LAX Master Plan EIR hydrology analysis, implementation of the proposed project would increase impervious surfaces compared to baseline conditions and would involve the relocation and upgrading of existing drainage facilities.

Hydrology

On-Site Drainage

The Bradley West Project would involve demolition of existing pavement and buildings and construction of new building and apron areas, as well as relocation of existing Taxiways Q and S. The vast majority (i.e., approximately 95 percent) of the project site is covered by impervious surface area. The 5.3 acres of the site that is currently an unpaved strip between Taxiways Q and S would be replaced by new taxiway surface area in conjunction with the relocation of Taxiway Q. The entire area between the proposed Taxiway T (relocated Taxiway S) and proposed Taxiway S (relocated Taxiway Q) would be concrete in order to accommodate the taxiing of aircraft on the subject taxiways/taxilanes and to facilitate the movement of aircraft to and from the new contact gates proposed on the west side of TBIT. As such, project implementation would result in the conversion of 5.3 acres of existing pervious area to impervious area. In addition, grading and excavation associated with the Bradley West Project would result in an alteration to existing drainage facilities. As part of the Bradley West Project, it is proposed that approximately 44.7 acres of drainage area within the Pershing Sub-basin be improved to redirect surface flows to the Imperial Sub-basin. This consolidation of flows from two drainage subareas within the project site into a single drainage area will enable surface runoff within the project site to flow to a single point of treatment relative to surface water quality, as further described in the Water Quality discussion below. The affected area of the Pershing Sub-basin is shown in **Figure 5.3-2**. The redirection of surface flows would occur primarily through designing the future storm drain system improvements to flow to and connect with the storm drain system in the Imperial Sub-basin in place of the existing system that flows to the World Way West trunk line within the Pershing Sub-basin. The redirected flows within the Pershing Sub-basin would drain to a new network of trunk lines within the Bradley West Project site, including two north-south lines, each being approximately 48 inches in diameter, connecting to a 60-inch diameter line and a 72-inch diameter line. This new drainage system would connect to the Imperial channel box culvert described above in Section 5.3.2.

In addition to redirection of surface flows described above, a drainage system improvement proposed in conjunction with implementation of the Bradley West Project involves the installation of either a new or an additional storm drain line along World Way West where flooding/ponding occurs during major storm events. As described in Section 5.3.2, such flooding/ponding is due to the existing hydraulic gradient along the portion of World Way West that is depressed to pass beneath Taxiway AA. To address this existing condition, LAWA proposes to either replace or supplement a 1,100-ft section of the existing RCB storm drain line located in World Way West at the crossing of Taxiway AA. Based on preliminary design,



Source: Hatch Mott MacDonald, 2009.
Prepared by: CDM, 2009.

LAX Bradley West Project Draft EIR	Sub-Basin Flow by Drainage System	Figure 5.3-2

it is anticipated that a new replacement cross-section would be approximately 8.5 feet high by 11 feet wide. Alternatively, an additional RCB can be constructed parallel to the existing RCB to handle the extra capacity and lower the hydraulic grade line. This parallel RCB option would entail the same 1,100-foot section with the added RCB section to be lowered as well. The section would have a cross-section of 8.5 feet high by 11 feet wide and convey the majority of the flows by use of a diversion manhole at the upstream end.

The preliminary proposed storm drain system would be designed according to the Los Angeles County Department of Public Works (LACDPW) *Hydrology Manual*,[262] Modified Rational Method and would be consistent with the CDP. To provide a higher level of protection (i.e., accommodating larger, less frequent storm events than the minimum 10-year frequency requirement per City standards), the preliminary proposed storm drain system is being designed to accommodate a 25-year design storm using LACDPW's Modified Rational Method to determine the hydrology. Wherever possible, the existing storm drain system would be used; however, based on the storm drain criteria established for this project (i.e., 25-year design storm), larger-diameter pipes would replace the existing systems in many cases to accommodate the design flow rates.

Table 5.3-1 delineates the basic surface drainage characteristics of the two affected sub-basins for pre-project and post-project conditions.

Table 5.3-1

Sub-Basin Characteristics for Pre-Project and Post-Project Conditions

	Imperial Sub-Basin		Pershing Sub-Basin	
	Pre-Project	Post-Project	Pre-Project	Post-Project
Total Area (Acres)	524.2	568.9	684.0	639.3
Impervious Area (Acres)	440.3	485.0	581.4	542.0
25-Year Storm Volume (Cubic Feet)	6,611,100	7,218,300	8,402,700	7,795,500
25-Year Storm Flow (Cubic Feet per Second)	500.0	549.76	694.0	643.94
System Capacity (Cubic Feet per Second)	701	701	963.2	963.2

Source: Hatch Mott MacDonald, 2009.

With implementation of the proposed drainage facilities, the Bradley West Project would be designed to address surface runoff needs within the boundaries of the project study area. The increase in impervious surfaces in the amount of 5.3 acres would not materially affect runoff flow rates. Thus, the Bradley West Project would not result in an increase in runoff that would cause or exacerbate flooding with the potential to harm people or damage property. Further, existing drainage patterns would not be altered in such a way as to result in substantial erosion or siltation on- or off-site. Impacts related to these issues would be less than significant.

On-site drainage impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

Recharge

With implementation of the Bradley West Project, the volume of surface recharge within the study area would decrease by less than 1.5 acre-feet/year. The reduction in surface recharge would represent a change of less than 0.003 percent in the total groundwater inflows estimated for the West Coast Basin. No groundwater production occurs within the Master Plan study area relative to the beneficial uses designated for the Basin. The reduction in surface recharge of 2 acre-feet/year would not represent a

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262 Los Angeles County Department of Public Works, Water Resources Division, Hydrology Manual, January 2006.

substantial interference with groundwater recharge that would result in a net decrease in the aquifer volume to the extent that beneficial uses of the basin would be adversely affected. Therefore, this impact would be less than significant.

Groundwater recharge impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

Water Quality

Operational Considerations

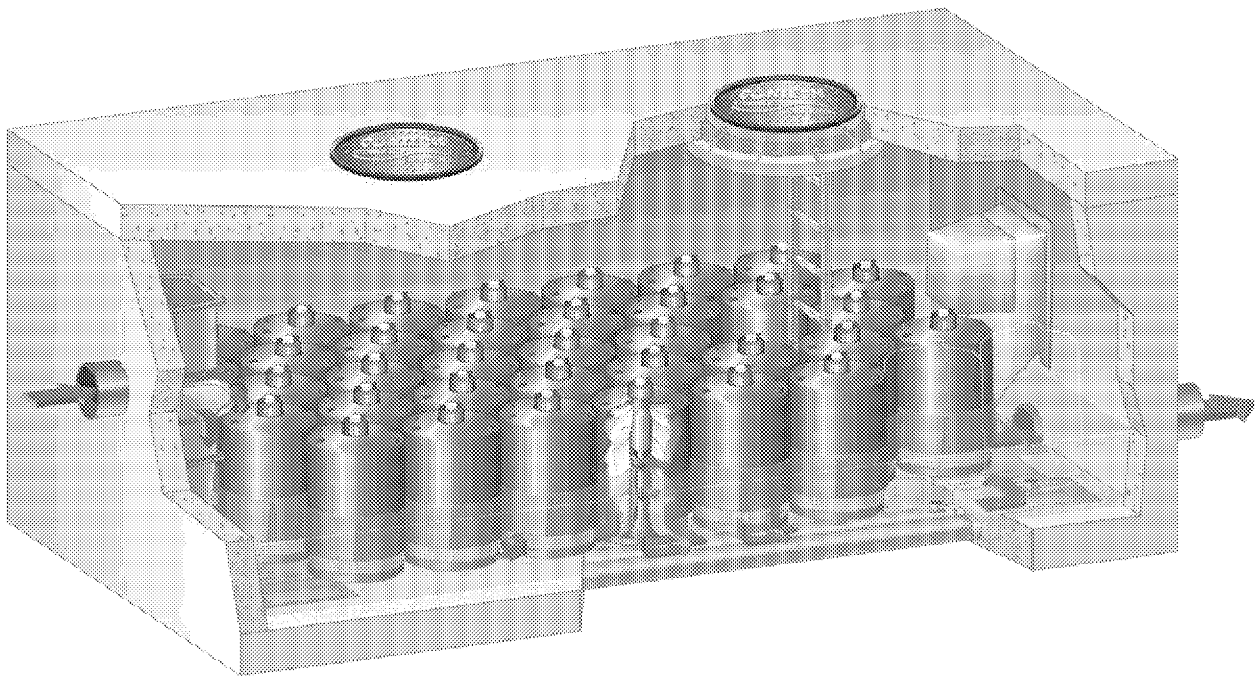
Water quality impacts associated with operation of the LAX Master Plan facilities, including the Bradley West Project, were fully addressed in the LAX Master Plan Final EIR. The discussion below provides additional information pertaining to the Bradley West Project that was not available during the preparation of the LAX Master Plan EIR, but does not alter the conclusions of that analysis.

As noted above, the Bradley West Project would result in an increase in impervious area of approximately 5.3 acres at the Bradley West Project site. As the size of the Pershing Sub-basin and Imperial Sub-basin, in which the project site is located, is approximately 1,208 acres, this represents an increase in impervious area of approximately 0.5 percent. The proposed project must comply with the LARWQCB's SUSMP requirements incorporated in the Los Angeles County MS4 stormwater permit. To comply with these requirements, in conjunction with detailed project design, LAWA would prepare a project-specific SUSMP. This plan would identify specific BMPs and would require approval by the City of Los Angeles Bureau of Sanitation.

In accordance with SUSMP requirements, BMP requirements would apply to the entire approximately 116-acre Bradley West Project site. Water quality volume and water quality flow calculations indicate that 7.3 acre-feet or 23.4 cubic feet per second (cfs), respectively, would require treatment (see Appendix I).

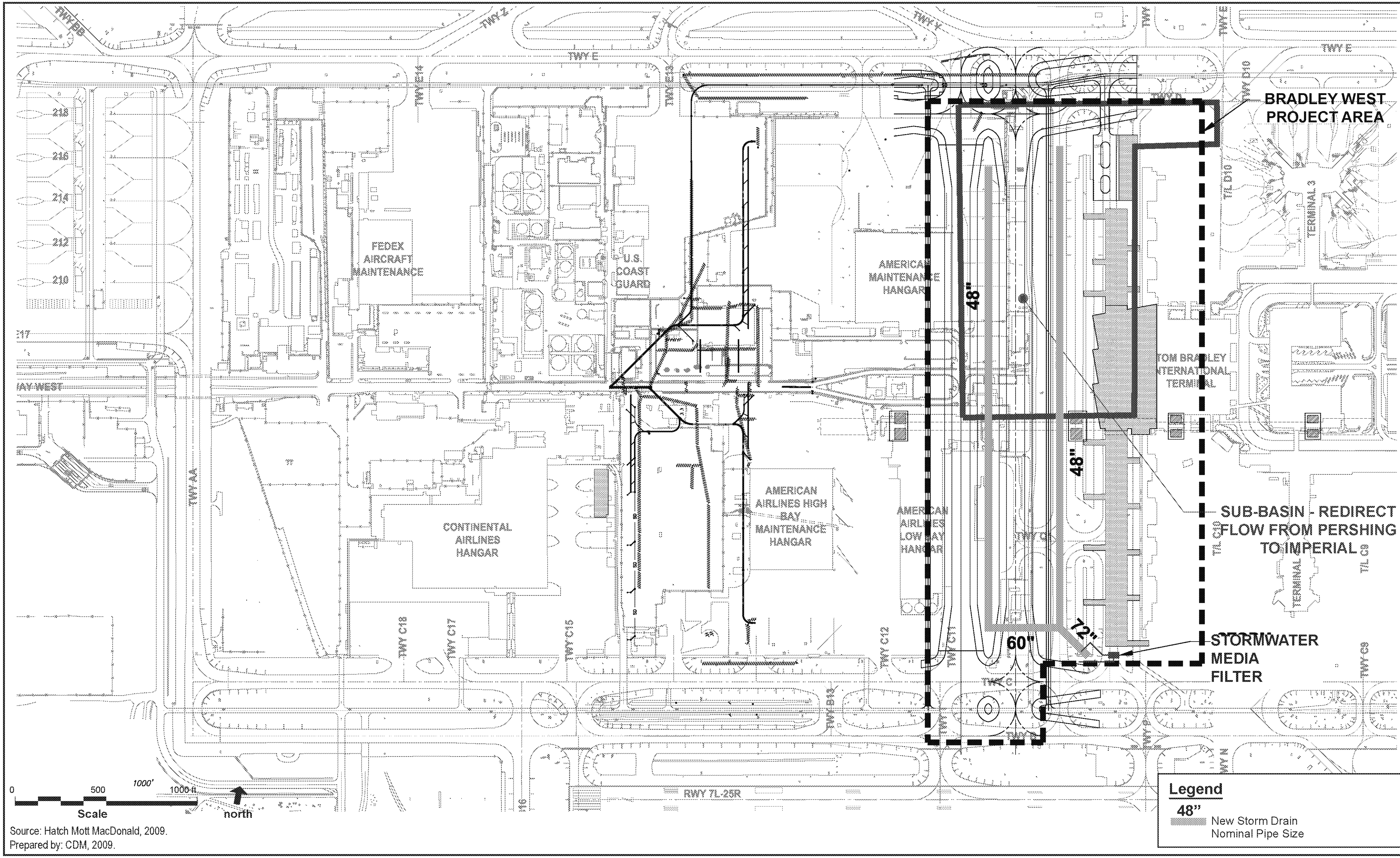
The Conceptual Drainage Plan identified recommended treatment control BMP options for the Pershing and Imperial sub-basins. These include project-specific, sub-regional and regional BMPs. Based on the size, developed nature, and active use of the project area, a preliminary evaluation of potential BMP options suitable and appropriate for the Bradley West Project found that a media filter BMP system would be effective for surface water quality treatment. **Figure 5.3-3** illustrates the basic design and components of the proposed media filter, which, as shown, basically consists of a cluster of filters within a confined area through which surface water flows. The media filter BMP would be integrated into the connection from the new storm drain system to the existing Imperial channel box culvert (see **Figure 5.3-4**).

For the Bradley West Project, more refined pollutant removal data were developed for the specific BMP 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 5.3-2**. BMPs designed to capture and treat the flow rate from a 3/4 inch storm event have been previously determined in the SUSMP adopted by the LARWQCB to provide the equivalent to capturing at least 80 percent of the total long-term runoff from watersheds within the Los Angeles area. Therefore, the pollutant load model assumes that 80 percent of the runoff from the Bradley West Project drainage area would be treated and the removal rate for the BMP would be as shown in **Table 5.3-3**.



Source: Hatch Mott Mac Donald, 2009.
Prepared by: CDM, 2009.

LAX Bradley West Project Draft EIR	Cut-Away View of Stormwater Media Filter	Figure 5.3-3



Source: Hatch Mott MacDonald, 2009.
Prepared by: CDM, 2009.

LAX Bradley West Project Draft EIR

Proposed Drainage Facilities Within the Bradley West Project Site

Figure
5.3-4

Table 5.3-2

Structural BMP Expected Pollutant Removal Efficiency for the Bradley West Project

	Percent Removal
Pollutant	**Media Filter**
Total Suspended Solids	65
Total Phosphorus	40
Total Kjeldahl Nitrogen	15
Total Copper	50
Total Lead	50
Total Zinc	50
Oil & Grease	60
Ammonia	15
Total Coliform	40
Fecal Coliform	40
Fecal Enterococcus	40

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, Available: http://www.bmpdatabase.org; http://www.sandiego.gov/water/operations/pdf/swpgmatrix.pdf.

Table 5.3-3

Average Annual Pollutant Load - Bradley West Project

Pollutant	Baseline Conditions lbs/yr	Future Conditions No BMPs lbs/yr	Future Conditions With BMPs lbs/yr	%Change from Pre- to Post-Development With BMPs %
Total Suspended Solids	4,770.52	4,969.18	2,385.21	-52
Total Phosphorus	60.23	62.74	42.66	-32
Total Kjeldahl Nitrogen	268.51	279.70	246.13	-12
Total Copper	14.05	14.64	8.78	-40
Total Lead	2.51	2.61	1.57	-40
Total Zinc	73.03	76.07	45.64	-40
Oil &Grease	574.67	598.60	311.27	-48
Ammonia	72.77	75.81	66.71	-12
Total Coliform[1]	9,830,636,609.66	10,240,016,582.97	6,963,211,276.42	-32
Fecal Coliform[1]	4,666,890,664.88	4,861,235,309.24	3,305,640,010.29	-32
Fecal Enterococcus[1]	454,267,684.49	473,184,881.81	321,765,719.63	-32

[1] Load expressed as organisms/yr.

Source: CDM, 2009.

A summary of the results of the pollutant load modeling is provided in **Table 5.3-3**, which compares the estimated baseline pollutant loads with pollutant loads from the completed Bradley West Project both with and without the implementation of the proposed BMP. Under the proposed project, the estimated annual net pollutant loads generated within the Bradley West Project site would be reduced for all pollutants of concern as compared to baseline conditions.

Although only a project-specific BMP is proposed for implementation as part of the Bradley West Project to treat runoff prior to discharge, LAWA is currently evaluating potential options for a regional BMP to treat all flows within the Imperial Sub-basin, and possibly including the flows from the Pershing Sub-basin, which drain into the Imperial channel at the downstream end of the basin. At this time, two potential options are being considered that provide for the development of new active treatment systems in conjunction with covering and optimizing the existing detention basin located at the southwest corner of the airport.

Because a BMP system is incorporated into the project design and only a small portion (5.3 acres) of the site would experience a change in use (from open space to airport operations - all other portions of the site are already used for airport operations, as would continue under the proposed project), pollutant loads to receiving water bodies would not increase. Therefore, impacts to water quality associated with operation of the Bradley West Project would be reduced to a level that is less than significant and no additional mitigation would be required.

Water quality impacts from operation of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

Water Quality Impacts from Construction

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 Bradley West Project would require grading and other earthmoving activities. The total earthwork volumes estimated for the Bradley West Project include 926,500 cubic yards of cut and 464,000 cubic yards of fill.[263] 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.

Because the proposed improvements would affect an area of greater than one acre, LAWA's existing construction policy would require the development and implementation of a project-specific construction SWPPP in compliance with the statewide General Permit for Construction. 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

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263 LAX Development Program, 2008.

As indicated above, for the Bradley West Project, 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. With implementation of the project-specific SWPPP, there would be no increase in pollutant loads to receiving water bodies. As a result, impacts to water quality associated with construction activities would be less than significant and no additional mitigation would be required.

Water quality impacts from construction of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

5.3.5.2 Mitigation Measures

Implementation of Master Plan commitment HWQ-1 addresses the hydrology and water quality impacts of the proposed Master Plan improvements. In light of the analysis provided above, which concludes that implementation of the Bradley West Project would not result in significant impacts to hydrology or water quality, no mitigation measures are required.

5.4 Cultural Resources

5.4.1 Introduction

The cultural resources analysis described in this section addresses the potential construction impacts of the Bradley West Project 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 (National Register), California Register of Historical Resources (California Register), and local jurisdictions, as well as human remains. 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 Bradley West Project.

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

5.4.2 Setting

5.4.2.1 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 in Figure F4.9.1-1, Composite Area of Potential Effects Map, in the LAX Master Plan Final EIR. The only building in the general vicinity of the Bradley West Project that meets the typical criteria for historic structures (i.e., 50 years old, possessing significance in American history and culture, architecture, or archaeology at the national, state or local level) is the LAX Theme Building, located approximately one-third mile east of TBIT. The Theme Building, with its unique architecture consisting of parabolic arches with a flying saucer restaurant suspended between them, is eligible for listing in the National Register and California Register, and is a designated City of Los Angeles Historic-Cultural Monument. In addition, within a radius of approximately two miles of LAX, 32 previously recorded archeological sites were identified. Four of these sites are located on LAX property, including one, CA-LAN-1118, that is located within the immediate vicinity of a construction staging area. The site has been extensively graded and is currently paved over. The site was determined to be ineligible for the National Register, California Register, and local designation.[264] 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. There are no known human remains within the LAX boundaries.

No changes in the significance of historic properties or the number of recorded archaeological sites at LAX have occurred since publication of the LAX Master Plan Final EIR. However, since publication of the LAX Master Plan Final EIR, and in accordance with the LAX Master Plan Mitigation Monitoring and Reporting Program, an Archaeological Treatment Plan (ATP)[265] and a Paleontological Management Treatment Plan (PMTP)[266] were prepared in anticipation of implementation of the LAX Master Plan. The documents provide additional information and guidance for understanding the conditions and implementation of mitigation measures pertaining to archaeological and paleontological resources, respectively, associated with the Master Plan.

5.4.2.2 Paleontological Resources

Existing paleontological resources are described in Section 4.9.2 of 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 and excavation associated with the Bradley West Project. 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.

5.4.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of impacts to historical/archaeological and paleontological resources associated with the LAX Master Plan, Final EIR Sections 4.9.1.4, and 4.9.2.4, respectively, and are also applicable to the Bradley West Project historical/archaeological and paleontological resources impacts analyses.

Historic and Archaeological Resources

A significant impact upon historic/architectural and archaeological/cultural resources would occur if the direct and/or indirect changes in the environment that may be caused by the project would potentially result in one or more of the following future conditions listed below.

- 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.

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264 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.20.6.1, page 4-1155.

265 City of Los Angeles, Los Angeles World Airports, Environmental Management Division, Final LAX Master Plan Mitigation Monitoring & Reporting Program, Archaeological Treatment Plan, 2005.

266 City of Los Angeles, Los Angeles World Airports, Environmental Management Division, Final LAX Master Plan Mitigation Monitoring & Reporting Program, Paleontological Management Treatment Plan, Revised December 2005.

- Any action, such as clearing, scraping, soil removal, mechanical excavation, or digging that would disturb, damage, or degrade a unique archaeological resource.[267]

These thresholds were utilized because they address specific concerns to prehistoric and historic resources associated with the LAX Master Plan, namely, loss, destruction, alteration, or damage of a resource. These thresholds reflect state regulations, which define adverse impact levels and analysis. It is important to note that, under CEQA, project compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties mitigates impacts on historic resources to a less than significant level.[268]

Paleontological Resources

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

- The direct or indirect destruction of a unique paleontologic resource or site.

This threshold was utilized because it addresses potential impacts to paleontological resources associated with the LAX Master Plan. The threshold is consistent with Appendix G, Environmental Checklist Form, of the State CEQA Guidelines.

5.4.4 LAX Master Plan

5.4.4.1 Impacts Identified in the Final EIR

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, which is located approximately 2.5 miles east of the Bradley West Project site.

One previously recorded archeological site, CA-LAN-1118, is located in the immediate vicinity of a construction staging area. The LAX Master Plan Final EIR describes this site as extensively disturbed and extensively graded. Given the lack of integrity, the site is not eligible for the National Register, California Register, or local designation, nor does it meet the criteria for being a unique resource.[269] Therefore, impacts to this previously recorded archeological site would be less than significant. There are no known sites eligible for the National Register, California Register, or local designation within the Bradley West Project site, staging, or parking areas.

Under the LAX Master Plan, some loss of undiscovered 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. As indicated in the LAX Master Plan Final EIR, with implementation of Master Plan Mitigation Measures MM-HA-4 through MM-HA-10, identified below, project impacts on archaeological/cultural resources would be reduced to a less than significant level.

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. 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.

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[267] City of Los Angeles, Department of City Planning, L.A. CEQA Thresholds Guide, Your Resource for Preparing CEQA Analysis in Los Angeles, 2006.

[268] State CEQA Guidelines, Section 15064.5(b)(3), "Determining the Significance of Impacts to Archaeological and Historical Resources."

[269] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.20.6.1, page 4-1155.

These construction impacts are considered significant. As indicated in the LAX Master Plan Final EIR, implementation of Master Plan Mitigation Measures MM-PA-1 through MM-PA-7, identified below, would reduce potential adverse impacts to paleontological resources to a less than significant level.

5.4.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

Historic and Archaeological Resources

- **MM-HA-4. Discovery.**
  The FAA shall prepare an ATP in consultation with SHPO, that ensures the long-term protection and proper treatment of those unexpected archaeological discoveries of federal, state, and/or local significance found within the APE of the selected alternative. The ATP shall include a monitoring plan, research design, and data recovery plan. The ATP shall be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation; California Office of Historic Preservation's (OHP) *Archaeological Resources Management*.

- **MM-HA-5. Monitoring.**
  Any grading and excavation activities within LAX proper or the acquisition areas that have not been identified as containing redeposited fill material or having been previously disturbed shall be monitored by a qualified archaeologist. The archaeologist shall be retained by LAWA and shall meet the Secretary of the Interior's Professional Qualifications Standards. The project archaeologist shall be empowered to halt construction activities in the immediate area if potentially significant resources are identified. Test excavations may be necessary to reveal whether such findings are significant or insignificant. In the event of notification by the project archaeologist that a potentially significant or unique archaeological/cultural find has been unearthed, LAWA shall be notified and grading operations shall cease immediately in the affected area until the geographic extent and scientific value of the resource can be reasonably verified. Upon discovery of an archaeological resource or Native American remains, LAWA shall retain a Native American monitor from a list of suitable candidates obtained from the Native American Heritage Commission.

- **MM-HA-6. Excavation and Recovery.**
  Any excavation and recovery of identified resources (features) shall be performed using standard archaeological techniques and the requirements stipulated in the ATP. Any excavations, testing, and/or recovery of resources shall be conducted by a qualified archaeologist selected by LAWA.

- **MM-HA-7. Administration.**
  Where known resources are present, all grading and construction plans shall be clearly imprinted with all of the archaeological/cultural mitigation measures. All site workers shall be informed in writing by the on-site archaeologist of the restrictions regarding disturbance and removal as well as procedures to follow should a resource deposit be detected.

- **MM-HA-8. Archaeological/Cultural Monitor Report.**
  Upon completion of grading and excavation activities in the vicinity of known archaeological resources, the Archaeological/Cultural monitor shall prepare a written report. The report shall include the results of the fieldwork and all appropriate laboratory and analytical studies that were performed in conjunction with the excavation. The report shall be submitted in draft form to the FAA, LAWA and City of Los Angeles-Cultural Affairs Department. City representatives shall have 30 days to comment on the report. All comments and concerns shall be addressed in a final report issued within 30 days of receipt of city comments.

- **MM-HA-9. Artifact Curation.**
  All artifacts, notes, photographs, and other project-related materials recovered during the monitoring program shall be curated at a facility meeting federal and state standards.

- **MM-HA-10. Archaeological Notification.**
  If human remains are found, all grading and excavation activities in the vicinity shall cease immediately and the appropriate LAWA authority shall be notified: compliance with those procedures outlined in Section 7050.5(b) and (c) of the State Health and Safety Code, Section 5097.94(k) and (i) and Section 5097.98(a) and (b) of the Public Resources Code shall be required. In addition, those steps outlined in Section 15064.5(e) of the CEQA Guidelines shall be implemented.

Paleontological Resources

- **MM-PA-1. Paleontological Qualification and Treatment Plan.**
  A qualified paleontologist shall be retained by LAWA to develop an acceptable monitoring and fossil remains treatment plan (that is, a Paleontological Management Treatment Plan - PMTP) for construction-related activities that could disturb potential unique paleontological resources within the project area. This plan shall be implemented and enforced by the project proponent during the initial phase and full phase of construction development. The selection of the paleontologist and the development of the monitoring and treatment plan shall be subject to approval by the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County to comply with paleontological requirements, as appropriate.

- **MM-PA-2. Paleontological Authorization.**
  The paleontologist shall be authorized by LAWA to halt, temporarily divert, or redirect grading in the area of an exposed fossil to facilitate evaluation and, if necessary, salvage. No known or discovered fossils shall be destroyed without the written consent of the project paleontologist.

- **MM-PA-3. Paleontological Monitoring Specifications.**
  Specifications for paleontological monitoring shall be included in construction contracts for all LAX projects involving excavation activities deeper than six feet.

- **MM-PA-4. Paleontological Resources Collection.**
  Because some fossils are small, it will be necessary to collect sediment samples of promising horizons discovered during grading or excavation monitoring for processing through fine mesh screens. Once the samples have been screened, they shall be examined microscopically for small fossils.

- **MM-PA-5. Fossil Preparation.**
  Fossils shall be prepared to the point of identification and catalogued before they are donated to their final repository.

- **MM-PA-6. Fossil Donation.**
  All fossils collected shall be donated to a public, nonprofit institution with a research interest in the materials, such as the Los Angeles County Museum of Natural History.

- **MM-PA-7. Paleontological Reporting.**
  A report detailing the results of these efforts, listing the fossils collected, and naming the repository shall be submitted to the lead agency at the completion of the project.

5.4.5 Bradley West Project

5.4.5.1 Impacts

The information, analysis, and Master Plan mitigation measures provided in the Final LAX Master Plan EIR adequately address the potential construction impacts of the Bradley West Project on historical, archaeological, and paleontological resources. The Bradley West Project would not affect the one historic property, the International Airport Industrial District, that is identified in the LAX Master Plan Final EIR as being impacted by the LAX Master Plan. The LAX Master Plan, including the Bradley West Project, would not impact the National Register and California Register eligible LAX Theme Building, which is located approximately one-third mile east of the Bradley West Project site. The Bradley West

Project would not disturb any known archeological sites eligible for the National Register, California Register, or local designation. However, the Bradley West Project could potentially disturb or destroy potentially significant, undiscovered archaeological resources. This impact would be significant, as discussed in the LAX Master Plan Final EIR. In addition, as the Bradley West Project would involve grading and excavation greater than 6 feet in depth (an excavation depth of 25 to 30 feet is anticipated), it is possible that potentially important paleontological resources could be exposed and/or damaged. Bradley West Project construction could make paleontological resources accessible for unauthorized fossil collection. This impact would also be significant, as discussed in the LAX Master Plan Final EIR. While unanticipated, grading and excavation activities could disturb human remains. This impact would also be significant, and is addressed by LAX Master Plan Final EIR Mitigation Measure MM-HA-10.

Impacts of the proposed project on cultural resources, including historical, archaeological, and paleontological resources, are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

5.4.5.2 Mitigation Measures

LAX Master Plan Final EIR Mitigation Measure MM-HA-4 requires preparation of an ATP to ensure the long-term protection and proper treatment of archaeological discoveries of federal, state, and/or local significance found during LAX Master Plan implementation. Subsequent to the publication of the LAX Master Plan Final EIR, the ATP was prepared, thereby satisfying the requirements of MM-HA-4. The ATP provides additional information and guidance for understanding the conditions and implementation of Mitigation Measures MM-HA-4 through MM-HA-10 and, in effect, supersedes these mitigation measures. Thus, the following mitigation measure, applicable to the Bradley West Project, has been developed to ensure compliance with the ATP, which incorporates the requirements of Master Plan Mitigation Measures MM-HA-4 through MM-HA-10.

- **MM-HA (BWP)-1. Conformance with LAX Master Plan Archaeological Treatment Plan.**

  Prior to initiation of grading and construction activities, LAWA will retain an on-site Cultural Resource Monitor (CRM), as defined in the LAX Master Plan MMRP ATP, who will determine if the proposed project area is subject to archaeological monitoring. As defined in the ATP, areas are not subject to archaeological monitoring if they contain redeposited fill or have previously been disturbed. The CRM will compare the known depth of redeposited fill or disturbance to the depth of planned grading activities, based on a review of construction plans. If the CRM determines that the proposed project site is subject to archaeological monitoring, a qualified archaeologist (an archaeologist who satisfies the Secretary of the Interior's Professional Qualifications Standards [36 CFR 61]) shall be retained by LAWA to inspect excavation and grading activities that occur within native material. The extent and frequency of inspection shall be defined based on consultation with the archaeologist. Following initial inspection of excavation materials, the archaeologist may adjust inspection protocols as work proceeds.

LAX Master Plan Final EIR Mitigation Measure MM-PA-1 requires preparation of a monitoring and fossil remains treatment plan (a Paleontological Management Treatment Plan or PMTP) for construction-related activities that could disturb potential unique paleontological resources within the project area. Subsequent to the publication of the LAX Master Plan Final EIR, the PMTP was prepared for the LAX Master Plan, thereby satisfying the requirements of MM-PA-1. The PMTP provides additional information and guidance for understanding the conditions and implementation of Master Plan Mitigation Measures MM-PA-1 through MM-PA-7 and, in effect, supersedes these mitigation measures. Thus, the following mitigation measures, applicable to the Bradley West Project, have been developed to ensure compliance with the PMPT, which incorporates the requirements of Master Plan Mitigation Measures MM-PA-1 through MM-PA-7.

- **MM-PA (BWP)-1. Conformance with LAX Master Plan Paleontological Management Treatment Plan.**

  Prior to the initiation of grading and construction activities, LAWA will retain a professional paleontologist, as defined in the Final LAX Master Plan MMRP PMTP, who will determine if the project site exhibits a high or low potential for subsurface resources. If the project site is determined to exhibit a high potential for subsurface resources, paleontological monitoring will be conducted in accordance with the procedures stipulated in the PMTP. If the project site is determined to exhibit a low potential for subsurface deposits, excavation need not be monitored as per the PMTP. In the event that paleontological resources are discovered, the procedures outlined in the PMTP for the identification of resources will be followed.

- **MM-PA (BWP)-2. Construction Personnel Briefing.**

  In accordance with the PMTP, construction personnel will be briefed by the consulting paleontologist in the identification of fossils or fossilferous deposits and in the correct procedures for notifying the relevant individuals should such a discovery occur.

5.4.5.3 Level of Significance After Mitigation

Implementation of Bradley West Project Mitigation Measures MM-HA (BWP)-1, MM-PA (BWP)-1, and MM-PA (BWP)-2 ensure Bradley West Project impacts to archaeological and paleontological resources would be less than significant.

5.5 Endangered and Threatened Species of Flora and Fauna

5.5.1 Introduction

This section addresses the potential for construction activities associated with the Bradley West Project, including activities within the construction staging, parking, 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.

5.5.2 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 was determined to be present. There are nine federally- or state listed species of fauna that potentially occur within the LAX

Master Plan boundaries. Two species, the Riverside fairy shrimp and the El Segundo blue butterfly, were observed on-site. Riverside fairy shrimp cysts (i.e., eggs) were determined to be present in five areas of ephemerally wetted[270] soils within or adjacent to the Bradley West Project West Construction Staging Area, and two areas of ephemerally wetted soils within the Bradley West Project Northwest Construction Staging/Parking Area, as shown in **Figure 5.5-1**. The El Segundo blue butterfly is present within the El Segundo Blue Butterfly Habitat Restoration Area, located west of Pershing Drive. 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 federally- or state- listed species of fauna or flora within or adjacent to the Bradley West Project construction staging, parking, and work areas have not changed materially from those presented in the LAX Master Plan Final EIR, with the exception of the Riverside fairy shrimp. Soils bearing cysts of the Riverside fairy shrimp were removed from the airport in July and August 2005, pursuant to an April 20, 2004 Biological Opinion from the USFWS,[271] as well as an April 8, 2005 Biological Opinion for Operation and Maintenance Activities at LAX.[272] Subsequently, the ephemerally wetted areas located in the area proposed to be used for the Bradley West Project Northwest Construction Staging/Parking Area were subsequently filled for use as a staging area for ongoing LAWA construction projects.

As described in Section 4.7, *Biotic Communities*, of this EIR, a recent field survey of the proposed Bradley West Project construction staging, parking and work areas conducted on November 24, 2008 by BonTerra Consulting concluded that, with the exception of the Southeast Construction Staging/Parking Area, suitable habitat is not present in any of the Bradley West Project areas for any threatened or endangered plant or wildlife species; therefore, such species are not expected to occur in these areas. As discussed below in Section 5.5.5.1, several ponding areas were identified at the Southeast Construction Staging/Parking Area. These ponded areas may provide habitat for Riverside fairy shrimp. Wet weather surveys for Riverside fairy shrimp were conducted within the Southeast Construction Staging/Parking Area beginning on January 20, 2009. No Riverside fairy shrimp were found during these surveys. Additional information regarding these surveys is provided in Section 5.5.5.1 below.

5.5.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of impacts to endangered and threatened species associated with the LAX Master Plan, Final EIR Section 4.11.4, and are also applicable to the Bradley West Project endangered and threatened species impacts analysis.

A significant impact to endangered and threatened species would occur if the direct or indirect changes in the environment that may be caused by the project would eventually result in one or more of the following future conditions listed below.

- 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.
- 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.

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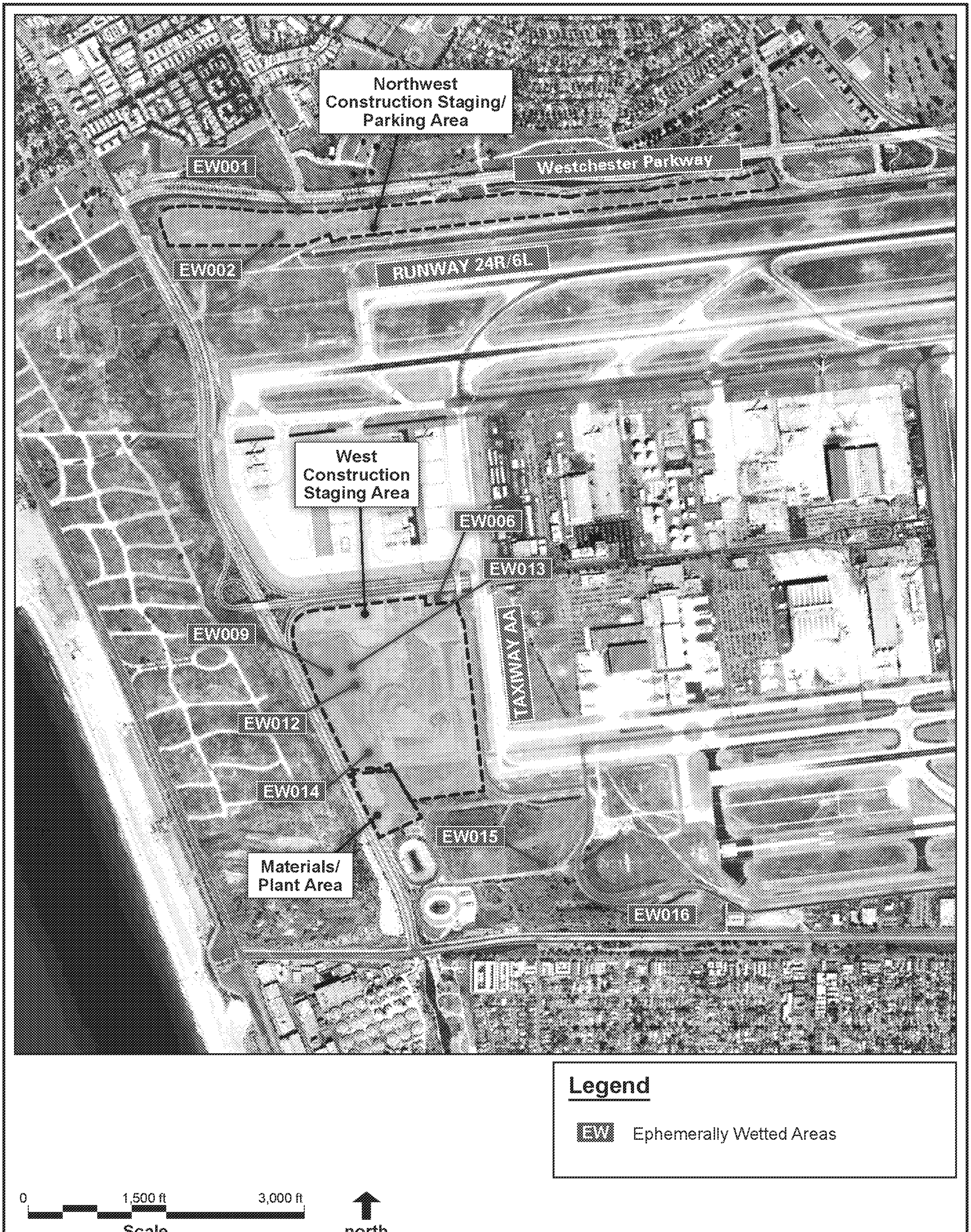
270 During preparation of the LAX Master Plan EIS/EIR, the U.S. Army Corps of Engineers directed the FAA and LAWA to consider the presence or absence of wetlands at LAX in light of the atypical situation caused by human activities. Under the atypical situation, ephemerally wetted areas that are seasonally inundated or saturated for more than 12.5 percent of the growing season in a year of at least average rainfall meet the criteria for "waters of the United States."

271 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.

272 U.S. Fish and Wildlife Service, Biological Opinion for Operations and Maintenance Activities at Los Angeles International Airport, City of Los Angeles, Los Angeles County (1-6-01-F-1012.7), April 8, 2005.



Source: South Airfield Improvement Project Draft EIR, August 2005; Aerial photo dated 10-07-02.
Prepared by: CDM, 2009.

LAX Bradley West Project Draft EIR	Ephemerally Wetted Areas Formerly Containing Riverside Fairy Shrimp Cysts in the Vicinity of Bradley West Project Construction Areas	Figure 5.5-1

- A violation of federal, state, or local statutes or regulations imposed for the protection of federally- or state-listed, threatened, endangered, or candidate species of flora or fauna, specifically the Federal Endangered Species Act of 1973 and the State Endangered Species Act.[273]
- A substantial adverse effect, either directly or through habitat modifications of 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.
- A net loss of federally- or state-listed endangered, threatened, or candidate species of flora or fauna.

These thresholds were utilized because they address the potential concerns associated with the LAX Master Plan relative to endangered, threatened, and candidate species. These thresholds are also consistent with Appendix G of the State CEQA Guidelines.

5.5.4 LAX Master Plan

5.5.4.1 Impacts Identified in the Final EIR

As identified in the LAX Master Plan, 0.04 acre (1,853 square feet) 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 square feet associated with ephemerally wetted (EW) area EW6 located adjacent to the Bradley West Project West Contractor Staging Area and 415 square feet associated with EW1 and EW2 within the Bradley West Project Northwest Construction Staging/Parking Area. (See LAX Master Plan Final EIR Table F4.12-1.) The permanent conversion of the 1,853 square feet was considered a significant impact and triggered the need for a Section 7 consultation with the USFWS. As a result of this consultation, and pursuant to the April 20, 2004 Biological Opinion for the LAX Master Plan, soils bearing embedded cysts of the Riverside fairy shrimp were removed from EW1, EW2, and EW6 in July and August 2005. Once relocation of the cysts is completed, impacts associated with the conversion of EW1, EW2, and EW6 will be reduced to a level less than significant.

In addition, construction staging, airfield operations and maintenance activities, and/or airfield improvements associated with the LAX Master Plan would indirectly affect EW9, EW12, EW13, EW14, EW15, and EW16, which comprise 1.26 acres of degraded wetland habitat. Specifically, EW9, EW12, and EW13 would 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 be affected by construction staging in support of development of the Taxiway/Aircraft Apron and the proposed employee parking garage. Indirect impacts to ephemerally wetted areas located adjacent to project 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. Implementation of Master Plan Mitigation Measure MM-ET-1, Riverside Fairy Shrimp Habitat Restoration, would reduce direct and indirect impacts to embedded cysts of the Riverside fairy shrimp to a level less than significant.

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, pursuant to 50 CFR, Part 402.10, at which the USFWS concluded that continued construction, operations and maintenance activities on the proposed

273 The California Endangered Species Act (CESA) protects endangered, threatened, and candidate species. As stated in Fish and Game Code 2067, ". . . [a]ny animal determined by the Commission as 'rare' on or before January 1, 1985 is a 'threatened' species." Under CESA, plants are designated as 'rare' although afforded no protection. Plants designated as rare pursuant to Section 1904 of the Native Plant Protection Act and Sections 2074.2 and 2075.5 of the CESA are afforded protection under the Native Plant Protection Act.

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.[274] Specific avoidance measures for the 23 acres are described in FAA's letter of no adverse modification.[275] The USFWS subsequently issued a letter of concurrence with the FAA's letter of no adverse modification.[276] Copies of these letters are provided in Appendix N, *Other Environmental Resources*, of the SAIP Final EIR.[277] 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.[278]

In a separate Biological Opinion for Operations and Maintenance Activities at LAX, dated April 8, 2005, it was determined that 1.26 acres would be adversely impacted through ongoing operations and maintenance activities at LAX in compliance with FAA guidelines. (As noted above, under the LAX Master Plan, significant impacts to this acreage would be avoided through implementation of construction avoidance measures.) As discussed in Section 5.5.2 above, soils bearing cysts of the Riverside fairy shrimp were removed from EW9, EW12, EW13, EW14, EW15 and EW16 in July and August 2005, pursuant to the April 8, 2005 Biological Opinion for Operation and Maintenance Activities at LAX. Once relocation of the cysts is completed, impacts to Riverside fairy shrimp within these ephemerally wetted areas will be reduced to a level less than significant.

There would be no net loss of occupied habitat of the El Segundo blue butterfly in the Habitat Restoration Area that would occur as a result of the LAX Master Plan, with implementation of Master Plan Mitigation Measure MM-ET-4, which required mitigation for conversion of habitat. Indirect impacts to the El Segundo Blue Butterfly Habitat Restoration Area have the potential to occur from fugitive dust particles related to activities at the construction staging site. 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 nest in areas of the proposed Master Plan facilities or within areas that would be developed or used for construction staging activities.

No significant indirect impacts to endangered or threatened species due to increased ambient light, noise, or concentrations of air pollutants were identified as a result of the implementation of the LAX Master Plan.

5.5.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control.**

  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 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.

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274 50 Code of Federal Regulations (CFR) Section 402.10, "Conference on Proposed Species or Proposed Critical Habitat."

275 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.

276 U.S. Fish and Wildlife Service, Letter to the U.S. Department of Transportation, Federal Aviation Administration, Subject: Informal Conference for Five Projects at Los Angeles International Airport, September 13, 2004.

277 The SAIP Final EIR is available for review by contacting Dennis Quilliam, Los Angeles World Airports, 7301 World Way West, 3rd Floor, Los Angeles, CA 90045.

278 70 Federal Register (FR) 19154, "Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Riverside Fairy Shrimp (*Streptocephalus woottoni*); Final Rule", April 12, 2005.

5.5.5 Bradley West Project

5.5.5.1 Impacts

The information, analysis, and Master Plan mitigation measures provided in the LAX Master Plan Final EIR adequately address the potential construction impacts of the Bradley West Project on El Segundo blue butterfly habitat. Impacts to Riverside fairy shrimp are discussed below.

As described in Section 5.5.2 above, during preparation of the LAX Master Plan EIS/EIR, Riverside fairy shrimp cysts were determined to be present in four areas of ephemerally wetted soils within the Bradley West Project West Construction Staging Area (EW9, EW12, EW13, and EW14), one area of ephemerally wetted soils adjacent to the Bradley West Project West Construction Staging Area (EW6), and two areas of ephemerally wetted soils (EW1 and EW2) within the Northwest Construction Staging/Parking Area. As described in Section 5.5.2 above, all soils bearing cysts of the Riverside fairy shrimp, including from EW1, EW2, EW6, EW9, EW12, EW13, and EW14, were removed from the airport in July and August 2005, pursuant to an April 20, 2004 Biological Opinion from the USFWS,[279] as well as an April 8, 2005 Biological Opinion for Operation and Maintenance Activities at LAX.[280] Thus, no impact to Riverside fairy shrimp would occur as a result of construction activities within the Bradley West Project West Construction Staging Area and Northwest Construction Staging/Parking Area.

As discussed in Section 5.5.2 above, several depressions with the potential to be considered "waters of the U.S." were identified at the Southeast Construction Staging/Parking Area during the November 24, 2008 field survey conducted by BonTerra. (Additional discussion of the jurisdictional status of these depressions is provided in Section 5.6, *Wetlands*, of this EIR.) These ponded areas may provide habitat for Riverside fairy shrimp. BonTerra Consulting initiated wet season surveys for the presence of Riverside fairy shrimp within ponded areas at the Southeast Construction Staging/Parking Area on January 20, 2009. In accordance with USFWS guidelines for conducting fairy shrimp surveys, BonTerra conducted 2009 wet season surveys within the ponded areas once every two weeks until the ponded areas were no longer inundated (which occurred prior to 120 days of continuous inundation). These surveys will be followed by either a dry season survey or a second wet season survey, as required by USFWS guidelines. Based on the results of the 2009 wet season surveys, no Riverside fairy shrimp were found on the Southeast Construction Staging/Parking Area site. However, the absence of Riverside fairy shrimp at this site cannot be confirmed until completion of the protocol surveys (i.e., a dry season survey or a second wet season survey). In the event that Riverside fairy shrimp are identified at the Southeast Construction Staging/Parking Area, proposed construction activities would have a significant impact on the Riverside fairy shrimp, and consultation with the USFWS would be required in accordance with the Federal Endangered Species Act.

Bradley West Project construction staging and stockpiling of materials in close proximity to the Habitat Restoration Area would have the potential to deposit fugitive dust within habitat for the El Segundo blue butterfly, which is considered a significant impact. As described in Section 5.5.4.1 above, the potential for construction activities to deposit fugitive dust within habitat for the El Segundo blue butterfly was identified and addressed as part of the LAX Master Plan Final EIR.

5.5.5.2 Mitigation Measures

To address the potential significant fugitive dust impacts on habitat for the El Segundo blue butterfly, Master Plan Mitigation Measure MM-ET-3, El Segundo Blue Butterfly Conservation: Dust Control, is applicable to the Bradley West Project.

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279 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.

280 U.S. Fish and Wildlife Service, Biological Opinion for Operations and Maintenance Activities at Los Angeles International Airport, City of Los Angeles, Los Angeles County (1-6-01-F-1012.7), April 8, 2005.

If USFWS protocol surveys for the Riverside fairy shrimp find that the species is located within the Southeast Construction Staging/Parking Area, the following mitigation measure is applicable to the Bradley West Project.

- **MM-ET (BWP)-1. Mitigation for Riverside Fairy Shrimp.**

  If Riverside fairy shrimp are found to be located on-site, LAWA shall coordinate with FAA and USFWS to initiate consultation under the federal Endangered Species Act and prepare a Mitigation Plan in consultation with the USFWS. The plan shall provide mitigation for direct impacts to affected habitat through salvage and relocation of soil containing Riverside fairy shrimp. The receiver site of the soil and cysts shall be equal or greater in biological value, as determined by the USFWS.

  Specific requirements of the Mitigation Plan shall be subject to the Section 7 consultation with USFWS, but generally will require that soils containing embedded cysts of the Riverside fairy shrimp be salvaged and translocated to created Riverside fairy shrimp habitat at a suitable site. One potential site is the Madrona Marsh Nature Center in Torrance, 20 miles south of LAX. Responsibility for habitat creation and maintenance of the created habitat may be transferred to a LAWA designee at any time with USFWS approval.

  Soils containing embedded cysts of the Riverside fairy shrimp shall not be translocated to the created habitat until the habitat is established and has met certain success criteria specified during Section 7 consultation. Success criteria for the created habitat will likely include holding water for a minimum of 60 days, having less than 10 percent absolute cover exotic herbaceous species within the created habitat, having less than 20 percent absolute cover of exotic herbaceous species within 300 feet of the area from limits of the created habitat, removal of all non-herbaceous plant species within the created habitat and 300 feet from the created habitat annually, and providing suitable water quality for Riverside fairy shrimp. Duration of inundation, exotic species removal, and water quality analyses may be undertaken within the first year after habitat creation. The performance criteria for percent absolute cover of exotic herbaceous species within 300 feet of the area from limits of the created habitat may be redesignated by mutual agreement of FAA, LAWA, and USFWS.

  Upon meeting success criteria and approval from the USFWS, soils containing embedded cysts of the Riverside fairy shrimp may be brought to the created habitat. LAWA shall make every effort to collect all cyst-bearing soils from the entire surface area of the occupied habitat, however it is expected that some small number of undetected individual cysts will remain in the soil. Soil containing the cysts shall be salvaged and translocated during the dry season to minimize damage to the cysts during transport. The soil shall be collected using a hand trowel, removed in chucks, and kept out of direct sunlight to ensure viability. Soil shall be stored in properly labeled boxes or bags with adequate ventilation. The soils shall then be deposited and spread out in small basins or pool-like areas of similar size without active mechanical compaction to minimize potential damage to the cysts. Any potential indirect environmental impacts resulting from habitat construction activities shall be compliant with best management practices and terms and conditions stipulated by the permitting agencies.

  LAWA or its designee, in conjunction with the USFWS and a qualified wildlife biologist, shall also develop a program to monitor created habitat for the presence of Riverside fairy shrimp as described in the Mitigation Plan. LAWA shall be responsible for implementing a monitoring and reporting program to demonstrate successful achievement of the performance standards to be determined in consultation with USFWS for off-site relocation over a 10-year period:

  - Monthly during the first year, following relocation of soils containing embedded cysts of the Riverside fairy shrimp
  - Quarterly in the second, third, and fourth years, following relocation of soils containing embedded cysts of the Riverside fairy shrimp
  - Biannually in the fifth, seventh, and ninth years, following relocation of soils containing embedded cysts of the Riverside fairy shrimp

- Annually in the tenth year, following relocation of soils containing embedded cysts of the Riverside fairy shrimp

LAWA shall provide the USFWS with annual monitoring reports as specified in the Mitigation Plan. The monitoring report, due on September 1 of each specified monitoring year, shall provide information regarding the implementation of habitat creation, restoration, and maintenance activities. The yearly report shall also discuss the effectiveness of the project as it pertains to the existing condition of the created habitat and Riverside fairy shrimp population. To measure the effectiveness of the created habitat, the FAA and LAWA shall work with the USFWS to develop long-term goals and objectives as part of their habitat creation plan.

5.5.5.3 Level of Significance After Mitigation

Implementation of Master Plan Mitigation Measure MM-ET-3 and Mitigation Measure MM-ET (BWP)-1 would reduce potential Bradley West Project construction impacts on endangered and threatened species to a less than significant level.

5.6 Wetlands

5.6.1 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 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 5.5 of this EIR.

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

5.6.2 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.

The LAX Master Plan Final EIR identified a total of 20 ephemerally wetted (EW)[281] areas that were evaluated for their potential to meet the definition as "waters of the United States." (LAX Master Plan Final EIR p. 4-898.) Of these sites, nine ephemerally wetted areas within the Airfield Operations Area (AOA), consisting of 1.3 acres, were determined by the U.S. Army Corps of Engineers (USACOE) to fall within their jurisdiction. (LAX Master Plan Final EIR Section 4.12.3.) These nine sites all contained embedded cysts of the federally-endangered Riverside fairy shrimp (*Streptocephalus woottoni*). Although none of the sites showed evidence of hydric soils, nor were they dominated by hydrophytic vegetation, the USACOE determined to treat the AOA as an atypical situation. Under the atypical situation, the

[281] During preparation of the LAX Master Plan EIS/EIR, the U.S. Army Corps of Engineers directed the FAA and LAWA to consider the presence or absence of wetlands at LAX in light of the atypical situation caused by human activities. Under the atypical situation, ephemerally wetted areas that are seasonally inundated or saturated for more than 12.5 percent of the growing season in a year of at least average rainfall meet the criteria for "waters of the United States."

ACOE determined that the presence of wetland hydrology was sufficient to allow USACOE to exert jurisdiction pursuant to Section 404 of the Clean Water Act. The nine EW areas that were identified as being subject to USACOE jurisdiction are shown in Figure 5.5-1 in Section 5.5 of this EIR. As depicted in Figure 5.5-1, five of the nine EW areas identified as being subject to USACOE jurisdiction (EW6, EW9, EW12, EW13, and EW14) are within or adjacent to the Bradley West Project West Construction Staging Area, and two of the nine EW areas identified as being subject to USACOE jurisdiction (EW1 and EW2) are within the Northwest Construction Staging/Parking Area. Two of the sites are not within the Bradley West Project site or construction staging areas.

No areas subject to the jurisdiction of the California Department of Fish and Game (CDFG) were determined to exist within the Master Plan boundaries.

Due to the passage of time, the USACOE requested a new jurisdictional delineation be conducted to identify areas within the Bradley West Project work, staging and parking areas that may be subject to USACOE or CDFG jurisdiction. On January 29, 2009, BonTerra Consulting performed an update to the jurisdictional delineation prepared for the LAX Master Plan to verify the locations and extent of jurisdictional "waters of the U.S.", including wetlands, within the boundaries of the Bradley West Project work, staging and parking areas. The field delineation was conducted in accordance with the requirements of USACOE and CDFG and was based on the following manuals: Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region,[282] and the 1987 Corps of Engineers Wetlands Delineation Manual.[283] A jurisdictional delineation report is currently under preparation and will be submitted to USACOE and CDFG upon completion. The delineation must receive concurrence from the USACOE and CDFG in order to obtain a final jurisdictional determination concerning their respective jurisdictional boundaries. Preliminary findings of the field surveys are described below.

The areas under consideration by BonTerra for the jurisdictional delineation included all 20 ephemerally wetted areas identified in the LAX Master Plan as well as nine areas of ponded water within the Southeast Construction Staging/Parking Area. Specifically, the sites consisted of: the nine EW jurisdictional areas identified as part of the LAX Master Plan Final EIR shown in Figure 5.5-1 of this Draft EIR; seven additional EW areas within the West Construction Staging Area (EW8, EW10, EW11, EW17-19, and EW20)[284] and three additional EW areas within the Northwest Construction Staging/Parking Area (EW3, EW4, and EW5)[285] identified in the LAX Master Plan Final EIR that were determined at that time not to be jurisdictional wetlands; and nine areas of ponded water within the Southeast Construction Staging/Parking Area. Five of these sites (EW1 through EW5), which are all located within or adjacent to the Northwest Construction Staging/Parking Area, have been filled since the LAX Master Plan surveys were conducted.

An area must exhibit all three wetland parameters -- hydric soils, wetlands hydrology, and hydrophytic vegetation -- in order to be considered a federal jurisdictional wetland. Although 13 sites showed evidence of pooling immediately after a moderate rain storm, none of the evaluation sites have wetlands hydrology or contain hydric soils. Also, only three sites contain hydrophytic vegetation. No portion of any surveyed site contains all three wetland parameters. Therefore, the preliminary findings of the field surveys suggest that no wetlands are present within the Bradley West Project work, staging or parking areas.

Based on field observations and data collection, the ephemerally wetted areas on the project site appear to be depressional features that are non-jurisdictional waters. These features were created by past

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282 U.S. Army Corps of Engineers, Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, edited by J.S. Wakeley, R.W. Lichvar, and C.V. Nobel, 2006.

283 Environmental Laboratory, Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1), 1987.

284 Refer to Figure F4.12.-8 in Section 4.12, Wetlands, of the LAX Master Plan Final EIR for the location of these ephemerally wetted areas.

285 Refer to Figure F4.12.-8 in Section 4.12, Wetlands, of the LAX Master Plan Final EIR for the location of these ephemerally wetted areas.

construction, operation, and maintenance of the airport and do not support flow directly or indirectly into a downstream traditional navigable water (TNW, such as the Pacific Ocean) or any tributary thereof. Given the substantial man-made disturbances to the area, the lack of connection to a downstream TNW, and the topographical features of each site, the ephemerally wetted depressions are not expected to affect the chemical, physical, or biological integrity of a downstream TNW through transport of pollutants, nutrients, or organic carbon to a downstream TNW. Therefore, the preliminary findings of the field surveys suggest that there are no "waters of the U.S." within the Bradley West Project work, staging or parking areas.

There are no creeks, rivers or streams within the project site that flow at least periodically or permanently through a bed or channel with banks that support fish and other aquatic plant and/or wildlife species within the Bradley West Project work, staging or parking areas. There are no watercourses that have a surface or subsurface flow that support or have supported riparian vegetation within the project site. Therefore, the preliminary findings of the field surveys suggest that there are no resources within the project site that are under CDFG jurisdiction pursuant to Section 1602 of the California Fish and Game Code.

5.6.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of impacts to wetlands associated with the LAX Master Plan, Final EIR Section 4.12.4, and are also applicable to the Bradley West Project wetlands impacts analysis.

A significant wetlands impact would occur if direct and indirect changes in the environment, which might be caused by the project, potentially could result in one or more of the following future conditions:

- Alteration of the flow, bed, channel, or bank of rivers, streams, or lakes as defined in Section 1600 of the State Fish and Game Code.
- A substantial adverse effect on federally-protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruptions, or other means.
- Impact in excess of 0.1 acre of wetland habitat (including marsh, riparian, or vernal pools) or lakes, rivers, streams, or other special aquatic habitats, as defined in Section 404 of the Clean Water Act.
- Alteration of an existing wetland habitat.

The above thresholds were utilized in criteria established in Section 404 of the Clean Water Act, the National Wetlands Inventory (NWI), Section 1600 of the State Fish and Game Code, the L.A. CEQA Thresholds Guide and Appendix G, Environmental Checklist Form, of the State CEQA Guidelines. These thresholds address the concerns relative to wetlands associated with the LAX Master Plan, namely destruction, loss, alteration, or degradation of wetlands. An evaluation of whether or not an impact on wetlands would be significant must consider both the wetland resource and how it fits into a regional context. The criteria for determining the significance of impacts are based on the importance of the wetland area, the proximity of the area to the project site, the proportion of the area that would be affected, the sensitivity of the area to the type of impact being considered, and the extent and degree of the proposed impact.

5.6.4 LAX Master Plan

5.6.4.1 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 O&M activities, and/or airfield improvements. 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 mitigated through implementation of Master Plan Mitigation Measure MM-ET-1, Riverside Fairy Shrimp

Habitat Restoration, and construction avoidance measures specified in the April 20, 2004 Biological Opinion.

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 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 for the LAX Master Plan,[286] 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.

Although not related to the LAX Master Plan, in a separate Biological Opinion for Operations and Maintenance Activities at LAX (dated April 8, 2005),[287] it was determined that significant impacts to EW9, EW12, EW13, EW14, EW15 and EW16 would occur from ongoing operations and maintenance activities at LAX. Mitigation of these impacts would consist of salvage and relocation of the Riverside fairy shrimp cysts to an off-site location. The 2005 Biological Opinion indicated that construction avoidance measures for these sites would be halted upon satisfactory completion of the salvage of soils containing embedded cysts of the Riverside fairy shrimp. The cysts were removed from these sites in July and August 2005; therefore, the construction avoidance measures noted above are no longer required.

As indicated above, no areas subject to the jurisdiction of CDFG were determined to exist within the Master Plan boundaries, therefore, no impacts would occur.

5.6.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **MM-ET-1. Riverside Fairy Shrimp Habitat Restoration.**

  LAWA or its designee shall undertake mitigation for direct impacts to 0.04 acre (1,853 square feet) of degraded wetland habitat containing embedded cysts of Riverside fairy shrimp and potential indirect impacts to 1.26 acres of degraded wetland habitat containing embedded cysts of the Riverside fairy shrimp. As specified in the Biological Opinion, soils containing embedded cysts of the Riverside fairy shrimp in 0.04 acre (1,853 square feet) shall be salvaged and relocated to property owned by the FAA and designated a habitat preserve at the former Marine Corps Air Station at El Toro, or comparable site(s) approved by the USFWS at a ratio of not more than 3:1. The 1.26 acres of degraded wetland habitat containing embedded cysts of the Riverside fairy shrimp retained on the LAX airfield shall be avoided through the implementation of construction avoidance measures, including Best Management Practices (BMPs), and the creation of a buffer area around the occupied, degraded areas. The FAA shall oversee the development of a Vernal Pool Creation, Maintenance, and Monitoring Plan for the embedded cysts to ensure that Alternative D would be consistent with the recommendations provided in the *Recovery Plan for Vernal Pools of Southern California*, and with the conservation measures provided in the Biological Opinion. As specified in the Biological Opinion, LAWA shall be responsible for all costs identified in the Vernal Pool Creation, Maintenance, and Monitoring Plan related to off-site relocation of soils containing cysts of the Riverside fairy shrimp, including entitlement for use and designation for long-term conservation, site preparation, monitoring, and maintenance.

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286 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.

287 U.S. Fish and Wildlife Service, Biological Opinion for Operations and Maintenance Activities at Los Angeles International Airport, City of Los Angeles, Los Angeles County (1-6-01-F-1012.7), April 8, 2005.

Ongoing Section 7 consultation among LAWA, FAA, and USFWS has been necessary to identify suitable mitigation sites pursuant to Section 7 of the Endangered Species Act. As a result, extensive research has been conducted to identify sites that historically or currently support vernal pools or vernal pool- associated species in southern California. Information was gathered from the *Recovery Plan for Vernal Pools of Southern California*, the California Natural Diversity Database (CNDDB), and coordination with recognized experts in the field. This information was augmented through a review of geologic maps of the coastal portions of Los Angeles and topographic quadrangles for locations known to have historically supported vernal pools. A total of 35 potential relocation sites were identified for further site characterization (see Figure F5-2, Vernal Pool Restoration Opportunities Considered, of the LAX Master Plan MMRP).

Each of the 35 sites was visited and inspected by teams of biologists and environmental analysts. Analysis of site topography, historic or extant vernal pools, historic or extant vernal pool species, drainage features, climate, and parent material (from regional geologic maps) was conducted. Hazardous materials databases were consulted for information on known potential sources of contamination for those sites. In-field soil texture analysis was conducted, followed by laboratory analysis of collected soil samples. Land use at the site and surrounding the site was characterized, plant communities were characterized, and the presence or absence of suitable hydrology was determined.

Prioritization of the potential sites for the relocation of soils containing cysts of the Riverside fairy shrimp was based solely on the presence of physical and biological characteristics provided in the *Recovery Plan for Vernal Pools of Southern California* and did not reflect planning constraints indicated by current land uses. LAWA and FAA, in consultation with the USFWS, recommended the relocation of cysts to alternate locations within the Los Angeles County portion of the Los Angeles Basin-Orange Management Area for vernal pools (Figure F5-2). The use of these sites within Los Angeles County was determined infeasible and LAWA undertook evaluation of the feasibility of vernal pools or vernal pool complexes located in the Orange County portion of the Los Angeles Basin-Orange Management Area and the Ventura County portion of the Transverse Management Area. As a result of consultation with the USFWS, property owned by FAA and designated a habitat preserve at the former Marine Corps Air Station at El Toro was identified as a mitigation site for the receipt of soils containing embedded cysts of the Riverside fairy shrimp, or an alternate comparable site(s).

Once a suitable mitigation site(s) is secured, vernal pool creation shall be undertaken by LAWA or its designee, in consultation with the USFWS. Methods of vernal pool creation may vary depending on the physical and biological characteristics of the selected sites. LAWA or its designee, in conjunction with the USFWS and a qualified wildlife biologist, shall develop a program to monitor the progress of vernal pool creation. LAWA or its designee shall undertake the relocation of soils containing embedded cysts of Riverside fairy shrimp from the western portion of the airfield to the vernal pool mitigation sites. Soils containing embedded cysts of the Riverside fairy shrimp shall not be salvaged and translocated until the created vernal pool(s) is established and has met certain success criteria as described in detail below and included in the 12 conservation measures within the Biological Opinion.

Soils containing embedded cysts of the Riverside fairy shrimp from EW1 and EW2 (see Figure F5-3, North Area Ephemerally Wetted Pools and Buffer Areas, of the LAX Master Plan MMRP). shall be salvaged and translocated to created vernal pool habitat on property owned by the FAA and designated as a habitat preserve at the former Marine Corps Air Station at El Toro (El Toro), or another site as approved by Carlsbad Fish and Wildlife Office (CFWO). The created vernal pool(s) shall contain a minimum of 5,559 square feet of vernal pool surface area (as determined by a 3:1 mitigation ratio). Soils containing embedded cysts of the Riverside fairy shrimp from EW1 and EW2 will not be salvaged and translocated from LAX until the created vernal pool(s) is established and has met certain success criteria specified in the Biological Opinion. As a contingency measure, if the specified success criteria for the created vernal pools have not been attained within six years of project authorization, in spite of a good faith effort on the part of LAWA, soils containing embedded cysts of the Riverside fairy shrimp will be salvaged from EW1 and EW2 and placed in appropriate storage at the San Diego Zoological Society's Center for the Reproduction of Endangered Species. Soils containing embedded cysts of the Riverside fairy shrimp from EW6 (see Figure F5-4, South Area Ephemerally Wetted Pools and Buffer Areas, of the LAX Master Plan MMRP) shall be salvaged and stored prior to implementation of Alternative D and shall be translocated to the created vernal pool(s) with EW1 and EW2 once the success criteria are met. Soils containing embedded cysts of the Riverside fairy shrimp from EW6 shall be placed in appropriate storage at the San Diego Zoological Society's Center for the Reproduction of Endangered Species. Until soils bearing embedded cysts of the Riverside fairy shrimp have been appropriately salvaged and stored, or vernal pool creation has been completed and embedded cysts have been appropriately salvaged and translocated to the created vernal pool(s), habitat-altering activities associated with Alternative D in these areas shall be avoided.

LAWA shall be responsible for implementing construction avoidance measures for the six areas (EW9, EW12, EW13, EW14, EW15 and EW16) that would not be directly affected, as indicated in the Biological Opinion. Construction avoidance measures shall include implementation of construction avoidance measures, including BMPs required pursuant to the Standard Urban Stormwater Mitigation Plan and the LAX Stormwater Pollution Prevention Plan, and establishment of a buffer area around the six occupied areas retained on the LAX airfield (Figure F5-4). In addition, LAX operations personnel with vehicular access to the airfield operations area shall be apprised of these off-limit buffer areas annually. The construction avoidance measures shall be periodically inspected by LAWA, or its designee throughout construction to ensure the efficacy of the BMPs, and corrective action shall be undertaken as necessary to ensure that construction and operation of airport facilities do not result in adverse impacts to surface water quality.

Soils containing embedded cysts of the Riverside fairy shrimp will not be translocated to the created vernal pool(s) until the vernal pool(s) is established and has met certain success criteria specified in the Biological Opinion. Success criteria for the created vernal pool(s) includes holding water for a minimum of 60 days, having less than 10 percent absolute cover of exotic herbaceous species in the pool(s), having less than 20 percent absolute cover of exotic herbaceous species with 300 feet of the area from limits of the pool, removal of all non-herbaceous plant species within the pool and 300 feet from the pool annually, and provide suitable water quality for the Riverside fairy shrimp. Duration of inundation, exotic species removal, and water quality analyses may be undertaken within the first year after vernal pool creation. The performance criteria for percent absolute cover of exotic herbaceous species within 300 feet of the area from limits of the pool may be redesignated by mutual agreement of FAA, LAWA and USFWS.

Upon meeting success criteria and approval from the USFWS, soils containing embedded cysts of the Riverside fairy shrimp may be brought to the pool(s). LAWA shall make every effort to collect all cyst-bearing soils from the entire surface area of EW1, EW2, and EW6, however, it is expected that some small number of undetected individual cysts will remain in the soil. Soil containing the cysts shall be salvaged and translocated during the dry season to minimize damage to the cysts during transport. The soil shall be collected using a hand trowel, removed in chucks, and kept out of direct sunlight to ensure viability. Soil shall be stored in properly labeled boxes or bags with adequate ventilation. The soils shall then be redeposited and spread out in small basins or pool-like areas of similar size without active mechanical compaction to minimize potential damage to the cysts. Any potential indirect environmental impacts resulting from vernal pool construction activities shall be compliant with BMPs and terms and conditions stipulated by the permitting agencies.

LAWA or its designee, in conjunction with the USFWS and a qualified wildlife biologist, shall also develop a program to monitor created habitat for the presence of Riverside fairy shrimp as described in the Vernal Pool Creation, Maintenance, and Monitoring Plan. As specified in the Biological Opinion, LAWA shall be responsible for implementing a monitoring and reporting program to demonstrate successful achievement of the performance standards for off-site relocation over a 25-year period:

- Monthly during the first year, following relocation of soils containing embedded cysts of the Riverside fairy shrimp
- Quarterly in the second, third, and fourth years, following relocation of soils containing embedded cysts of the Riverside fairy shrimp
- Biannually in the fifth, seventh, and ninth years, following relocation of soils containing embedded cysts of the Riverside fairy shrimp
- Annually in the tenth, fifteenth, twentieth, and twenty-fifth years, following relocation of soils containing embedded cysts of the Riverside fairy shrimp

LAWA shall provide the USFWS with annual monitoring reports as specified in the Vernal Pool Creation, Maintenance, and Monitoring Plan. The monitoring report, due on September 1 of each specified monitoring year, shall provide information regarding the implementation of the vernal pool creation, restoration, and maintenance activities. The yearly report shall also discuss the effectiveness of the project as it pertains to the existing condition of the created vernal pool(s) and Riverside fairy shrimp population. To measure the effectiveness of the created vernal pool(s), the FAA and LAWA shall work with the USFWS to develop long-term goals and objectives as part of their habitat creation plan.

Lastly, LAWA shall coordinate with the USFWS to create educational materials on the Riverside fairy shrimp for integration into LAWA's public outreach program. Educational opportunities regarding federally endangered Riverside fairy shrimp include public outreach in the form of an educational brochure made available through the LAWA Public Affairs Department, information provided on LAWA's Web site describing the ephemeral habitat required to support the species, and LAWA's outreach to local schools.

Implementation of Mitigation Measure MM-ET-1 would provide for the replacement of 0.04 acre (1,853 square feet) of degraded wetland habitat containing embedded cysts of the Riverside fairy shrimp, with an estimated habitat value of 0.15; with 0.12 acres (5,559 square feet) of created vernal pool habitat with an estimated habitat value of 0.75 (see Table F5-11, Mitigation Land Evaluation Procedure for the Mitigation Site, of the LAX Master Plan MMRP). By relocating embedded cysts to habitat restoration sites that are managed for the existence of the species, the opportunity for embedded cysts to complete the adult phase of their life cycle would be enhanced.

5.6.5 Bradley West Project

5.6.5.1 Impacts

As described in Section 5.6.2 above, based on the preliminary findings of recent field surveys conducted to support preparation of a jurisdictional delineation, which must receive review and concurrence by the USACOE, there are no areas within the Bradley West Project work, staging and parking areas subject to USACOE jurisdiction. If ACOE concurs with these findings, no impacts to wetlands or "waters of the U.S." would occur. If USACOE finds that wetlands or "waters of the U.S." are present on-site, these impacts would be the same as those previously identified under the LAX Master Plan and for which a Jurisdictional Determination has already been issued. Therefore, the Bradley West Project would not result in any new impacts to wetlands or "waters of the U.S."

Wetlands impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

5.6.5.2 Mitigation Measures

Preliminary findings indicate that no significant impacts to wetlands or "waters of the U.S." would occur as a result of the Bradley West Project. If USACOE concurs with this finding, no mitigation measures are required. However, if it is determined that wetlands or "waters of the U.S." would be impacted by the project, Master Plan Mitigation Measure MM-ET-1, Riverside Fairy Shrimp Habitat Restoration, which is currently being implemented by the U.S. Fish and Wildlife Service on behalf of FAA and LAWA, will constitute mitigation for impacts to wetlands or "waters of the U.S." associated with the proposed project.

5.7 Energy Supply and Natural Resources

5.7.1 Introduction

This section addresses electricity, natural gas, and other fossil fuel consumption resulting from construction activities and operations associated with the Bradley West Project. Construction activities include fuel consumption for construction-related vehicle trips, construction lighting, and utility relocation. Operational impacts include the reduction in energy demands resulting from the elimination of certain existing buildings and the generation of new energy demands associated with the relocated operations and new and expanded buildings in the project area. 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
- LAX Master Plan Final EIR, Section 4.20, *Construction Impacts*, April 2004

5.7.2 Setting

5.7.2.1 Energy Supply

Existing conditions relative to on-airport electricity generation and transmission, natural gas supply and transmission, and fuel transmission are provided in Section 4.17.1 of the LAX Master Plan Final EIR and are incorporated herein by reference. Electricity and natural gas consumption at LAX results from a number of activities, including space heating and cooling, airfield and terminal lighting, food preparation, office functions, and maintenance. Other fossil fuel consumption includes aviation fuel for aircraft, as well as diesel, gasoline, and alternative fuels for ground support equipment (GSE), stationary sources, airport-related motor vehicle trips, and construction equipment. As indicated in Section 4.17 and Technical Report S-6 of the LAX Master Plan Final EIR, estimated annual energy consumption within the LAX Master Plan boundaries under Year 2000 was as follows: electricity -- 245,396 mega watt hours (MWH)/year; natural gas -- 943,136 thousand cubic feet/year; Jet A[288] -- 1,784 million gallons; Avgas[289] -- 20,000 gallons; gasoline -- 114 million gallons; diesel -- 25 million gallons; liquefied natural gas (LNG), compressed natural gas (CNG) and propane -- 1,652 thousand therms.

As indicated in Section 4.17.1 of the LAX Master Plan EIR, electricity, natural gas, and fuel transmission lines are located throughout the LAX Master Plan project site. The location of transmission facilities potentially affected by construction activities and energy consumption at LAX have not materially changed from what was presented in the LAX Master Plan Final EIR, given that existing uses and activity levels at the airport have not changed substantially over the past several years.

[288] Jet A is a kerosene-type jet fuel.

[289] Avgas is a high octane aviation fuel.

The LAX Master Plan Final EIR indicated that adequate electricity, natural gas and transportation-related fuel (e.g., gasoline and diesel) supplies were anticipated to be available through 2015. The following discussion provides updated information on electricity, natural gas and transportation-related fuel supplies since publication of the LAX Master Plan EIR.

The Los Angeles Department of Water and Power (LADWP) supplies electric power to the City of Los Angeles, including LAX. The City used approximately 24,000 gigawatt-hours of electricity in 2006.[290] Projections prepared by LADWP in 2007 indicate that the electricity demand for Los Angeles will be approximately 29,000 gigawatt hours in 2025.[291] LADWP's 2007 Integrated Resource Plan (IRP) provides the framework for assuring that future energy needs of the City of Los Angeles are reliably met in a cost-effective manner, and are consistent with the City's commitment to environmental excellence. As described in the 2007 IRP, in order to meet these objectives, LADWP will aggressively pursue the Renewable Portfolio Standard of having 20 percent of its energy needs met by renewable sources of energy by 2010, reducing greenhouse gas emissions to 35 percent below 1990 levels by 2030, and increasing the level of commitment and funding to customer energy efficiency, demand side management and solar programs. Forecasts in the 2007 IRP indicate that there will be adequate electricity resources to meet the projected City electrical demand through 2025.

In addition to obtaining electricity from LADWP, LAWA operates a Central Utility Plant (CUP), which provides heating and air conditioning to the Central Terminal Area (CTA), including the terminals and concourses, the East Administration Building, and Theme Building. Additionally, the CUP includes a cogeneration facility that uses steam from the boiler system to drive an electricity generator, with the resultant power transmitted into the LADWP grid.

The Southern California Gas Company (SoCalGas) supplies natural gas to nearly all of Southern and Central California, including the City of Los Angeles. SoCalGas obtains the majority of its natural gas from out-of-state sources. In 2007, approximately 2,700 million cubic feet (MMCF) of natural gas per day were consumed in the SoCalGas service area.[292] SoCalGas projects gas demand for all its market sectors to grow at an annual average rate of 0.02 percent from 2008 to 2030. Demand is expected to be virtually flat for the next 22 years due to several factors including modest economic growth, California Public Utilities Commission-mandated demand-side management and renewable goals, decline in commercial and industrial demand, and continued increased use of non-utility pipeline systems by enhanced oil recovery customers.[293] The outlook on natural gas supply availability continues to be favorable and future supplies of natural gas are anticipated to be adequate to meet projected demand through 2030.[294]

As indicted in Section 4.17.1 of the LAX Master Plan Final EIR, supplies of transportation-related fuels, such as gasoline and diesel, are dependent on energy reserves, both domestic and international, and available refinery capacity. Projections prepared by the State of California indicate that market factors, including increasing demand for petroleum products within California and declining refinery capacity within the state, will result in increased reliance on out-of-state petroleum resources.[295] The demand for

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290 Los Angeles Department of Water and Power, 2007 Integrated Resource Plan, December 2007, page 16; Available: http://www.ladwp.com/ladwp/cms/ladwp010273.pdf.

291 Los Angeles Department of Water and Power, 2007 Integrated Resource Plan, December 2007, page 16; Available: http://www.ladwp.com/ladwp/cms/ladwp010273.pdf.

292 California Gas and Electric Utilities, 2008 California Gas Report, 2008, page 95, Available: http://www.socalgas.com/regulatory/documents/cgr/2008_CGR.pdf.

293 California Gas and Electric Utilities, 2008 California Gas Report, 2008, page 62, Available: http://www.socalgas.com/regulatory/documents/cgr/2008_CGR.pdf.

294 California Gas and Electric Utilities, 2008 California Gas Report, 2008, Available: http://www.socalgas.com/regulatory/documents/cgr/2008_CGR.pdf.

295 California Energy Commission, California's Petroleum Infrastructure Overview and Import Projections, February 1, 2007, Available: http://www.energy.ca.gov/2007publications/CEC-600-2007-001/CEC-600-2007-001.PDF.

petroleum fuels will likely increase over the next decade or so, requiring an expansion of the capability to accommodate additional imports.[296]

5.7.2.2 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 West Construction Staging Area for the Bradley West Project. No active wells are located within the LAX boundaries. No timber resources or areas of significant mineral deposits occur within the Master Plan boundaries.[297] The following discussion provides updated information on permitted aggregate reserves in the project region since publication of the LAX Master Plan EIR.

According to a 2006 report on aggregate availability in California by the California Geologic Survey,[298] there are four aggregate production-consumption (P-C) regions within approximately 60 miles of LAX: San Gabriel Valley P-C, Temescal Valley-Orange County P-C, Claremont-Upland PC, and San Fernando Valley-Saugus-Newhall P-C. Combined, these areas have permitted aggregate reserves of approximately 960 million tons, which is projected to be sufficient to meet approximately 30 percent of the combined 50-year aggregate demand in the four P-C areas (3,027 million tons). However, the 2006 California Geologic Survey report indicates that permitted aggregate reserves for each of the four P-C areas would be adequate to meet projected demand through at least 2016.

5.7.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of impacts to energy supply and natural resources associated with the LAX Master Plan, Final EIR Sections 4.17.1.4 and 4.17.2.4, respectively, and are also applicable to the Bradley West Project energy supply and natural resources impacts analysis.

5.7.3.1 Energy Supply

A significant energy impact 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:

- An exceedance in regional electricity or natural gas supplies or generation or distribution facilities due to project-related electricity and natural gas demand.
- A substantial increase in project-related fuel consumption relative to available supply.
- Interference with existing major electrical or natural gas infrastructure due to construction of project features.

These thresholds of significance were utilized because they address the potential concerns relative to energy associated with the LAX Master Plan, namely the potential for the project to exceed regional energy supply and distribution capabilities, and the potential for interference with existing energy utility infrastructure due to construction of the LAX Master Plan. The first two thresholds were developed based upon guidance provided in the L.A. CEQA Thresholds Guide. The third threshold was developed specifically to address potential impacts associated with the LAX Master Plan relative to construction conflicts, which was not addressed in the L.A. CEQA Thresholds Guide.

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[296] California Energy Commission, California's Petroleum Infrastructure Overview and Import Projections, February 1, 2007, Available: http://www.energy.ca.gov/2007publications/CEC-600-2007-001/CEC-600-2007-001.PDF.

[297] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.17.2, page 4-1074.

[298] California Geological Survey, Department of Conservation, Aggregate Availability in California, 2006, Available: http://www.conservation.ca.gov/cgs/minerals/mlc/Pages/index.aspx.

5.7.3.2 Natural Resources

A significant natural resources impact 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:

- The project were to result in the permanent loss of, or loss of access to, substantial volumes of harvestable timber resources, petroleum resources, or mineral resources.
- The natural resource requirements for construction of the project were to exceed available permitted supplies.

These thresholds were utilized because they address the two potential impacts to natural resources associated with the LAX Master Plan: the potential for the project to restrict access to important natural resources due to the construction of new facilities on largely undeveloped areas, and the use of natural resources for the construction of improvements associated with the LAX Master Plan. The first threshold was adapted from the L.A. CEQA Thresholds Guide to address other resources in addition to mineral resources. The second threshold was developed specifically to address potential impacts associated with the Master Plan alternatives relative to natural resource consumption, which was not addressed in the L.A. CEQA Thresholds Guide. The only other potential impacts to natural resources are associated with the consumption of fuel and other energy resources. These impacts are addressed under the heading *Energy Supply*.

5.7.4 LAX Master Plan

5.7.4.1 Impacts Identified in the Final EIR

Energy Supply

Implementation of the LAX Master Plan would increase electricity and natural gas consumption at LAX as compared to baseline conditions. Increasing numbers of passengers, flight operations, expansion of cargo facilities, and expanded airport operations would result in increases in electricity and natural gas consumption. Total electricity use for airport land uses would increase by 339,226 MWH/yr over 1996 baseline conditions of 201,153 MWH/yr by 2015 (a 169 percent increase), for a total electricity use of 540,379 MWH/yr. Total natural gas use for airport land uses would increase by 112 MMCF/yr over 1996 baseline conditions of 1,119 MMCF/yr by 2015 (a 10 percent increase). In order to reduce electricity and natural gas consumption under Alternative D, LAWA would implement Master Plan Commitment E-1, Energy Conservation and Efficiency Program, to maximize the energy efficiency of new facilities. This program would be consistent with federal policies pertaining to energy efficiency and resource conservation. Sufficient supplies of electricity and natural gas are expected to be available.[299] Demand for electricity and natural gas from implementation of the LAX Master Plan would not exceed regional electricity or natural gas supplies or generation or distribution facilities. Therefore, no significant impacts with respect to electricity and natural gas supply would occur.

Similarly, operation of the LAX Master Plan would result in increases in the consumption of transportation-related fuels. Jet A consumption by aircraft was estimated to be 2,866 million gallons in 2015, a 91 percent increase over the baseline year (1,500 million gallons), The increase would be a result of increasing flight operations, changes in the mix of aircraft to heavier aircraft, and an increase in average distances aircrafts would fly to their destinations. Avgas consumption is not projected to increase in 2015. The existing capacity of pipelines that transport Jet A to LAX would be sufficient to meet the projected increase in Jet A consumption and sufficient supply is expected to be available.[300]

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299 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.17.1.6.5, page 4-1068.

300 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.17.1.6.5, page 4-1069.

The consumption of gasoline and diesel from on-airport sources, including GSE and on-airport vehicles, would be reduced as a result of the conversion of some of these vehicles to alternative fuels. These decreases would be offset by increases in the amount of gasoline and diesel consumption associated with off-airport vehicle trips, including trips by both passengers and employees arriving and departing LAX, as well as trips to and from LAX Northside. Sufficient supply of transportation-related fuels is expected to be available. Operations under the LAX Master Plan would not result in a substantial increase in project-related fuel consumption relative to available supply. Therefore, no significant impacts with respect to transportation-related fuel supply would occur.

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. The total amount of diesel and gasoline consumption related to construction equipment and additional worker vehicle trips to and from the construction sites would be approximately 29.9 million gallons and 3.1 million gallons, respectively. Because adequate electricity, gasoline, and diesel supplies are anticipated to be available through 2015, demand for electricity and natural gas from construction activities associated with the LAX Master Plan would not exceed regional electricity or natural gas supplies or generation or distribution facilities, nor would such construction activities result in a substantial increase in project-related fuel consumption relative to available supply.[301] 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 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 ensure that construction of the project features would not interfere with existing major electrical or natural gas infrastructure. Impacts to the existing electricity supply and distribution system from construction activities would be less than significant.

Natural Resources

As there are no actively-mined mineral, timber, or petroleum resources within LAX, implementation of the LAX Master Plan would not restrict access to these resources, and would therefore not result in a significant impact. 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 1 percent of the estimated 1.7 billion tons of permitted reserves in the Los Angeles region identified and included as part of the LAX Master Plan natural resources analysis. Construction materials from demolition work would be recycled; therefore, not all of this demand for aggregate would require raw materials.

At the time of publication of the LAX Master Plan EIR, the California Department of Conservation, Division of Mines and Geology anticipated that 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.

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[301] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.17.1.6.5, page 4-1069.

5.7.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **E-1. Energy Conservation and Efficiency Program.**

  LAWA will seek to continually improve the energy efficiency of building design and layouts during the implementation of the LAX Master Plan. Title 24, Part 6, Article 2 of the California Administrative Code establishes maximum energy consumption levels for heating and cooling of new buildings to assure that energy conservation is incorporated into the design of new buildings. LAWA will design new facilities to meet or exceed the prescriptive standards required under Title 24. Some of the energy conservation measures that LAWA may incorporate into the design of new buildings and airports facilities may include the use of energy-efficient building materials, energy-saving lighting systems, energy-efficient air-conditioning systems, energy-efficient water-heating systems, and designed-in access for alternative means of surface transportation, including the Green Line and the APM. These energy conservation measures may be further improved upon as energy-saving design approaches and technologies develop.

- **E-2. Coordination with Utility Providers.**

  LAWA will implement Master Plan activities in coordination with local utility providers. Utility providers will provide input on the layout of utilities at LAX to assure that LAX and the surrounding region receive both safe and uninterrupted service. When service by existing utility lines could be affected by airport design features, LAWA will work with the utility to identify alternative means of providing equivalent or superior post-construction utility service.

- **PU-1. Develop a Utility Relocation Program.**

  LAWA will develop and implement a utilities relocation program to minimize interference with existing utilities associated with LAX Master Plan facility construction. Prior to initiating construction of a Master Plan component, LAWA will prepare a construction evaluation to determine if the proposed construction will interfere with existing utility location or operation. LAWA will determine utility relocation needs and, for sites on LAX property, LAWA will develop a plan for relocating existing utilities as necessary before, during, and after construction of LAX Master Plan features. LAWA will implement the utility relocation program during construction of LAX Master Plan improvements.

- **SW-2. Requirements for the Use of Recycled Materials During Construction.**

  LAWA will require, where feasible, that contractors use a specified minimum percentage of recycled materials during construction of LAX Master Plan improvements. The percentage of recycled materials required will be specified in the construction bid documents. Recycled materials may include, but are not limited to, asphalt, drywall, steel, aluminum, ceramic tile, cellulose insulation, and composite engineered wood products. The use of recycled materials in LAX Master Plan construction will help to reduce the project's reliance upon virgin materials and support the recycled materials market, decreasing the quantity of solid waste requiring disposal.

- **SW-3. Requirements for the Recycling of Construction and Demolition Waste.**

  LAWA will require that contractors recycle a specified minimum percentage of waste materials generated during demolition and construction. The percentage of waste materials required to be recycled will be specified in the construction bid documents. Waste materials to be recycled may include, but are not limited to, asphalt, concrete, drywall, steel, aluminum, ceramic tile, and architectural details.

5.7.5 Bradley West Project

5.7.5.1 Impacts

Energy Supply

The information, analysis, and Master Plan commitments provided in the LAX Master Plan Final EIR adequately address the potential impacts of the Bradley West Project on energy supply. In particular, the potential impacts associated with transportation-related fuel consumption associated with the Bradley West Project construction and operations, with the exception of fuel consumption related to on-airfield busing operations, are fully addressed in the LAX Master Plan EIR and are not addressed further herein. This section provides additional analysis of project-specific impacts on the existing energy supply and energy distribution system, including electrical, natural gas, and aviation fuel distribution facilities.

Construction activities for the Bradley West Project would require fuel for the operation of construction equipment and for construction-related vehicle trips, as well as electricity for lighting. The total amount of diesel and gasoline consumption related to construction equipment and additional worker vehicle trips to and from the construction sites would be approximately 1.825 million gallons and 665,000 gallons, respectively. There would be no notable demand for natural gas associated with construction activities. Adequate electricity, gasoline, and diesel supplies are anticipated to be available during the duration of construction activities for the Bradley West Project (a period of approximately 5-years, anticipated to start in the fourth quarter of 2009). Demand for electricity and natural gas from construction activities associated with the Bradley West Project would not exceed regional electricity or natural gas supplies or generation or distribution facilities, nor would such construction activities result in a substantial increase in project-related fuel consumption relative to available supply. Further, the consumption of these energy resources for construction of the proposed project is within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

Operations-related energy demands would include natural gas and electricity consumption associated with uses in buildings and with lighting. As described in Chapter 2 of this EIR, implementation of the Bradley West Project would require the removal of several buildings, as well as outdoor lighting fixtures, which would eliminate the associated energy consumption. The project also includes the reconfiguration of TBIT, including new concourse area and the westward extension of the existing TBIT central core, which would increase the energy demands related to heating and cooling of the building space and need for lighting and other requirements. Appendix G of this EIR provides estimates of the natural gas and electricity demands associated with the existing structures that would be eliminated or relocated as part of the project and the new building square footage and exterior lighting, including lighting for the relocated Taxiways S and Q and TBIT apron. Appendix G, discussed further in Section 4.6, *Global Climate Change*, of this EIR, also delineates the assumptions, approach, and factors used in estimating energy consumption and greenhouse gas (GHG) generation.

As discussed in Section 4.6 of this EIR, the new construction is planned to be built to the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) green building rating system at a silver rating. Under the LEED Silver rating, a 9 percent increase in energy efficiency is assumed over California's Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6). By incorporating LEED standards, the new Bradley West Project building area would achieve greater energy efficiency than the existing facility. However, the proposed increase in total floor area within TBIT from 997,120 square feet to 2,024,110 square feet would still cause an associated increase in energy consumption compared to existing conditions. Taking into account LEED standards and the increased building area, operation of the proposed project would result in a net increase in electricity demand of approximately 6,400 MWh/year over existing electricity demand, which is 2 percent of the 339,226 MWh/year increase over baseline that was forecast for 2015 in the LAX Master Plan Final EIR.

As described in Section 4.6 of this EIR, it is anticipated that operation of the proposed project would also result in a net increase in natural gas demands. The increase is approximately 12 MMCF/yr, which is 11 percent of the of 112 MMCF/yr increase over baseline that was forecast for 2015 in the LAX Master Plan Final EIR.

As noted in Section 5.7.2.1 above, heating and cooling is currently supplied to the CTA, including the existing TBIT, by the CUP. The CUP, which was constructed in 1961, currently operates below its design capacity and is considered to be outdated and inefficient. Therefore, as described in Chapter 2 of this EIR, Bradley West Project improvements include provisions for meeting the heating and cooling requirements of the terminal building. The proposed system includes four natural gas boilers to generate hot water and seven chillers, with associated cooling towers, to generate chilled water. This boiler and chiller system would supplement the heating and cooling capabilities of the existing CUP, thereby providing sufficient heating and cooling throughout the CTA.

As described in Chapter 3 of this EIR, the existing CUP is proposed to be replaced with a new and more efficient CUP in the same general location as the existing facility. The new CUP would be more efficient and have improved capabilities to meet the range of heating and cooling needs throughout the terminal area, including TBIT. The phased implementation of the new CUP anticipates partial operation beginning in 2012 and full operation in 2013. If the CUP Replacement Project is approved as planned, it would supply improved heating and cooling capabilities throughout the airport terminals, including the new building area within TBIT. The CUP boilers would power steam-driven turbines in the new cogeneration facility, with the resultant electricity used to help power the CUP chillers (i.e., electrically-powered compressor motors). This process would reduce the need to obtain electricity from LADWP.

As noted above, the Bradley West Project improvements are planned to be completed by early 2012. Boilers and chillers would be used to supplement the existing heating and cooling provided by the existing CUP. However, if the new (replacement) CUP is approved and constructed, it would substantially reduce, if not eliminate, the need for the proposed supplemental heating and cooling system. Under this scenario, it is anticipated that the boilers and chillers installed as part of the Bradley West Project would be decommissioned. If the CUP replacement project is not approved, the proposed supplemental facilities, in conjunction with the continued operation of the existing CUP, would provide sufficient long-term heating and cooling generation capacity to TBIT.

As described in Section 5.7.2.1 above, sufficient supply of natural gas and electricity is expected to be available for project operations. Operation of the project would not result in an exceedance in regional electricity and natural gas supplies or generation or distribution facilities due to project-related electricity and natural gas demand. Further, consumption of electricity and natural gas during operation of the proposed project is within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

As discussed in Section 4.4 of this EIR, the proposed new contact gates on the west side of TBIT would reduce the need for busing passengers between the existing gates at the West Remote Pads and TBIT compared to 2013 conditions without the Bradley West Project. However, even with this reduction in future busing, with the forecast increase in international operations between 2008 and 2013, the total daily bus trips would still increase from 113 in 2008 to 160 in 2013. (Without the Bradley West Project, the number would increase to 273 daily bus trips.) Therefore, while bus trips would increase as result of increased travel, operation of the proposed project would result in fewer bus trips between the West Remote Pads and TBIT than would occur under conditions in 2013 without the project.

The current bus fleet consists of both diesel- and CNG-fueled buses. LAWA plans to convert to all CNG-fueled buses before 2013. At an estimated round trip distance of 3 miles, the annual increase in CNG fuel consumption associated with the additional 47 daily trips in 2013 would be 170,349 gallons.[302] As discussed previously, petroleum products, including CNG, are market-driven commodities. SoCalGas

302 CNG fuel consumption was estimated assuming as equivalent of 3.31 miles per gallon as per Brodrick, Christie-Joy, Ph.D. and Dwyer, Harry A., University of California Davis, Preliminary Estimates of Emissions and Fuel Economy for MUNI's Advanced Technology Buses, undated.

indicates adequate supplies of CNG are anticipated through 2030.[303] There is no notable electricity demand associated with busing activities. Therefore, demand for electricity and natural gas from busing activities associated with the Bradley West Project would not exceed regional electricity or natural gas supplies or generation or distribution facilities. No significant impacts associated with busing would result.

Electrical power used at LAX is distributed across the airport via several transmission lines. Electrical transmission lines include subsurface lines throughout the project area, which would be relocated as required. Electrical transmission lines that would be impacted by the Bradley West Project include two existing electrical mains at TBIT that would be relocated and extended through the TBIT concourse and reconnected to existing lines outside of the Bradley West Core. In addition, construction of relocated Taxiways Q and S would require the abandonment/removal or relocation of several existing electrical transmission lines. Natural gas is supplied to the airport by several underground distribution lines, including branch connections from distribution lines that provide natural gas service to airport tenants. Construction of relocated Taxiways Q and S would require the abandonment/removal or relocation of several existing natural gas distribution lines. Aviation fuel lines are also located within the project area, which would require relocation or protection in place. Construction of relocated Taxiways Q and S would also require removal of a liquid gas and fueling station and a fuel vault. As indicated in Chapter 2 of this EIR, it is uncertain at this time whether the GSE fueling operations at the existing fueling stations would relocate to another on-airport GSE fueling station, possibly in the vicinity of the former United Airlines cargo facility, or whether the gas/fueling would be provided by an off-airport fuel vendor. The fuel lines to be relocated as part of Taxiways Q and S relocation would include new in-line valve structures; hence, there would be no need to relocate the existing fuel vault.

In accordance with 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, natural gas and aviation fuel distribution system would not adversely affect electricity, natural gas, or aviation fuel service on-airport or to the surrounding area. With implementation and adherence to the measures specified in Master Plan Commitments E-2 and PU-1, energy supply and distribution system impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

Natural Resources

The information and analysis provided in the LAX Master Plan Final EIR adequately address the potential impacts of the Bradley West Project on natural resources. This section provides additional analysis of project-specific construction impacts on permitted aggregate reserves in the project region.

As part of the Bradley West Project, existing concrete and asphalt pavement would be demolished and would be replaced by new concrete and asphalt surfaces. It is estimated that 95,099 cubic yards of concrete and asphalt pavement material would be demolished.[304] This material would be sent to the rock crusher located on the airport to be ground for reuse on-site or off-site.

The proposed Bradley West Project facilities would require petroleum-derived and aggregate-based building materials, including 318,665 cubic yards of Portland cement concrete, 139,110 cubic yards of econocrete, and 79,305 cubic yards of sub-base.[305] The majority of this material would need to consist of new raw materials; however, it is estimated that, consistent with Master Plan Commitment SW-3, approximately 30 percent of the sub-base, or 23,792 cubic yards, could be generated from on-site sources (i.e., reuse of demolished materials). In addition, per Master Plan Commitment SW-2, the construction bid documents would specify that contractors use a minimum of 20 percent of recycled materials during construction of the Bradley West Project. Given the availability of permitted aggregate reserves in the region, no significant impacts to aggregate reserves would occur.

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303 California Gas and Electric Utilities, 2008 California Gas Report, 2008, Available: http://www.socalgas.com/regulatory/documents/cgr/2008_CGR.pdf.

304 LAX Development Program Team, Bradley West Project Order of Magnitude Quantity Analysis, December 2008.

305 LAX Development Program Team, Bradley West Project Order of Magnitude Quantity Analysis, December 2008.

Natural resource impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

5.7.5.2 Mitigation Measures

No significant impacts related to energy consumption and distribution, or access to and use of natural resources would occur as a result of Bradley West Project construction and operation. Therefore, no mitigation measures are required.

5.8 Solid Waste

5.8.1 Introduction

This section addresses potential impacts related to solid waste generation and disposal. The primary source of solid waste generation from the Bradley West Project would be demolition of existing facilities. Waste generated from demolition would include asphalt and concrete associated with relocation of Taxiways S and Q and adjacent service roads, and materials such as drywall, masonry, steel, aluminum, metal pipes, roofing materials, ceramic tile, insulation, composite engineered wood products, glass, carpeting and fixtures associated with building demolition. There would also be debris generated from new construction activities. Relative to operations, solid waste generation associated with uses such as passenger activities, tenant activities, and other office, storage, and administrative uses would remain largely unchanged as a result of the Bradley West Project. Impacts associated with hazardous waste generation and disposal are addressed in Section 5.11, *Hazards and Hazardous Materials*, of this EIR.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.19, *Solid Waste*, April 2004
- LAX Master Plan Final EIR, Section 4.20, *Construction Impacts*, April 2004
- 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

5.8.2 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 is considered inert and can be disposed of at unclassified landfills. There is currently sufficient inert waste disposal capacity available in Los Angeles County.[306] Further, a large portion of construction and demolition waste can be diverted from landfills through recycling and reuse. There are a number of operations within Los Angeles County that recycle construction and demolition material. Assumptions regarding construction and demolition debris, including the Bradley West Project, and the 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.

Solid waste associated with airport operations is generated by numerous on-airport uses, including passengers, visitors, LAWA uses, and tenant activities. Private companies operating in the Los Angeles region provide collection services and waste is transported to several regional landfills. The mid- to long-term municipal solid waste disposal capacity available in Los Angeles County is uncertain and is based

[306] The LAX Master Plan Final EIR stated on page 4-4114 that, according to the 2000 Annual Report on the Countywide Summary Plan and Countywide Siting Element (County of Los Angeles, Department of Public Works, September 2001) as of the end of 2000, the remaining inert waste capacity in Los Angeles County was estimated to be 57.7 million tons. Based on the average 2000 disposal rate, capacity would be available for 44 years. According to the 2006 Annual Report on the Countywide Summary Plan and Countywide Siting Element (County of Los Angeles, Department of Public Works, June 2008), as of January 1, 2007, the remaining inert capacity is 47.02 million tons.

on a variety of dynamic parameters, including new regulations, the ability to permit expanded or new sites, the economic viability of recycling, flow control legislation, and waste generation rates.

The following provides updated information on overall municipal solid waste landfill capacity within Los Angeles County published since certification of the LAX Master Plan Final EIR. As of January 1, 2007, the remaining permitted Class III (municipal solid waste) landfill capacity in Los Angeles County was estimated at 87.83 millions tons. According to the County, the need for Class III landfill disposal capacity will exceed the existing permitted Class III landfill capacity in Los Angeles County by 2015.[307] The County is currently revising the Countywide Siting Element, which will identify goals, policies and strategies that provide for the maintenance of adequate permitted disposal capacity through the 15-year planning period and in the long term. The revision process is anticipated to be completed in 2010.

Baseline municipal solid waste generation figures for LAX have not changed in a manner that would alter the basic findings presented herein or in the LAX Master Plan Final EIR.

5.8.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of solid waste impacts for the LAX Master Plan, Final EIR Section 4.19.4, and are also applicable to the Bradley West Project solid waste impacts analysis.

A significant solid waste impact 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:

- A net increase in project-related solid waste generation that could not be accommodated by existing or permitted regional landfills or other disposal facilities.
- Conflicts with solid waste policies and objectives intended to help achieve the requirements of AB 939 (1989).

These thresholds were utilized because they address the two potential impacts to solid waste associated with the LAX Master Plan: the potential for project-generated solid waste to exceed the capacity of permitted regional landfills or other disposal facilities, and the potential for the project to hinder compliance with AB 939 diversion requirements. These thresholds were developed based upon guidance provided in the L.A. CEQA Thresholds Guide.

5.8.4 LAX Master Plan

5.8.4.1 Impacts Identified in the Final EIR

Construction and demolition activities associated with the LAX Master Plan would generate a substantial amount of inert debris requiring disposal. To the extent feasible, materials would be recycled or reused at LAX. For example recycled pavement could be used as filler below new pavement. Additionally, Master Plan Commitments SW-2, Requirements for the Use of Recycled Materials During Construction, and 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 use recycled construction materials and to recycle demolition and construction-related waste. Recycling and reuse of construction and demolition materials is consistent with FAA policies pertaining to waste minimization and resource conservation. As discussed above, there is currently adequate capacity available for disposal of inert solid waste. Therefore, no significant impacts related to construction and demolition solid waste generation and disposal are anticipated with construction of the LAX Master Plan.

The LAX Master Plan estimated the operational solid waste generation based on the two primary functional activities occurring at LAX: passenger-related activities and cargo handling activities. All non-cargo wastes generated at LAX were assumed to be a function of the annual number of passengers.

[307] County of Los Angeles Department of Public Works, 2006 Annual Report on the Countywide Siting Summary Plan and Countywide Siting Element, June 2008.

Operationally, although airport activities would increase under the LAX Master Plan, with the acquisition and demolition of land uses within the LAX Master Plan boundaries and compliance with AB 939, total solid waste generated within the LAX Master Plan boundaries would decrease as compared to the baseline conditions. According to waste generation estimates, the LAX Master Plan would generate 40,291 tons of solid waste per year, versus the 1996 baseline estimate of 40,763 tons of solid waste generated per year. As a result, impacts relative to solid waste generation would be less than significant.

5.8.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **SW-1. Implement an Enhanced Recycling Program.**

  LAWA will enhance their existing recycling program, based on successful programs at other airports and similar facilities, Features of the enhanced recycling program will include: expansion of the existing terminal recycling program to all terminals, including new terminals; development of a recycling program at LAX Northside/Westchester Southside; lease provisions requiring that tenants meet specified diversion goals; and preference for recycled materials during procurement where, practical and appropriate.

- **SW-2. Requirements for the Use of Recycled Materials During Construction.**

  LAWA will require, where feasible, that contractors use a specified minimum percentage of recycled materials during construction of LAX Master Plan improvements. The percentage of recycled materials required will be specified in the construction bid documents. Recycled materials may include, but are not limited to, asphalt, drywall, steel, aluminum, ceramic tile, cellulose insulation, and composite engineered wood products. The use of recycled materials in LAX Master Plan construction will help to reduce the project's reliance upon virgin materials and support the recycled materials market, decreasing the quantity of solid waste requiring disposal.

- **SW-3. Requirements for the Recycling of Construction and Demolition Waste.**

  LAWA will require that contractors recycle a specified minimum percentage of waste materials generated during demolition and construction. The percentage of waste materials required to be recycled will be specified in the construction bid documents. Waste materials to be recycled may include, but are not limited to, asphalt, concrete, drywall, steel, aluminum, ceramic tile, and architectural details.

5.8.5 Bradley West Project

5.8.5.1 Impacts

The information, analysis, and Master Plan commitments provided in the LAX Master Plan Final EIR adequately address the potential operations and construction impacts of the Bradley West Project on solid waste generation and available landfill capacity. This section provides additional analysis of project-specific construction solid waste impacts.

Solid waste generation factors are typically provided in terms of solid waste generation (in tons or pounds per day or year) per unit (e.g., square foot of building space, ton of cargo, employee). Solid waste generation is projected by multiplying the factor by the appropriate number of units. The solid waste generation values presented in the impact analysis below represent estimates and were projected based on the factors and methods described in the LAX Master Plan Final EIR. The factors for solid waste generated by demolition and construction of the new terminal buildings are 72 pounds per square foot and 8 pounds per square foot, respectively. Information regarding construction-related aggregate waste was derived from preliminary engineering calculations prepared as part of the planning for the Bradley West Project.

Construction waste would consist of concrete pavement and building materials. Approximately 95,099 cubic yards of concrete pavement material would be demolished as part of the Bradley West Project.

Geotechnical testing would be required to determine if the existing base material could be recycled. It is anticipated that an on-site rock crushing plant and portable screen would be used for recycling asphalt, concrete, and suitable base material. It is estimated that approximately 21,275 cubic yards could be reused as fill on-site. The remaining volume would be sent off-site for reuse or disposal, depending on geotechnical testing to determine the suitability of the material for reuse.

Demolition of existing structures and construction of new terminal buildings associated with the Bradley West Project would generate solid waste requiring disposal. Approximately 730,924 square feet of building area would be demolished to accommodate the new facilities (including 204,780 square feet of existing concourse area and 526,144 square feet of other facilities). Waste from these buildings would consist of, but not be limited to, asphalt and concrete pavement, drywall, steel, aluminum, metal pipes, roofing materials, ceramic tile, insulation, composite engineered wood products, glass, carpeting and fixtures. Based on a factor of 72 pounds per square foot of demolition, approximately 26,313 tons of demolition-related solid waste would be generated. The Bradley West Project would also involve the renovation of 251,170 square feet of building area and the construction of 1,251,770 square feet of new building area. Based on a factor of 8 pounds per square foot, total solid waste due to new construction would be approximately 6,012 tons. As indicated previously, inert disposal capacity is anticipated to be available well beyond the 2015 build out year for the Bradley West Project.

Master Plan Commitment SW-3 states that the percentage of waste materials required to be recycled must be specified in the construction bid document for each LAX Master Plan project. Specific to the Bradley West Project, the construction bid document would specify that a minimum of 20 percent of construction waste materials would be required to be recycled. As noted above, all suitable demolished pavement would be recycled for use on-site or shipment off-site. Building materials to be recycled would include, but not be limited to, asphalt and concrete pavement, steel products (rebar, dowels, piping, and electrical items), and wiring. Steel products and electrical wiring would be sent off-site for recycling. In addition, per Master Plan Commitment SW-2, the construction bid documents would specify that contractors use a minimum of 20 percent of recycled materials during construction of the Bradley West Project. With compliance with Master Plan Commitments SW-2 and SW-3, the Bradley West Project would not result in a significant impact related to the generation or disposal of construction solid waste.

The LAX Master Plan estimated the operational solid waste generation based on passenger-related activities and cargo handling activities. With the LAX Master Plan improvements, the airport's practical capacity in 2015 would be 78.9 MAP, based primarily on the constraints created by reducing the number of aircraft gates at the airport. The Bradley West Project would not alter the practical capacity of the airport, and therefore would not result in an increase in the number of passengers beyond that analyzed in the LAX Master Plan EIR, nor would it alter the amount of cargo handled. Therefore, the Bradley West Project is consistent with the solid waste analysis conducted for the LAX Master Plan Final EIR. With compliance with Master Plan Commitment SW-1 the Bradley West Project would not result in a significant impact related to the generation or disposal of operational solid waste.

Solid waste impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

5.8.5.2 Mitigation Measures

No significant impacts related to municipal or construction solid waste generation and disposal would occur as a result of the Bradley West Project. Therefore, no mitigation measures are required.

5.9 Aesthetics

5.9.1 Introduction

This section addresses the potential for the construction or operation of the Bradley West Project to result in adverse 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, Section 4.20, *Construction Impacts*, 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

5.9.2 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.

Aesthetics

LAX is located just east of the Pacific Ocean within a broad coastal plain that is surmounted by rising land to the south and north, with more level terrain extending to the east. With the exception of the open coastal and ocean expanse to the west, the airport is surrounded by heavily urbanized development. Panoramic vistas of the airport, arriving and departing aircraft, and visually prominent airport structures, such as the curved arches of the Theme Building and the thematic Airport Traffic Control Tower, are visible from off-site approaches to the airport. The two most notable visual features on the airport property are the El Segundo Blue Butterfly Habitat Restoration Area (Habitat Restoration Area) at the western edge of the property and the arched Theme Building within the CTA. Although these features and the degree of attention to urban design exhibited along the airport's major approach roadways are notable, such as the landscaped parkways and medians along Sepulveda Boulevard and the Century Boulevard approach to the CTA, there are no other areas within the airport property that appear to be valued for their high aesthetic quality. The Bradley West Project site is not located adjacent to or within the viewshed of a designated scenic highway.

The visual quality of the existing airport terminal area and entrance to the airport along Century Boulevard is characterized by a Southern Californian landscape theme, the most notable features of which are a series of 25- to 60-foot-high lighted columns with changing colors near the CTA entrance, landscaping consisting of rows of palm trees, and 32-foot high letters noting "LAX" at the intersection of Century and Sepulveda Boulevards and at the Century Freeway (I-105) interchange at Sepulveda Boulevard.

Aesthetically valued features in the vicinity of the Bradley West Project site include the aforementioned arched terminal Theme Building, a City of Los Angeles Historic-Cultural Monument symbolizing a "Jet Age" theme, prominently located in the center of the eight terminals of the CTA, which houses an observation deck and a restaurant. The Airport Traffic Control Tower (constructed in 1996), rising above the west side of the Theme Building, is another monument of unusual design. Visible from all directions, and in some cases, from a relatively great distance, the Airport Traffic Control Tower contributes to the airport's sense of destination and to a regional airport theme. In contrast to the valued aesthetic character of the Theme Building and Airport Traffic Control Tower, the terminal buildings within the CTA consist of concrete slab construction and are primarily designed for function and access. Whereas TBIT exhibits a degree of architectural interest and incorporates landscape amenities, the other terminal buildings have little in the way of landscaping and do not contribute meaningfully to the aesthetic quality of the CTA. Within the CTA, views of the airfield and areas adjacent to the airport are blocked by the terminal buildings.

The Bradley West Project is within the central portion of the LAX airfield and consists of paved and highly disturbed bare ground areas and aviation-related terminal/ancillary/support facilities, primarily designed for function and access. Although TBIT, the last major remodel to which occurred in 1984 when Los Angeles hosted the Summer Olympics, exhibits a degree of architectural interest and incorporates landscape amenities, the existing facility is a conglomerate of flat, rectilinear buildings/concourses which appear dated and are not aesthetically valued. The remainder of the structures within the Bradley West

Project site lack architectural interest, have little in the way of landscaping, and are similarly not aesthetically valued. The Bradley West Project site and existing on-site facilities are visible from I-105 and from residences along portions of the adjacent Imperial Avenue in the City of El Segundo, from the upper stories of hotels and businesses located along the north side of Century Boulevard and from portions of Westchester Parkway. Residences in Westchester are largely shielded from views of the Bradley West Project site by a sound wall or intervening vegetation and topography, with the exception of residences located northeast of Westchester Parkway and Pershing Drive, which do have distant views of the site and existing on-site facilities. There are no views of the project site from Imperial Highway, due to intervening topography and buildings and the LAX perimeter fence. The surrounding areas along the northern and southern boundaries of LAX that would have the most direct views of the Bradley West Project site have not materially changed from that analyzed in the LAX Master Plan Final EIR.

The southwestern portion of the airport, east of Pershing Drive has little development, and it is mainly limited to airfield/open space. Subsequent to publication of the LAX Master Plan Final EIR, a construction staging area for the SAIP was established east of Pershing Drive and south of World Way West. This area is also the proposed staging area for the CFTP and one of the proposed staging areas for the Bradley West Project.

As indicated above, the Bradley West Project consists of paved and highly disturbed bare ground areas and aviation-related terminal/ancillary/support facilities. The proposed project staging and parking areas consist mainly of disturbed and or paved areas. The Bradley West Project site, staging, and parking areas do not contain features that contribute to the valued aesthetic character or image of the surrounding communities.

Light Emissions

Existing lighting for facilities in the Bradley West Project area consists of roof perimeter, parapet and pole-mounted lights, including ten, 70-watt fixtures mounted on the west side of TBIT. Existing exterior lighting within the Bradley West Project site are generally shielded and directed such that the light does not spill more than approximately 30 feet onto the surrounding areas. Interior light coming from TBIT, hangars, and other facilities does not generally spill over beyond the immediate facility grounds or hangar doors. Therefore, although the lighting is visible from surrounding land uses, it does not constitute an intrusive light source. Existing lighting at the West Construction Staging Area, currently used for other LAX projects, includes approximately 13 street-light poles along the northern boundary (World Way West), 21 pole-mounted perimeter fence lights (320 watt), and 41 pole-mounted lights (400 watt) within the interior of the staging area. Existing lighting at the western portion of the Northwest Construction Staging Area, also currently being used for other LAX projects, includes approximately 37 pole-mounted perimeter fence lights (320 watt), and 46 pole-mounted lights (320 watt) within the interior of the staging area. All pole-mounted lights are approximately 25 feet high and perimeter lights are shielded to prevent light spillover on adjacent properties. There are no lights at the proposed Southeast Construction Staging/Parking Area.

The existing airfield lighting system within the project area consists of taxiway edge lights, taxiway centerline lights, and guidance signs. Airfield lighting in the midfield areas is generally low to the ground and low in intensity. Runway/taxiway lights are typically directed to the direction of the runway or taxiway. While contributing to urbanized ambient light conditions, the facilities in the airport midfield area, including at the Bradley West Project site, are at distances of approximately 2,600 to 3,000 feet or more from sensitive residential receptors and, as evidenced by lighting measurements at these sites, cause no light spillover in residential areas on the south and north perimeters of the airport.

5.9.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of aesthetic and light emissions impacts for the LAX Master Plan, Final EIR Sections 4.21.4 and 4.18.4, respectively, and are also applicable to the Bradley West Project aesthetic and light emissions impacts analyses.

Aesthetics

A significant aesthetic or view impact 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:

- Introduction of features that would detract from the existing valued aesthetic quality of a neighborhood, community, or localized area by conflicting/contrasting with important aesthetic elements or the quality of the area (such as a theme, style, setbacks, density, massing, etc.) or cause an inconsistency with applicable design guidelines.
- Removal of one or more features that contribute to the valued aesthetic character or image of the neighborhood, community, or localized area such as demolition of structures, street trees, a strand of trees, or other landscape features that contribute positively to the valued visual image of a community.
- Obstruction, interruption, or diminishment of a valued focal or panoramic view or view from any designated scenic highway, corridor, or parkway.

These thresholds of significance were utilized because they address the potential concerns relative to aesthetic resources and views associated with the LAX Master Plan. All three thresholds reflect those contained in the L.A. CEQA Thresholds Guide that are relevant to this project.

Light Emissions

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

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

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

- Installation of lighting or signage within an airport hazard area that would make it difficult for pilots to distinguish between said lights and aeronautical lights, or result in glare in the eyes of pilots that would impair their ability to operate aircraft.[308]

These thresholds of significance were utilized because they address the potential concerns relative to light and glare emissions associated with the LAX Master Plan, namely spillover of light on sensitive uses and introduction of glare that would impair operation of aircraft. The first threshold reflects general direction provided in the L.A. CEQA Thresholds Guide, and specifies the 2-footcandle increase from the City of Los Angeles Municipal Code (Section 93.0117). The threshold for significant glare is also derived from the City of Los Angeles Municipal Code.

5.9.4 LAX Master Plan

5.9.4.1 Impacts Identified in the Final EIR

Aesthetics

Construction activities would create a visual contrast around the airport and although construction would be phased, it would cause areas of the airport environs to have an incomplete, disrupted, and unattractive quality. Construction in the central airfield would primarily be visible from I-105 and upper stories of hotels and businesses on Century Boulevard and Imperial Highway. The short-term aesthetic effects of construction on surrounding uses and airport visitors are considered to be significant. Impacts would be reduced to a less than significant level with implementation of Master Plan Mitigation Measure MM-DA-1,

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[308] City of Los Angeles, Los Angeles Municipal Code, Section 12.50, "Airport Approach Zoning Regulations," March 31, 2000.

Construction Fencing. Additionally Master Plan Commitment DA-1, Provide and Maintain Airport Buffer Areas, would provide for screening to reduce views of construction of projects abutting the northern and southern boundaries of the airport.[309]

With respect to operational aesthetics impacts, LAX Master Plan terminal area improvements include the replacement of existing parking garages within the CTA with new passenger terminal buildings, demolition of Terminals 1 through 3 to facilitate the construction of a new north linear concourse, the reconfiguration of TBIT and Terminals 4 through 7, a new West Satellite Concourse, and the demolition of Terminal 8. No modifications to the central Theme Building or Airport Traffic Control Tower would occur. Since the existing terminal buildings are primarily designed for function and access and generally lack architectural interest or extensive landscaping, they do not contribute meaningfully to the aesthetic quality of the CTA. The reconfigured and new terminal facilities, while also designed for functionality, would likely incorporate more modern design elements, greater architectural articulation, and more extensive landscape amenities than present under existing conditions, consistent with the CTA's Southern Californian landscape theme. Thus, the new/reconfigured facilities would represent an aesthetic improvement within the CTA and no significant aesthetic impacts would occur.

The reconfigured terminal facilities would not affect views from within the CTA, since views of the airfield and adjacent areas are currently blocked by the existing terminals. While the proposed CTA changes would be visible from off-airport areas to the north, the gate positions and associated parked aircraft would continue to be the most visible features from off-site, the visual nature of which would not change substantially. The terminal facility building heights could potentially be approximately 20 to 30 feet taller than the existing structures; however, given the distance to off-site vantages to the north and south, long-range views would not be affected. Significant impacts to views would not result. The proposed airfield improvements, while expanding the area in which visible aircraft activity occurs, would not contrast with existing airfield aesthetic conditions or cause view obstruction from off-site vantages.

Light Emissions

Construction may include nighttime activities that would require lighting of work areas. Construction lighting would be focused downward and directed on airport property away from sensitive uses. Further, construction work hours would comply with municipal code requirements. No nighttime construction work and associated lighting would occur in areas close enough to disturb residential uses, and therefore no significant construction lighting impacts are anticipated with construction of the LAX Master Plan.

The proposed LAX facilities would be constructed of non-reflective materials and would not contain undifferentiated expanses of glass. Master Plan Commitments LI-2, Use of Non-Glare Generating Building Materials, and LI-3, Lighting Controls, would ensure that no building materials or light sources are introduced that could generate glare which would pose an aviation hazard. Therefore, the LAX Master Plan is not expected to generate significant glare impacts.

Operationally, under the LAX Master Plan, limited replacement and upgraded cargo and ancillary facilities would be developed along Imperial Highway along the southern site boundary.[310] These light sources would be similar to current lighting in this area. Light measurements conducted at a receptor site located near the intersection of Imperial Highway and Pershing Drive demonstrated that incremental increases in lighting along the southern boundary of LAX would be well below the City of Los Angeles threshold and would, therefore, result in a less than significant impact.

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[309] City of Los Angeles, Los Angeles World Airports, LAX Master Plan Alternative D Mitigation Monitoring and Reporting Program, September 2004, page 96.

[310] The cargo and ancillary facilities improvements along the southern boundary of LAX are not part of the Bradley West Project; they are discussed herein to identify the overall LAX Master Plan operational light emissions impacts along the southern boundary of LAX, as the sensitive receptors nearest to the Bradley West Project site are located to the south of LAX in the City of El Segundo.

Conversion of the vacant LAX Northside area to urban conditions under the LAX Master Plan would result in a noticeable increase in ambient light levels.[311] This development would be visible from neighboring areas of Westchester, especially adjacent residences on 91st and Saint Bernard Streets. The northern edge of LAX Northside has been planned for uses that do not normally operate during late hours, and the adjacent residences would be separated from these uses by a range of 15 to 50 feet. Airport-related businesses utilizing higher levels of nighttime illumination are planned south of Westchester Parkway, farthest from the neighboring community. Development of LAX Northside would be expected to generate an ambient lighting increase of 0.8 footcandle, or less than the City's 2 footcandles threshold. Lighting impacts to areas to the north of LAX, therefore, would be less than significant.

5.9.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **MM-DA-1. Construction Fencing.**

  Construction fencing and pedestrian canopies shall be installed by LAWA to the degree feasible to ensure maximum screening of areas under construction along major public approach and perimeter roadways, including Sepulveda Boulevard, Century Boulevard, Westchester Parkway, Pershing Drive, and Imperial Highway west of Sepulveda Boulevard. Along Century Boulevard, Sepulveda Boulevard, and in other areas where the quality of public views are a high priority, provisions shall be made by LAWA for treatment of the fencing to reduce temporary visual impacts.

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

  Prior to approval of final plans, LAWA will ensure that proposed LAX facilities will be constructed to maximize use of non-reflective materials and minimize use of undifferentiated expanses of glass.

- **LI-3. Lighting Controls.**

  Prior to final approval of plans for new lighting, LAWA will conduct reviews of lighting type and placement to ensure that lighting will not interfere with aeronautical lights or otherwise impair Airport Traffic Control Tower or pilot operations. Plan reviews will also ensure, where feasible, that lighting is shielded and focused to avoid glare or unnecessary light spillover. In addition, LAWA or its designee will undertake consultation in selection of appropriate lighting type and placement, where feasible, to ensure that new lights or changes in lighting will not have an adverse effect on the natural behavior of sensitive flora and fauna within the Habitat Restoration Area.

5.9.5 Bradley West Project

5.9.5.1 Impacts

Aesthetics

The information and analysis provided in the LAX Master Plan Final EIR adequately address potential view impacts due to Bradley West Project construction. Construction activities and construction staging would be visible from I-105, the upper stories of hotels and office buildings to the south and some residences on Imperial Avenue, and to a lesser extent due to their distance from the project site, a limited number of residences north of Westchester Parkway. Other than views of the central Theme Building and Airport Traffic Control Tower to the east of the Bradley West Project site, the view into the LAX terminal and airfield areas is not considered scenic and the Bradley West Project construction activities would be consistent with the existing industrial character of the airport. Moreover, the Bradley West Project site is located at a considerable distance from the nearest sensitive receptors (i.e., residential uses in the community of Westchester north of LAX are over 0.45 mile from the northern end of the

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[311] Development of LAX Northside along the northern boundary of LAX is not part of the Bradley West Project; it is discussed herein to identify the overall LAX Master Plan operational light emissions impacts along the northern boundary of LAX, as sensitive receptors near the Bradley West Project site are located to the north of LAX in Westchester.

Bradley West Project site to the nearest point in Westchester; residential uses to the south are approximately 0.75 mile from the southern end of the Bradley West Project site and the northern edge of El Segundo). In accordance with Master Plan Mitigation Measure MM-DA-1, construction fencing would be provided, as necessary and feasible, as part of the Bradley West Project to reduce temporary visual impacts during construction activities to a level less than significant. Construction of the Bradley West Project would not result in the removal of any features that contribute to the valued aesthetic character or image of the surrounding communities; therefore, impacts would be less than significant.

The following provides additional analysis of project-specific operational aesthetic impacts. The proposed Bradley West Project is part of an overall architectural design vision for the modernization of the LAX. The proposed architectural design for the Bradley West Project, as well as the proposed future Midfield Satellite Concourse (MSC), is inspired by the Pacific Ocean on LAX's west side, with roof tops flowing as rhythmic waves breaking on the shore. Flat-seam stainless steel[312] would stretch over the column free structure, creating an architectural vocabulary that unifies the airport with a cohesive theme. The wave forms are intentionally designed to allow protection from the glare of the sun on the southwest side, while allowing copious light on the northeast side. The proposed dining area adjacent to the west window wall would allow dramatic views of the airfield and the Santa Monica Mountains in the distance. The Bradley West Project would not impact, and would be complimentary of, the iconic Theme Building and the Airport Traffic Control Tower. In summary, the reconfigured and new terminal facilities proposed under the Bradley West Project, while also designed for functionality, would incorporate more modern design elements, greater architectural articulation, and more extensive landscape amenities than present under existing conditions, consistent with the CTA's Southern Californian landscape theme. Further, the proposed improvements would not cause view obstruction from off-site vantages. As indicated above, the Bradley West Project site is not located adjacent to or within the viewshed of a designated scenic highway. Thus, implementation of the Bradley West Project would not result in obstruction, interruption, or diminishment of a valued focal or panoramic view or view from any designated scenic highway, corridor, or parkway. As described above, the Bradley West Project would not introduce conflict/contrast with important aesthetic elements or the quality of the area, such as a the Theme Building, Aircraft Traffic Control Tower, or Pacific Ocean, or cause an inconsistency with applicable design guidelines. Rather, the new/reconfigured facilities would represent an aesthetic improvement and would be complimentary to existing aesthetically valued elements of the area; therefore, no significant adverse aesthetic or view impacts would occur.

Aesthetic impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

Light Emissions

The information, analysis, and Master Plan commitments provided in the LAX Master Plan Final EIR adequately address potential lighting impacts due to Bradley West Project construction. Construction of the Bradley West Project would include nighttime activities that would require lighting of work areas within the project area. Additionally, lighting is anticipated to be provided within each of the construction staging/parking areas; however, such lighting would generally be for security and general lighting purposes, being much lower in intensity than work area lighting. Construction lighting would be focused downward and directed on airport property away from sensitive uses. Further, construction work hours would comply with municipal code requirements (City of Los Angeles Municipal Code, Section 91.6205.13 and Section 93.0117). No nighttime construction work and associated lighting would occur in areas close enough to disturb residential uses. As a result of these considerations, light emissions impacts associated with Bradley West Project construction would be less than significant.

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312 The proposed new/relocated Bradley West Project facilities would be constructed of non-reflective materials or materials with non-reflective coating. Master Plan Commitments LI-2, Use of Non-Glare Generating Building Materials, and LI-3, Lighting Controls, would ensure that no building materials or light sources would be introduced that could generate glare which would pose an aviation hazard.

The proposed new/relocated Bradley West Project facilities would be constructed of non-reflective materials or materials, such as stainless steel, with non-reflective coating. Master Plan Commitments LI-2, Use of Non-Glare Generating Building Materials, and LI-3, Lighting Controls, would ensure that no building materials or light sources would be introduced that could generate glare which would pose an aviation hazard or adversely affect off-site sensitive uses in the community of Westchester or El Segundo. Therefore, the Bradley West Project is not expected to generate significant glare impacts.

The Bradley West Project would result in operational changes to lighting. As described in Section 4.6 and Appendix G of this EIR, existing lighting at the following facilities that would be demolished/relocated would be removed during construction for the Bradley West Project: American Eagle Commuter Terminal, Airfield Operations Area (AOA) Access Post #5, SkyChefs Flight Kitchen, American Airlines (Former TWA) Maintenance Hangar, American Airlines Low Bay Hangar, ASIG GSE Storage and Menzies GSE Maintenance. Under the Bradley West Project, new facility and airfield lighting systems would be installed, including taxiway edge lights and in-pavement taxiway centerline lights along relocated Taxiways S and Q, aircraft parking apron lighting, and new airfield signage, as follows:

- The proposed taxiway edge lighting system would be installed ten feet off of the taxiway edges and would be elevated 14 inches to match the existing installations. The light fixtures would use 8.5 watt LED lamps.
- The proposed taxiway centerline lighting system would consist of in-pavement lights, using energy efficient, longer life new generation light fixtures and 10 watt halogen lamps.
- Aircraft parking apron (RON) lighting would consist of 70-foot high, round tapered steel poles equipped with two, 1,000-watt metal halide floodlights. The lighting system would be designed to maintain a minimum of 1-foot candle light intensity horizontally on the limits of the apron, therefore minimizing any adverse impacts on sensitive receptors.
- The proposed airfield signage system would consist of taxiway signs using energy efficient fluorescent lamps. Airfield signage provides direction and identification to air and ground crews and is generally low to the ground, low in intensity and, in the case of the Bradley West Project, would be located at least 2,500 feet from sensitive residential areas. In general, runway/taxiway lights are directed to the direction of the runway or taxiway and not off the pavement.
- Ramp lighting would consist of multi-headed metal halide light fixtures mounted on light poles or on ramp boarding projections. Mounting height would be approximately 60 feet above apron level with spacings of 90'-120'. Ramp lighting would be shielded and directed down, and generally would not spill over 30 feet onto surrounding areas.
- Interior lighting in high bay spaces and task lighting within the Bradley West Core and new concourse areas.

With the exception of the aircraft parking apron and ramp lighting, all lighting associated with the Bradley West Project airfield facilities would consist of low level lamps installed within or very close to the pavement. Low level lighting would not result in an increase in lighting intensity of more than 2 footcandles as measured at the property line of a residential property; therefore, no significant impacts would occur. Similar to the existing RON aircraft parking and ramp areas at LAX, lighting for the new aircraft parking apron and ramp areas would include tall, bright lights to ensure sufficient visibility around the aircraft. As described above, the RON lighting system would be designed to maintain a minimum of 1-foot candle light intensity horizontally on the limits of the apron, therefore minimizing any adverse impacts on sensitive receptors. Given the distance (over 0.5 mile) of these lights to the nearest sensitive receptors, an increase in lighting intensity of more than 2 footcandles as measured at the property line of a residential property would not occur and, therefore, this impact would be less than significant. Lighting for the new concourse and renovated central core areas would be shielded and focused to avoid unnecessary light spillover and, given the distance of these lights to the nearest sensitive receptors, no significant light emission impacts would occur. None of the proposed Bradley West Project facilities lighting would make it difficult for pilots to distinguish between said lights and aeronautical lights, or result in glare in the eyes of pilots that would impair their ability to operate aircraft; therefore, no significant light emissions impacts would occur.

Light emissions impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

5.9.5.2 Mitigation Measures

- Implementation of Master Plan Commitments LI-2 and LI-3 and Mitigation Measure MM-DA-1 would ensure that impacts related to aesthetics would be less than significant. Therefore, no additional mitigation measures are required.

5.10 Earth and Geology

5.10.1 Introduction

This section addresses the potential for construction of the Bradley West Project 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 gasses and cause potential impacts such as substantial damage to structures or infrastructure, and exposure of people to substantial risk of injury resulting from a geologic hazard.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.22, *Earth Geology*, April 2004
- LAX Master Plan Final EIR, Section 4.20, *Construction Impacts*, April 2004
- LAX Master Plan Final EIR, Technical Report 12, *Earth/Geology Technical Report*, January 2001

5.10.2 Setting

Descriptions of existing conditions relative to the geologic setting, including topography, geology, faults and other geological hazards, are presented in Section 4.22 of the LAX Master Plan Final EIR. This information is incorporated by reference herein. LAX lies on a relatively level area at an elevation of about 100 feet above sea level. The only notable topographic feature is located at the west end of the airport, west of Pershing Drive, where although much of this area was previously developed with homes that were subsequently removed due to noise impacts from LAX, this area still retains some of the original sand dune landform character, with sand ridges ranging from 85 to 185 feet above sea level and closed depressions of varying height creating local relief of up to 80 feet. There are no distinct or prominent geologic features on-site. The LAX Master Plan EIR identified the following geological hazards associated with LAX: seismic-related, settlement/expansion of foundation soils, slope stability, oil field gasses, and erosion hazards. Conditions related to geological hazards in the vicinity of the Bradley West Project site and construction staging/parking areas have not changed from the conditions described in the LAX Master Plan Final EIR.

5.10.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of earth/geology impacts for the LAX Master Plan, Final EIR Section 4.22.4, and are also applicable to the Bradley West Project earth/geology impacts analysis.

A significant earth/geology impact 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:

- 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.
- Sediment runoff (erosion) that could not be contained or controlled on-site.
- Destruction, permanent covering, or material and adverse modification of one or more distinct and prominent geologic or topographic features.

These thresholds of significance were utilized because they address potential concerns relative to geologic hazards and landform alteration associated with the LAX Master Plan, namely seismic hazards (ground shaking, surface rupture, liquefaction, seismic settlement, and seismic slope failure), non-seismic settlement, expansive soils, slope stability, oil field gases, and erosion. The thresholds reflect those contained in the L.A. CEQA Thresholds Guide that are relevant to this project, as well as relevant issues identified in Appendix G, Environmental Checklist Form, of the State CEQA Guidelines.

5.10.4 LAX Master Plan

5.10.4.1 Impacts Identified in the Final EIR

Development of the LAX Master Plan would not adversely affect any distinct or prominent geologic or topographic features. Earth-related construction considerations for implementation of the LAX Master Plan would include grading and earthwork activities, grading-related changes of topography, erosion, stability of temporary construction slopes and excavations, and settlement of existing structures. Table F4.22-1 of the LAX Master Plan Final EIR identified the following geological considerations specifically related to the reconfiguration of TBIT: slope stability, oil field gas, groundwater/dewatering, settlement, ground shaking, liquefaction, seismic slope settlement, tunneling, grading, and existing foundations. Subsequent reports indicate that the risk of soil liquefaction during a seismic event is considered to be low to remote.[313] The total earthwork volumes estimated for the LAX Master Plan include 4,121,926 cubic yards of cut (1,264,870 cubic yards of which would be unsuitable for fill) and 1,400,666 cubic yards of fill, resulting in a disposal of 1,456,390 cubic yards of fill.

Site-specific geotechnical investigations would be performed that would provide recommendations for reducing impacts of grading and earthwork, and provide the basis for development of grading plans subject to agency review and approval. Compliance with requirements to conduct site-specific geotechnical investigations during project design and to design and implement remedial and protective construction measures would ensure that the potential impacts associated with geologic hazards identified in the LAX Master Plan would be less than significant.

5.10.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

No Master Plan commitments or mitigation measures for earth and geology were identified in the LAX Master Plan MMRP.

5.10.5 Bradley West Project

5.10.5.1 Impacts

The information and analysis provided in the LAX Master Plan Final EIR adequately address the potential for geologic hazards due to Bradley West Project construction activities. Subsequent project-specific geotechnical reports prepared for individual improvements projects occurring at or near TBIT, such as

313 Fentress Architects and HNTB Architecture, Bradley West Planning and Programming: Level Two - North and South Concourses Preliminary Draft Report, November 21, 2008.

construction of two security buildings adjacent to TBIT and a new vehicle bridge/ramp at Gate 101, indicated geotechnical conditions consistent with the information presented in the LAX Master Plan Final EIR.[314] During construction of the South Airfield Improvement Project, a man-made subsurface feature, specifically a portion of a previous runway, was encountered, but was removed through typical pavement breaking and removal procedures. The extent of that former runway does not extend into the Bradley West Project site. Provided below is additional analysis of project-specific impacts related to geologic hazards.

The Bradley West Project would not involve any construction within the Los Angeles/El Segundo Dunes. As such, consistent with the conclusions of the LAX Master Plan Final EIR, development of the Bradley West Project would not adversely affect and would have no significant impact on any distinct or prominent geologic or topographic features.

Construction of the Bradley West Project would require grading and excavation. Construction of the Bradley West Project would involve 926,500 cubic yards of cut and 464,000 cubic yards of fill.[315] A total of 462,500 cubic yards of soil would either be stockpiled on the airport or transported off-site for disposal or reuse at another location. A portion of this soil may be unsuitable for fill based on its characteristics; in addition, some of the material would consist of contaminated soils, which would be remediated on-site or sent off-site for treatment and/or disposal (see Section 5.11 of this Draft EIR).

A site-specific soils and geotechnical investigation would be prepared for the Bradley West Project, which would provide the basis for a detailed grading plan, as well as detailed design of foundations and seismic requirements. The Bradley West Project would include an expansion of the TBIT existing central core, new concourses, and new connecting corridors between TBIT and Terminals 3 and 4. The new structural elements would be designed to meet current seismic requirements. Moreover, these structures would be designed and seismically isolated from the existing TBIT building and from Terminals 3 and 4 such that the seismic load demand on the existing structures is not increased.[316] The site-specific soils and geotechnical investigation and the design and implementation of the recommended remedial and protective construction methods would reduce other potential geologic hazards, including slope stability, oil field gas, and groundwater/dewatering, settlement, seismic slope settlement, and off-site erosion, to a level that is less than significant. As such, the Bradley West Project would not result in substantial damage to and would not have a significant impact on structures or infrastructures, or exposure of people to substantial risk of injury, as a result of the creation or acceleration of a geologic hazard. Further, the Bradley West Project would not result in sediment runoff (erosion) that could not be contained or controlled on-site. Please see Section 5.3, *Hydrology/Water Quality*, of this EIR for further discussion of BMPs that would be employed during Bradley West Project construction activities to minimize potential erosion impacts. In summary, no significant earth/geology-related impacts would occur as a result of the Bradley West Project.

Geologic impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

5.10.5.2 Mitigation Measures

No significant impacts related to adverse geologic conditions and hazards would occur as a result of Bradley West Project construction activities. Therefore, no mitigation measures are required.

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314 Diaz Yourman Associates, Geotechnical Investigation Tom Bradley International Terminal Security Buildings, Los Angeles International Airport, Los Angeles, California, July 2003, and Geotechnical Investigation Tom Bradley International Terminal Future Fleet Parking, Los Angeles International Airport, Los Angeles, California, December 23, 2004.

315 LAX Development Program, 2008.

316 Fentress Architects and HNTB Corporation, Bradley West Forensics Investigation Core and Connectors Preliminary Draft Report, October 31, 2008.

5.11 Hazards and Hazardous Materials

5.11.1 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 Bradley West Project. This section also discusses the potential impacts related to risk of upset of the Bradley West Project.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.20, *Construction Impacts*, April 2004
- LAX Master Plan Final EIR, Section 4.23, *Hazardous Materials*, April 2004
- LAX Master Plan Final EIR, Section 4.24.3, *Safety*, 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

5.11.2 Setting

Hazardous Materials

A description of existing conditions relative to hazardous materials usage and waste generation, and hazardous materials contamination and remediation is 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 activities are located throughout the airport property. In addition, many of the buildings on the airport may contain hazardous building materials, such as asbestos, polychlorinated biphenyls (PCBs), and lead-based paints. Also, sulfuric acid, an acutely hazardous material, is used at the airport's Central Utility Plant (CUP) located in the Central Terminal Area. 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. The following provides updated information on areas of contamination identified in the vicinity of the Bradley West Project site.

Research conducted for the LAX Master Plan identified sites with potential contamination in proximity to the Bradley West Project site, including an American Airlines site (contaminants identified as benzene, toluene, ethylbenzene, xylene [BTEX] and total petroleum hydrocarbons [TPH]), the TOFCO Day Storage Facility (contaminants identified as BTEX and TPH) and the former Trans World Airlines (TWA) site (contaminants identified as TPH and volatile organic compounds [VOC]),[317] all located near/along the western border of the Bradley West Project site. Sites in the vicinity of the Bradley West Project that are listed as "closed" cases in agency records include the LAXFUEL Day Storage Facility and the Arco Day

[317] The American Airlines site, TOFCO Day Storage Facility and former Trans World Airlines site are identified in Table F4.23-1 and Figure F4.23-1 in Section 4.23 of the LAX Master Plan Final EIR as sites 1, 28, and 29, respectively.

Storage Facility.[318] In addition, the LAXFUEL fuel farm, located to the west of the Bradley West Project site, was identified as a site undergoing remediation for BTEX/TPH/VOC and free hydrocarbon product contamination (FHP).[319]

Consistent with CEQA, an updated review of federal, state, and local database lists was conducted to determine if other agencies have identified sites within the Bradley West Project site as having been contaminated by hazardous materials releases. Review of such lists was conducted by Environmental Data Resources (EDR), Inc. in April, 2008. The product of this review is the EDR report, which is provided as Appendix J of this EIR. The results of the review indicated no recorded contamination sites within the Bradley West Project boundaries. However, the LAXFUEL fuel farm, located to the west of the Bradley West Project site, is identified as undergoing remediation of groundwater contamination from a leaking underground storage tank. As indicated above, the LAXFUEL fuel farm was identified in the LAX Master Plan Final EIR as a site undergoing remediation.

As noted above, historical activities in the vicinity of the Bradley West Project site have resulted in contamination or the potential for contamination in the project area. Both identified activities, including the sites listed above, and unidentified activities may have contributed to this contamination/potential for contamination. In order to determine the extent of contamination that would be affected by construction of the Bradley West Project improvements, LAWA undertook investigations to identify contaminated areas within the proposed construction footprint. Between May 2008 and September 2008, soil borings were taken within the Bradley West Project construction site to determine the extent of contaminated soils that may be present on-site. The results of the soil borings indicated five areas of significant TPH contamination (greater than 1,000 mg/kg): 1) the former TWA tank farm located southeast of the former TWA Hangar and directly north of World Way West; 2) the former LAXFUEL IV Day Fuel Storage Facility located directly northeast of the American Eagle Terminal (AET) along the west side of service road S; 3) the former American Airlines Day Fuel Storage Facility located east of the American Airlines Low Bay Hangar; 4) the former TOFCO Day Fuel Storage Facility located directly east of the AET; and, 5) the former LAXFUEL III Day Fuel Storage Facility located at the current ASIG leasehold. Each of these five areas was previously identified in the LAX Master Plan as sites with known contamination, as described above.[320] No soil or groundwater remediation is currently underway at any of these sites.

The estimated total areal extent of soil with TPH above 1,000 mg/kg associated with these five areas is 169,000 square feet. The total volume of soil that would need to be excavated from these five areas in order to remove soils with significant contamination, not including clean overburden and surrounding soils, is estimated at approximately 94,800 cubic yards.

In addition, two borings at the former LAXFUEL III Day Fuel Storage Facility and one boring at the former TOFCO Day Fuel Storage Facility detected VOCs greater than their respective industrial "preliminary remediation goal" (PRG), but the detections were isolated and it does not appear that the VOC contamination is substantial relative to the TPH contamination described above. No significant levels of semi-volatile organic compounds, metals, or PCB were present.

Risk of Upset

A discussion of existing conditions relative to risk[321] of upset[322] is provided in Section 4.24.3 of the LAX Master Plan Final EIR, and incorporated herein by reference. Four facilities at LAX handle large volumes

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318 The LAXFUEL Day Storage Facility and the Arco Day Storage Facility are identified in Table F4.23-1 and Figure F4.23-1 in Section 4.23 of the LAX Master Plan Final EIR as sites 19 and 2, respectively.

319 The LAXFUEL fuel farm is identified in Table F4.23-1 and Figure F4.23-1 in Section 4.23 of the LAX Master Plan Final EIR as site 18.

320 The former TWA tank farm, former LAXFUEL III and IV Day Fuel Storage facilities, former American Airlines Day Fuel Storage Facility, former TOFCO Day Fuel Storage Facility, and former LAXFUEL III Day Fuel Storage Facility correspond to sites 29, 19, 1 and 28in Table F4.23-1 and Figure F4.23-1 in Section 4.23 of the LAX Master Plan Final EIR, respectively.

321 Risk is a combined measure of the probability and severity of a potential scenario.

322 An upset is an accidental occurrence involving a substantial release of a toxic or flammable substance to the environment.

of toxic or flammable materials: the CUP, the Fuel Farm, the liquefied natural gas/compressed natural gas (LNG/CNG) Facility, and the CNG Station. Individuals that could be potentially affected by an upset at the CUP, fuel farm, or LNG/CNG facilities include airport employees, passengers, and visitors. Additionally, off-airport land uses could potentially be affected in the event of an upset at one of these facilities. Sensitive receptors are those off-airport land uses that could be most affected by a risk of upset, such as public and private educational facilities for pre-schoolers through high school grades, general acute care hospitals, long-term health care facilities, and nearby residential populations.

The risk of upset analysis for each facility focused on the reasonably-foreseeable, worst-case accident scenario, as these accidents are likely to pose the highest risk to people or property. These scenarios are highly unlikely and have never occurred at LAX. Further, regulatory and operational safeguards are in place at each of the four facilities described above to prevent an upset or minimize its effects.

The CUP is located near the CTA.[323] The reasonably-foreseeable worst-case scenario for the existing CUP is the potential release of sulfuric acid caused by a line break between the sulfuric acid tank and a variable stroke injector pump that feeds sulfuric acid to the cooling tower. This would result in the release of sulfuric acid into a water-filled berm, and subsequent formation of a cloud comprised of diluted sulfuric acid vapors. As shown in Figure F4.24.3-2 of the LAX Master Plan Final EIR, the "hazard footprints," or potential areas of effect, extend to some of the roadway, public, and terminal areas of the airport; TBIT is located 600 feet west of and outside the hazard footprint associated with the CUP. No residences or other sensitive receptors would be affected. No such incidents have occurred at the existing CUP.

The LAX Fuel Farm is located on World Way West, immediately west of the Bradley West Project site. Potential release scenarios at the LAXFUEL Fuel Farm include a major fuel release without subsequent ignition and a major fuel release with subsequent ignition (pool fire). As indicated in Figure F4.24.3-2 of the LAX Master Plan Final EIR, in the event of a pool fire at the LAXFUEL Fuel Farm, individuals may be injured on the access road near the operations center, and at adjacent buildings, including those then occupied by Dobbs House, Marriott Corporation, and the Los Angeles West Terminal Fuel Corporation (LAWTFC). TBIT is located approximately 0.5 mile east of and outside the hazard footprint associated with the LAXFUEL Fuel Farm. No residences or other sensitive receptors would be affected. The ignition of surrounding structures is not expected to occur. No such incidents have occurred at the existing fuel farm.

Two facilities at LAX currently store and dispense LNG or CNG fuels: a LAWA-operated LNG/CNG Facility on World Way West near the Continental Airlines leasehold and a privately-operated CNG Station on the United Airlines leasehold. Both LNG and CNG consist primarily of methane, a flammable hydrocarbon that is lighter than air, but behaves like a dense gas during a release. CNG and LNG are both gaseous at room temperature, although LNG is stored at high pressures to maintain liquid form in the vessel. A CNG release could form a vapor cloud of gaseous methane and a LNG release could form a boiling liquid vapor pool or a vapor cloud of gaseous methane. As indicated in Figure F4.24.3-2 in the LAX Master Plan Final EIR, in the event of a worst-case incident at the LNG/CNG Facility, individuals may be injured along World Way West, and at adjacent buildings, including those then occupied by Continental Airlines and LAWA offices. TBIT is located approximately 0.9 mile east of and outside the hazard footprint associated with the LAWA LNG/CNG Facility. No residences or other sensitive receptors would be affected. In the event of an incident at the CNG Station, individuals on the United Airlines leasehold may be injured. No such incidents have occurred at the existing LNG/CNG facilities. TBIT is located approximately 1.2 mile west of and outside the hazard footprint associated with the CNG Station.

These conditions regarding the location of the facilities that handle large volumes of toxic or flammable, the reasonably foreseeable worst-case scenarios and associated hazard footprints have not changed

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[323] As described in Chapter 3 and discussed further in Section 5.11.5 below, LAWA is proposing to replace the existing CUP with new systems to provide heat/steam and chilled water for space conditioning in terminal and concourse areas at the airport, which would also include a new cogeneration system that would use heat/steam from the CUP to generate electricity. The new CUP facility would be located immediately east of the existing CUP. If approved, construction of these improvements is anticipated to occur between May 2010 and April 2013.

from those presented in the LAX Master Plan Final EIR in a manner that would alter the basic findings presented herein.

5.11.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of hazardous materials and risk of upset impacts for the LAX Master Plan, Final EIR Sections 4.23.4 and 4.24.3.4, respectively, and are also applicable to the Bradley West Project hazardous materials and risk of upset impacts analysis.

Hazardous Materials

A significant hazardous materials impact 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:

- An unauthorized and uncontrolled release of a hazardous material that created a hazard to the public or the environment.
- Exposure of workers to hazardous materials in excess of Occupational Safety and Health Administration's (OSHA) permissible exposure limits.
- Handling of acutely hazardous materials within ¼ mile of a school.
- Contamination of soil or groundwater or prevention of clean up of sites that are currently undergoing soil or groundwater remediation.
- Impairment of the effective implementation of an adopted emergency response plan.
- An exceedance in the capacity of regional treatment, storage, and disposal facilities due to project related increases in hazardous waste generation.

These thresholds of significance were utilized because they address the potential concerns relative to hazardous materials associated with the LAX Master Plan, namely, safety of construction workers and the general public associated with hazardous materials and hazardous wastes; remediation of existing environmental contamination; and adequate disposal capacity for hazardous waste. The thresholds reflect those contained in the L.A. CEQA Thresholds Guide that are relevant to this project as well as relevant issues identified in Appendix G of the State CEQA Guidelines. Thresholds associated with issues that are not covered in these sources were developed specifically to address potential impacts associated with the LAX Master Plan relative to hazardous materials.

Risk of Upset

A significant safety impact related to risk of upset would occur if the direct and indirect changes in the environment that may be caused by the project would potentially result in the following future condition:

- A substantial increase in the likelihood or consequences of an upset incident.

Neither the L.A. CEQA Thresholds Guide nor the State CEQA Guidelines provide specific guidance for safety thresholds of significance. The threshold of significance was utilized because it addresses the potential concerns relative to risk of upset. It captures the two concepts that comprise risk (likelihood and consequences) and addresses the important issue of the relative risk associated with baseline conditions and the LAX Master Plan.

5.11.4 LAX Master Plan

5.11.4.1 Impacts Identified in the Final EIR

Hazardous Materials

As indicated in Section 5.11.2 above, 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 the LAX Master Plan. 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.[324] This evaluation identified numerous areas of known soil and/or groundwater contamination that could be affected by grading and excavation activities associated with the LAX Master Plan improvements, including the Bradley West Project. See LAX Master Plan Final EIR Section 4.23.3 and Section 5.11.2 of this EIR.

The LAX Master Plan identifies several commitments that will reduce the potential impacts related to hazardous materials. Under 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. See LAX Master Plan Final EIR Section 5.2 and Section 5.11.4.2 below. 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. As noted in Section 5.11.2 above, there is no remediation currently ongoing at any of the sites located within the Bradley West Project site. Therefore, potential impacts related to remediation 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. Worker health and safety and the environment will be protected to the maximum extent possible by strictly adhering to the safety measures required by local, state, and federal laws and regulations that govern contaminated materials encountered during construction. As indicated in Section 4.23.3 of the LAX Master Plan Final EIR, such laws and regulations include SCAQMD Rule 1166, Volatile Organic Compound Emissions from Decontamination of Soil, the federal Occupational Safety and Health Act (OSHA) of 1970, and the California Occupational Safety and Health Act (CalOSHA). In addition, implementation of Master Plan Commitment HM-2, Handling of Contaminated Materials Encountered During Construction, would further reduce potential adverse effects encountered with handling contaminated materials. See LAX Master Plan Final EIR Section 5.2 and Section 5.11.4.2 below. As a result, potential impacts associated with exposure of workers to hazardous materials in areas that may be contaminated would be less than significant.

Implementation of the LAX Master Plan would alter ground access in the vicinity of the airport during construction. Local access would be adequately maintained through detours and diversions and emergency access would be coordinated and ensured through the implementation of: Master Plan Commitment C-1, Establishment of a Ground Transportation/Construction Coordination Office; Master Plan Commitment C-2, Construction Personnel Airport Orientation; and Master Plan Commitments ST-9, ST-12, ST-14, and ST-16 through ST-22. Therefore, project-related construction would not significantly impair the implementation of emergency response plans, and no significant impact would occur.

Demolition of existing structures at the airport under the LAX Master Plan could disturb hazardous building materials and could pose a risk of exposure for construction workers. Other hazardous materials may also be encountered during demolition activities. As indicated in Section 4.23.3 of the LAX Master Plan Final EIR, the handing and disposal of hazardous building materials is strictly regulated by federal, state, and local laws, including the Toxic Substances Control Act (TSCA), the Resource Conservation

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324 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, pgs. 4-1262 through 4-1279.

and Recovery Act (RCRA), the National Emission Standards for Hazardous Air Pollutants (NESHAP), the California Hazardous Waste Control Law (HWCL), and SCAQMD Rule 1403, Asbestos Emissions from Renovation/Demolition Activities. Implementation of measures required by federal, state, and local laws and regulations would ensure that the potential impacts associated with exposure of workers to hazardous materials during demolition activities would be less than significant.

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 4.23.3 in the LAX Master Plan Final EIR, including compliance with the Hazardous Material Transportation Act, would be required and would reduce the risk of an accidental release of hazardous materials during construction to a level less than significant.

Hazardous wastes generated at LAX, including contaminated soils that cannot be treated on-site, are removed by licensed waste haulers and transported for treatment, disposal, or recycling at off-site facilities.[325] It is anticipated that the increased hazardous waste generation associated with increased activities from implementation of the LAX Master Plan could be accommodated by existing treatment, storage and disposal facilities.[326] Therefore, no significant impacts to hazardous waste disposal capacity would occur.

The LAX Master Plan would not involve the handling of acutely hazardous materials within one-quarter mile of a school. As indicated previously, acutely hazardous materials are used at the existing CUP; there are no schools located within one-quarter mile of the CUP. Therefore, consultation with, or notification of, school districts, as specified in Public Resources Code Section 21151.4, would not be required. No significant impacts related to the handling of acutely hazardous materials within one-quarter mile of a school would occur.

Risk of Upset

Under the LAX Master Plan, the existing CUP would be the same size and at the same location as under baseline conditions with the same hazard footprint. Thus, the risk of a sulfuric acid release under the LAX Master Plan would be the same as that under baseline conditions and would be less than significant (see LAX Master Plan EIR Section 4.24.3 for greater detail).

Under the LAX Master Plan, the LAXFUEL Fuel Farm would retain its existing capacity and would remain in its existing location, but the overall fuel farm site footprint would be reduced. However, the hazard footprint would be the same as under baseline conditions because the secondary containment area would be the same size. In the event of a pool fire at the LAXFUEL Fuel Farm, individuals may be injured on the access road near the operations center, and at adjacent buildings, including those then occupied by Dobbs House, Marriott Corporation, and LAWTFC. See Figure F4.24.3-18 of the LAX Master Plan Final EIR. The ignition of surrounding structures would not be expected to occur and no residences or other sensitive receptors would be affected. There are numerous safety features currently in place to reduce the risk of a pool fire at the LAXFUEL Fuel Farm. Compliance with all applicable setback and regulatory requirements would further reduce this risk. Because the likelihood and consequences of a pool fire under the LAX Master Plan would be the same as under baseline conditions, the risk of upset impact of this scenario would be less than significant.

Under the LAX Master Plan, the LAWA LNG/CNG Facility would be the same size and at the same location as under baseline conditions with the same hazard footprint. LNG/CNG facilities are highly regulated in order to prevent releases and mishaps. The LAWA LNG/CNG facility complies with all applicable regulatory requirements, including Los Angeles Fire Code setback requirements and the

[325] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.23, pages 4-1266 and 4-1267.

[326] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.23, page 4-1300.

federal regulations found in 49 CFR Part 193. The LAWA LNG/CNG facility has also incorporated its own additional safeguards to prevent risk of upset. See LAX Master Plan Final EIR Section 4.24.3.3. Due to these safety-related project design features and compliance with all applicable setbacks and safety requirements, the likelihood of an incident at the LNG/CNG Facility would be low. Because the likelihood and consequences of an LNG or CNG incident at the LNG/CNG Facility under the LAX Master Plan would be the same as under baseline conditions, the risk of upset impact of this scenario would be less than significant.

Under the LAX Master Plan, the CNG Station would be relocated to the southeast corner of Arbor Vitae Street and Aviation Boulevard. The relocated CNG Station would be the same size with the same overall capacity as under baseline conditions. See LAX Master Plan Final EIR Section 4.24.3.6.5. Therefore, the hazard footprint would also be the same, although it would be at a different location. As indicated in Figure F4.24.3-18 in the LAX Master Plan Final EIR, in the event of an incident at the relocated CNG Station, individuals may be injured along public streets (Arbor Vitae Street and Aviation Boulevard) and at adjacent uses (a law school, rental car storage, and a gas station). The ignition of surrounding structures would not be expected to occur and no residences or other sensitive receptors would be affected. While the hazard footprint would be located in another area, the consequences would be similar to baseline conditions. CNG facilities are highly regulated in order to prevent releases and mishaps. Due to the planned safety features and compliance with all applicable setback and safety requirements, including Los Angeles Fire Department setback requirements, the likelihood of an incident at the relocated CNG Station would be low. Because the likelihood and consequences of a CNG incident at the relocated CNG Station under the LAX Master Plan would be similar to baseline conditions, the risk of upset impact of this scenario would be less than significant.

5.11.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **HM-2. Handling of Contaminated Materials Encountered During Construction.**

  Prior to the initiation of construction, LAWA will develop a program to coordinate all efforts associated with the handling of contaminated materials encountered during construction. The intent of this program will be to ensure that all contaminated soils and/or groundwater encountered during construction are handled in accordance with all applicable regulations. As part of this program, LAWA will identify the nature and extent of contamination in all areas where excavation, grading, and pile-driving activities are to be performed. LAWA will notify the appropriate regulatory agency when contamination has been identified. If warranted by the extent of the contamination, as determined by the regulatory agency with jurisdiction, LAWA will conduct remediation prior to initiation of construction. Otherwise, LAWA will incorporate provisions for the identification, segregation, handling and disposal of contaminated materials within the construction bid documents. In addition, LAWA will include a provision in all construction bid documents requiring all construction contractors to prepare site-specific Health and Safety Plans prior to the initiation of grading or excavation. Each Health and Safety Plan would include, at a minimum, identification/description of the following: site description and features; site map; site history; waste types encountered; waste characteristics; hazards of concern; disposal methods and practices; hazardous material summary; hazard evaluation; required protective equipment; decontamination procedures; emergency contacts; hospital map and contingency plan.

  In the event that any threshold of significance listed in the Hazardous Materials section of the EIS/EIR for the LAX Master Plan is exceeded due to the discovery of soil or groundwater contaminated by hazardous materials or if previously unknown contaminants are discovered during construction or a spill occurs during construction, LAWA will notify the lead agency(ies) with jurisdiction and take immediate and effective measures to ensure the health and safety of the public and workers and to protect the environment, including, as necessary and appropriate, stopping work in the affected area until the appropriate agency has been notified.

- **C-1. Establishment of a Ground Transportation/Construction Coordination Office.**

  Establish this office for the life of the construction projects to coordinate deliveries, monitor traffic conditions, advise motorists and those making deliveries about detours and congested areas, and monitor and enforce delivery times and routes. LAWA 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.

  This office may undertake a variety of duties, including but not limited to:

  - Inform motorists about detours and congestion by use of static signs, changeable message signs, media announcements, airport website, etc.;
  - Work with airport police and the Los Angeles Police Department to enforce delivery times and routes;
  - Establish staging areas;
  - Coordinate with police and fire personnel regarding maintenance of emergency access and response times;
  - Coordinate roadway projects of Caltrans, City of Los Angeles, and other jurisdictions with those of the airport construction projects;
  - Monitor and coordinate deliveries;
  - Establish detour routes;
  - Work with residential and commercial neighbors to address their concerns regarding construction activity; and
  - Analyze traffic conditions to determine the need for additional traffic controls, lane restriping, signal modifications, etc.

- **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 Construction Coordination Office. Notification of deliveries shall be made with sufficient time to allow for any modifications to approved traffic detour plans.

- **ST-12. Designated Truck Delivery Hours.**

  Truck deliveries shall be encouraged to use night-time hours and shall avoid the peak periods of 7:00 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., 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). Every effort will be made for routes to avoid residential frontages. The designated routes on City of Los Angeles streets are subject to approval by LADOT's Bureau of Traffic Management and may include, but will not necessarily be limited to: Pershing Drive (Westchester Parkway to Imperial Highway); Florence Avenue (Aviation Boulevard to I-405); Manchester Boulevard (Aviation Boulevard to I-405); Aviation Boulevard (Manchester Avenue to Imperial Highway); Westchester Parkway/Arbor Vitae Street (Pershing Drive to I-405); Century Boulevard (Sepulveda Boulevard to I-405); Imperial Highway (Pershing Drive to I-405); La Cienega Boulevard (north of Imperial Highway); Airport Boulevard (Arbor Vitae Street to Century Boulevard); Sepulveda Boulevard (Westchester Parkway to Imperial Highway); I-405; and I-105.

- **FP-1. LAFD Design Recommendations.**

  During the design phase prior to initiating construction of a Master Plan component, LAWA will work with LAFD to prepare plans that contain the appropriate design features applicable to that component, such as those recommended by LAFD, and listed below:

  - *Emergency Access*. During Plot Plan development and the construction phase, LAWA will coordinate with LAFD to ensure that access points for off-airport LAFD personnel and apparatus are maintained and strategically located to support timely access. In addition, at least two different ingress/egress roads for each area, which will accommodate major fire apparatus and will provide for major evacuation during emergency situations, will be provided.
  - *Fire Flow Requirements*. Proposed Master Plan development will include improvements, as needed, to ensure that adequate fire flow is provided to all new facilities. The fire flow requirements for individual Master Plan improvements will be determined in conjunction with LAFD and will meet, or exceed, fire flow requirements in effect at the time.
  - *Fire Hydrants*. Adequate off-site public and on-site private fire hydrants may be required, based on determination by the LAFD upon review of proposed plot plans.
  - *Street Dimensions*. New development will conform to the standard street dimensions shown on the applicable City of Los Angeles Department of Public Works Standard Plan.
  - *Road Turns*. Standard cut-corners will be used on all proposed road turns.
  - *Private Roadway Access*. Private roadways that will be used for general access and fire lanes shall have at least 20 feet of vertical access. Private roadways will be built to City of Los Angeles standards to the satisfaction of the City Engineer and the LAFD.
  - *Dead-End Streets*. Where fire lanes or access roads are provided, dead-end streets will terminate in a cul-de-sac or other approved turning area. No fire lane shall be greater than 700 feet in length unless secondary access is provided.
  - *Fire Lanes*. All new fire lanes will be at least 20 feet wide. Where a fire lane must accommodate a LAFD aerial ladder apparatus or where a fire hydrant is installed, the fire lane will be at least 28 feet wide.
  - *Building Setbacks*. New buildings will be constructed no greater than 150 feet from the edge of the roadways of improved streets, access roads, or designated fire lanes.
  - *Building Heights*. New buildings exceeding 28 feet in height may be required to provide additional LAFD access.

- *Construction/Demolition Access.* During demolition and construction activities, emergency access will remain unobstructed.
- *Aircraft Fire Protection Systems.* Effective fire protection systems will be provided to protect the areas beneath the wings and fuselage portions of large aircraft. This may be accomplished by incorporating foam-water deluge sprinkler systems with foam-producing and oscillating nozzle (per NFPA 409, aircraft hangars for design criteria).

5.11.5 Bradley West Project

5.11.5.1 Impacts

Hazardous Materials

The information, analysis, and Master Plan commitments provided in the LAX Master Plan Final EIR adequately address potential impacts of the Bradley West Project associated with prevention of clean up of sites that are currently undergoing remediation and the handling of acutely hazardous materials within one-quarter of a mile of a school. The following provides additional analysis of project-specific impacts related to the potential for encountering known or previously unidentified existing contamination, the potential to impair emergency response, the potential for disturbance of hazardous building materials, and hazardous waste disposal capacity.

As noted in Section 5.11.2 above, historical activities in the vicinity of the Bradley West Project site have resulted in contamination or the potential for contamination in the project area. Recent site investigations confirm that contamination would be encountered during construction of the Bradley West Project.

Grading in areas with known soil contamination could expose construction workers to hazardous materials. In addition, it is possible that, during other construction activities for the Bradley West Project, previously unidentified soil and/or perched groundwater contamination could be encountered. Worker health and safety and the environment would be protected to the maximum extent possible by strictly adhering to the safety measures required by local, state, and federal laws and regulations that govern contaminated materials encountered during construction. In addition, Master Plan Commitment HM-2, Handling of Contaminated Materials Encountered During Construction, was designed to ensure that any potential effects from contaminated materials encountered during construction would be less than significant. In order to facilitate the implementation of this Master Plan commitment, in 2005 LAWA adopted the "Procedure for the Management of Contaminated Materials Encountered During Construction"[327] (the "Procedure") for application to all LAX Master Plan projects. This Procedure provides detailed guidance for implementing HM-2, especially for projects involving excavation and grading of soils. The Procedure has provisions for, among other matters, preparing detailed plans for handling previously unknown areas of contaminated soil encountered and spills of hazardous materials that occur during construction, including provisions for preparing detailed health and safety and soils management plans, and for testing and segregating contaminated soils for proper disposal outside landfills. While the Procedure focuses on previously unknown contaminated materials, its provisions for handling, storing, and disposing of contaminated materials also apply to contaminated materials that LAWA already has identified, or will identify before the start of construction of an LAX Master Plan project in the area of contamination. By following HM-2 and the Procedure that implements it, the environmental effects of grading, excavating and other construction activities for the Bradley West Project that involve handling of contaminated materials would be less than significant. As a result, potential impacts associated with contamination of soil or groundwater and exposure of workers to hazardous materials in areas that may be contaminated would be less than significant.

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[327] City of Los Angeles, Los Angeles World Airports, Environmental Management Division, Final LAX Master Plan Mitigation Monitoring & Reporting Program, Procedure for the Management of Contaminated Materials Encountered During Construction, 2005.

As further described in Sections 4.3 and 5.13 of this EIR, vehicle trips associated with construction of the Bradley West Project would result in significant surface transportation impacts at up to four area intersections, depending on the construction parking scenario. However, temporary roadway Level of Service deficiencies associated with compromised emergency response would be avoided through implementation of Master Plan Commitments C-1, C-2, ST-9, ST-12, ST-14, ST-16 through ST-18, and ST-22. These commitments would ensure proper advanced coordination with Los Angeles Fire Department, LAWA Police Division, and Los Angeles Police Department and planning of detours and emergency access routes to maintain response times during construction of the Bradley West Project. Implementation of Master Plan Commitment FP-1, LAFD Design Recommendations, would ensure that on-airport emergency response times would not be affected. Therefore, project-related construction would not significantly impair the implementation of emergency response plans, and no significant impact would occur. Hazardous building materials, such as asbestos, lead-based paints, and PCBs, are known to be, or are suspected of being, present in structures within the Bradley West Project site. Building surveys to identify the potential presence of hazardous building materials have been, or are in the process of being, conducted at facilities that would be affected by construction of the Bradley West Project. Based on the building surveys conducted to date, asbestos containing material and lead-based paints have been identified at the following facilities that would be affected by the Bradley West Project: Menzies maintenance facility, American Airlines Liquid Gas and Fueling Station, American Airlines Low Bay Hangar, and the Sky Chefs maintenance facility. PCB ballasts have also been identified at the Sky Chefs maintenance facility. Based on the age of the facilities within the Bradley West Project site, it is anticipated that a number of other structures that would be demolished and/or renovated also contain asbestos, lead-based paints and/or PCBs. Construction workers could potentially encounter and be exposed to these hazardous building materials during the building demolition and renovation activities associated with implementation of the Bradley West Project.

Exposure of workers to hazardous building materials would be minimized by implementing measures required by federal, state, and local laws and regulations, such as pre-demolition assessments of potential exposure to hazardous building materials, engineering and work practice controls, personal protective equipment for workers, and medical monitoring of workers. In addition, waste materials must be characterized and disposed of in accordance with all applicable laws and regulations. By complying with these measures, the demolition and renovation of existing structures would not result in the exposure of construction workers or the general public to hazardous building materials in excess of OSHA regulatory levels. As such, potential impacts associated with the presence of hazardous building materials, including the unauthorized and uncontrolled release of such materials and the exposure of workers to hazardous building materials within the Bradley West Project improvement area, would be less than significant.

With respect to hazardous materials disposal capacity, as described above, the total volume of contaminated soil that would need to be excavated from the areas at the Bradley West Project site prior to construction of the Bradley West Project facilities is estimated at approximately 94,800 cubic yards. Hazardous wastes generated at LAX, including contaminated soils that cannot be treated on-site, are removed by licensed waste haulers and transported for treatment, disposal, or recycling at off-site facilities.[328] It is anticipated that contaminated soils excavated as part of Bradley West Project construction activities would be able to be accommodated by existing treatment, storage and disposal facilities.[329] Therefore, no significant impacts to hazardous waste disposal capacity would occur.

Hazardous materials impacts from the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

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[328] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.23, pages 4-1266 and 4-1267.

[329] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.23, page 4-1300.

Risk of Upset

The information and analysis provided in the LAX Master Plan Final EIR adequately address the risk of upset impact due to the Bradley West Project. The following provides additional discussion of uses that would be located within hazards footprints associated with the highly unlikely event of a risk of upset at facilities located in the vicinity of the Bradley West Project: the CUP, the Fuel Farm, and the CNG/LNG Facility.

Under the LAX Master Plan, in the event of a risk of upset at the existing CUP, individuals within some of the roadway, public, and terminal areas of the airport may be injured. Similar to existing conditions, the improvements proposed under the Bradley West Project would be west of and outside the hazard footprint for a risk of upset at the CUP. No residences or other sensitive receptors would be affected. No such incidents have occurred at the existing CUP. In addition, as described in Chapter 3 of this EIR, LAWA is proposing to replace the existing CUP with new systems to provide heat/steam and chilled water for space conditioning in terminal and concourse areas at the airport, which would also include a new cogeneration system that would use heat/steam from the CUP to generate electricity. The new CUP facility would be located immediately east of the existing CUP. If approved, construction of these improvements is anticipated to occur between May 2010 and April 2013. The hazard footprint for the proposed new CUP would be similar to that of the existing CUP. As the new CUP would be further east of the existing CUP, the improvements proposed under the Bradley West Project would also be west of and outside the hazard footprint for a risk of upset at the new CUP. As a result, the proposed project would not result in a substantial increase in the likelihood or consequence of an upset condition at the existing or proposed CUP; therefore, impacts would be less than significant.

As described above, under the LAX Master Plan, in the event of a pool fire at the LAXFUEL Fuel Farm, individuals may be injured on the access road near the operations center, and at adjacent buildings. As described above, due to the numerous safety features currently in place and compliance with all applicable setback and regulatory requirements, the risk of a pool fire at the LAXFUEL Fuel Farm would be low. Similar to baseline conditions, the improvements proposed under the Bradley West Project would be east of and outside the hazard footprint for a risk of upset at the fuel farm. As a result, the proposed project would not result in a substantial increase in the likelihood or consequence of an upset incident at the LAXFuel Fuel Farm; therefore, impacts would be less than significant.

Under the LAX Master Plan, in the event of a worst-case incident at the LAWA LNG/CNG Facility, individuals may be injured along World Way West and at adjacent buildings. Due to the safety-related project design features and compliance with all applicable setbacks and safety requirements, the likelihood of an incident at the LNG/CNG Facility would be low. Similar to existing conditions, the improvements proposed under the Bradley West Project would be east of and outside the hazard footprint for a risk of upset at the LAWA LNG/CNG Facility. As a result, the proposed project would not result in a substantial increase in the likelihood or consequence of an upset incident at the LAWA LNG/CNG Facility; therefore, impacts would be less than significant.

Risk of upset impacts from the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

5.11.5.2 Mitigation Measures

Implementation of Master Plan Commitments C-1, C-2, ST-9, ST-12, ST-14, ST-16 through ST-22, FP-1, and HM-2, as well as compliance with the Procedure for the Management of Contaminated Materials Encountered During Construction, would ensure that any impacts relative to hazardous materials associated with construction of the Bradley West Project would be less than significant. Therefore, no mitigation measures are required.

5.12 Public Utilities

5.12.1 Introduction

This section addresses potential impacts from operation and construction activities associated with the Bradley West Project on water use and wastewater generation. Construction impacts include water use for construction-related activities, such as dust suppression. Operational impacts include the reduction in water demand and wastewater generation resulting from the elimination of certain existing buildings and new water demands and wastewater generation associated with the relocated operations and new and expanded buildings in the project area.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.20, *Construction Impacts*, April 2004
- LAX Master Plan Final EIR, Section 4.25.1, *Water Use*, April 2004
- LAX Master Plan Final EIR, Section 4.25.2, *Wastewater*, 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

5.12.2 Setting

5.12.2.1 Water Use and Facilities

Descriptions of existing conditions relative to water use and conveyance are presented in Section 4.25 of the LAX Master Plan Final EIR. This information is incorporated herein by reference. Water consumption within the LAX Master Plan boundaries was estimated at 2,230 acre-feet for 2000.[330] Existing estimated annual potable water use has not materially changed from what was presented in the LAX Master Plan Final EIR. Water is supplied to the airport through a 16-inch trunk line in Sepulveda Boulevard that distributes water to a 12-inch transmission line running in an east-west direction through the middle of the airport. Within the Bradley West Project area, water distribution facilities include 8-inch fire protection water lines that extend around the perimeter of the TBIT existing central core and a 12-inch combined domestic and fire protection water line that extends west beneath Taxiways S and Q.

Section 4.25 of the LAX Master Plan Final EIR indicated that, according to the City's 1995 Urban Water Management Plan, there would be adequate water supply to meet City-wide demand, including demand associated with the LAX Master Plan, through 2015. The following provides updated information on the City's water supply published since certification of the LAX Master Plan Final EIR. In 2007, the City recognized that existing traditional water supplies are being stressed due to a number of factors, including the lowest snowpack on record in the Eastern Sierra, the driest year on record in the City, a Federal Court ruling that limits exports from the Sacramento-San Joaquin Delta by as much as one-third, City environmental commitments, and contamination in the San Fernando Valley groundwater supply.[331] In response, the City drafted a water supply plan, "Securing L.A.'s Water Supply,"[332] which provides a

330 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.25.1, Table F4.25.1-1, page 4-1497.

331 City of Los Angeles, Department of Water and Power, Securing L.A.'s Water Supply, May 2008, Available: http://www.ladwp.com/ladwp/cms/ladwp010587.pdf.

332 City of Los Angeles, Department of Water and Power, Securing L.A.'s Water Supply, May 2008, Available: http://www.ladwp.com/ladwp/cms/ladwp010587.pdf.

blueprint for ensuring a reliable water supply for the future of Los Angeles. The City's strategy for meeting projected future water demand is a multi-pronged approach that includes: investments in state-of-the-art technology; a combination of rebates and incentives; the installation of smart sprinklers, efficient washers and urinals; and long-term measures such as expansion of water recycling and investment in cleaning up the local groundwater supply. The premise of the City's Water Supply Plan is that the City will meet all new demand for water, about 100,000 acre-feet per year, through a combination of water conservation and water recycling. It is estimated that by year 2019, half of all new demand will be filled by a six-fold increase in recycled water supplies and by 2030 the other half will be met through ramped up conservation efforts.[333]

At LAX, 35 percent of all landscaped areas at LAX are irrigated by reclaimed water. Much of the irrigation system at LAX is monitored and controlled through a centralized computer irrigation control center, further conserving water resources. LAX is working with LADWP to expand reclaimed water distribution facilities at LAX to include portions of the airport along Imperial Highway, the Sepulveda/Imperial gateway area, and the CTA.[334]

5.12.2.2 Wastewater

Descriptions of existing conditions relative to wastewater generation and wastewater conveyance and treatment are presented Section 4.25 of the LAX Master Plan Final EIR. This information is incorporated herein by reference. Wastewater generation within the LAX Master Plan boundaries for the Year 2000 was estimated at 1,936,861 gallons per day.[335] Existing estimated wastewater generation has not materially changed from what was presented in the LAX Master Plan Final EIR. 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. Within the Bradley West Project area, the 150-inch diameter NORS crosses beneath the northwest corner of the Bradley West Project site at depth of approximately 60 feet. The COS crosses beneath the southern portion of Taxiways S and Q at a depth between 32 feet to 38 feet. Two 8-inch sewer lines also serve the TBIT area.

Section 4.25 of the LAX Master Plan Final EIR indicated that, according to projections in the City's Integrated Plan for the Wastewater Program (IPWP), the first phase of the Integrated Resources Plan (IRP), wastewater flows to the Hyperion Treatment Plant (HTP) were anticipated to exceed the facility's capacity in 2020. The following provides updated information on the City's water supply published since certification of the LAX Master Plan Final EIR. The 2006 City of Los Angeles, IRP Final Environmental Impact Report (EIR)[336] analyzed the impacts that would occur from implementing the proposed wastewater treatment and water resource management components documented in the City of Los Angeles Integrated Resources Plan, Volumes 1 through 4--IRP Facilities Plan.[337] The IRP Facilities Plan integrates planning for the three interdependent water systems: wastewater, recycled water, and stormwater. The IRP Facilities Plan based future (2020) wastewater needs on flow model projections developed by the City (based in part on the Southern California Association of Governments [SCAG] population and employment projections). The IRP Facilities Plan reviewed the water and wastewater needs of the City of Los Angeles for the next 20 years and identified necessary infrastructure improvements and policy recommendations.

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333 City of Los Angeles, Department of Water and Power, Securing L.A.'s Water Supply, May 2008, Available: http://www.ladwp.com/ladwp/cms/ladwp010587.pdf.

334 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Crossfield Taxiway Project, January 2009, Section 5.13, page 5-55.

335 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Technical Report S-10b.

336 City of Los Angeles, Integrated Resources Plan (IRP) Final Environmental Impact Report, November 2006.

337 City of Los Angeles, Department of Public Works (Bureau of Sanitation) and Department of Water and Power, City of Los Angeles Integrated Resources Plan, Facilities Plan, July 2004 (Volumes 1 and 4 Updated November 2005).

The IRP EIR evaluated four alternatives that would meet the future citywide wastewater needs. Of the four alternatives evaluated in the IRP Facilities Plan and in the IRP EIR, Alternative 4 was the staff recommended alternative. Alternative 4 includes expanding Tillman Water Reclamation Plant (Tillman) to 100 million gallons per day (mgd); adding new collection system sewers (Northeast Interceptor Sewer II, Glendale-Burbank Interceptor Sewer, and Valley Spring Lane Interceptor Sewer); adding storage to Tillman and the Los Angeles-Glendale Water Reclamation Plant (LAG); and adding a truck-loading facility, digesters, and secondary clarifiers to the HTP. In addition, Alternative 4 includes increasing the amount of effluent from Tillman and LAG that is recycled, on-site percolation of wet weather runoff at schools and government properties, and neighborhood-scale percolation at vacant lots and at parks/open space in the eastern San Fernando Valley.

The schedule for implementing the components that comprise Alternative 4 will be initiated by monitored triggers that include population growth, increases in wastewater flow, regulatory changes, and policy decisions (including the decision to proceed with groundwater replenishment of recycled water from Tillman). The decision to upgrade Tillman to advanced treatment will be contingent on future regulations for discharges to the Los Angeles River, future regulations for the use of recycled water, and/or policy decisions for the use of water for groundwater replenishment, thereby requiring coordination between the City's Los Angeles Department of Public Works and the Los Angeles Department of Water and Power. Also, if regulatory permit requirements result in a need for advanced treatment to discharge to the Los Angeles River, then advanced treatment could be added to LAG at its existing capacity, which would require partnership and coordination with the City of Glendale.

Alternative 4 was recommended based, in part, on its recycled water benefits. In the event that groundwater replenishment or other recycled water use is not feasible (based on public acceptability, costs, and future regulations) and if population increases (and associated increases in wastewater) trigger a need for additional wastewater capacity, then wastewater flows would be diverted to the HTP, and Alternative 1 would be implemented (which includes expansion of the wastewater treatment capacity at the HTP by increasing its current capacity of 450 mgd to 500 mgd, and the upgrading of Tillman to advanced treatment and addition of wastewater and recycled water storage at LAG).

The actual timing and implementation of the components that comprise the staff recommended alternative will be initiated by monitored triggers, which include increases in wastewater flow resulting from population growth, regulatory changes, and other policy decisions. Implementation of the components under Alternative 4 are organized into: (1) immediate, or "Go Projects," which are projects where the population or flow trigger already has been reached or will be reached within the next several years; (2) "Go When Triggered," which are projects that will be implemented in the future when the trigger is reached; and (3) "Go Policy Directions," which are specific directions to staff on the next studies and evaluations required to provide progress on the programmatic elements (recycled water and runoff management) in the staff recommended alternative. Since certifying the IRP EIR in 2006, the City of Los Angeles Bureau of Sanitation has been monitoring wastewater flows and has found that flows are even lower than the IRP projections. The Bureau of Sanitation is documenting this monitoring through their implementation strategy.

In conclusion, the City of Los Angeles has an approved plan to accommodate future and cumulative wastewater treatment capacity and is implementing the components that comprise its plan through the monitoring of triggers (i.e., population growth, regulatory changes, and other policy decisions) as part of their implementation strategy.

5.12.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of water use and wastewater impacts for the LAX Master Plan, Final EIR Sections 4.25.1.4 and 4.25.2.4, respectively, and are also applicable to the Bradley West Project water use and wastewater impacts analysis.

5.12.3.1 Water Use

A significant water use impact 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:

- An exceedance of regional water supply and distribution capabilities due to project-related water demand.
- Interference with major water distribution facilities due to construction of project features.

These thresholds were utilized because they address the two potential impacts to water supply and distribution associated with the LAX Master Plan: the potential for the project to exceed regional water supply and distribution capabilities, and the potential for interference with existing water distribution facilities due to construction of proposed Master Plan improvements. The first threshold was developed based upon guidance provided in the L.A. CEQA Thresholds Guide. The second threshold was developed specifically to address potential impacts associated with the LAX Master Plan relative to construction conflicts, which was not addressed in the L.A. CEQA Thresholds Guide.

5.12.3.2 Wastewater

A significant wastewater generation impact 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:

- An exceedance in the capacities of regional wastewater collection and treatment facilities due to project-related wastewater generation.
- Interference with major wastewater collection facilities due to construction of project features.

These thresholds of significance were utilized because they address the two potential impacts to wastewater collection and treatment associated with the LAX Master Plan: the potential for the project to exceed regional wastewater collection and treatment capabilities; and the potential for the construction of proposed facilities to interfere with existing wastewater collection infrastructure. The first threshold was developed based upon guidance provided in the L.A. CEQA Thresholds Guide to address potential impacts to collection and treatment capabilities and infrastructure. The second threshold was developed specifically to address potential impacts associated with the project relative to construction conflicts, which was not addressed in the L.A. CEQA Thresholds Guide.

5.12.4 LAX Master Plan

5.12.4.1 Impacts Identified in the Final EIR

Water Use and Facilities

Water would be required during construction of the LAX Master Plan improvements. Additionally, water would be used during construction for the mixing of concrete and other construction activities. 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 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, as explained above, 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 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.

Operationally, total water use within the LAX Master Plan boundaries would increase over baseline conditions by 353 acre-feet per year (AF-yr) by 2015, which is a 37 percent increase.[338] LAWA would implement Master Plan Commitments W-1 and W-2 to reduce water use associated with the LAX Master Plan. The LAX Master Plan Final EIR indicated that the LADWP projected that there will be adequate water supply to meet city demands, including the elements of the Bradley West Project, through 2015. This is consistent with the findings of an updated water availability assessment prepared by LADWP for the LAX Master Plan in 2003.[339] As discussed above, in 2008, the City adopted a Water Supply Plan, "Securing L.A.'s Water Supply," which provides a blueprint for ensuring a reliable water supply for the future of Los Angeles. Because project related water demand could be accommodated by the projected water supply, no significant adverse impacts relative to water supply would occur.

Under the LAX Master Plan, LAWA would implement Master Plan Commitment W-1 to maximize the use of reclaimed water in new facilities and within irrigated areas. With the planned expansion of existing reclaimed water production and existing distribution capacity, ample supply and facilities would be available to accommodate the demand for reclaimed water use associated with the LAX Master Plan. This is consistent with the water availability assessment prepared for the LAX Master Plan by LADWP. Therefore, no significant impacts with respect to reclaimed water supply would occur.

Wastewater

Construction of subsurface structures identified in the LAX Master Plan may interfere with existing wastewater collection infrastructure. Construction of major subsurface structures, such as the proposed APM and the consolidated RAC facility, as well as improvements to the CTA and the south airfield, could potentially interfere with the NCOS, NORS and COS outfalls. The NCOS and NORS are larger and deeper than the COS and, based on a preliminary analysis, design and construction would be performed so that the LAX Master Plan facilities would not interfere with these sewers. However, the COS is much shallower. Based on preliminary engineering analysis, it appears that the COS would be affected by construction of the LAX Master Plan and would require relocation or modification. Under 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.

Operationally, demand for wastewater treatment facilities would increase due to new development within the Master Plan boundaries and increases in passenger activity and aircraft operations. The LAX Master Plan Final EIR estimated that total wastewater generation within the Master Plan boundaries would increase 584,187 gallons per day (gpd) over baseline conditions in 2015 (a 29 percent increase).[340] This increase could be accommodated by existing wastewater treatment facilities and no significant adverse impacts relative to wastewater treatment capacity would occur.

Further, additional wastewater capacity within the City of Los Angeles should be provided by the expansion/upgrade of the City's wastewater treatment systems via a combination of improvements to address the projected wastewater shortfall resulting from cumulative development. Such improvements could include increasing the capacity at HTP, building new reclamation capacity upstream of HTP, conservation of potable water, and infiltration/inflow reduction. Implementation of this mitigation measure

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[338] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.25.1, page 4-1503.

[339] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.25.1, page 4-1503.

[340] City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.25.2, page 4-1518.

is the responsibility of the City of Los Angeles Department of Public Works, Bureau of Sanitation. Specific improvements will be identified in the City's IPWP and Wastewater Facilities Plan component of the City's Integrated Resources Plan. The cost for implementing this mitigation measure would be passed on to LAX and other wastewater generators through increased wastewater fees.

Although the LAX Master Plan Final EIS determined that Alternative D would not have any significant impacts relative to project-related wastewater generation and treatment capacity, the following mitigation measure was recommended to reduce potential cumulative wastewater impacts:

- **MM-WW-1. Provide Additional Wastewater Treatment Capacity to Accommodate Cumulative Flows.**

  Additional wastewater capacity within the City of Los Angeles should be provided by the expansion/upgrade of the city's wastewater treatment systems via a combination of improvements to address the projected wastewater shortfall resulting from cumulative development. Such improvements could include increasing the capacity at HTP, building new reclamation capacity upstream of HTP, conservation of potable water, and infiltration/inflow reduction. Implementation of this mitigation measure is the responsibility of the City of Los Angeles Department of Public Works, Bureau of Sanitation. Specific improvements will be identified in the City's IPWP and Wastewater Facilities Plan component of the City's Integrated Resources Plan. The cost for implementing this mitigation measure would be passed on to LAX and other wastewater generators through increased wastewater fees.

As indicated in Section 5.12.2.2 above, the City of Los Angeles has an approved plan to accommodate future and cumulative wastewater treatment capacity and is implementing the components that comprise its plan through the monitoring of triggers (i.e., population growth, regulatory changes, and other policy decisions) as part of their implementation strategy. Thus, implementation of this mitigation measure has been completed and potential cumulative impacts to wastewater generation and treatment associated with the LAX Master Plan would be less than significant.

5.12.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **W-1. Maximize Use of Reclaimed Water.**

  To the extent feasible, LAWA will maximize the use of reclaimed water in Master Plan-related facilities and landscaping. The intent of this commitment is to maximize the use of reclaimed water as an offset for potable water use and to minimize the potential for increased water use resulting from implementation of the LAX Master Plan. This commitment will also facilitate achievement of the City of Los Angeles' goal of increased beneficial use of its reclaimed water resources. This commitment will be implemented by various means, such as installation and use of reclaimed water distribution piping for landscape irrigation.

- **W-2. Enhance Existing Water Conservation Program.**

  LAWA will enhance the existing *Street Frontage and Landscape Plan for LAX* to ensure the ongoing use of water conservation practices at LAX facilities. The intent of this program, to minimize the potential for increased water use due to implementation of the LAX Master Plan program, is also in accordance with regional efforts to ensure adequate water supplies for the future. Features of the enhanced conservation program will include identification of current water conservation practices and an assessment of their effectiveness; identification of alternate future conservation practices; continuation of the practice of retrofitting and installing new low-flow toilets and other water-efficient fixtures in all LAX buildings, as remodeling takes place or new construction occurs; use of Best Management Practices for maintenance; use of water efficient vegetation for landscaping, where possible; and continuation of the use of fixed automatic irrigation for landscaping.

- **PU-1. Develop a Utility Relocation Program.**

  LAWA will develop and implement a utilities relocation program to minimize interference with existing utilities associated with LAX Master Plan facility construction. Prior to initiating construction of a Master Plan component, LAWA will prepare a construction evaluation to determine if the proposed construction will interfere with existing utility location or operation. LAWA will determine utility relocation needs and, for sites on LAX property, LAWA will develop a plan for relocating existing utilities as necessary before, during, and after construction of LAX Master Plan features. LAWA will implement the utility relocation program during construction of LAX Master Plan improvements.

5.12.5 Bradley West Project

5.12.5.1 Impacts

Water Use and Facilities

The information, analysis, and Master Plan commitments provided in the LAX Master Plan Final EIR adequately address the potential operational and construction impacts of the Bradley West Project on water supply and distribution facilities. This section provides additional analysis of project-specific construction and operational impacts on water consumption and supply.

Water use factors are typically provided in terms of water use (in gallons per day or acre-feet per year) per unit (e.g., square foot of building space, dwelling unit). Water use is projected by multiplying the factor by the appropriate number of units. The water demand values presented in the impact analysis below represent estimates and were projected based on the factors and methods described in the LAX Master Plan Final EIR.

The nature of water use for construction activities associated with the Bradley West Project would be the same as identified in the LAX Master Plan Final EIR. It is estimated that 240 million gallons of water would be used during Bradley West Project construction activities. Although adequate water supply would be available for construction of the Bradley West Project, as indicated above, reclaimed water would be used to the extent feasible for dust suppression and other appropriate activities in accordance with Master Plan Commitment W-1. It is anticipated that up to 160 million gallons of construction-related water could be reclaimed water. Based on the above, impacts associated with construction water use required for the Bradley West Project would be less than significant.

Operationally, as described in Chapter 2, implementation of the Bradley West Project would require the removal of several buildings. As indicated in that chapter, the majority of displaced tenants and uses would be relocated within the airport or to off-site facilities, depending upon the business plans of the individual tenants. It is possible that one use, a liquid gas and fueling station, may not be re-established by the operator of the facility. For purposes of this analysis, because the relocated tenants and uses may generally be retained on-site, the associated water consumption is assumed to remain the same, even though, overall, building square footage would be reduced by approximately 526,000 square feet. Therefore, the only change to operational water use under the Bradley West Project assumed in this analysis is associated with the increase in terminal space.

Under the Bradley West Project, net terminal square footage would increase by 1,046,990 square feet, which would result in an increase of 93.8 AF-yr[341] of water use. This is approximately 14 percent of the of 666 AF-yr increase over baseline that was forecast for 2015 in the LAX Master Plan Final EIR.[342]

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341 Water use is calculated using the demand factor of 8.96 AF-yr x 10^{-5} per square foot, which is the demand factor used in the LAX Master Plan Final EIR for terminal area, based on the City of Los Angeles, Administrative Draft Citywide CEQA Technical Guide, December, 1995 factors for retail uses. This same factor is used by the City of Los Angeles Department of Public Works, Bureau of Engineering Sewer Generation Rates Table - 3/20/2002. The City of Los Angeles' L.A. CEQA Thresholds Guide (2006), does not contain specific water demand factors.

342 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.25.1, page 4-1503.

Because the increase in terminal square footage within the CTA is consistent with the increase identified in the LAX Master Plan, and because the level of water demand associated with the Bradley West Project is well within the water demand calculated for the LAX Master Plan, the Bradley West Project is, by extension, consistent with the analysis of LAX Master Plan-related impacts related to water demand. Bradley West Project related water demand would be accommodated by the projected water supply and the Bradley West Project would not create a net new demand for public utilities or services in excess of that assumed under the LAX Master Plan Final EIR. Therefore, no significant adverse impacts relative to water supply would occur. Although adequate water supply would be available to support operations of the Bradley West Project, LAWA would incorporate water conservation measures into the design of the new facilities, in accordance with Master Plan Commitment W-2.

Based on the above, impacts associated with construction-related and operational water use required for the Bradley West Project would be less than significant.

Water use impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

Wastewater

The information, analysis, and Master Plan commitment provided in the LAX Master Plan Final EIR adequately address the potential impacts of the Bradley West Project on existing wastewater collection system. This section provides additional analysis of project-specific construction and operational impacts on wastewater generation and treatment.

Wastewater generation factors are typically provided in terms of wastewater generation (in gallons per day or acre-feet per year) per unit (e.g., square foot of building space, dwelling unit). Wastewater generation use is projected by multiplying the factor by the appropriate number of units. The wastewater generation values presented in the impact analysis below represent estimates and were projected based on the factors and methods described in the LAX Master Plan Final EIR.

Operationally, as described in Chapter 2, implementation of the Bradley West Project would require the removal of several buildings. As indicated in that chapter, the majority of displaced tenants and uses would be relocated within the airport or to off-site facilities, depending upon the business plans of the individual tenants. It is possible that one use, a liquid gas and fueling station, may not be reestablished by the operator of the facility. For purposes of this analysis, because the relocated tenants and uses may generally be retained on-site, the associated wastewater generation is considered to remain the same, even though, overall, building square footage would be reduced by approximately 526,000 square feet. Therefore, the only change to wastewater generation under the Bradley West Project assumed in this analysis is associated with the increase in terminal space.

Under the Bradley West Project, net terminal square footage would increase by 1,046,990 square feet, which would result in an increased generation of 83,759 gpd[343] of wastewater. This is approximately 14 percent of the 584,187 gpd increase over baseline that was forecast for 2015 in the LAX Master Plan Final EIR. Because the increase in terminal square footage within the CTA is consistent with the increase identified in the LAX Master Plan, and because the level of wastewater generation associated with the Bradley West Project is within the water demand calculated for the LAX Master Plan, the Bradley West Project is, by extension, consistent with the analysis of LAX Master Plan-related impacts related to wastewater generation. The increase in wastewater generation would be accommodated by existing wastewater treatment facilities, and the Bradley West Project would not create a net new demand for public utilities or services in excess of that assumed under the LAX Master Plan Final EIR. Therefore, no significant adverse impacts relative to wastewater treatment capacity would occur.

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343 Wastewater generation is calculated using the demand factor of 0.08 gpd per square foot, which is the demand factor used both in the LAX Master Plan Final EIR for terminal area, based on the City of Los Angeles, Administrative Draft Citywide CEQA Technical Guide, December, 1995 factors for retail uses. This factor is consistent with the City of Los Angeles' L.A. CEQA Thresholds Guide (2006) and the City of Los Angeles Department of Public Works, Bureau of Engineering Sewer Generation Rates Table - 3/20/2002.

Wastewater impacts of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

5.12.5.2 Mitigation Measures

Implementation of Master Plan Commitments W-1, W-2 and PU-1 would ensure that any impacts on water supply and water distribution facilities and wastewater collection system would be less than significant. Therefore, no mitigation measures are required.

5.13 Public Services

5.13.1 Introduction

This section addresses potential impacts from the Bradley West Project on fire protection and law enforcement services, and other potential effects on public parks and recreation and libraries.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.20, *Construction Impacts*, April 2004
- LAX Master Plan Final EIR, Section 4.26.1, *Fire Protection*, April 2004
- LAX Master Plan Final EIR, Section 4.26.2, *Law Enforcement*, April 2004
- LAX Master Plan Final EIR, Section 4.26.3, *Parks and Recreation*, April 2004
- LAX Master Plan Final EIR, Section 4.26.4, *Libraries*, 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

5.13.2 Setting

Descriptions of existing conditions relative to fire protection, law enforcement, public 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. One of these stations, Fire Station 80, is located within the construction footprint of the Bradley West Project. 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. The U.S. Customs and Border Protection (CBP), Drug Enforcement Agency (DEA), Federal Bureau of Investigation (FBI), and Los Angeles County Sheriff's Department also have law enforcement responsibilities at LAX.

Since publication of the LAX Master Plan Final EIR, Fire Station 5, located at 6621 W. Manchester Boulevard, was relocated a few blocks south to 8900 Emerson Ave within LAX Northside and the size of the station was increase from 9,640 square feet to 23,750 square feet. In addition, as part of LAWA's Crossfield Taxiway Project (CFTP), which was approved in March 2009, Fire Station 80, which also serves as an Aircraft Rescue and Firefighting Facility (ARFF), will be relocated to a new site to the east of the existing station. Although LAFD, LAWAPD, and LAPD staffing and equipment levels have changed somewhat from those described in the LAX Master Plan Final EIR, these changes do not alter the basic findings of this public services analysis regarding response times, service levels, and emergency access associated with the Bradley West Project.[344]

As depicted in Section 4.26.3, the closest public recreational facilities to the Bradley West Project site are the South Bay Bicycle Trail and the Imperial Strip, located approximately 0.5 mile to the south, and the Westchester Golf Course, located approximately 0.5 mile to the north. As depicted in Section 4.26.4, the closest libraries to the Bradley West Project site are the Westchester-Loyola Village Branch Library and El Segundo Library, located approximately 1 mile north and south of the Bradley West Project site, respectively. The location of these facilities has not changed from those analyzed in the LAX Master Plan Final EIR, nor have any new public parks/recreation facilities or libraries been constructed in the LAX Master Plan parks study area.[345]

5.13.3 CEQA Thresholds of Significance

The following CEQA thresholds of significance were used in the analysis of fire protection, law enforcement, parks and recreation, and libraries impacts for the LAX Master Plan, Final EIR Sections 4.26.1.4, 4.26.2.4, 4.26.3.4, and 4.26.4.4, respectively, and are also applicable to the Bradley West Project fire protection, law enforcement, parks and recreation, and libraries impacts analyses.

Fire Protection

A significant impact on fire and emergency services 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:

- 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.
- Requires, but does not adequately provide for, a new fire station or the expansion, consolidation, or relocation of an existing facility to maintain adequate service levels.

These thresholds of significance were utilized because they address the potential concerns for fire protection services associated with the LAX Master Plan; namely, emergency access, response times, station response distances, and fire flow. The first threshold was derived from the Los Angeles Fire Code (Los Angeles Municipal Code, Section 57.09.01-11) and correspondence with the LAFD.[346] This threshold also complies with the FAR requirements for ARFF stations. The Los Angeles Fire Code includes specific standards for access, fire flow requirements, and maximum response distance to fire stations. Furthermore, the LAFD fire stations that serve LAX have focused standards that account for the particular needs of LAX fire protection services, including standards for access, fire station response distances, and fire flow requirements, in accordance with the LAX Rules and Regulations Manual and the LAX Air/Sea Disaster Preparedness Plan. Maximum response times to airfield incidents for ARFF stations (i.e., for Station 80) as well as fire stations supporting ARFF stations in airfield incidents are set forth in FAR 139.315-319.

The second threshold listed above derives from the L.A. CEQA Thresholds Guide, which states that a significant impact on fire protection services would occur if a "project" requires "addition of a new fire station or the expansion, consolidation or relocation of an existing facility to maintain service."

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344 Wells, Richard, Chief of Airport Planning, Los Angeles World Airports, Personal Communication with James Butts, Deputy Executive Director, Law Enforcement and Protection Services, Los Angeles World Airports, August 14, 2008; Wells, Richard, Chief of Airport Planning, Los Angeles World Airports, Personal Communication with Pamela Howard, Adjutant, Los Angeles World Airports Police Department, August 18, 2008.

345 Windshield survey by CDM conducted on July 29, 2008; City of El Segundo Public Library website, Available: http://library.elsegundo.org/, accessed August 2, 2008; Los Angeles Public Library, Summary of Branch Facilities Plan Revision, Available: http://www.lapl.org/about/, accessed August 2, 2008.

346 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.26.1.

Law Enforcement

A significant impact on law enforcement services 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 conditions:

- An increase in on-airport population that would require a substantial increase in law enforcement services to maintain adequate services or would require new or expanded facilities without providing adequate mechanisms for addressing these additional needs.
- Through increased traffic congestion, changes in circulation, expansion of airport property, or the location of new land uses, emergency response times increase beyond the limits required by applicable jurisdictions within the study area.

These thresholds were utilized because they address the potential impacts to law enforcement services associated with the LAX Master Plan, namely, staffing and facility needs and emergency response times. The first threshold listed above is derived from the L.A. CEQA Thresholds Guide, which states that consideration of impacts to law enforcement services must be given if the population increases as a result of implementation of the proposed project and/or demand for law enforcement services increases due to buildout of the proposed project when compared with the expected level of service available. The second threshold, also derived from the L.A. CEQA Thresholds Guide, states that increased traffic congestion may affect response times if any street intersections contain a level of service (LOS) of "E" or "F" at project buildout.[347] This L.A. CEQA Thresholds Guide threshold was broadened for this analysis to include the potential law enforcement service impacts associated with the LAX Master Plan.

Parks and Recreation

A significant impact on parks and recreation areas 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 these conditions:

- Directly generate a substantial increase in the population of the project area that creates or exacerbates deficiencies in parkland as determined by the applicable ordinances and/or adopted standards.
- Directly results in the need for new parks or recreational facilities due to degradation or acquisition of parkland or substantially alters existing parks or recreational facilities so that it would decrease the use of the park or recreational facility.

These thresholds were utilized because they address the concerns for parks and recreation areas potentially directly affected by the LAX Master Plan. The first threshold is a modification of a threshold in the L.A. CEQA Thresholds Guide, which states that the "demand for recreation and park services anticipated at the time of project buildout" be "compared to the expected level of service available." In the following analysis, demand is based on whether the public park or recreational facilities would serve the surrounding population as determined through adopted ordinances and standards. Assessment of demand for recreational facilities is based on increases in employees, airport users or changes in population resulting directly from project development. The second threshold was derived from Appendix G of the State CEQA Guidelines, which states that a project would have a significant impact on parks if it results in the "need for new or physically altered" facilities and/or results in "substantial physical deterioration of the facility." Physical deterioration in this analysis includes acquisition, decreased access, or a change in the use of a park or recreational facility.

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347 The Police Protection section, Section K.1, of the L.A. CEQA Thresholds Guide states that the effect of increased traffic congestion on response times for police protection and other emergency services is guided by the discussion in the Fire Protection and Emergency Medical Services section. As such, this threshold is derived from the Fire Protection and Emergency Medical Services section. Section K.2, of the L.A. CEQA Thresholds Guide, 2006.

Libraries

A significant library services impact 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:

- The service area population for a facility substantially exceeds the maximum population for the library facility or a planned and committed facility based on applicable library planning standards.
- Project-related effects cause the closure of a library or substantially inhibit use of a facility.

These thresholds were utilized because they address the potential impacts to libraries associated with the LAX Master Plan, namely, increased demand for library services or direct physical impacts that would close or restrict the use of library facilities. The first threshold is modified from the L.A. CEQA Thresholds Guide. It states that a significant impact to library services would occur if the increases in net population due to a project or the demand for library services at the time of project buildout is higher than the expected level of service available. In this analysis, expected levels of service are based on adopted Los Angeles Public Library planning standards and on library construction plans,[348] some of which have been implemented to date. The second threshold was developed specifically to address potential impacts of the LAX Master Plan relative to proposed acquisition areas.

5.13.4 LAX Master Plan

5.13.4.1 Impacts Identified in the Final EIR

Fire Protection

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 LOS deficiencies associated with compromised emergency response would be avoided through implementation of Master Plan Commitment C-1, Establishment of a Ground Transportation/Construction Coordination Office, and 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. Therefore, impacts of construction of the LAX Master Plan on emergency response times would be less than significant.

Increases in airport development, traffic, and passenger activity, and changes in aircraft types and operations, combined with changes in the location and size of airport facilities, would contribute to increased demand for fire protection services. Significant impacts on service levels would occur if adequate response times, emergency access, fire flows, and fire prevention systems are not supported and maintained.

The size and locations of the proposed relocated fire stations would ensure that adequate response times to airfield incidents, pursuant to FAR 139.319, would be maintained or improved with the implementation of the LAX Master Plan. Adequate response times would also be supported by relocation of Station 5 to the LAX Northside site, which subsequently occurred independent of the LAX Master Plan, and by proposed circulation improvements that would reduce traffic congestion on the airport compared to baseline conditions. Master Plan Commitments FP-1, LAFD Design Recommendations, and PS-1, Fire and Police Facility Relocation Plan, and enforcement of code requirements would also ensure maintenance of adequate response times and emergency access. As indicated below in Section 5.13.5, as part of Master Plan Commitment FP-1, during plot plan development and the construction phase, LAWA will coordinate with LAFD to ensure that access points for off-airport LAFD personnel and apparatus are maintained and strategically located to support timely access. In addition, at least two different ingress/egress roads for each area, which will accommodate major fire apparatus and will

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348 Los Angeles Public Library, Summary of Branch Facilities Plan Revision, Available: http://www.lapl.org/about/, accessed August 2, 2008.

provide for major evacuation during emergency situations, will be provided. In addition, as indicated below in Section 5.13.5, prior to any demolition, construction, or circulation changes that would affect LAFD Fire Stations 51, 80, and 95, or on-airport police facilities, a relocation plan will be developed by LAWA through a cooperative process involving LAFD, LAWAPD, the LAPD LAX Detail, and other airport staff. The performance standards for the plan will ensure maintenance of required response times, response distances, fire flows, and a transition to new facilities such that fire and law enforcement services at LAX will not be significantly degraded.

Potential impacts associated with staffing and equipment are considered less than significant, as these and other resources would be continually evaluated and addressed pursuant to standard LAFD procedures and FAR requirements. In addition, Master Plan Commitments FP-1 and PS-1 would ensure that adequate fire flows would be provided. Thus, impacts to fire protection services would be less than significant.

Law Enforcement

Construction activities and associated traffic congestion would have the potential to increase response times and increase traffic patrol and other law enforcement activities during periods of demolition and construction within and adjacent to the LAX property. While these impacts are potentially significant, they would be addressed through implementation of Master Plan Commitment C-1, Establishment of a Ground Transportation/Construction Coordination Office, and Master Plan Commitments ST-9, ST-12, ST-14, and ST-16 through ST-2. These commitments would ensure, among other things, proper coordination and planning with law enforcement and fire protection agencies to reduce effects from construction on traffic, emergency access, and response times.

Operationally, LAX Master Plan development would increase demand for law enforcement services. Increases in passengers, traffic, parking areas, and other facilities, as well as the increased size of the airport, would all contribute to the need for additional staffing, facilities, and equipment. Compliance with Master Plan Commitments LE-1, Routine Evaluation of Manpower and Equipment Needs, and PS-2, Fire and Police Facility Space and Siting Requirements, would ensure that staffing and facilities keep pace with passenger activity and expansion of the airport through advanced planning and the routine evaluation and provision of needed staffing, equipment, and facilities. Thus, impacts to law enforcement services would be less than significant.

Parks and Recreation

No acquisition of park or recreational facilities would occur under the LAX Master Plan. 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 facilities. Construction noise impacts associated with the LAX Master Plan 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. As such, construction of the LAX Master Plan projects would not result in the need for new parks or recreational facilities due to degradation or acquisition of parkland or substantially alter existing parks or recreational facilities so that it would decrease the use of the park or recreational facility. Therefore, no significant impacts to park and recreation facilities would occur.

As described in Section 5.2.4.1 of this EIR, construction of the LAX Master Plan would generate 102,244 construction-related jobs. 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. Thus, construction of the LAX Master Plan projects would not directly generate a substantial increase in the population of the project area that creates an increase demand for park and recreation facilities.

Operationally, employment-related demand for parkland would decrease due to a reduction in direct employment generated by LAX. Therefore, no significant park and recreational facility demand impacts would occur.

Libraries

No acquisition of library facilities would occur under the LAX Master Plan. 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. As such, construction of the LAX Master Plan projects would not result in the closure of a library or substantially inhibit use of a library facility. Therefore, no significant impacts to library facilities would occur.

As described in Section 5.2.4.1 of this EIR, construction of the LAX Master Plan would generate 102,244 construction-related jobs. 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. Thus, construction of the LAX Master Plan projects would not directly generate a substantial increase in the population of the project area that creates an increase demand for library facilities. Operationally, employment-related demand for library facilities would decrease due to a reduction in direct employment generated by LAX. Therefore, no significant library facilities demand impacts would occur.

5.13.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

- **C-1. Establishment of a Ground Transportation/Construction Coordination Office.**

  Establish this office for the life of the construction projects to coordinate deliveries, monitor traffic conditions, advise motorists and those making deliveries about detours and congested areas, and monitor and enforce delivery times and routes. LAWA 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.

  This office may undertake a variety of duties, including but not limited to:

  - Inform motorists about detours and congestion by use of static signs, changeable message signs, media announcements, airport website, etc.;
  - Work with airport police and the Los Angeles Police Department to enforce delivery times and routes;
  - Establish staging areas;
  - Coordinate with police and fire personnel regarding maintenance of emergency access and response times;
  - Coordinate roadway projects of Caltrans, City of Los Angeles, and other jurisdictions with those of the airport construction projects;
  - Monitor and coordinate deliveries;
  - Establish detour routes;
  - Work with residential and commercial neighbors to address their concerns regarding construction activity; and
  - Analyze traffic conditions to determine the need for additional traffic controls, lane restriping, signal modifications, etc.

- **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 Construction Coordination Office. Notification of deliveries shall be made with sufficient time to allow for any modifications to approved traffic detour plans.

- **ST-12. Designated Truck Delivery Hours.**

  Truck deliveries shall be encouraged to use night-time hours and shall avoid the peak periods of 7:00 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., 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). Every effort will be made for routes to avoid residential frontages. The designated routes on City of Los Angeles streets are subject to approval by LADOT's Bureau of Traffic Management and may include, but will not necessarily be limited to: Pershing Drive (Westchester Parkway to Imperial Highway); Florence Avenue (Aviation Boulevard to I-405); Manchester Boulevard (Aviation Boulevard to I-405); Aviation Boulevard (Manchester Avenue to Imperial Highway); Westchester Parkway/Arbor Vitae Street (Pershing Drive to I-405); Century Boulevard (Sepulveda Boulevard to I-405); Imperial Highway (Pershing Drive to I-405); La Cienega Boulevard (north of Imperial Highway); Airport Boulevard (Arbor Vitae Street to Century Boulevard); Sepulveda Boulevard (Westchester Parkway to Imperial Highway); I-405; and I-105.

- **FP-1. LAFD Design Recommendations.**

  During the design phase prior to initiating construction of a Master Plan component, LAWA will work with LAFD to prepare plans that contain the appropriate design features applicable to that component, such as those recommended by LAFD, and listed below:

  - *Emergency Access.* During Plot Plan development and the construction phase, LAWA will coordinate with LAFD to ensure that access points for off-airport LAFD personnel and apparatus are maintained and strategically located to support timely access. In addition, at least two different ingress/egress roads for each area, which will accommodate major fire apparatus and will provide for major evacuation during emergency situations, will be provided.

- *Fire Flow Requirements*. Proposed Master Plan development will include improvements, as needed, to ensure that adequate fire flow is provided to all new facilities. The fire flow requirements for individual Master Plan improvements will be determined in conjunction with LAFD and will meet, or exceed, fire flow requirements in effect at the time.
- *Fire Hydrants*. Adequate off-site public and on-site private fire hydrants may be required, based on determination by the LAFD upon review of proposed plot plans.
- *Street Dimensions*. New development will conform to the standard street dimensions shown on the applicable City of Los Angeles Department of Public Works Standard Plan.
- *Road Turns*. Standard cut-corners will be used on all proposed road turns.
- *Private Roadway Access*. Private roadways that will be used for general access and fire lanes shall have at least 20 feet of vertical access. Private roadways will be built to City of Los Angeles standards to the satisfaction of the City Engineer and the LAFD.
- *Dead-End Streets.* Where fire lanes or access roads are provided, dead-end streets will terminate in a cul-de-sac or other approved turning area. No fire lane shall be greater than 700 feet in length unless secondary access is provided.
- *Fire Lanes*. All new fire lanes will be at least 20 feet wide. Where a fire lane must accommodate a LAFD aerial ladder apparatus or where a fire hydrant is installed, the fire lane will be at least 28 feet wide.
- *Building Setbacks*. New buildings will be constructed no greater than 150 feet from the edge of the roadways of improved streets, access roads, or designated fire lanes.
- *Building Heights*. New buildings exceeding 28 feet in height may be required to provide additional LAFD access.
- *Construction/Demolition Access*. During demolition and construction activities, emergency access will remain unobstructed.
- *Aircraft Fire Protection Systems*. Effective fire protection systems will be provided to protect the areas beneath the wings and fuselage portions of large aircraft. This may be accomplished by incorporating foam-water deluge sprinkler systems with foam-producing and oscillating nozzle (per NFPA 409, aircraft hangars for design criteria).

- **LE-2. Plan Review.**

  During the design phase of terminal and cargo facilities and other major airport development, the LAPD, LAWAPD, and other law enforcement agencies will be consulted to review plans so that, where possible, environmental contributors to criminal activity, such as poorly-lit areas, and unsafe design, are reduced.

- **PS-1. Fire and Police Facility Relocation Plan.**

  Prior to any demolition, construction, or circulation changes that would affect LAFD Fire Stations 51, 80, and 95, or on-airport police facilities, a Relocation Plan will be developed by LAWA through a cooperative process involving LAFD, LAWAPD, the LAPD LAX Detail, and other airport staff. The performance standards for the plan will ensure maintenance of required response times, response distances, fire flows, and a transition to new facilities such that fire and law enforcement services at LAX will not be significantly degraded. The plan will also address future facility needs, including details regarding space requirement, siting, and design.

- **PS-2. Fire and Police Facility Space and Siting Requirements.**

  During the early design phase for implementation of the Master Plan elements affecting on-airport fire and police facilities, LAWA and/or its contractors will consult with LAFD, LAWAPD, LAPD, and other agencies as appropriate, to evaluate and refine as necessary, program requirements for fire and police facilities. This coordination will ensure that final plans adequately support future facility needs, including space requirements, siting and design.

5.13.5 Bradley West Project

5.13.5.1 Impacts

Fire Protection

The information, analysis, and Master Plan commitments provided in the LAX Master Plan Final EIR adequately address the potential impacts of the Bradley West Project on fire protection services. The following provides additional analysis of project-specific impacts related to the potential for construction of the Bradley West Project to affect existing fire protection facilities or emergency response times.

As further described in Section 4.3 of this EIR, vehicle trips associated with construction of the Bradley West Project would result in significant surface transportation impacts at up to four area intersections, depending on the construction parking scenario. However, temporary roadway LOS deficiencies associated with compromised emergency response would be avoided through implementation of Master Plan Commitments C-1, C-2, ST-9, ST-12, ST-14, ST-16 through ST-18, and ST-22. These commitments would ensure proper advanced coordination with LAFD, LAWAPD, and LAPD and planning of detours and emergency access routes to maintain response times during construction of the Bradley West Project. Implementation of Master Plan Commitment FP-1, LAFD Design Recommendations, would ensure that on-airport emergency response times would not be affected. Therefore, impacts from construction of the Bradley West Project on emergency access and response times would be less than significant.

As shown in Figure 2-6 in Chapter 2, an existing fire station (Fire Station 80)/ARFF is located on the airfield adjacent to Taxiway S and would be impacted as part of the Bradley West Project. Under the CFTP, a new fire station/ARFF will be constructed as a replacement for the existing undersized Fire Station No. 80/ARFF. The new fire station/ARFF will be constructed approximately 400 feet south of the intersection of World Way West and Coast Guard Way. The size, layout, and facilities proposed for the new ARFF were determined through consultation and coordination between LAWA, the LAFD, and the design team, consistent with the provisions of Master Plan Commitments PS-1, Fire and Police Facility Relocation Plan, and PS-2, Fire and Police Facility Space and Siting Requirements. Further, the location for the new fire station/ARFF will be more centralized relative to responding to emergencies and, therefore, emergency response times will not be adversely affected, and will likely be improved. Upon completion of the new fire station/ARFF under the CFTP, the station crew will transfer to the new facility. The existing Fire Station 80/ARFF is anticipated to be vacated, and possibly used for storage, at the time of Bradley West Project implementation. As such, the existing facility would be removed and no further relocation would be required. Therefore, no significant impacts to fire protections services would occur.

Impacts to fire protection services from implementation of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

Law Enforcement

The information, analysis, and Master Plan commitments provided in the LAX Master Plan Final EIR adequately address the potential impacts of the Bradley West Project on law enforcement services. The following provides additional analysis of project-specific impacts related to the potential for construction of the Bradley West Project to affect existing law enforcement facilities or emergency response times.

As further described in Section 4.3 of this EIR, vehicle trips associated with construction of the Bradley West Project would result in significant surface transportation impacts at up to four area intersections, depending on the construction parking scenario. However, temporary roadway LOS deficiencies associated with compromised emergency response would be avoided through implementation of Master Plan Commitments C-1, C-2, ST-9, ST-12, ST-14, ST-16 through ST-18, and ST-22. These commitments would ensure proper advanced coordination with LAFD, LAWAPD, and LAPD and planning of detours and emergency access routes to maintain response times during construction of the Bradley West Project. Therefore, impacts from construction of the Bradley West Project on emergency access and response times would be less than significant.

As described in Chapter 2, *Project Description*, the Bradley West Project includes renovation, improvement, and enlargement of the existing CBP areas within the TBIT existing central core. The CBP area improvements would result in a beneficial impact to law enforcement services by enhancing passenger processing by the CBP within TBIT. In summary, no significant impacts to law enforcement services would occur.

Impacts to law enforcement services from implementation of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

Parks and Recreation

The information and analysis provided in the LAX Master Plan Final EIR adequately address the potential impacts of the Bradley West Project on public parks and recreation. This section provides additional analysis of the potential for project-specific construction impacts on parks and recreation.

No acquisition of park or recreational facilities would occur under the Bradley West Project. Construction activities associated with the Bradley West Project 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, Imperial Strip, or Westchester Golf Course. As described in Section 4.8, given the distances of recreation facilities from the Bradley West Project site, construction noise is not anticipated to adversely affect area parks and recreation facilities. As such, construction of the Bradley West Project would not result in the need for new parks or recreational facilities due to degradation or acquisition of parkland or substantially alter existing parks or recreational facilities so that it would decrease the use of the park or recreational facility. Therefore, no significant impacts to park and recreation facilities would occur.

As described in Section 5.2.5.1 above, the Bradley West Project would provide 1,425 temporary construction-related jobs over the approximately 63-month construction period. 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. Thus, construction of the Bradley West Project would not directly generate a substantial increase in the population of the project area that creates an increase demand for parkland.

Impacts on parks and recreation from implementation of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

Libraries

The information and analysis provided in the LAX Master Plan Final EIR adequately address the potential construction impacts of the Bradley West Project on local libraries. This section provides additional analysis of the potential for project-specific construction impacts on libraries.

No acquisition of library facilities would occur under the Bradley West Project. As with the LAX Master Plan, construction of the Bradley West Project 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. As such, construction of the Bradley West Project would not result in the closure of a library or substantially inhibit use of a library facility. Therefore, no significant impacts to library facilities would occur.

As described in Section 5.2.5.1 above, the Bradley West Project would provide 1,425 temporary construction-related jobs over the approximately 63-monthconstruction period. 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. Thus, construction of the Bradley West Project would not directly generate a substantial increase in the population of the project area that creates an increase demand for libraries.

Impacts on libraries from implementation of the proposed project are within the scope of the LAX Master Plan EIR, and no new significant impacts have been identified.

5.13.5.2 Mitigation Measures

Implementation of Master Plan Commitments FP-1, PS-1, PS-2, LE-2, C-1, C-2, ST-9, ST-12, ST-14, ST-16 through ST-18, and ST-22 would ensure that any impacts relative to emergency access or emergency services facilities would be less than significant. Therefore, no mitigation measures are required.

5.14 Schools

5.14.1 Introduction

This section addresses potential impacts from construction activities associated with the Bradley West Project on student enrollment. Non-enrollment construction impacts related to schools, such as air quality, human health risk, and noise exposure, are addressed in Sections 4.4, 4.5 and 4.8, respectively.

The determinations and assessments are based on information presented in:

- LAX Master Plan Final EIR, Section 4.27, *Schools*, April 2004
- LAX Master Plan Final EIR, Technical Report 17, *Schools Technical Report*, January 2001

5.14.2 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.

5.14.3 CEQA Thresholds of Significance

The following CEQA threshold of significance was used in the analysis of school enrollment impacts for the LAX Master Plan, Final EIR Section 4.27.4 and is also applicable to the Bradley West Project school enrollment impacts analysis.

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

- Overcrowding of schools in the absence of funding for construction of new or expanded school facilities or other strategies for addressing capacity constraints.

This threshold was utilized because it addresses physical impacts on the environment in accordance with the focus of the CEQA Guidelines.[349] While this analysis focuses on enrollment change and the project's potential to cause overcrowding of schools, all decisions about how to mitigate the impacts of changes in enrollment are within the powers of the Los Angeles Unified School District (LAUSD), and may include a number of strategies other than constructing new facilities (e.g., year-round school calendars).

5.14.4 LAX Master Plan

5.14.4.1 Impacts Identified in the Final EIR

Construction of the LAX Master Plan would generate 102,244 construction-related jobs. 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. Thus, construction of the LAX Master Plan

[349] State of California, Guidelines for the California Environmental Quality Act, Sections 15064(e) and 15131.

projects would not result in a substantial demand for housing, and therefore would not result in a substantial increase in student enrollment. Therefore, the effect of construction employment on student enrollment and available capacity of schools in the area would be less than significant.

The LAX Master Plan addressed new employment, based on the premise that a percentage of new employees at LAX who currently reside outside of the boundaries of LAUSD, would relocate into LAUSD to be closer to their place of work, in turn, generating new households with students who would attend LAUSD schools.

The LAX Master Plan determined that, based on productivity increases (i.e., the production of more economic output per worker), there would be a decrease of approximately 2,657 on-airport employees within the LAX Master Plan schools study area by 2015.[350] This decline in employee households would result in a corresponding decrease airport-related enrollment within LAUSD by approximately 1,041 students.[351] Although LAUSD is projected to absorb the majority of the decline in enrollment (55 percent), the 31 other school districts throughout Los Angeles County would also experience enrollment declines. The declines would be offset by the overall forecasted increases in enrollment. No school closures or alteration of school facilities would be expected as a consequence of the decline in on-airport employment and associated enrollment.

Any new floor area created for non-government users at LAX would generate fee revenue for LAUSD. School fees for the LAX Master Plan would apply to commercial and industrial space occupied by non-governmental airport tenants. Although enrollment impacts would be less than significant, payment of school impact fees to LAUSD in accordance with state law would offset any potential enrollment effects on school facilities.

5.14.4.2 Relevant LAX Master Plan Commitments and Mitigation Measures

No Master Plan commitments or mitigation measures for school enrollment were identified in the LAX Master Plan MMRP.

5.14.5 Bradley West Project

5.14.5.1 Impacts

The information and analysis provided in the LAX Master Plan Final EIR adequately address potential school enrollment impacts due to Bradley West Project construction activities. As described in Section 5.2.5.1 of this EIR, the Bradley West Project would provide approximately 1,425 temporary construction-related jobs over the approximately 63-month construction period. The majority of construction-related jobs associated with the Bradley West Project would be filled from the local labor force within a 20-mile radius and the jobs would be temporary. Thus, construction of the Bradley West Project would not result in a substantial demand for housing, and therefore would not result in a substantial increase in student enrollment.

The information and analysis provided in the LAX Master Plan Final EIR adequately address potential school enrollment impacts due to operation of the Bradley West Project. As discussed in Section 5.2 of this EIR, the new employment associated with operation of the Bradley West Project is consistent with the new employment assumed in the LAX Master Plan. As addressed in the LAX Master Plan Final EIR, there would continue to be a decrease in overall airport-related employees due to productivity improvements, with a resulting decrease in student enrollment. This on-airport employment decrease and associated student enrollment decrease would occur over time throughout the LAX Master Plan

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350 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.27, page 4-1591.

351 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Section 4.27, page 4-1595.

schools study area and would be offset by the overall forecasted increases in enrollment in the region. Further, new terminal space occupied by non-governmental tenants (i.e., concessions) would generate fee revenue for LAUSD. Therefore, the effect of employment associated with operation of the Bradley West Project on student enrollment and available capacity of schools in the area would be less than significant.

The proposed project's potential impacts related to overcrowding of schools are within the scope of the LAX Master Plan EIR and no new significant impacts have been identified.

5.14.5.2 Mitigation Measures

No significant impacts related to student enrollment would occur as a result of Bradley West Project construction and operation. Therefore, no mitigation measures are required.

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6. ALTERNATIVES

6.1 Purpose and Scope

CEQA requires that an EIR include a discussion of a reasonable range of project alternatives that would "feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (CEQA Guidelines Section 15126.6). Within that context, this chapter discusses potential alternatives to the proposed Bradley West Project.

Key provisions of the CEQA Guidelines on alternatives (Section 15126.6[b] through [f]) are excerpted below to explain the foundation and legal requirements for the alternatives analysis in the EIR.

- ". . . the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly" (15126.6[b]).
- "The specific alternative of 'no project' shall also be evaluated along with its impact" (15126.6[e][1]). "The 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives" (15126.6[e][2]).
- "The range of alternatives required in an EIR is governed by a 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making" (15126.6[f]).
- "Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent)" (15126.6[f][1]).
- For alternative locations, "only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR" (15126.6[f][2][A]).
- "If the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR. For example, in some cases there may be no feasible alternative locations for a geothermal plant or mining project which must be in close proximity to natural resources at a given location" (15126.6[f][2][B]).
- "An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (15126.6[f][3]).

6.2 Significant Impacts of the Bradley West Project

As described in Chapter 4, the significant impacts of the Bradley West Project, to which the formulation and evaluation of alternatives should seek to avoid or substantially lessen, include the following:

- **On-Airport Surface Transportation**
  - **CTA Intersections** - Upon completion of the proposed TBIT improvements in 2013, in conjunction with natural growth in international travel activity projected to occur by that time, the intersection of Center Way and World Way South would be significantly impacted by increased vehicle traffic associated with international travel at TBIT. The recommended mitigation measure for improving the subject intersection would reduce the impact to a level that is less than significant.
  - **CTA Roadway Links** - Upon completion of the proposed TBIT improvements in 2013, in conjunction with natural growth in international travel activity projected to occur by that time, significant congestion would occur along the departures and arrivals levels along World Way North at Terminal 1, along the arrivals level along World Way South at TBIT, and along the arrivals level along World Way South at Terminal 7/8. The recommended mitigation measure for improving the subject CTA roadway links would not reduce the impacts to a level that is less than significant.
- **Off-Airport Surface Transportation** - As indicated above, the natural growth in international travel activity at TBIT that is projected to occur by the time the proposed project improvements are completed in 2013 would result in additional vehicle traffic on the off-airport roadway system around LAX. It is anticipated that project-related traffic, including ambient growth in international passenger activity at TBIT by 2013, would result in significant impacts at the following 19 intersections listed in **Table 6-1**. (See Section 4.2 for additional details.)

Table 6-1

Off-Airport Surface Transportation - Significantly Impacted Intersections

Intersection Identification Number and Location	Feasible Mitigation Available?
6. Airport Boulevard and Arbor Vitae Street/Westchester Parkway	No
7. Airport Boulevard and Century Boulevard	No
9. Airport Boulevard and Manchester Avenue	Yes
10. Arbor Vitae Street and Aviation Boulevard	Yes
14. Aviation Boulevard and Century Boulevard	No
16. Aviation Boulevard and Imperial Highway	No
36. Century Boulevard and La Cienega Boulevard	No
71. Imperial Highway and Sepulveda Boulevard	Yes
88. La Cienega Boulevard and La Tijera Boulevard	No
93. La Cienega Boulevard and Stocker Avenue	No
96. La Cienega Boulevard and I-405 Ramps north of Century Boulevard	Yes
101. La Tijera Boulevard and Sepulveda Boulevard	Yes
109. Lincoln Boulevard and Venice Boulevard	No
110. Lincoln Boulevard and Washington Boulevard	No
114. Manchester Avenue and Sepulveda Boulevard	No
125. Rosecrans Avenue and Sepulveda Boulevard	No
135. Sepulveda Boulevard and Westchester Parkway	No
136. Sepulveda Boulevard and 76th/77th Street	Yes
139. Sepulveda Blvd & I-105 Westbound Ramp north of Imperial Highway	No

Source: Fehr & Peers, 2009.

- **Construction Surface Transportation** - Implementation of the Bradley West Project would result in significant construction-related increases in traffic volumes on the surrounding area roadway network during the peak construction period, anticipated to occur in the fourth quarter of 2011. Construction access to and from project site, including as related to construction worker travel and construction-related deliveries and other truck trips, would occur at the west end of the airport. The majority of construction-related traffic would be associated with worker commutes; several options were considered relative to where construction worker parking would occur. Potential locations evaluated in the Draft EIR include the Northwest Construction Staging/Parking Area near Pershing Drive and Westchester Parkway, the East Contractor Employee Parking Area on La Cienega Boulevard near Lennox Boulevard, and the Southeast Construction Staging/Parking Area at Imperial Highway and Aviation Boulevard. The construction traffic analysis completed for the Draft EIR addressed several potential scenarios relative to the location(s) for worker parking and the level of construction activity, including the possibility of a temporary surge in the number of workers during the more labor-intensive portions of the peak construction period. **Table 6-2** summarizes the locations and scenarios where significant construction-related traffic impacts were identified in the analysis. (See Section 4.3 for additional details.)

Table 6-2

Construction Surface Transportation - Significantly Impacted Intersections

	Significant Impact Identified in Analysis Scenario						
	#1 Northwest Construction Parking Area	#2 East/Southeast Construction Parking Areas	#3 Surge - 63% in Northeast and 37% in East/Southeast Construction Parking Areas		#4 Surge - 37% in Northeast and 63% in East/Southeast Construction Parking Areas		Feasible Mitigation Available?
Intersection # and Location	**Project**	**Project**	**Project**	**Cumulative**	**Project**	**Cumulative**	
36. Century Boulevard & La Cienega Blvd	X	X	X	X	X	X	No
68. Imperial Highway & Main St	X		X	X	X	X	Yes
69. Imperial Highway & Pershing Dr	X		X	X		X	Yes
114. Sepulveda Blvd & Manchester Ave	X		X	X	X	X	No

Source: Ricondo & Associates, 2009.

- **Air Quality** - Air pollutant emissions occurring during construction of the Bradley West Project would exceed the CEQA thresholds of significance established by the SCAQMD for criteria pollutants on both a project level and a cumulative level. Specifically, the average daily emissions estimated to occur during the peak month of Bradley West Project construction activity and from cumulative projects are indicated below in **Table 6-3**, along with the SCAQMD thresholds of significance.

Table 6-3

Bradley West Project Construction-Related Air Quality Impacts

Pollutant	SCAQMD Threshold lbs/day	Project Emissions (Uncontrolled) lbs/day[1]	Cumulative Emissions lbs/day[1]
CO	550	**1,216**	**1,991**
NO_x	100	**1,987**	**3,221**
ROG	75	**362**	**781**
SO_2	150	3	4
PM10	150	**1,264**	**808**
PM2.5	55	**319**	**256**

1 Values shown in **bold** indicate significant impacts.

Source: CDM, 2009.

Upon completion of Bradley West Project construction in 2013, operations-related air pollutant emissions associated with changes in airfield operations, including changes in the taxiing of aircraft to the new contact gates at TBIT instead of the west remote gates and the associated changes in the busing of passengers and crews, would be less than the emissions that would otherwise occur if the project was not implemented. The reduction in emissions occurring from project implementation is due to reduced aircraft taxi/idle times and reduction in future busing operations. Notwithstanding the reduction in future emissions for the with-project scenario versus the without-project scenario, the airfield operations emissions in 2013 with project implementation would be greater than the airfield operations emissions in the baseline year of 2008. The increase is due to natural growth in international operations projected to occur between 2008 and 2013 irrespective of whether the project is implemented. Operations-related air quality impacts also include emissions from utilities use, particularly for heating and cooling of the additional building area proposed at TBIT. **Table 6-4** indicates the operations-related emissions associated with the Bradley West Project.

Table 6-4

Bradley West Project Operations-Related Air Quality Impacts

Pollutant	SCAQMD Threshold lbs/day	Project Emissions lbs/day[1]
CO	550	**3,286**
NO_x	55	**1,049**
ROG	55	**287**
SO_2	150	**251**
PM10	150	26
PM2.5	55	26

1 Values shown in **bold** indicate significant impacts.

Source: CDM, 2009.

In addition to the operations-related emissions identified above, which are addressed more specifically in Section 4.4 of this EIR, off-airport traffic emissions associated with natural growth in passenger activity levels at LAX, including at TBIT, are identified in the LAX Master Plan Final EIR as being significant for CO, VOC (ROG), NO_X, and PM10.

Based on the above, construction-related and operations-related emissions associated with the Bradley West Project would result in significant and unavoidable adverse impacts.

- **Global Climate Change** - Construction-related greenhouse gas (GHG) emissions would represent a substantial increase in GHG emissions compared to baseline levels (see **Table 6-5**), even though construction activities would comply with LAWA's current program for sustainability and reducing GHG emissions in project design and construction. Similarly, operations-related CO_2 emissions in 2013 would represent a substantial increase over baseline levels (see **Table 6-6**), even though they would be notably less than the levels that would occur without the project and the project would be consistent with LAWA's plans related to sustainability. Construction-related and operations-related GHG emissions associated with the Bradley West Project are considered to be significant and unavoidable.

Table 6-5

Bradley West Project Annual Construction-Related CO_2 Emissions (Metric Tons)

Total CO_2 Emissions (metric tons)	2009 Total	2010 Total	2011 Total	2012 Total	2013 Total	2014 Total	2015 Total	Project Total
Off-road, On-site Equipment	38	15,059	13,489	7,375	6,319	2,521	248	45,049
On-road, On-site Trucks	353	1,411	1,411	1,411	1,411	1,411	353	7,761
On-road, Off-site Deliveries	609	2,434	2,434	2,434	2,434	2,434	609	13,388
On-road, Off-site Workers	1,398	5,592	5,592	5,592	5,592	5,592	1,398	30,753
Total[1]	**2,397**	**24,496**	**22,926**	**16,812**	**15,756**	**11,958**	**2,607**	**96,952**

[1] Numbers may not total due to rounding.

Source: CDM, 2009.

Table 6-6

Bradley West Project Annual Operations-Related CO_2 Emissions (Metric Tons)

	Building/Lighting						
	Natural Gas	Electricity	Total	Aircraft	Busing	Off-Airport Vehicles	Grand Total
2008 Baseline	3,596	20,367	23,963	607,944	350	268,374	632,257
2013 With Project	4,263	24,277	28,540	791,894	490	444,568	820,924
Increase from Baseline	19%	19%	19%	30%	40%	66%	30%
2013 Without Project	3,596	20,367	23,963	812,846	836	441,684	837,645
Increase from Baseline	0%	0%	0%	34%	139%	65%	32%

Source: CDM, 2009

- **Biotic Communities** - One special status plant species, southern tarplant (*Centromadia parryi ssp. australis*), is located in the East Contractor Employee Parking Area and the Southeast Construction Staging/Parking Area. Construction activities in these two areas would impact approximately 300 southern tarplant individuals, which is considered a significant impact. Also, the removal of up to 34 mature trees in the Northwest Construction Staging/Parking Area would be a significant impact. As described in Section 4.7, mitigation measures are proposed to reduce these impacts to a level less than significant.

6.3 Project Objectives

The objectives of the Bradley West Project, which need to be considered in the formulation and evaluation of alternatives, include the following:

- Reduce the need for, and use of, existing remote gates at the west end of the airport and the need to bus passengers and crews between TBIT and the remote gates.
- Maintain or improve existing aircraft ground access between the north airfield complex and the south airfield complex.
- Accommodate "New Generation Aircraft"[352] such as the Airbus A380, Boeing 747-8, and Boeing 787.
- Improve passenger level of service.
- Avoid loss of international travelers to other airports outside the region and the adverse direct and indirect economic consequences this would cause.
- Complement the systematic phased implementation of the Master Plan and minimize impacts to existing airport operations during construction.
- Provide a substantial number of construction employment opportunities and substantial direct and secondary regional economic benefits, including the need for construction goods and services, associated with construction of a large capital improvements project such as the Bradley West Project.

6.4 Alternatives

A wide range of alternatives to the airfield and facility improvements proposed for LAX were formulated and evaluated during the course of developing and approving the LAX Master Plan. As evidenced in reviewing the airport concepts addressed in the LAX Master Plan Final EIR, each of the four build alternatives called for new and reconfigured terminal facilities and associated gating, with the location of the new and reconfigured terminal facilities being influenced primarily by each alternative's proposed airfield (runway) configuration. As such, the terminal facility improvements and associated gating, such as those associated with the Bradley West Project, were formulated and defined particular to each of the airfield concepts, based on applicable FAA requirements and standards and professional airport planning practices. In light of 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. Airfield configurations were developed and designed at a precise level of detail to satisfy FAA requirements related to airport layout plans. As such, consideration has already been given to a number of alternatives that included variations on terminal facility improvements associated with various airfield concepts. The following provides additional evaluation of alternatives to the proposed Bradley West Project with particular emphasis on the construction impacts associated with each alternative.

As described at the beginning of this chapter, the significant impacts associated with the proposed Bradley West Project pertain to both construction activities and airport operations with the proposed Bradley West Project. Significant impacts associated with construction activities include surface vehicle traffic and criteria air pollutant emissions, which cannot be mitigated to a level that is less than significant, and impacts to biotic resources, which can be mitigated to a level that is less than significant. Significant impacts associated with operations include surface vehicle traffic on-airport and off-airport and air pollutant emissions, which cannot be mitigated to a level that is less than significant. Alternatives presented in this section include: (1) potential alternatives that were initially considered but were screened-out from further consideration due to their infeasibility or readily apparent inability to avoid or

[352] New Generation Aircraft is a general term referring to the development and release of new models of commercial aircraft that are larger, more fuel efficient, and incorporate new technology in flight engineering.

substantially reduce the significant impacts of the project; and (2) design alternatives/variations that are fully evaluated. Also, as required by CEQA, the "no project" alternative is also addressed in this section.

6.4.1 Potential Alternatives Screened-Out From Further Consideration

6.4.1.1 Alternative Site

The LAX Master Plan Final EIR evaluated a number of build alternatives for LAX which identified various options for new and reconfigured terminal facilities and associated gating, including related to TBIT, that would address the need to improve passenger level of service and accommodation of new generation aircraft associated with international travel. As discussed in Section 3.1.1.2 and Topical Response to Comment TR-RC-1 of the LAX Master Plan Final EIR,[353] LAX is projected to remain the region's primary international airport; other airports in the region have limited market strength and/or facilities to fulfill or supplement LAX's role as the region's gateway for international travelers. Thus, alternative locations in terms of on-airport sites and off-airport sites for international terminal facilities and associated next generation aircraft airfield and gating accommodations have been previously addressed as part of the LAX Master Plan Final EIR. Such alternatives were rejected by the City and, as indicated above, it was ultimately determined by the Los Angeles City Council that the LAX Master Plan (Alternative D), which includes the proposed Bradley West Project, best met the project objectives.

As a variation of an Alternative Site scenario, consideration was given to constructing all or part of the Midfield Satellite Concourse[354] in order to meet the Bradley West Project objectives, but in a different manner at a different location. Development of the Midfield Satellite Concourse would occur at a location approximately 1,300 feet west of the currently proposed Bradley West Project. Implementation of this alternative would provide new contact gates suitable to accommodate new generation aircraft, reduce the need to utilize west remote gates for international travel, improve the quality of passenger service, support the phased implementation of the LAX Master Plan, and provide substantial construction employment opportunities. It should be noted that this scenario would not preclude construction of the Bradley West Project at a later date. On the contrary, the LAX Master Plan includes both the Bradley West Project and the Midfield Satellite Concourse. Rather, under this alternative, construction of the Midfield Satellite Concourse would merely precede construction of the Bradley West Project. Based on a review of the nature, characteristics, and location of the Midfield Satellite Concourse, it was determined that the overall level and intensity of construction activities associated with development of the Midfield Satellite Concourse would be comparable to those of the currently proposed Bradley West Project. Both development scenarios include construction of new north and south concourses within an area already occupied by existing facilities, relocation and/or construction of taxiways, and development or improvement of a facility for the processing of passengers (i.e., improvements to the existing TBIT central core or construction of a new central passenger processor building within the CTA). As such, construction of the Midfield Satellite Concourse could provide for facilities that meet the basic project objectives at an alternative location; however, it would not avoid or substantially reduce any of the construction- or operations-related significant impacts of the currently proposed project.

6.4.1.2 Alternative Construction Approach

Under this alternative, consideration was given to modifying the overall construction approach in an effort to avoid or substantially lessen the significant construction-related surface transportation and air quality impacts identified in Chapter 4. It should be noted that the construction approach currently proposed for the Bradley West Project already includes a number of features that reduce potential impacts to those

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353 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Part I, Volume 1, page 3-2; City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Part II, Volume 1, pages 2-131 through 2-147.

354 In the LAX Master Plan Final EIR, this facility is referred to as the "West Satellite Concourse."

resources. Such construction approach features are described in Sections 4.3, *Construction Surface Transportation*, and 4.4, *Air Quality*, and include, but are not limited to: scheduling construction employee shift hours and truck delivery hours to avoid the peak commuter periods; recycling/reuse of demolition debris associated with the removal of existing apron, roadways, and other surfaces through the use of an on-site rock-crusher; preparation of concrete using an on-site batch plant; establishment of limits on construction equipment idling time; and requirements to use low-emission equipment.

An alternative construction approach that could be considered relative to avoiding or substantially reducing the surface transportation and air quality impacts associated with the Bradley West Project would be to extend the overall construction period to reduce the amount of daily activity. With respect to air quality impacts, **Table 6-7** indicates the amount of reduction in daily activity that would be required in order for the daily air pollutant emissions to fall below the SCAQMD CEQA thresholds of significance.

Table 6-7

Alternative Construction Approach (Reduce Daily Activity Duration)
Air Pollutant Emissions

Pollutant	SCAQMD Threshold lbs/day	Bradley West Project Peak Emissions lbs/day[1]	Amount (%) of Reduction Required to Avoid Significant Impact
CO	550	**1,216**	45%
NO_x	100	**1,987**	95%
ROG	75	**362**	80%
SO_2	150	3	NA
PM10	150	**1,264**	88%
PM2.5	55	**319**	83%

[1] Values shown in **bold** indicate significant impacts.

Source: CDM, 2009.

As indicated in **Table 6-7**, the greatest amount of reduction that would be required to avoid a significant impact would be needed with respect to NO_x emissions. Daily activities would need to be reduced by approximately 95 percent, which would limit daily construction activities to approximately 30 minutes within what would otherwise be a 10-hour work day or 1.2 hours within what would otherwise be a 24-hour work day. Even if the size of the equipment crews were reduced in half, based on a lower intensity of daily construction activity and an extended overall duration of construction, activity within a 10-hour work day could only occur for about an hour in order for the construction-related NO_x emissions to remain less than significant. Based on such limitations, however, it would conceivably take approximately 100years to complete project construction. Clearly that construction approach is impractical. While such an alternative would reduce daily emissions to a level that is less than significant and would also reduce the daily construction-related trip generation, it would simply increase the overall duration of air pollutant emissions and construction traffic on local roadways.

6.4.1.3 Alternative Construction Staging/Parking Area

Under this alternative, consideration was given to using LAWA property located in Manchester Square (i.e., the area located between Century Boulevard, Aviation Boulevard, Arbor Vitae Street, and La Cienega Boulevard) as a construction staging/parking area. This alternative was considered in light of comments received on the Notice of Preparation for the Bradley West Project Draft EIR expressing concern about the proposed use of the Northwest Construction Staging/Parking Area and the East Contractor Employee Parking Area/Southeast Construction Staging/Parking Area. For several years LAWA has been in the process of acquiring properties within Manchester Square as part of the Voluntary Residential Acquisition and Relocation Program related to airport noise compatibility. The majority of properties acquired to date are in the interior portions of Manchester Square, with much of the perimeter areas still being occupied by apartment complexes and other uses. The establishment of a construction staging/parking area at Manchester Square would probably need to occur within interior portions of the site, possibly on multiple non-contiguous parcels, requiring workers, shuttles, and trucks to travel on residential streets. This would pose the potential for traffic impacts, as well as noise impacts to noise-sensitive receptors, within the residential area. Additionally, access to and from Manchester Square would occur via several nearby major arterials having high traffic volumes, such as Century Boulevard, Aviation Boulevard, and La Cienega Boulevard, and would adversely affect the nearby intersection of La Cienega Boulevard and Century Boulevard to a greater extent than the proposed project. Placement of a construction staging/parking area in Manchester Square would increase the shuttle and truck travel distance to and from the proposed construction work area, which would have greater air quality impacts than the proposed project. Given that land use, noise, traffic, and other environmental impacts would be greater with this alternative than with the proposed project, and the fact that it would not avoid or substantially reduce the significant impacts of the project, it was not carried forward for full evaluation.

6.4.2 Alternatives Carried Forward for Full Evaluation

6.4.2.1 Alternative 1: Reduced Project - No New North Concourse

Under Alternative 1, all of the improvements proposed under the Bradley West Project would be implemented, with the exception of construction of the new north concourse at TBIT and associated new three aircraft gates designed to accommodate either two ADG VI aircraft (new large aircraft) or three ADG V aircraft. As such, the existing north concourse, which is approximately 80,000 square feet in size, would continue to be used "as-is" and development of a new north concourse, approximately 200,000 square feet in size, would not occur. Although the new north concourse would not be constructed, this alternative assumes that the interim relocated bus gates facility would still be placed at the end of the existing north concourse because the Bradley West Core improvements would still go forward and remove the existing bus gates facility. This alternative would avoid the construction activities, and related air pollutant emissions and worker traffic, associated with: (1) removal and replacement of the apron area on the west side of the existing north concourse; (2) construction of the new north concourse; and (3) demolition of the existing north concourse.

6.4.2.2 Alternative 2: Reduced Project - No Bradley West Core Improvements

Under Alternative 2, the new replacement concourses and associated aircraft contact gates would be constructed; however, there would be no renovation, improvement, or enlargement of existing CBP, concession, office, and operations areas within the Bradley West Core. As such, the approximately 500,000 square feet of new building area and approximately 300,000 square feet of renovations to the existing building would not occur.

6.4.2.3 Alternative 3: Design Variation - Redevelop Existing Concourses to Add New Gates

Under Alternative 3, the provision of new contact gates on the west side of TBIT would occur through expansion and renovation of the existing concourses, instead of construction of new replacement concourses as currently proposed. Under Alternative 3, the number and nature of the new gates would be the same as currently proposed, providing nine new gates, up to seven of which could accommodate ADG VI aircraft. In conjunction with providing such aircraft gates, new larger passenger holdrooms/lounges would be needed, which would occur as a westward expansion of the existing concourses. The basic footprint and floor area of the existing concourses would remain, but would be modified to tie into the new building area, and would be expanded approximately 90 feet westward for improvements related to larger passenger holdrooms/lounges, passenger circulation areas, concessions, airline lounges, restrooms, offices, etc. The amount of new building area, that would be added to the existing concourses, approximately 360,000 square feet, would be approximately 18 percent less than the approximately 440,000 square feet of new concourse area that is envisioned under the current proposed project. However, substantial renovations to the interior of the existing concourses would be required under this alternative.

6.4.2.4 Alternative 4: Construction Staging/Parking Areas - Optimize Use of West Construction Staging Area to Include Worker Parking

Under Alternative 4, the design and use of the West Construction Staging Area, identified in Figure 2-7 in Chapter 2 of this EIR, would be optimized to consolidate the spaces designated for construction laydown and staging, and the staging area layout plan would be reconfigured to create space for approximately 600 contractor employee parking spaces. This area would serve as the primary parking area for construction activities associated with the Bradley West Project. This would reduce the need for, and use of, the Northwest Construction Staging/Parking Area and the East Contractor Employee Parking Area/Southeast Construction Staging/Parking Area. Additionally, the size and/or configuration of the Northwest Construction Staging/Parking Area and the Southeast Construction Staging/Parking Area would be reduced to avoid or substantially reduce impacts to biological resources located therein. While this alternative would reduce the need for the Northwest Construction Staging/Parking Area and the East Contractor Employee Parking Area/Southeast Construction Staging/Parking Area, one or both areas would still be used if and when there were to be a temporary surge in workers, as described in Section 4.3 of this EIR. The selection of which area(s) to use during such an occasion would depend on the nature of the contractor work and the space available within the subject areas. Given the location of the Northwest Construction Staging/Parking Area to streets that access residential areas nearby, this alternative would also include a requirement in construction contract documents that workers do not use the following streets in accessing this site: Falmouth Avenue, Pershing Drive north of Westchester Parkway, Cabora Drive between Pershing Avenue and Culver Boulevard, or Culver Boulevard. This alternative is responsive to comments received on the Notice of Preparation for the Bradley West Project Draft EIR that expressed general concerns about use of the Northwest Construction Staging/Parking Area and the Southeast Construction Staging/Parking Area.

6.4.2.5 "No Project" Alternative

Under the "No Project" Alternative, none of the improvements and activities proposed for the Bradley West Project would occur; however, the ambient growth rate in passenger activity levels at TBIT by 2013 would continue to grow at the same rate as assumed for the proposed project (see discussion in Section 2.4.5 of this EIR).

6.4.3 Evaluation of Alternatives

The following describes the environmental impacts associated with each of the alternatives described above compared to those of the proposed project, starting with air quality and global climate change, human health risk, on-airport surface transportation, off-airport surface transportation, construction surface transportation, biotic communities, and noise and then proceeding through each of the other environmental topics addressed in Chapter 5.

6.4.3.1 Alternative 1: Reduced Project - No New North Concourse

Air Quality and Global Climate Change

As described in Section 4.4.2.1, construction-related air pollutant emissions were calculated based on the construction equipment requirements and activity schedules developed for the proposed project. The overall construction program was characterized in terms of the estimated number of activity hours each month for each of 43 types of construction equipment. Attachment 1 in Appendix E (Air Quality Data) provides the breakdown of construction equipment types and estimated activity hours by month. In order to estimate the extent to which air pollutant emissions would be reduced under this alternative, compared to the currently proposed project, the Bradley West Project construction schedule was reviewed to identify those months when construction of the new north concourse is anticipated to occur, and then the construction equipment monthly activity table was modified to reduce activity in those months. The activity adjustments took into consideration the nature and amount of other project-related activity scheduled to occur at the same time as development of the new north concourse (i.e., for those months when several other elements of the project are scheduled to occur at the same time as construction of the new north concourse, the reduction in monthly equipment activity due to elimination of the new north concourse would be smaller than during months when fewer other elements were under construction at the same time as the new north concourse). In general, the other project elements scheduled to be under construction at the same time as the new north concourse include the following:

- Taxiway S relocation - earthwork, utilities relocation/improvement, and placement of concrete
- Demolition of existing Fire Station No. 80/ARFF
- Final stages of relocating the TBIT Central Receiving Dock and Emergency Egress
- Construction of the Interim Bus Gates
- New South Concourse - earthwork, utilities, substructure, superstructure, roof, and beginning of interior
- New South Aprons
- Bradley West Core improvements

Construction of the new north concourse is anticipated to take approximately 1.5 years to complete within the overall 5-year construction program for the Bradley West Project. **Table 6-8** delineates the air pollutant emissions associated with Alternative 1, based on the amount of monthly construction equipment activity reduction estimated to occur if the new north concourse was not included in the project. The emissions for Alternative 1 presented in **Table 6-8** pertain to construction equipment emissions.

As indicated in **Table 6-8**, the peak daily construction-related emissions associated with Alternative 1 would be 23 percent less for VOCs; however, reductions in peak daily emissions for other pollutants would range from only zero to six percent. For peak quarterly and total emissions, the pollutant reductions associated with this alternative, compared to the proposed project, would range from three to six percent. Similar to the proposed project, the emissions associated with Alternative 1 would exceed the SCAQMD thresholds of significance for most of the criteria pollutants, with the exception of SO_X.

With regard to operations-related air quality impacts, implementation of Alternative 1 would not avoid or substantially reduce the significant impacts identified for the project. As indicated above, the increase in airfield operations emissions that would trigger a significant impact under the proposed project is due solely to the projected increase in aircraft activity between 2008 and 2013, which would not change under this alternative. The placement of aircraft contact gates on the west side of TBIT is projected to reduce aircraft taxi/idle time and reduce airfield busing operations, which, in turn, would reduce air pollutant emissions. Under Alternative 1, there would be fewer contact gates developed than proposed for the project; hence, the aforementioned air quality benefits would be comparatively less and the airfield operations emissions of Alternative 1 would be greater than those of the project. This would include the fact that with fewer contact gates under Alternative 1, there would be more aircraft using the west remote gates than under the proposed project, and, consequently, there would be comparatively more airfield busing operations each day, and associated emissions.

Table 6-8

Air Quality and Greenhouse Gas Emissions for Alternative 1: Reduced Project - No New North Concourse

	Peak Daily Emissions (lbs/day)			Peak Quarterly Emissions (tons/qtr)			Total Emissions (tons)[3]	
Scenario	Threshold of Significance	Emissions[1]	Reduction from Project	Threshold of Significance	Emissions[1]	Reduction from Project	Emissions	Reduction from Project
Carbon Monoxide (CO)								
Project	550	**1,216**		24.75	**38.93**		510	
Alt 1	550	**1,216**[2]	0	24.75	**37.61**	3%	494	3%
Volatile Organic Compounds (VOC)								
Project	75	**362**		2.50	**8.32**		92	
Alt 1	75	**279**	23%	2.50	**7.98**	4%	88	5%
Nitrogen Oxides (NO_x)								
Project	100	**1,987**		2.50	**60.42**		649	
Alt 1	100	**1,987**[2]	0	2.50	**57.68**	5%	611	6%
Sulfur Oxides (SO_x)								
Project	150	3		6.75	0.09		1.09	
Alt 1	150	3	0	6.75	0.08	4%	1.04	4%
Respirable Particulate Matter (PM10)								
Project	150	**559**		6.75	**19.51**		128	
Alt 1	150	**533**	5%	6.75	**18.89**	3%	126	2%
Fine Particulate Matter (PM2.5)								
Project	55	**172**		6.75	6.72		47	
Alt 1	55	**162**	6%	6.75	6.51	3%	46	3%
Carbon Dioxide (CO_2)								
Project	NA	NA	NA	NA	NA	NA	96,952[3]	
Alt 1	NA	NA	NA	NA	NA	NA	92,927[3]	4%

1 Values shown in **bold** indicate significant impacts.
2 The peak daily activity of VOC emissions occurs in 2012 due to fugitive emissions from paving and architectural coating activities. The peak daily activity of CO, NO_X, SO_X, PM10, and PM2.5 emissions occurs in 2010.
3 Values for CO_2 in metric tons.

Source: CDM, 2009.

While the total amount of building area associated with Alternative 1 would be approximately six percent less than the total building area of the proposed project, there would not be a proportional reduction in energy consumption and associated air pollutant emissions because so much of the total area under Alternative 1 would consist of the relatively inefficient existing concourse. As described in Section 4.6 of this EIR, implementation of the proposed project would almost double the existing amount of floor area at TBIT, but energy consumption is projected to be only about 19 percent greater than 2008 baseline conditions. This is attributable largely to the demolition of several older energy inefficient buildings and the construction of new energy efficient buildings. Based solely on a ratio of the amount of additional building floor area under the proposed project (from approximately one million square feet to approximately two million square feet, a 100 percent increase in floor area) to the amount of increased energy demand (19 percent increase), reducing the amount of new floor area by a net of 120,000 square feet (12 percent) could, in simple terms, reduce the amount of increased energy demand by an equivalent amount. Based on these assumptions, implementation of Alternative 1 would result in an approximately 16 percent increase in energy consumption compared to baseline conditions. (In all likelihood, the increase in energy consumption would likely be somewhat higher than 16 percent, as the building area to be retained would be less energy efficient than the building area that would have replaced it.) This reduction in energy consumption and related decrease in air pollutant emissions would not result in a substantial reduction in the overall operations-related emissions, which are comprised primarily of the airfield operations emissions described above.

Relative to air pollutant emissions associated with off-airport vehicle travel, as addressed in the LAX Master Plan Final EIR, it is projected that the level of international travel activity at TBIT in 2013 would be about the same whether a new north concourse is constructed or the existing concourse is retained; consequently, there would be no notable difference in off-airport vehicle travel emissions.

Based on the above, Alternative 1 would not avoid or substantially reduce the significant and unavoidable air quality impacts that would otherwise occur if the proposed project was implemented.

Similar to the conclusions regarding criteria pollutants, the reduction in construction activities associated with this alternative would reduce construction-related greenhouse gas emissions that contribute to global climate change. As indicated in **Table 6-8**, the reduction in construction-related CO_2 emissions would be approximately four percent compared to the proposed project. Similar to the proposed project, the impacts of Alternative 1 on global climate change are considered to be significant and unavoidable.

Human Health Risk

As indicated previously, implementation of Alternative 1 would result in slightly lower construction-related emissions compared to the proposed project, and essentially the same operations-related emissions as the project. Similar to the proposed project, the human health risk impacts of Alternative 1 would be less than significant.

On-Airport Surface Transportation

Implementation of Alternative 1 would not avoid or substantially reduce significant impacts to on-airport surface transportation, including impacts at the intersection of World Way South and Center Way and travel lane congestion in CTA areas "upstream" of and at TBIT. As described in Section 4.1, the increase in on-airport traffic projected to occur between 2008 and 2013 is related to ambient growth in international travel, which is anticipated to occur with or without the proposed project. The provision of new contact gates, suitable for ADG VI aircraft, on the west side of TBIT along with proposed improvements for passenger processing within TBIT are expected to affect the nature and timing of how arriving passengers travel through TBIT and when they reach curbside; however, it is the volume of passengers that contributes to the significant impacts to on-airport surface transportation. As indicated in Section 4.1 and reiterated below in the discussion of the No Project Alternative, substantial on-airport traffic congestion is expected to occur even if none of the proposed project improvements are implemented. Under Alternative 1, the absence of a new north concourse and resultant continued use of the existing concourse would not have a material effect on whether future on-airport surface transportation impacts occur.

Off-Airport Surface Transportation

Similar to on-airport surface transportation, implementation of Alternative 1 would not likely result in a material change in the off-airport surface transportation impacts of the project. Because some flights would have to use the west remote gates (in the absence of new contact gates on the west side of the north concourse), some passengers would reach the curbside at times different than they would under the proposed project. As a result, the number of vehicles traveling to or from TBIT during the three peak hours (i.e., a.m. and p.m. commuter peak hours and the airport's mid-day peak hour) would differ between Alternative 1 and the proposed project. Those differences would, however, be relatively minor because essentially the same volume of passengers would be processed through TBIT. Also, the additional time needed for passengers to reach curbside under this alternative would be just as likely to subtract passengers during one or more of the peak hours as add passengers during those periods. Again, it is the ambient growth expected to occur between 2008 and 2013 that is the main factor causing significant impacts to off-airport surface transportation. In summary, implementation of Alternative 1 would not avoid or substantially reduce significant impacts related to off-airport surface transportation that would otherwise occur under the proposed project.

Construction Surface Transportation

The construction surface transportation analysis is based on the peak period of construction activity, which, under the schedule for the proposed project, is anticipated to occur in the fourth quarter of 2011. During that peak period, substantial construction activity would be generated by completion of the new south concourse, preparation of aircraft apron areas, and development of the Bradley West Core improvements. Based on the current schedule, completion of the new north concourse would be completed prior to the fourth quarter of 2011. Therefore, elimination of the new north concourse would not alter peak construction activity and, consequently, would not avoid or substantially reduce the project's significant construction traffic impacts.

Biotic Communities

The construction-related impacts on biotic communities associated with Alternative 1 would be the same as those of the proposed project, because the Northwest Construction Staging/Parking Area, East Contractor Employee Parking Area, and Southeast Construction Staging/Parking Area would be utilized under either scenario, resulting in impacts to 34 mature trees in the Northwest Construction Staging/Parking Area and approximately 300 southern tarplant individuals within the other two areas. Those impacts would be considered significant. However, as described in Section 4.7, mitigation is proposed to reduce these impacts to a less-than-significant level.

Noise

The construction noise impacts associated with this alternative would essentially be the same as those of the proposed project. Under Alternative 1, the types of construction activities would be very similar in nature, and would occur within the same overall work, parking and staging areas, as the proposed project and, thus, at the same distances from off-site noise sensitive receptors. No significant construction-related noise impacts would occur under either scenario. As with the proposed project, no notable change in operational noise at LAX is expected to occur under Alternative 1.

Other Environmental Resources

The following addresses the potential impacts of Alternative 1, compared to those of the proposed project, based on the information and analysis contained in Chapter 5.

> **Land Use**: The construction-related impacts on surrounding land uses under Alternative 1 would be less than those associated with the proposed project, because construction activities would be reduced, resulting in less overall construction-related traffic. No significant noise or view impacts would occur under either scenario. As described above, construction-related traffic impacts would be significant under both scenarios.

Population, Housing, Employment, and Growth Inducement: Development of Alternative 1 would reduce the overall construction activity level of the project, with an associated reduction in the number of workers required for the project. This would be an adverse outcome of Alternative 1 relative to the project objective of providing a substantial number of construction employment opportunities. Similar to the proposed project, the majority of the construction jobs under Alternative 1 would be filled by workers who already reside within a 20-mile radius, and the jobs would be temporary. Therefore, there would be no substantial increase in demand for housing, utilities, or other development to the area under either scenario. Further, similar to the proposed project, operation of Alternative 1 would not induce substantial demand for housing, utilities, or other development to the area. As such, no significant population, housing, employment, and growth inducement impacts would occur under either scenario.

Hydrology/Water Quality: The vast majority of the Bradley West Project site is developed, covered by impervious surface, and has been subject to airfield related uses for many years. Implementation of the Bradley West Project would increase impervious surfaces and involve the relocation and upgrading of existing drainage facilities. As with the proposed project, relocation of Taxiways Q and S would occur under Alternative 1, resulting in the conversion of 5.3 acres of unpaved area to impervious surface. Drainage system improvements and water quality control measures to be included in the proposed project would serve to avoid significant impacts related to hydrology and water quality. Such drainage system improvements and water quality control measures would apply equally to Alternative 1. Under both scenarios, hydrology and water quality impacts would be essentially the same and no significant impacts would occur.

Cultural Resources: There are no historic structures on or near the Bradley West Project site. Significant archaeological or paleontological resources are not known to occur at the project site; however, there is the potential to unexpectedly encounter such resources during excavation activities. The majority of excavation associated with the proposed project would be that associated with removal of existing paved surface areas, correction of any underlying soils issues, and preparation of soils for placement of base materials. Alternative 1, which would not include the demolition and replacement of the existing north concourse and associated apron area on the west side of the concourse, could ostensibly reduce the likelihood of unexpectedly encountering subsurface archaeological or paleontological resources, to the extent that comparatively less excavation would be required. The Master Plan mitigation measures that apply to the proposed project address the potential for encountering such resources and would serve to ensure impacts would be less than significant. Those measures would apply equally to Alternative 1, and would equally result in no significant impacts. There would be no difference in impacts to cultural resources from development of Alternative 1 as compared to the proposed project.

Endangered and Threatened Species of Flora and Fauna: The Bradley West Project site is not located in or near an area that provides habitat for any threatened or endangered species. The potential impacts to endangered and threatened species associated with the proposed project would occur due to the use of the West Construction Staging Area, which is located in proximity to habitat for the El Segundo blue butterfly, and the Southeast Construction Staging/Parking Area, which has potential habitat for Riverside fairy shrimp cysts. Construction associated with Alternative 1 would use the same work, parking and staging areas as the proposed project. Therefore, potential impacts to endangered and threatened species would be the same under both scenarios. Mitigation, as described in Section 5.5, would reduce potential impacts to a less than significant level under either scenario.

Wetlands: A recent jurisdictional delineation found that no areas meeting all three federal wetland criteria exist within the Bradley West Project site, including construction staging and parking areas. Moreover, the delineation concluded that no areas subject to USACOE jurisdiction are located within the project site or construction staging areas. These conclusions are subject to concurrence by USACOE. Implementation of Alternative 1 would involve construction activities within the same overall work, parking and staging areas as the proposed project. Based on the preliminary findings of the recent jurisdictional delineation, no impacts to wetlands are anticipated to occur under either scenario.

Energy Supply and Natural Resources: As described above relative to air quality and greenhouse gas, implementation of Alternative 1 would result in a reduction in the overall construction activity associated with the proposed project, as demolition and replacement of the existing north concourse and associated apron area on the west side of the concourse would not occur. As such, under this alternative, construction-related energy use and demand for aggregate and cement would be reduced compared to the proposed project. Relative to operations, the increase in operational energy consumption under Alternative 1 would be approximately 16 percent, compared to the proposed project's 19 percent increase. Because adequate energy and aggregate supplies are anticipated to be available for construction and operation of either scenario, impacts on energy supply and natural resources would be less than significant. The proposed project would include development of nine new contact gates on the west side of TBIT which would reduce the need for busing passengers between the existing gates at the West Remote Pads and TBIT and associated vehicle energy consumption. Under Alternative 1, only six new contact gates would be constructed on the west side of TBIT; therefore busing activities would not be reduced to the same extent as under the proposed project. However; under both the proposed project and Alternative 1, total daily bus trips would still increase in 2013 compared to baseline conditions. Because adequate energy and aggregate supplies are anticipated to be available for construction and operation of either scenario, impacts on energy supply and natural resources would be less than significant.

Solid Waste: Construction-related solid waste would be generated by the demolition of existing buildings and surface area and the construction of new facilities within the project site. Because less demolition and new construction would occur under Alternative 1, less construction-related solid waste would be generated under this alternative. Operation of Alternative 1 would not alter operational solid waste generation as compared to the proposed project, because solid waste generation is associated with activity levels. As described previously, the ambient growth in international travel would occur with or without the proposed improvements. Under both the proposed project and Alternative 1, impacts associated with solid waste would be less than significant.

Aesthetics: There would be no appreciable difference between the proposed project and Alternative 1 regarding potential light emissions impacts during construction activities or operation of new facilities. The removal of existing lighting associated with the facilities that would be demolished/relocated due to construction of relocated Taxiways S and Q would occur as part of either scenario. (see Section 4.6, Section 5.9, and Appendix G of this EIR). The only notable difference in lighting under this alternative would be relatively less interior lighting, as the existing north concourse would be substantially smaller than the new north concourse under the proposed project. Under both scenarios, impacts would be less than significant. With respect to aesthetics, as construction activities under this alternative would occur within the same overall work, parking and staging areas as the proposed project and, thus, at the same general distances from off-site viewers, aesthetic impacts during construction under either scenario would be similar. In both cases, impacts would be less than significant. Under Alternative 1, the existing north concourse would not be demolished and reconstructed as part of the overall architectural design vision for the modernization of LAX. As such, this alternative would be aesthetically less unified and would not result in the level of aesthetic improvement of the Central Terminal Area when compared to the proposed project.

Earth and Geology: There are no geotechnical issues or characteristics particular to the project site that would be avoided by retaining the existing north concourse under Alternative 1, other than simply a difference in the amount of grading required. The majority of excavation associated with the proposed project would be associated with removal of existing paved surface areas, correction of any underlying soils issues, and preparation of soils for placement of base materials. As Alternative 1 would not include the demolition and replacement of the existing north concourse and associated apron area, less excavation would occur under this alternative. No significant impacts related to earth and geology are expected to occur under either scenario.

Hazards and Hazardous Materials: There are areas of known subsurface contamination at and around the Bradley West Project site. Subsurface contamination is located west of and parallel to the existing TBIT concourses. This area would be excavated to allow for the relocation of Taxiways S and Q under both the proposed project and Alternative 1. Thus, the same known areas of contamination occurring within the limits of construction would be excavated, and materials with unacceptable levels of contamination would be transported off-site for treatment or disposal under both scenarios. There is limited potential to encounter previously unknown areas of contamination during construction. To the extent that Alternative 1 would require less excavation, the potential for encountering such contamination would be lower. There are, however, Master Plan commitments specifically intended and designed to address this possibility, which would apply to both the proposed project and Alternative 1. Overall, there would be no notable difference in impacts between the proposed project and Alternative 1 relative to hazards and hazardous materials; no significant impacts would occur under either scenario.

Public Utilities: Alternative 1 would result in a reduction in project-related construction activity because there would be no demolition and replacement of the existing north concourse and associated apron area. As such, less water would be used for construction activities. As described above, Alternative 1 would result in a smaller increase in total square footage within TBIT, which would result in less operational water consumption and wastewater generation over baseline conditions. Both scenarios would incorporate water conservation measures into the design of new facilities. Adequate water supply and wastewater treatment capacity would be available to meet the construction and operations demand under both scenarios and no significant impacts to water supply or wastewater treatment capacity would occur. Both scenarios would require the removal and/or relocation of water and wastewater lines. However, no significant impacts would result under either scenario.

Public Services: There would be no appreciable difference in impacts on public services (i.e., fire protection, law enforcement, parks and recreation, and libraries) between the proposed project and Alternative 1; impacts under either scenario would be less than significant.

Conclusion Regarding Alternative 1

Implementation of Alternative 1, which would not include construction of the new north concourse at TBIT and associated new three aircraft gates, would result in less construction activity than would otherwise occur under the proposed project. The reduction in construction activity would result in minor reductions (i.e., less than 10 percent) in construction-related air quality and global climate change impacts for most pollutants compared to those of the proposed project, with the exception of VOC, which would experience a 23 percent reduction. These emission reductions would not be sufficient to cause any impacts to be reduced to a less than significant level, but the severity of the impact associated with some pollutants would be reduced. Operations-related air quality impacts under this alternative would be essentially the same as those of the proposed project. Significant impacts associated with on-airport and off-airport surface transportation would remain largely unchanged under Alternative 1, based on the fact that the impacts are due primarily to anticipated ambient growth in international travel at TBIT. Potential impacts to biotic resources would be the same for Alternative 1 as for the proposed project, because both would use the same staging areas where the biotic resources occur. Under both scenarios, project implementation would impact 34 mature trees and approximately 300 southern tarplant individuals, both significant, but mitigable, impacts.

Relative to other environmental topics, implementation of Alternative 1 would result in impacts that are the same as, or somewhat less than, those of the proposed project. In all cases for such other environmental topics, as with the proposed project, impacts would be less than significant.

In comparison to the proposed project, which would provide up to six new ADG VI gates along the west side of the new concourses, Alternative 1 would provide only four new ADG VI gates. Thus, implementation of Alternative 1 would not fulfill two of the key objectives of the project to the same extent as the proposed project; specifically, "Accommodate 'New Generation Aircraft' such as the Airbus A380, Boeing 747-8, and Boeing 787" and "Reduce the need for, and use of, existing remote gates at the west end of the airport and the need to bus passengers and crews between TBIT and the remote gates." Additionally, Alternative 1 would not respond to several other objectives to the same extent as the proposed project, such as those related to improving passenger level of service and providing a substantial number of construction employment opportunities.

6.4.3.2 Alternative 2: Reduced Project - No Bradley West Core Improvements

Air Quality and Global Climate Change

Using the same approach as described above for Alternative 1, construction-related air pollutant emissions were estimated for Alternative 2, taking into account the reduced amount of construction activity required for the project without the Bradley West Core improvements. Other project elements scheduled to be under construction at the same time as the Bradley West Core improvements include the following:

- Taxiway S relocation - earthwork, utilities relocation/improvement, and placement of concrete
- Demolition of existing Fire Station No. 80/ARFF
- Final stages of relocating the TBIT Central Receiving Dock and Emergency Egress
- Construction of the Interim Bus Gates
- New North Concourse - earthwork, utilities, substructure, superstructure, roof, and interior
- New South Concourse - earthwork, utilities, substructure, superstructure, roof, and beginning of interior
- New Aprons at multiple locations

Construction of the Bradley West Core improvements is anticipated to take approximately 2.5 years to complete, within the overall 5-year construction program for the Bradley West Project. **Table 6-9** delineates the air pollutant emissions associated with Alternative 2, based on the amount of monthly construction equipment activity reduction estimated to occur if the Bradley West Core improvements were not included in the project. The emissions for Alternative 2 presented in **Table 6-9** pertain to construction equipment emissions.

As indicated in **Table 6-9**, the peak daily construction-related emissions associated with Alternative 2 represent a reduction of between 0 and 22 percent, depending on pollutant, compared to the proposed project. For peak quarterly emissions, the pollutant reductions associated with this alternative, compared to the proposed project, would range from 3 to 25 percent, while the reductions in total emissions would range from 5 to 9 percent. Similar to the proposed project, the emissions associated with Alternative 2 would exceed the SCAQMD thresholds of significance for most of the criteria pollutants, with the exception of SO_X.

With regard to operations-related air quality impacts, implementation of Alternative 2 would not avoid or substantially reduce the significant impacts identified for the project. As indicated above, the increase in airfield operations emissions that would trigger a significant impact under the proposed project is due solely to the projected increase in aircraft activity between 2008 and 2013, which would not change under this alternative. Moreover, improvements made to the Bradley West Core would have little effect on airfield operations.

Table 6-9

Air Quality and Greenhouse Gas Emissions for Alternative 2: Reduced Project - No Bradley West Core

	Peak Daily Emissions (lbs/day)			Peak Quarterly Emissions (tons/qtr)			Total Emissions (tons)[3]	
Scenario	Threshold of Significance	Emissions[1]	Reduction from Project	Threshold of Significance	Emissions[1]	Reduction from Project	Emissions	Reduction from Project
Carbon Monoxide (CO)								
Project	550	**1,216**		24.75	**38.93**		510	
Alt 2	550	**1,216**[2]	0	24.74	**37.62**	3%	484	5%
Volatile Organic Compounds (VOC)								
Project	75	**362**		2.50	**8.32**		92	
Alt 2	75	**344**	5%	2.50	**7.98**	4%	86	7%
Nitrogen Oxides (NO_X)								
Project	100	**1,987**		2.50	**60.42**		649	
Alt 2	100	**1,987**[2]	0	2.50	**57.70**	4%	588	9%
Sulfur Oxides (SO_X)								
Project	150	3		6.75	0.09		1.09	
Alt 2	150	3	0	6.75	0.08	4%	1.01	7%
Respirable Particulate Matter (PM10)								
Project	150	**559**		6.75	**19.51**		128	
Alt 2	150	**436**	22%	6.75	**14.55**	25%	120	6%
Fine Particulate Matter (PM2.5)								
Project	55	**172**		6.75	6.72		47	
Alt 2	55	**146**	15%	6.75	5.60	17%	44	7%
Carbon Dioxide (CO_2)								
Project	NA	NA	NA	NA	NA	NA	96,952[3]	
Alt 2	NA	NA	NA	NA	NA		90,227[3]	7%

1 Values shown in **bold** indicate significant impacts.
2 The peak daily activity of VOC emissions occurs in 2011 due to fugitive emissions from architectural coating activities. The peak daily activity of CO, NO_X, SO_X, PM10, and PM2.5 emissions occurs in 2010.
3 Values for CO_2 in metric tons.

Source: CDM, 2009.

The total amount of building area associated with Alternative 2 would be approximately 25 percent less than the total building area of the proposed project; however, there would not be a proportional reduction in energy consumption and associated air pollutant emissions because so much of the total area under Alternative 2 would consist of the relatively inefficient existing concourse. As described in Section 4.6 of this EIR, implementation of the proposed project would almost double the existing amount of floor area at TBIT, but energy consumption is projected to be only about 19 percent greater than 2008 baseline conditions. This is attributable largely to the demolition of several older energy inefficient buildings and the construction of new energy efficient buildings. Based solely on a ratio of the amount of additional building floor area under the proposed project (from approximately one million square feet to approximately two million square feet, a 100 percent increase in floor area) to the amount of increased energy demand (19 percent increase), reducing the amount of new floor area by half (i.e., 500,000) could, in simple terms, reduce the amount of increased energy demand by half. Based on these assumptions, implementation of Alternative 2 would result in an approximately 9.5 percent increase in energy consumption compared to 2008 baseline conditions. This reduction in energy consumption and related decrease in air pollutant emissions would not result in a substantial reduction in the overall operations-related emissions, which are comprised primarily of the airfield operations emissions described above.

Relative to air pollutant emissions associated with off-airport vehicle travel, as addressed in the LAX Master Plan Final EIR, it is projected that the level of international travel activity at TBIT in 2013 would be about the same with or without the improvements for the Bradley West Core; consequently, there would be no notable difference in off-airport vehicle travel emissions.

Based on the above, Alternative 2 would not avoid or substantially reduce the significant and unavoidable air quality impacts that would otherwise occur if the proposed project were implemented.

Similar to the conclusions regarding criteria pollutants, the reduction in construction activities associated with this alternative would reduce construction-related greenhouse gas emissions that contribute to global climate change. As indicated in **Table 6-9**, the reduction in construction-related CO_2 emissions would be approximately seven percent compared to the proposed project. Similar to the proposed project, the impacts of Alternative 2 on global climate change are considered to be significant and unavoidable.

Human Health Risk

As indicated previously, implementation of Alternative 2 would result in slightly lower construction-related emissions compared to the proposed project, and essentially the same operations-related emissions as the project. Similar to the proposed project, the human health risk impacts of Alternative 2 would be less than significant.

On-Airport Surface Transportation

Implementation of Alternative 2 would not avoid or substantially reduce significant impacts to on-airport surface transportation, including impacts at the intersection of World Way South and Center Way and travel lane congestion in CTA areas "upstream" of and at TBIT. As described in Section 4.1, the increase in on-airport traffic projected to occur between 2008 and 2013 is related to ambient growth in international travel, which is anticipated to occur with or without the proposed project. The provision of passenger processing improvements and new amenities within the Bradley West Core is expected to affect the nature and timing of how arriving passengers travel through TBIT and when they reach curbside; however, it is the volume of passengers that contributes to the significant impacts to on-airport surface transportation. As indicated in Section 4.1 and reiterated below in the discussion of the No Project Alternative, substantial on-airport traffic congestion is expected to occur even if none of the proposed project improvements are implemented. Under Alternative 2, absence of the Bradley West Core improvements would not have a material effect on whether future on-airport surface transportation impacts occur.

Off-Airport Surface Transportation

Similar to on-airport surface transportation, implementation of Alternative 2 would not likely result in a material change in the off-airport surface transportation impacts of the project. The passenger processing delays associated with not improving the Bradley West Core under this alternative would result in some passengers reaching the curbside at times different they would under the proposed project. As a result, the number of vehicles traveling to or from TBIT during the three peak hours (i.e., a.m. and p.m. commuter peak hours and the airport's mid-day peak hour) would differ between Alternative 2 and the proposed project. Those differences would, however, be relatively minor because essentially the same volume of passengers would be processed through TBIT. Also, the additional time needed for passengers to reach curbside under this alternative due to processing constraints within TBIT would be just as likely to subtract passengers during one or more of the peak hours as add passengers during those periods. Again, it is the ambient growth expected to occur between 2008 and 2013 that is the main factor causing significant impacts to off-airport surface transportation. In summary, implementation of Alternative 2 would not avoid or substantially reduce significant impacts related to off-airport surface transportation that would otherwise occur under the proposed project.

Construction Surface Transportation

The construction surface transportation analysis is based on the peak period of construction activity, which, under the schedule for the proposed project, is anticipated to occur in the fourth quarter of 2011. During that peak period, there would be substantial construction activity associated with completion of the new south concourse, preparation of aircraft apron areas, and development of the Bradley West Core. The nature of construction activity for the new south concourse and the Bradley West Core involves extensive interior improvements, which tend to be labor intensive (i.e., trade labor such as electrical, plumbing, mechanical, carpentry, etc.). Under Alternative 2, with the elimination of the Bradley West Core improvements, the fourth quarter of 2011 would no longer constitute the peak construction period. Rather, the peak period of construction activity would occur in the first or second quarter of 2011. The level of activity in these quarters is estimated to be approximately 25 to 30 percent lower than the level in the fourth quarter of 2011 under the proposed project. Based on a review of the traffic level of service analysis results presented in Section 4.3 of this EIR, particularly within Tables 4.3-11 through 4.3-16, a 25 to 30 percent reduction in trip generation would likely avoid the significant impact at Intersection 36 - La Cienega Boulevard and Century Boulevard for Project Plus Baseline (2008) traffic conditions under Scenarios 1, 3, and 4, which assume some or all construction employee parking occurs at Northwest Construction Staging/Parking Area. It is also possible the significant impact at that intersection from cumulative traffic under Scenario 3 could be avoided. The significant impacts identified at other intersections and/or other scenarios for the proposed project would not be avoided or substantially reduced under this alternative, because of the extent to which the project-related change in volume to capacity ratio exceeds the applicable threshold of significance (the project-related changes exceeds thresholds by between approximately 250 percent and over 2,000 percent, depending on the intersection). Therefore, Alternative 2 would avoid significant impacts at one intersection, but impacts would remain significant at other intersections.

Biotic Communities

The construction-related impacts on biotic communities associated with Alternative 2 would be the same as those of the proposed project, because the Northwest Construction Staging/Parking Area, East Contractor Employee Parking Area and Southeast Construction Staging/Parking Area would be utilized under either scenario, resulting in impacts to 34 mature trees in the Northwest Construction Staging/Parking Area and approximately 300 southern tarplant individuals in the other two areas. These impacts would be considered significant. However, as described in Section 4.7, mitigation is proposed to reduce these impacts to a less-than-significant level.

Noise

The construction noise impacts associated with this alternative would essentially be the same as those of the proposed project. Under Alternative 2, the types of construction activities would be similar in nature, and would occur within the same overall work, parking and staging areas as the proposed project and, thus, at the same distances from off-site noise sensitive receptors. No significant construction-related noise impacts would occur under either scenario. As with the proposed project, no notable change in operational noise at LAX is expected to occur under Alternative 2.

Other Environmental Resources

The following addresses the potential impacts of Alternative 2, compared to those of the proposed project, based on the information and analysis contained in Chapter 5.

Land Use: The construction-related impacts on surrounding land uses under Alternative 2 would be less than those associated with the proposed project, because construction activities would be reduced, resulting in less overall construction-related traffic. Alternative 2 may avoid the significant construction-related traffic impact that would occur under the proposed project at the intersection of Century Boulevard and La Cienega Boulevard, under certain construction worker parking location scenarios. However, the significant impacts identified for the project at other intersections would not be avoided or substantially reduced under this alternative. No significant noise or view impacts would occur under either scenario.

Population, Housing, Employment, and Growth Inducement: Development of Alternative 2 would reduce the overall construction activity level of the project, with an associated reduction in the number of workers required for the project. This would be an adverse outcome of Alternative 2 relative to the project objective of providing a substantial number of construction employment opportunities. Similar to the proposed project, the majority of the construction jobs under Alternative 2 would be filled by workers who already reside within a 20-mile radius, and the jobs would be temporary. Therefore, there would be no substantial increase in demand for housing, utilities, or other development to the area under either scenario. Further, similar to the proposed project, operation of Alternative 2 would not induce substantial demand for housing, utilities, or other development to the area. As such, development of Alternative 2 would result in fewer workers than under the proposed project, which means that there would be comparatively less demand for housing, utilities, etc. However, no significant population, housing, employment, and growth inducement impacts would occur under either scenario.

Hydrology/Water Quality: The vast majority of the Bradley West Project site is developed, covered by impervious surface, and has been subject to airfield related uses for many years. Implementation of the Bradley West Project would increase impervious surfaces and involve the relocation and upgrading of existing drainage facilities. As with the proposed project, relocation of Taxiways Q and S would occur under Alternative 2, resulting in the conversion of 5.3 acres of unpaved area to impervious surface. Drainage system improvements and water quality control measures to be included in the proposed project would serve to avoid significant impacts related to hydrology and water quality. Such drainage system improvements and water quality control measures would apply equally to Alternative 2. Under both scenarios, hydrology and water quality impacts would be essentially the same and no significant impacts would occur.

Cultural Resources: There are no historic structures on or near the Bradley West Project site. Significant archaeological or paleontological resources are not known to occur at the project site; however, there is the potential to unexpectedly encounter such resources during excavation activities. The majority of excavation associated with the proposed project would be that associated with removal of existing paved surface areas, correction of any underlying soils issues, and preparation of soils for placement of base materials. Alternative 2 would involve a similar amount of excavation as the proposed project, with an associated similar likelihood of unexpectedly encountering subsurface archaeological or paleontological resources. The Master

Plan mitigation measures that apply to the proposed project address the potential for encountering such resources and would serve to ensure impacts would be less than significant. Those measures would apply equally to Alternative 2, and would equally result in no significant impacts. There would be no difference in impacts to cultural resources from development of Alternative 2 as compared to the proposed project.

Endangered and Threatened Species of Flora and Fauna: The Bradley West Project site is not located in or near an area that provides habitat for any threatened or endangered species. The potential impacts to endangered and threatened species associated with the proposed project would occur due to the use of the West Construction Staging Area, which is located in proximity to habitat for the El Segundo blue butterfly, and the Southeast Construction Staging/Parking Area, which has potential habitat for Riverside fairy shrimp cysts. Construction associated with Alternative 2 would use the same work, parking and staging areas as the proposed project. Therefore, potential impacts to endangered and threatened species would be the same under both scenarios. Mitigation, as described in Section 5.5, would reduce potential impacts to a less than significant level under either scenario.

Wetlands: A recent jurisdictional delineation found that no areas meeting all three federal wetland criteria exist within the Bradley West Project site, including construction staging and parking areas. Moreover, the delineation concluded that no areas subject to USACOE jurisdiction are located within the project site or construction staging areas. These conclusions are subject to concurrence by USACOE. Implementation of Alternative 2 would involve construction activities within the same overall work, parking and staging areas as the proposed project. Based on the preliminary findings of the recent jurisdictional delineation, no impacts to wetlands are anticipated to occur under either scenario.

Energy Supply and Natural Resources: As described above relative to air quality and greenhouse gas, implementation of Alternative 2 would result in a reduction in the overall construction activity associated with the proposed project, because there would be no renovation, improvement, or enlargement of the Bradley West Core facilities. Under this alternative, construction-related energy use would be reduced in comparison to the proposed project. In addition, as the Bradley West Core improvements would not require new paved areas, demand for aggregate would be essentially the same under both scenarios. Relative to operations, the increase in operational energy consumption under Alternative 2 would be approximately 9.5 percent, compared to the proposed project's 19 percent increase. Because adequate energy and aggregate supplies are anticipated to be available for construction and operation of either scenario, impacts on energy supply and natural resources would be less than significant.

Solid Waste: Construction-related solid waste would be generated by the demolition of existing buildings and surface area and the construction of new facilities within the project site. Because less demolition and new construction would occur under Alternative 2, less construction-related solid waste would be generated under this alternative. Operational solid waste generation relies upon factors that are based on the number of passengers using the terminal. Operation of Alternative 2 would not alter operational solid waste generation, as the ambient growth in international travel would occur with or without the proposed improvements. However, it is possible that operational solid waste would decrease somewhat under this alternative due to the reduced amount of retail activity without the additional concessions space associated with the Bradley West Core improvements. Nevertheless, under both the proposed project and Alternative 2, impacts associated with solid waste would be less than significant.

Aesthetics: There would be no appreciable difference between the proposed project and Alternative 2 regarding potential light emissions impacts during construction activities or operation of new facilities. The removal of existing lighting associated with the facilities that would be demolished/relocated due to construction of relocated Taxiways S and Q would occur as part of either scenario (see Section 4.6, Section 5.9, and Appendix G of this EIR). The only notable difference in lighting under this alternative would be relatively less interior lighting, as the existing central core would be substantially smaller than the Bradley West Core under the proposed project. Under both scenarios, impacts would be less than significant. With respect to aesthetics, as construction activities under this alternative would occur within the same overall work, parking and staging areas as the proposed project and, thus, at the same general distances from off-site viewers, aesthetic impacts during construction under either scenario would be similar. In both cases, impacts would be less than significant. As with the proposed project, Alternative 2 would represent an aesthetic improvement to the Central Terminal Area.

Earth and Geology: There are no geotechnical issues or characteristics particular to the project site that would be avoided by eliminating the Bradley West Core improvements under Alternative 2 as this alternative would involve a similar amount of grading and excavation as the proposed project. No significant impacts related to earth and geology are expected to occur from either the proposed project or Alternative 2.

Hazards and Hazardous Materials: There are areas of known subsurface contamination at and around the Bradley West Project site. Subsurface contamination is located west of and parallel to the existing TBIT concourse. This area would be excavated to allow for the relocation of Taxiways S and Q under both the proposed project and Alternative 2. Thus, the same known areas of contamination occurring within the limits of construction would be excavated, and materials with unacceptable levels of contamination would be transported off-site for treatment or disposal under both scenarios. The potential to unexpectedly encounter contamination during construction would be the same under either scenario, as Alternative 2 would involve excavation in the same areas as the proposed project. Master Plan commitments specifically intended and designed to address that possibility would apply to both the proposed project and Alternative 2. Overall, there would be no notable difference in impacts between the proposed project and Alternative 2 relative to hazards and hazardous materials; no significant impacts would occur under either scenario.

Public Utilities: Alternative 2 would result in a reduction in project-related construction activity, because there would be no renovation, improvement, or enlargement of the Bradley West Core facilities. As such, less water would be used for construction activities. As described above, Alternative 2 would result in a smaller increase in total square footage within TBIT, which would result in less operational water consumption and wastewater generation over baseline conditions. Both scenarios would incorporate water conservation measures into the design of new facilities. Adequate water supply and wastewater treatment capacity would be available to meet the construction and operations demand under both scenarios and no significant impacts to water supply or wastewater treatment capacity would occur. Both scenarios would require the removal and/or relocation of water and wastewater lines. However, no significant impacts would result under either scenario.

Public Services: There would be no appreciable difference in impacts on fire protection, parks and recreation, and libraries services between the proposed project and Alternative 2; impacts under either scenario would be less than significant. With respect to law enforcement, no significant impacts to law enforcement services would occur under either scenario. However, unlike the proposed project, the beneficial impact to law enforcement services as a result of enhancing passenger processing by expanding the CBP facilities within the Bradley West Core would not be realized under this alternative.

Conclusion Regarding Alternative 2

Implementation of Alternative 2, which would not include renovation, improvement, or enlargement of the Bradley West Core facilities, would result in less construction activity than would otherwise occur under the proposed project. For most pollutants, the reduction in construction activity associated with Alternative 2 would result in minor reductions (i.e., less than 10 percent) in construction-related air quality and global climate change impacts compared to those of the proposed project, with the exception of PM2.5 and PM10, which would experience reductions of 17 and 25 percent, respectively. These emission reductions would not be sufficient to cause any impacts to be reduced to a less than significant level, but the severity of the impact associated with some pollutants would be reduced. Operations-related air quality impacts under this alternative would be essentially the same as those of the proposed project. It is possible that Alternative 2 could avoid a significant construction-related traffic impact at one intersection, under certain construction worker parking location scenarios involving the use of the Northwest Construction Staging/Parking Area; however, the significant impacts identified for the project at the other three intersections would not be avoided or substantially reduced. Significant impacts associated with on-airport and off-airport operational surface transportation would remain largely unchanged under Alternative 2, because impacts are due primarily to anticipated ambient growth in international travel at TBIT, which would not be changed by implementing this alternative. Potential impacts to biotic resources would be the same for Alternative 2 as for the proposed project, because both would use the same staging areas where the biotic resources occur. Under both scenarios, project implementation would impact 34 mature trees and approximately 300 southern tarplant individuals, both significant, but mitigable, impacts.

Relative to other environmental topics, implementation of Alternative 2 would result in impacts that are the same as, or somewhat less than, those of the proposed project. In all cases for such other environmental topics, as with the proposed project, impacts would be less than significant.

Implementation of Alternative 2 would not meet one of the key objectives of the project: "Improve passenger level of service." Also, Alternative 2 would not respond to the objective of providing a substantial number of construction employment opportunities to the same extent as the proposed project.

6.4.3.3 Alternative 3: Design Variation - Redevelop Existing Concourses to Add New Gates

Air Quality and Global Climate Change

Using the same approach as described above for Alternative 1, construction-related air pollutant emissions were estimated for Alternative 3, taking into account the reduced amount of construction activity required for the project if the existing concourses were redeveloped to add the new contact gates instead of building new concourses and demolishing the old ones. It is assumed that redevelopment of the existing concourses would follow the same schedule as currently proposed for development of the new north and south concourses.

Table 6-8 delineates the air pollutant emissions associated with Alternative 3. As indicated in **Table 6-10**, the peak daily construction-related emissions associated with Alternative 3 would be 20 percent less for VOCs; however, reductions in peak daily emissions for other pollutants would range from only zero to nine percent. Compared to the proposed project, this alternative's pollutant emissions would range from one to eight percent below proposed project emissions. Similar to the proposed project, the emissions associated with Alternative 3 would exceed the SCAQMD thresholds of significance for most of the criteria pollutants, with the exception of SO_X.

With regard to operations-related air quality impacts, implementation of Alternative 3 would not avoid or substantially reduce the significant impacts identified for the project. As indicated above, the increase in airfield operations emissions that would trigger a significant impact under the proposed project is due solely to the projected increase in aircraft activity between 2008 and 2013, which would not change under this alternative.

Table 6-10

Air Quality and Greenhouse Gas Emissions for Alternative 3: Design Variation - Redevelop Existing Concourses to Add New Gates

	Peak Daily Emissions (lbs/day)			Peak Quarterly Emissions (tons/qtr)			Total Emissions (tons)[3]	
Scenario	**Threshold of Significance**	**Emissions[1]**	**Reduction from Project**	**Threshold of Significance**	**Emissions[1]**	**Reduction from Project**	**Emissions**	**Reduction from Project**
Carbon Monoxide (CO)								
Project	550	**1,216**		24.75	**38.93**		510	
Alt 3	550	**1,216**[2]	0	24.75	**38.58**	1%	503	1%
Volatile Organic Compounds (VOC)								
Project	75	**362**		2.50	**8.32**		92	
Alt 3	75	**289**	20%	2.50	**8.23**	1%	91	2%
Nitrogen Oxides (NO_X)								
Project	100	**1,987**		2.50	**60.42**		649	
Alt 3	100	**1,987**[2]	0	2.50	**59.69**	1%	634	2%
Sulfur Oxides (SO_X)								
Project	150	3		6.75	0.09		1.09	
Alt 3	150	3	0	6.75	0.08	4%	1.07	2%
Respirable Particulate Matter (PM10)								
Project	150	**559**		6.75	**19.51**		128	
Alt 3	150	**510**	9%	6.75	**18.02**	8%	126	2%
Fine Particulate Matter (PM2.5)								
Project	55	**172**		6.75	6.72		47	
Alt 3	55	**162**	6%	6.75	6.39	5%	46	2%
Carbon Dioxide (CO_2)								
Project	NA	NA	NA	NA	NA	NA	96,952[3]	
Alt 3	NA	NA	NA	NA	NA	NA	95,298[3]	2%

1 Values shown in **bold** indicate significant impacts.
2 The peak daily activity of VOC emissions occurs in 2011 due to fugitive emissions from paving and architectural coating activities. The peak daily activity of CO, NO_X, SO_X, PM10, and PM2.5 emissions occurs in 2010.
3 Values for CO_2 are in metric tons.

Source: CDM, 2009.

While the total amount of concourse area associated with Alternative 3 would be approximately 18 percent less than the new concourse area for the proposed project, there would not be a proportional reduction in energy consumption and associated air pollutant emissions because the concourses that would remain are less energy efficient than the concourses that would have replaced them. As described in Section 4.6 of this EIR, implementation of the proposed project would almost double the existing amount of floor area at TBIT, but energy consumption is projected to be only about 19 percent greater than 2008 baseline conditions. This is attributable largely to the demolition of several older energy inefficient building and the construction of new energy efficient buildings. Under Alternative 3, the 25-year-old existing concourses would remain and only the westerly extension of the concourses would be newly constructed, as opposed to the proposed project whereby entirely new concourses would be constructed. Based solely on a ratio of the amount of additional building floor area under the proposed project (from approximately one million square feet to approximately two million square feet, a 100 percent increase in floor area) to the amount of increased energy demand (19 percent increase), reducing the amount of new floor area by a net of 80,000 square feet (8 percent) could, in simple terms, reduce the amount of increased energy demand by an equivalent amount. Based on these assumptions, implementation of Alternative 3 would result in an approximately 17 percent increase in energy consumption compared to baseline conditions. (In all likelihood, the increase in energy consumption would likely be somewhat higher than 17 percent, as the building area to be retained would be less energy efficient than the building area that would have replaced it.) This reduction in energy consumption and related decrease in air pollutant emissions would not result in a substantial reduction in the overall operations-related emissions, which are comprised primarily of the airfield operations emissions described above.

There would be no notable difference in off-airport vehicle travel emissions between this alternative and the proposed project. As explained in the LAX Master Plan Final EIR, international travel activity at TBIT in 2013 is projected to be about the same whether new concourses are constructed or the existing concourses remain. Consequently, this alternative would not affect off-airport vehicle emissions.

Based on the above, Alternative 3 would not avoid or substantially reduce the air quality impacts that would otherwise occur if the proposed project were implemented.

Similar to the conclusions regarding criteria pollutants, the reduction in construction activities associated with this alternative would reduce construction-related greenhouse gas emissions that contribute to global climate change. As indicated above in **Table 6-10**, the reduction in construction-related CO_2 emissions would be approximately two percent compared to the proposed project. This reduction is not considered to represent a substantial reduction in the project's impacts related to global climate change. With regard to greenhouse gas emissions associated with long-term operation of the concourses at TBIT, the renovation of existing concourses, as opposed to development of new concourses, would hinder the ability of the project to comply with LAWA's sustainability guidelines and for the Bradley West Core and concourse improvements to achieve LEED Silver Certification. Similar to the proposed project, the impacts of Alternative 3 on global climate change are considered to be significant and unavoidable.

Human Health Risk

As indicated previously, implementation of Alternative 3 would result in slightly lower construction-related emissions compared to the proposed project, and essentially the same operations-related emissions as the project. Similar to the proposed project, the human health risk impacts of Alternative 3 would be less than significant.

On-Airport Surface Transportation

Implementation of Alternative 3 would result in the same on-airport surface transportation impacts as those of the proposed project, because both development scenarios would have essentially the same operational facilities.

Off-Airport Surface Transportation

Similar to on-airport surface transportation, implementation of Alternative 3 would have the same impacts related to off-airport surface transportation as the proposed project because both scenarios have essentially the same operational facilities. As such, implementation of Alternative 3 would not avoid or substantially reduce significant impacts related to off-airport surface transportation that would otherwise occur under the proposed project.

Construction Surface Transportation

The construction surface transportation analysis is based on the peak period of construction activity, which, under the schedule for the proposed project, is anticipated to occur in the fourth quarter of 2011. During that peak period, there would be substantial construction activity associated with completion of the new south concourse, preparation of aircraft apron areas, and development of the Bradley West Core. Under Alternative 3, it is assumed that the currently proposed construction schedule would not change and that the number of construction workers required to redevelop the existing concourses would be generally comparable to the number required to construct new concourses. The one notable difference between Alternative 3 and the proposed project would be that demolition of the existing concourses would not be needed under Alternative 3. The timing for such demolition is, however, well after the projected peak construction period in the fourth quarter of 2011 (demolition of the north concourse is scheduled for the second and third quarters of 2012 and demolition of the south concourse is scheduled for the first and second quarter of 2013). Therefore, it is not likely that implementation of Alternative 3 would avoid or substantially reduce the significant traffic impacts expected to occur during the peak construction traffic period.

Biotic Communities

The construction-related impacts on biotic communities associated with Alternative 3 would be the same as those of the proposed project, because the Northwest Construction Staging/Parking Area, East Contractor Employee Parking Area and Southeast Construction Staging/Parking Area would be utilized under either scenario, resulting in impacts to 34 mature trees in the Northwest Construction Staging/Parking Area and approximately 300 southern tarplant individuals in the other two areas. These impacts would be considered significant; however, as described in Section 4.7, mitigation is proposed to reduce these impacts to a less-than-significant level.

Noise

The construction noise impacts associated with this alternative would essentially be the same as those of the proposed project. Under Alternative 3, the types of construction activities would be similar in nature, and would occur within the same overall work, parking and staging areas as the proposed project, and thus, at the same distances from off-site noise sensitive receptors. No significant construction-related noise impacts would occur under either scenario. As with the proposed project, no notable change in operational noise at LAX is expected to occur under Alternative 3.

Other Environmental Resources

The following addresses the potential impacts of Alternative 3, compared to those of the proposed project, based on the information and analysis contained in Chapter 5.

Land Use: The construction-related impacts on surrounding land uses under Alternative 3 would be less than those associated with the proposed project, because construction activities would be reduced, resulting in less overall construction-related traffic. No significant noise or view impacts would occur under either scenario. As described above, Alternative 3 would not avoid the significant construction-related traffic impacts that would occur under the proposed project.

Population, Housing, Employment, and Growth Inducement: Development of Alternative 3 would reduce the overall construction activity level of the project, with an associated reduction in the number of workers required for the project. This would be an adverse outcome of Alternative

3 relative to the project objective of providing a substantial number of construction employment opportunities. Similar to the proposed project, the majority of the construction jobs under Alternative 3 would be filled by workers who already reside within a 20-mile radius, and the jobs would be temporary. Therefore, there would be no substantial increase in demand for housing, utilities, or other development to the area under either scenario. Further, similar to the proposed project, operation of Alternative 3 would not induce substantial demand for housing, utilities, or other development to the area. As such, no significant population, housing, employment, and growth inducement impacts would occur under either scenario.

Hydrology/Water Quality: The vast majority of the Bradley West Project site is developed, covered by impervious surface, and has been subject to airfield related uses for many years. Implementation of the Bradley West Project would increase impervious surfaces and involve the relocation and upgrading of existing drainage facilities. As with the proposed project, relocation of Taxiways Q and S would occur under Alternative 3, resulting in the conversion of 5.3 acres of unpaved area to impervious surface. Drainage system improvements and water quality control measures to be included in the proposed project would serve to avoid significant impacts related to hydrology and water quality. Such drainage system improvements and water quality control measures would apply equally to Alternative 3. Under both scenarios, hydrology and water quality impacts would be essentially the same and no significant impacts would occur.

Cultural Resources: There are no historic structures on or near the Bradley West Project site. Significant archaeological or paleontological resources are not known to occur at the project site. However, there is the potential to unexpectedly encounter such resources during excavation activities. The majority of excavation associated with the proposed project would be that associated with removal of existing paved surface areas, correction of any underlying soils issues, and preparation of soils for placement of base materials. Alternative 3, which would provide for redevelopment and expansion of the existing TBIT north and south concourses instead of developing new concourses to replace the existing concourses, could ostensibly reduce the likelihood of unexpectedly encountering subsurface archaeological or paleontological resources, to the extent that comparatively less excavation would be required. The Master Plan mitigation measures that apply to the proposed project address the potential for encountering such resources and would serve to ensure impacts would be less than significant. Those measures would apply equally to Alternative 3, and would equally result in no significant impacts. There would be no difference in impacts to cultural resources from development of Alternative 3 as compared to the proposed project.

Endangered and Threatened Species of Flora and Fauna: The Bradley West Project site is not located in or near an area that provides habitat for any threatened or endangered species. The potential impacts to endangered and threatened species associated with the proposed project would occur due to the use of the West Construction Staging Area, which is located in proximity to habitat for the El Segundo blue butterfly, and the Southeast Construction Staging/Parking Area, which has potential habitat for Riverside fairy shrimp cysts. Construction associated with Alternative 3 would use the same work, parking and staging areas as the proposed project. Therefore, potential impacts to endangered and threatened species would be the same under both scenarios. Mitigation, as described in Section 5.5, would reduce potential impacts to a less than significant level under either scenario.

Wetlands: A recent jurisdictional delineation found that no areas meeting all three federal wetland criteria exist within the Bradley West Project site, including construction staging and parking areas. Moreover, the delineation concluded that no areas subject to USACOE jurisdiction are located within the project site or construction staging areas. These conclusions are subject to concurrence by USACOE. Implementation of Alternative 3 would involve construction activities within the same overall work, parking and staging areas as the proposed project. Based on the preliminary findings of the recent jurisdictional delineation, no impacts to wetlands are anticipated to occur under either scenario.

Energy Supply and Natural Resources: As described above relative to air quality and greenhouse gas, implementation of Alternative 3 would result in a reduction in the overall construction activity associated with the proposed project. As such, under this alternative, construction-related energy use and demand for aggregate and cement would be reduced compared to the proposed project. Relative to operations, the increase in operational energy consumption under Alternative 3 would be approximately 17 percent, compared to the proposed project's 19 percent increase. Because adequate energy and aggregate supplies are anticipated to be available for construction and operation of either scenario, impacts on energy supply and natural resources would be less than significant. Because adequate energy and aggregate supplies are anticipated to be available for construction and operation of either scenario, impacts on energy supply and natural resources would be less than significant.

Solid Waste: Construction-related solid waste would be generated by demolition of existing buildings and surface area and the construction of new facilities within the project site. Such demolition and new construction activities would be substantially less under Alternative 3, which would not include demolition of the existing concourse facilities. Implementation of Alternative 3 would not alter operational solid waste generation as compared to the proposed project, because solid waste generation is associated with activity levels. As described previously, the ambient growth in international travel would occur with or without the proposed improvements. Under both the proposed project and Alternative 3, impacts associated with solid waste would be less than significant.

Aesthetics: There would be no appreciable difference between the proposed project and Alternative 3 regarding potential light emissions impacts during construction activities or operation of new facilities. The removal of existing lighting associated with the facilities that would be demolished/relocated due to construction of relocated Taxiways S and Q would occur as part of either scenario. (see Section 4.6, Section 5.9, and Appendix G of this EIR). The only notable difference in lighting under this alternative would be relatively less interior lighting, as renovation of existing concourses would result in 18 percent less square footage than would result as part of construction of new replacement concourses under the proposed project. Under both scenarios, impacts would be less than significant. With respect to aesthetics, as construction activities under this alternative would occur within the same overall work, parking and staging areas as the proposed project and, thus, at the same general distances from off-site viewers, aesthetic impacts during construction under either scenario would be similar. In both cases, impacts would be less than significant. Under Alternative 3, the existing TBIT concourses would not be demolished and reconstructed as part of the overall architectural design vision for the modernization of LAX. As such, this alternative would not result in the level of aesthetic improvement of the Central Terminal Area when compared to the proposed project.

Earth and Geology: There are no geotechnical issues or characteristics particular to the project site that would be avoided by retaining the existing north and south concourses under Alternative 3, other than simply a difference in the amount of grading. The majority of excavation associated with the proposed project would be associated with removal of existing paved surface areas. As Alternative 3would not include the demolition and replacement of the existing TBIT concourses, less excavation would occur under this alternative. No significant impacts related to earth and geology are expected to occur under either scenario.

Hazards and Hazardous Materials: There are areas of known subsurface contamination at and around the Bradley West Project site. Subsurface contamination is located west of, and parallel to the existing TBIT concourses. This area would be excavated to allow for the relocation of Taxiways S and Q under both the proposed project and Alternative 3. The same known areas of contamination occurring within the limits of construction would be excavated, and materials with unacceptable levels of contamination would be transported off-site for treatment or disposal under both scenarios. There is limited potential to encounter previously unknown areas of contamination during construction. To the extent that Alternative 3 would require less excavation, the potential for encountering such contamination would be lower. There are, however, Master Plan commitments specifically intended and designed to address this possibility, which would apply to both the proposed project and Alternative 3. Overall, there would be no notable difference in impacts between the proposed project and Alternative 3 relative to hazards and hazardous materials; no significant impacts would occur under either scenario.

Public Utilities: Under Alternative 3, the amount of construction required to redevelop the existing concourses would be less than demolishing and replacing the concourses. As such, less water would be used for construction activities. As described above, Alternative 3 would result in a smaller increase in total square footage within TBIT, which would result in less operational water consumption and wastewater generation over baseline conditions. Both scenarios would incorporate water conservation measures into the design of new facilities. Adequate water supply and wastewater treatment capacity would be available to meet the construction and operations demand under both scenarios and no significant impacts to water supply or wastewater treatment capacity would occur. Both scenarios would require the removal and/or relocation of water and wastewater lines. However, no significant impacts would result under either scenario.

Public Services: There would be no appreciable difference in impacts on public services (i.e., fire protection, law enforcement, parks and recreation, and libraries) between the proposed project and Alternative 3; impacts under either scenario would be less than significant.

Conclusion Regarding Alternative 3

Implementation of Alternative 3, which would provide for redevelopment and expansion of the existing TBIT north and south concourses instead of developing new concourses to replace the existing concourses, would result in less construction activity than would otherwise occur under the proposed project. The reduction in construction activity would result in minor reductions (i.e., less than 10 percent) in construction-related air quality and global climate change impacts for most pollutants compared to those of the proposed project, with the exception of VOC, which would experience a 23 percent reduction. These emission reductions would not be sufficient to cause any impacts to be reduced to a less than significant level, but the severity of the impact associated with some pollutants would be reduced. Operations-related air quality impacts under this alternative would be essentially the same as those of the proposed project. Significant impacts associated with on-airport and off-airport surface transportation would remain largely unchanged under Alternative 3, because the impacts are due primarily to anticipated ambient growth in international travel at TBIT, which would not be affected by implementation of this alternative. Potential impacts to biotic resources would be the same for Alternative 3 as for the proposed project, because both would use the same staging areas where the biotic resources occur. Under both scenarios, project implementation would impact 34 mature trees and approximately 300 southern tarplant individuals, both significant, but mitigable, impacts.

Relative to other environmental topics, implementation of Alternative 3 would result in impacts that are the same as, or somewhat less than, those of the proposed project. In all cases for such other environmental topics, as with the proposed project, impacts would be less than significant.

Implementation of Alternative 3 would not meet two of the key objectives of the project to the same extent as the current proposal, those being (1) "Improve passenger level of service" and (2) "Complement the systematic phased implementation of the Master Plan and minimize impacts to existing airport operations during construction." It is anticipated that the level and quality of service afforded to passengers utilizing the TBIT concourses would be better with the provision of completely new facilities, such as currently proposed, than through a combination of partially new and partially renovated facilities that would occur under this alternative. While the currently proposed development of new concourses separate from the existing concourses would minimize, if not avoid, disruption of existing airport operations within the concourses, the renovation and expansion of the existing concourses that would occur under Alternative 3 would result in periodic disruption of existing operations. Such disruption would occur along the interface of existing and new building areas, as well as throughout the interior of the existing concourses, as existing utility and building infrastructure systems are upgraded and/or modified to support the new building systems. Because many of these systems are contained within the walls, ceilings, and floors throughout the existing concourses, the necessary modifications to these systems would require temporary closures and passenger detours within the concourses.

6.4.3.4 Alternative 4: Construction Staging/Parking Areas - Optimize Use of West Construction Staging Area to Include Worker Parking

Air Quality and Global Climate Change

Under Alternative 4, the space utilization layout of the West Construction Staging Area, identified in Figure 2-7 in Chapter 2 of this EIR, would be modified to provide a surface vehicle parking lot that would serve as the primary area for construction worker parking. Reconfiguration of the subject area could require some additional grading beyond that originally envisioned for the proposed project; however, such grading would only affect portions of a four-acre corner of the 60+ acre West Construction Staging Area. Use of this area for construction worker parking, instead of the Northwest Construction Staging/Parking Area or the East Contractor Employee Parking Area/Southeast Construction Staging/Parking Area, would represent a minor change in the commute pattern of workers, but would not amount to a material difference in worker commute emissions. This alternative would not affect operations-related emissions. As such, implementation of Alternative 4 would not result in air quality impacts that are any different than those identified for the proposed project. This would also be the case relative to greenhouse gas emissions and global climate change impacts.

Human Health Risk

Implementation of Alternative 4 would have no bearing on human health risk impacts as compared to the proposed project.

On-Airport Surface Transportation

Implementation of Alternative 4 would have no bearing on on-airport surface transportation impacts as compared to the proposed project.

Off-Airport Surface Transportation

Implementation of Alternative 4 would have no bearing on off-airport surface transportation impacts beyond those described below for construction-related traffic as compared to the proposed project.

Construction Surface Transportation

Based on the location of the West Construction Staging Area and the off-airport roadway system providing access to that location, the construction-related traffic impacts of Alternative 4 would be the same as those described in Section 4.3.6 of this EIR for Scenarios 1 and 3, which involve the use of the Northwest Construction Staging/Parking Area. Workers traveling to and from the West Construction Staging Area would likely take the same basic routes as if they were going to or from the Northwest Construction Staging/Parking Area, especially given that there are only two main roadways serving both sites. Workers commuting from areas south of the project construction site would head west on Imperial Highway and then north on Pershing Drive. Those travelling to the West Construction Staging Area would then turn onto World Way West, while those travelling to the Northwest Construction Staging/Parking Area would then turn onto Westchester Parkway. Whether a worker turns at the interchange of Pershing Drive and World Way West or at the intersection of Westchester Parkway and Pershing Drive would not result in any difference in impacts, as both intersections currently operate at a high level of service and have no capacity deficiencies. Workers commuting from areas north of the project construction site, would head west on Westchester Parkway to get to either of the two staging/parking areas. Those travelling to the Northwest Construction Staging/Parking Area would turn at the southern terminus of Falmouth Avenue, while those travelling to the West Construction Staging Area would continue to Pershing Drive and then turn at World Way West. There would be no notable difference in impacts by workers turning at Falmouth Avenue as opposed to Pershing Drive.

Under Alternative 4, the West Construction Staging Area would be the primary area for construction worker parking. The four-acre parking area would be designed to hold approximately 600 cars, which would be adequate to accommodate the parking needs during the majority of the construction program. The East Contractor Employee Parking Area would be used during the initial phase of construction, when the parking area within the West Construction Staging Area is being graded and set up, and possibly during short-term surges in construction when additional parking is needed. The Northwest Construction Staging/Parking Area and the Southeast Construction Staging/Parking Area would be used primarily for construction offices and equipment/materials storage and lay down, with related parking.

As indicated above, use of the West Construction Staging Area for construction worker parking would likely result in traffic impacts comparable to those identified in Section 4.3 of this EIR for Scenarios 1 and 3. Intersections that would be significantly impacted would include the following:

- 36. Century Boulevard and La Cienega Boulevard
- 68. Imperial Highway and Main Street
- 69. Imperial Highway and Pershing Drive
- 114. Sepulveda Boulevard and Manchester Avenue

Biotic Communities

As noted above, under this alternative, the West Construction Staging Area would serve as the primary parking area for construction activities associated with the Bradley West Project. In so doing, the need for, and use of, the Northwest Construction Staging/Parking Area and the East Contractor Employee Parking Area/Southeast Construction Staging/Parking Area would be reduced.

As indicated in Section 4.7, approximately 300 southern tarplant individuals were observed in two areas within the northern portion of the Southeast Construction Staging/Parking Area, and one southern tarplant individual was observed in the eastern portion of the East Contractor Employee Parking Area. Under Alternative 4, in conjunction with shifting most of the employee parking needs to the West Construction Staging Area, the Southeast Construction Staging/Parking Area would be reduced in size by limiting construction staging and parking to the southern two thirds of the site. With respect to the one southern individual located within the East Contactor Employee Parking Area, under this alternative parking would be prohibited on or near the southern tarplant individual location. Thus, implementation of this alternative would avoid direct impacts to the approximately 300 southern tarplant individuals that would otherwise be impacted as a result of the propose project. It is recommended, nevertheless, that the potentially significant impacts associated with removal of existing southern tarplant be addressed through the mitigation measures presented in Section 4.7 instead of through avoidance under this alternative. It is not feasible to protect and maintain a single plant located in the East Contractor Employee Parking Area. Although it is possible to fence off the areas within the Southeast Construction Staging/Parking Area containing southern tarplant, the areas would effectively be small islands within the midst of what could be a very active site with vehicle movements and equipment/materials lay downs that could directly impact the plants and generate localized dust that would settle on the plants. The recommended mitigation measure (MM-BC (BWP)-1) involving collecting seeds and planting them in an area less likely to be disturbed is recommended instead of trying to preserve the plants in-place under this alternative.

Under Alternative 4, the size of the Northwest Construction Staging/Parking Area would be reduced/ reconfigured to avoid or reduce impacts to 34 mature trees, which provide nursery sites for raptors.

This alternative would substantially reduce, but not completely avoid, impacts to the southern tarplant and mature trees.

Noise

The construction noise impacts associated with this alternative would be less than those of the proposed project. This is due to the fact that use of the Northwest Construction Staging/Parking Area, which is near noise-sensitive uses to the north within the community of Westchester, would be substantially reduced as use of the West Construction Staging Area would serve as the primary construction employee parking area. No significant construction-related noise impacts would occur under either scenario. As with the proposed project, no notable change in operational noise at LAX is expected to occur under Alternative 4.

Other Environmental Resources

The following addresses the potential impacts of Alternative 4, compared to those of the proposed project, based on the information and analysis contained in Chapter 5.

Land Use: The construction-related land use impacts of Alternative 4 would be reduced compared to the proposed project, because construction staging/parking would be reduced within the Northwest Construction Staging/Parking Area, resulting in reduced construction-related traffic and noise impacts to residential areas to the north within the community of Westchester. No significant noise or view impacts would occur under either scenario. Alternative 4 would not avoid the significant construction-related traffic impacts that would occur under the proposed project.

Population, Housing, Employment, and Growth Inducement: There would be no material difference in the construction worker staffing requirements under Alternative 4 as compared to the proposed project. Similar to the proposed project, the majority of the construction jobs under Alternative 4 would be filled by workers who already reside within a 20-mile radius, and the jobs would be temporary. Therefore, there would be no substantial increase in demand for housing, utilities, or other development to the area under either scenario. Further, similar to the proposed project, operation of Alternative 4 would not induce substantial demand for housing, utilities, or other development to the area. As such, no significant population, housing, employment, and growth inducement impacts would occur under either scenario.

Hydrology/Water Quality: Implementation of Alternative 4 would have no material bearing on hydrology/water quality impacts because improvement of the staging/parking areas would involve placement of crushed gravel and other pervious materials on a temporary basis, which would not result in a substantial long-term change in hydrology or water quality. Improvement of the staging/parking area would include implementation of construction-related best management practices (BMPs) that would be applied under either scenario.

Cultural Resources: Implementation of Alternative 4 would have no bearing on cultural resources impacts as compared to the proposed project.

Endangered and Threatened Species of Flora and Fauna: The Bradley West Project site is not located in or near an area that provides habitat for any threatened or endangered species. The potential impacts to endangered and threatened species associated with use of the West Construction Staging Area under the proposed project, which is located in proximity to habitat for the El Segundo blue butterfly, would also occur under Alternative 4. Although the use of the Southeast Construction Staging/Parking Area would be modified under Alternative 4, the portion of the site containing potential habitat for Riverside fairy shrimp cysts is still planned to be used under this alternative. Therefore, potential impacts to endangered and threatened species would be the same under both scenarios. Mitigation, as described in Section 5.5, would reduce potential impacts to a less than significant level under either scenario.

Wetlands: A recent jurisdictional delineation found that no areas meeting all three federal wetland criteria exist within the Bradley West Project site, including construction staging and parking areas. Moreover, the delineation concluded that no areas subject to USACOE jurisdiction are located within the project site or construction staging areas. These conclusions are subject to concurrence by ACOE. Even with the modification to the use of the different construction staging/parking areas, implementation of Alternative 4 would involve some level of construction activity within the same overall work, parking and staging areas as the proposed project. Based on the preliminary findings of the recent jurisdictional delineation, no impacts to wetlands are anticipated under either scenario.

Energy Supply and Natural Resources: Alternative 4 would result in the same amount of construction activity associated with the proposed project. As such, construction-related energy use and demand for aggregate would be the same under both scenarios. There would be no changes to operations under this alternative as compared to the proposed project. Because adequate energy and aggregate supplies are anticipated to be available for construction and operation of either scenario, impacts on energy supply and natural resources would be less than significant.

Solid Waste: Implementation of Alternative 4 would have no bearing on solid waste impacts compared to the proposed project.

Aesthetics: Light emission impacts during construction could be reduced under this alternative, given that the Northwest Construction Staging/Parking Area would be reconfigured and possibly reduced in size with an associated possible reduction in the lighting of the overall staging/parking area during nighttime activities. With respect to aesthetics, as construction activities would occur within the same overall work, parking and staging areas as the proposed project and, thus, at the same general distances from off-site viewers, aesthetic impacts during construction under either scenario would be similar. In both cases, impacts would be less than significant.

Earth and Geology: Implementation of Alternative 4 would have no bearing on earth/geology impacts compared to the proposed project.

Hazards and Hazardous Materials: Implementation of Alternative 4 would have no bearing on impacts associated with hazards and hazardous materials compared to the proposed project.

Public Utilities: Implementation of Alternative 4 would have no bearing on public utilities impacts compared to the proposed project.

Public Services: Implementation of Alternative 4 would have no bearing on public services impacts compared to the proposed project.

Conclusion Regarding Alternative 4

Implementation of Alternative 4 would result in the same amount of construction activity as would otherwise occur under the proposed project; hence, it would have the same construction-related air quality impacts as the project. This alternative would not affect operations-related air quality impacts. With regards to traffic impacts, implementation of Alternative 4 would likely have the same construction-related impacts as the proposed project relative to impact analysis Scenarios 1 and 3. Impacts related to on-airport and off-airport surface transportation would not be affected by Alternative 4.

With respect to biological resources, implementation of Alternative 4 would avoid or substantially reduce impacts to approximately 300 southern tarplant individuals and 34 mature trees, which are significant, but mitigable impacts associated with the proposed project.

Relative to other environmental topics, implementation of Alternative 4 would result in impacts that are the same as, or somewhat less than, those of the proposed project. For some environmental topics, impacts associated with the proposed project would not be affected at all by implementation of this alternative. In all cases for such other environmental topics, as with the proposed project, impacts would be less than significant. Implementation of Alternative 4 would not hinder the ability to meet the objectives of the project.

In summary, implementation of Alternative 4 would not avoid or substantially reduce the unavoidable significant impacts of the project, as related to air quality, global climate change, and traffic, but would provide a way to avoid or substantially reduce mitigable significant impacts related to biological resources. Additionally, it responds to comments received on the NOP for this EIR regarding the proposed construction staging/parking areas.

6.4.3.5 "No Project" Alternative

Under the "no project" alternative, TBIT and the nearby taxiways and aprons as they currently exist would be retained. Only Gates 101 and 123 at TBIT and the gates at the west remote pads would be able to accommodate new large aircraft such as the A380 and 747-8 at LAX. Use of the west remote gates for the next generation of aircraft is undesirable from both an operations standpoint, particularly as related to the amount of busing required for the number of passengers on each aircraft, and from a level of passenger service standpoint. Under the "no project" alternative, none of the construction-related significant impacts would occur; however, significant operations-related impacts would still occur under the "no project" alternative due to the increase in international travel activity at LAX that is projected to occur even if the project is not implemented. In some cases, operations-related impacts under the "no project" alternative would be worse than those of the proposed project. These include air pollutant emissions associated with aircraft taxi/idle operations and airfield busing operations in 2013, which would be greater without the project than with the project. Moreover, the "no project" alternative would not meet any of the project objectives.

6.4.4 Environmentally Superior Alternative

Based on the analysis above, the "no project" alternative is considered to be the Environmentally Superior Alternative due to the fact that it would not include the extensive construction activities associated with the currently proposed project and would avoid significant construction-related traffic, air quality, global climate change, and biotic resources impacts.

Second to the "no project" alternative, Alternative 2 would be considered the Environmentally Superior Alternative, under certain construction worker parking area location assumptions (i.e., if the Northwest Construction Staging/Parking Area is used for construction worker parking), due to its potential to avoid a significant unmitigable construction traffic impact at one intersection. Alternative 2 would also consume less energy during operation than the proposed project and Alternatives 1, 3 and 4.

While Alternatives 1, 2, and 3 provide various options related to the key elements of the project, Alternative 4 addresses a specific construction aspect of the project. Alternative 4 is considered to be Environmentally Superior to the proposed project relative to construction staging/parking impacts.

7. LIST OF PREPARERS, PARTIES TO WHOM SENT, REFERENCES, NOP COMMENTS, AND LIST OF ACRONYMS

To aid the reader, Chapter 7 contains the following sections:

- List of Preparers
- List of Parties to Whom Sent
- List of References
- NOP and Correspondence
- List of Acronyms

7.1 List of Preparers

LAWA

Roger Johnson, Deputy Executive Director of Airports Development Group: B.S., Engineering. 25 years of experience in aviation and environmental planning. He is responsible for planning and environmental compliance at LAWA's four airports. He is also responsible for all LAX Development projects, including the Bradley West Project.

Richard Wells, Chief of Airport Planning: B.S., Civil Engineering; M.S., Structural Engineering. 38 years experience. Division Manager with oversight of Airport Planning and CEQA documentation. (Retired from LAWA prior to EIR publication.)

Mike Doucette, Chief of Airport Planning: B.S., Architecture. 20 years experience. Daily responsibility of overseeing LAX Development including the Bradley West Project.

Herb Glasgow, Senior City Planner: B.A., Geography, Urban Planning. 30 years experience. Provided assistance in the preparation and review of the CEQA document.

Dennis Quilliam, City Planner: B.S., City Planning & Regional Planning. 32 years experience. Responsible for the oversight of the CEQA documentation for the LAX Development including the Bradley West Project.

Pat Tomcheck, Senior Transportation Engineer: B.S., Civil Engineering. 23 years experience. Responsible for transportation engineering, ground transportation improvement projects and analysis at all four of LAWA's airports. Oversaw preparation of traffic analyses for Bradley West Project.

Jake Adams P.E., Program Manager: B.S., Civil Engineering. 19 years experience. Provided expertise and coordination regarding construction aspects of the Bradley West Project.

CDM

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7.3 List of References

50 Code of Federal Regulations (CFR) Section 402.10, "Conference on Proposed Species or Proposed Critical Habitat."

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7.4 NOP Comments

A Notice of Preparation (NOP) for the Bradley West Project Draft EIR was published on December 17, 2008. The public comment period concluded on January 28, 2009. Comment letters received from public review of the December 17, 2008 NOP are listed below. Copies of the December 17, 2008 NOP and the comment letters received are included in Appendix A.

Agency/Contact	**Date of Correspondence**
State of California -- State Clearinghouse/Scott Morgan	December 18, 2008
Native American Heritage Commission/Dave Singleton	December 24, 2008
South Coast Air Quality Management District/Steve Smith	December 24, 2008
Department of Transportation -- District 7, Office of Public Transportation and Regional Planning/Elmer Alvarez	January 6, 2008
U.S. Department of Homeland Security, FEMA/Gregor Blackburn	January 8, 2009
State of California Department of Fish and Game/Scott Harris	January 14, 2009
Department of Transportation -- Division of Aeronautics/Sandy Hesnard	January 15, 2009
Ruth Wiggins	January 23, 2009
Alex Weir	January 24, 2009
Alliance for a Regional Solution to Airport Congestion/Denny Schneider	January 26, 2009
Chevalier, Allen, & Lichman, LLP/Barbara E. Lichman Ph.D.	February 3, 2009
Shute, Mihaly, & Weinberger LLP/Osa L. Wolff	February 3, 2009
County of Los Angeles, Chief Executive Office/William Fujioka	February 4, 2009
Harry Rose	January 20, 2009
Harry Rose	January 25, 2009
Eric Andres	January 26, 2009
Karen Kanter	January 27, 2009
Jack Berlin	January 27, 2009
Katherine & Gregg Nordberg	January 27, 2009
L. Farris	January 27, 2009
Patty Tarica	January 27, 2009
Cindy Curphey	January 27, 2009
Carole Cochran	January 27, 2009
Jane Affonso	January 27, 2009
Dianne Callahan	January 27, 2009
Karen Schwarzmann	January 27, 2009
Jacqueline Hamilton	January 27, 2009
Tommy Roys	January 27, 2009
Tommy Roys	January 27, 2009
Tommy Roys	January 27, 2009
Katy Loftus	January 28, 2009
John Kiralla	January 28, 2009
Jan Odonnell	January 28, 2009
Eric Andres	January 28, 2009
Karen Kanter	January 28, 2009
Chad Molnar	January 28, 2009
Betsy Hall	January 28, 2009
Carole Hossan	January 28, 2009
Harry Rose	January 28, 2009
Jennifer Dakoske Koslu	January 28, 2009
Jane St. John	January 28, 2009
Jennifer Dakoske Koslu	January 28, 2009
Johnnie Claire Telford	January 29, 2009

7.5 List of Acronyms

AB32	California Assembly Bill 32
AC	Asphalt Concrete
ACGIH	American Conference of Governmental Industrial Hygienists
ADA	Americans with Disabilities Act
ADD	Average Daily Dose
ADG	Airplane Design Group
ADP	Airport Development Program
ADT	Average Daily Trip
AER	Annual Emissions Report
AERMOD	Air Dispersion Model
AET	American Eagle Terminal
AF-yr	Acre-Feet Per Year
ALP	Airport Layout Plan
ALUC	Airport Land Use Commission
ALUP	Airport Land Use Plan
AMP	Amperes
ANMP	Aircraft Noise Mitigation Program
AOA	Airfield Operations Area
AOC	Airport Operations Center
APM	Automated People Mover
APUs	Auxiliary Power Units
AQAS	Air Quality Apportionment Study
AQMP	Air Quality Management Plan
ARFF	Aircraft Rescue and Firefighting Facility
ATCS	Automated Traffic Surveillance and Control System
ATCT	Air Traffic Control Tower
ATP	Archaeological Treatment Plant
ATR	Automatic Traffic Recorder
ATSAC	Automated Traffic Surveillance & Control
AVI	Automatic Vehicle Identification
Basin	South Coast Air Basin
BBA	Black Business Association
BMPs	Best Management Practices
BOAC	Board of Airport Commissioners
BTEX	Xylene
BTU	British Thermal Units
C	Celsius
C_2F_6	Hexafluoroethane
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
California Register	California Register of Historical Resources
CalOSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CAT	Climate Action Team
CBA	Community Benefits Agreement
CBECS	Commercial Buildings Energy Consumption Survey
CBP	U.S. Customs and Border Protection

CCAR	California Climate Action Registry
CCSCLA	Concerned Citizens of South Central Los Angeles
CCTV	Closed Circuit Television
CDFG	California Department of Fish and Game
CDP	Conceptual Drainage Plan
CEIDARS	California Emission Inventory Development and Reporting System
CEQA	California Environmental Quality Act
CF_4	Tetrafluoromethane
CFCs	Chlorofluorocarbons
CFTP	Crossfield Taxiway Project
CFWO	Carlsbad Fish and Wildlife Office
CH_4	Methane
CHPS	Collaborative for High Performance Schools
CLUP	Comprehensive Land Use Plan
CMA	Critical Movement Analysis
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNG	Compressed Natural Gas
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
COS	Central Outfall Sewer
CRM	Cultural Resource Monitor
CTA	Central Terminal Area
CTP	Central Terminal Processor
CUP	Central Utilities Plant
D/C	Demand to capacity
dB	Decibels
DDFSs	Design Day Flight Schedules
DEA	Drug Enforcement Agency
Draft EIR	Draft Environmental Impact Report
EDR	Environmental Data Resources
eGSE	Electric Ground Service Equipment
EIA	Energy Information Administration
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMFAC2007	Emission Factor 2007 Model
EO	Executive Order
EOC	Emergency Operations Center
ESHAs	Ecologically Sensitive Habitat Areas
EW	Ephemerally Wetted
FAA	Federal Aviation Administration
FAME	First African Methodist Episcopal
FBI	Federal Bureau of Investigation
FBO	Fixed-Base Operator
FHP	Free Hydrocarbon Product Contamination
FIS	Federal Inspection Services
FLSS	Fire Life Safety System
FMS	Facility Management System
FY	Fiscal Year

GCC	Global Climate Change
GFE	Good Faith Effort
GHG	Greenhouse Gas
GLAAACC	Greater Los Angeles African American Chamber of Commerce
GRE	Ground Run-up Enclosure
GSE	Ground Support Equipment
GTC	Ground Transportation Center
GWP	Global Warming Potential
Habitat Restoration Area	El Segundo Blue Butterfly Habitat Restoration Area
HCP	Habitat Conservation Plan
HFCs	Hydrofluorocarbons
HHRA	Human Health Risk Assessment
HMP	Habitat Management Plan
HOV	High Occupancy Vehicle
HRA	Habitat Restoration Area
HTP	Hyperion Treatment Plant
HWCL	Hazardous Waste Control Law
Hz	Hertz
ICU	Intersection Capacity Utilization
IPCC	Intergovernmental Panel on Climate Change
IPWP	Integrated Plan for the Wastewater Program
IRP	Integrated Resources Plan
IT	Information Technology
ITC	Intermodal Transportation Center
ITE	Institute for Transportation Engineers
ITS	Intelligent Transportation System
LACDPW	Los Angeles County Department of Public Works
LADD	Lifetime Average Daily Dose
LADOT	Los Angeles Department of Transportation
LADWP	Los Angeles Department of Water and Power
LAEDC	Los Angeles Economic Development Corporation
LAFD	Los Angeles Fire Department
LAG	Los Angeles-Glendale Water Reclamation Plant
LAPD	Los Angeles Police Department
LARWQCB	Los Angeles Regional Water Quality Control Board
LAUSD	Los Angeles Unified School District
LAWA	Los Angeles World Airports
LAWAPD	LAWA Police Division
LAWTFC	Los Angeles West Terminal Fuel Corporation
LAX	Los Angeles International Airport
LAX MP-MPAQ	LAX Master Plan-Mitigation Plan for Air Quality
lb/hp-hr	Pound Per Horsepower-Hour
lb/hr	Pound Per Hour
LED	Light Emitting Diode
LEED®	Leadership in Energy and Environmental Design
LMU	Loyola Marymount University
LNG	Liquid Natural Gas
LOS	Level of Service
LRTP	Long Range Transportation Plan
LTOs	Landing/Take-Off
MAP	Million Annual Passengers
MAX	Municipal Area Express

MBE/WBE	Minority Business Enterprises/Disadvantaged Business Enterprises
MBTA	Migratory Bird Treaty Act
MD	Midday
MEI	Maximally Exposed Individuals
Metro	Los Angeles County Metropolitan Transportation Authority
mgd	Million Gallons Per Day
MMCF	Million Cubic Feet
MMRP	Mitigation Monitoring and Reporting Program
MOU	Memorandum of Understanding
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
MRI	Midwest Research Institute
MSC	Midfield Satellite Concourse
MWH	Mega Watt Hours
N_2O	Nitrous Oxide
NAACP	National Association for the Advancement of Colored People
NAAQS	National Ambient Air Quality Standards
National Register	National Register of Historic Places
NCCP	Natural Communities Conservation Plan
NCOS	North Central Outfall Sewer
NESHAP	National Emission Standards for Hazardous Air Pollutants
NEV	Neighborhood Electrical Vehicle
NLA	New Large Aircraft
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NOP	Notice of Preparation
NORS	North Outfall Relief Sewer
NO_X	Nitrogen
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetlands Inventory
O&D	Origin & Destination
O_3	Ozone
OAG	Official Airline Guide
OHP	California Office of Historic Preservation
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Act
Pb	Lead
P-C	Production-Consumption
PCBs	Polychlorinated Biphenyls
PCC	Portland Cement Concrete
PCE	Passenger Car Equivalent
PEL-TWAs	Time-Weighted Average Permissible Exposure Levels
PFOs	Perfluorocarbons
PM10	Particulate Matter
PM2.5	Fine Particulate Matter
PMAD	Peak Month Average Day
PMTP	Paleontological Management Treatment Plant
PRG	Preliminary Remediation Goal
RAC	Consolidated Rental Car
RCB	Reinforced Concrete Box
RCP	Regional Comprehensive Plan
RCRA	Resource Conservation and Recovery Act

RELs	Reference Exposure Levels
RMST	Root Mean Square Test
ROD	Record of Decision
RON	Remain Overnight
RPS	Renewable Portfolio Standard
RPZ	Runway Protection Zone
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SAIP	South Airfield Improvement Project
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCLC	Southern Christian Leadership Conference
SF_6	Sulfur Hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_3	Sulfur Trioxide
SoCalGas	Southern California Gas Company
SO_X	Sulfur Oxides
SPAS	Specific Plan Amendment Study
SPIMS	Sustainability Performance Improvement Management System
SPL	Sound Pressure Level
SUSMP	Standard Urban Stormwater Mitigation Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic Air Contaminants
TAZ	Traffic Analysis Zone
TBIT	Tom Bradley International Terminal
TCR	The Climate Registry
Tillman	Tillman Water Reclamation Plant
TLVs	Threshold Limit Values
TNW	Traditional Navigable Water
TPH	Total Petroleum Hydrocarbons
TSA	Transportation Security Administration
TSCA	Toxic Substances Control Act
TWA	Trans World Airlines
UAL	United Airlines
UNFCCC	United Nations Framework Convention on Climate Change
URBEMIS	Urban Emissions
USACOE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGBC	U.S. Green Building Council
V/C	Volume to Capacity
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
vphpl	Vehicles Per Hour Per Lane
WLCAC	Watts Labor Community Action Committee
ZEVs	Zero Emission Vehicles

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