Draft Environmental Impact Report (Draft EIR)

[State Clearinghouse No. 2013021020]

for

Los Angeles International Airport (LAX) Midfield Satellite Concourse

Main Report

City of Los Angeles
Los Angeles World Airports

March 2014

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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

This document is a Draft Environmental Impact Report (Draft EIR) for the Midfield Satellite Concourse (MSC) North Project (MSC North Project) and future phase(s) of the MSC Program at Los Angeles International Airport (LAX). LAX is owned and operated by the City of Los Angeles, whose Board of Airport Commissioners oversees the policy, management, operation, and regulation of LAX, 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).

An Initial Study was prepared in February 2013 which identified the resource areas that could be subject to significant impacts from the proposed MSC North Project and future phase(s) of the MSC North Program and that would require incorporation of mitigation measures where feasible. Based on a preliminary review of the project site and in consideration of the proposed activities associated with the proposed MSC North Project and future phase(s) of the MSC Program, LAWA determined that potentially significant effects may occur in Air Quality, Greenhouse Gas Emissions, Human Health Risk Assessment, Public Services, Transportation/Traffic, and Mandatory Findings of Significance. As a result, these resources are evaluated further in this Draft EIR.

LAWA determined that impacts related to Aesthetics, Agricultural and Forestry Resources, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Recreation, and Utilities and Service Systems have been found to be less than significant through the analysis in the Initial Study and are not proposed for further analysis (see **Appendix A**). Federal, State, regional, and local agencies, as well as the public were afforded the opportunity to comment on the findings of the Initial Study through the 30-day scoping period associated with circulation of the Notice of Preparation (NOP) for this EIR. During the NOP public comment period, LAWA received a request to analyze the potential impacts of aircraft noise from changes to taxi routes that would occur as a result of the proposed MSC North Project; thus, taxiway noise is also evaluated in this Draft EIR. No other areas of controversy during the NOP public comment period were identified. Therefore, no other topics are evaluated further in this Draft EIR.

1.1 Summary of the Proposed Project

The MSC Program consists of a new multi-level concourse located within the western portion of the airfield west of the existing Tom Bradley International Terminal (TBIT) and associated passenger processing space in a proposed Central Terminal Processor (CTP) that would be located in the Central Terminal Area (CTA) of LAX. The MSC Program also includes conveyance systems connecting the MSC and CTP as well as a new taxilane, taxiway, and apron and utilities required to serve the MSC. The facility would be capable of serving both international and domestic flights, and would provide LAWA with the flexibility to accommodate existing demand for aircraft gates while modernizing other terminals at LAX, rehabilitating apron and taxilane pavement within the CTA, and reducing reliance on the West Remote Gates/Pads.

Upon completion of the MSC Program, the concourse could accommodate up to 29 aircraft gates for Airplane Design Group (ADG) III to ADG VI aircraft. ADG III aircraft correspond to narrowbody jets (for example, the Boeing 737) and ADG VI aircraft correspond to the largest jet aircraft, often referred to as new large aircraft (NLA) such as the Boeing 747-800 and the Airbus A380. The full MSC Program concourse would occupy a footprint with approximate dimensions of 2,400 feet in length (north-south) by 140 to 160 feet in width (east-west). The MSC Program facility, including the concourse building and associated apron areas, would encompass approximately 60 acres in the western portion of the airfield and 6 acres in the CTA for the CTP.

Due to the size and scale of the MSC Program, LAWA proposes to develop the MSC Program in phases. Phase I ("MSC North Project") of the MSC Program is the construction of the northern portion of the multi-story MSC facility and associated improvements. The MSC North Project is intended to improve the terminal operations, concessions facilities, and overall passenger experience at LAX. The facility would be designed to serve both domestic and international traffic. The MSC North Project would provide LAWA with the flexibility to accommodate demand for aircraft gates while modernizing other terminals at LAX, rehabilitating apron and taxilane pavement within the CTA, and reduce reliance on the West Remote Gates/Pads. Later phase(s) would involve the development of the remaining components of the MSC Program described above and are referred to herein as the future phase(s) of the MSC Program.

Components associated with the MSC North Project include: 1) a concourse of up to 11-gates and associated facilities; 2) improvements to taxiways and taxilanes; 3) ramp tower or Federal Aviation Administration (FAA) supplemental airport traffic control tower to control aircraft movement around the concourse facility and associated airfield; and 4) utilities that support the MSC North Project. The MSC North Project site, including the concourse building and associated apron areas, would encompass approximately 36 acres in the western portion of the airfield.

Enabling projects needed to implement the MSC North Project include demolition and relocation of existing structures, removal of five remain overnight (RON) aircraft parking spaces, removal and relocation of FAA navigational aids (beacon and antenna array), and removal and/or relocation of existing utility lines.

The MSC North Project is analyzed on a project-level in this EIR; the future phase(s) of the MSC Program is analyzed at a programmatic level in this EIR.

1.2 Relationship to Existing Plans and Documents

The LAX Master Plan[1], approved by the City of Los Angeles City Council in December 2004, is the strategic framework for future development at LAX. The main components of the LAX Master Plan include the modernization of the runway and taxiway system, redevelopment of the terminal area, access improvements to LAX, and enhancement of passenger safety, security,

[1] City of Los Angeles, Los Angeles World Airports, Taking Flight for a Better Future, Los Angeles International Airport Final Master Plan, April 2004.

and convenience. The LAX Master Plan was the subject of a joint Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) completed in January 2005.[2] The City of Los Angeles City Council certified the Final EIR as complying with the California Environmental Quality Act (CEQA) and the Federal Aviation Administration (FAA) issued a Record of Decision on the Final EIS in compliance with the National Environmental Policy Act (NEPA).

The approved LAX Master Plan includes the development of the "West Satellite Concourse". Subsequent to the release of the Final EIR/EIS, the West Satellite Concourse was renamed the Midfield Satellite Concourse (MSC). The LAX Master Plan EIS/EIR assessed the MSC at a programmatic level under CEQA, meaning that additional project level CEQA review is required before LAWA can construct and operate one or more components of the MSC Program.

The LAX Master Plan EIS/EIR provided descriptions of the environmental conditions in and around LAX, analyzed the potential impacts of the proposed improvements on the physical environment, and recommended mitigation measures to address potential impacts. The main elements of the MSC Program, including the addition of new aircraft gates and the addition of an adjacent taxilane, are on the approved Airport Layout Plan (ALP). As indicated above, the MSC Program was assessed at a programmatic level in compliance with CEQA in the LAX Master Plan EIS/EIR.

The FAA issued a Record of Decision on the LAX Master Plan EIS that included environmental approval of the construction and operation of the full MSC Program as depicted on the ALP. Because the MSC Program has not substantively changed as documented and assessed in the LAX Master Plan EIS, no additional NEPA analysis of the MSC North Project is required. However, additional project-level CEQA analysis of the MSC North Project is required to assess the specific effects of constructing and operating the MSC North building, which is separate and independent of the later phase or phases of the MSC Program. This first phase of the MSC Program serves a unique and independent function, and it can occur even if there is no future phase(s) of the MSC Program (i.e., it is not dependent upon the later phase(s) of the MSC Program or vice versa). The future phase(s) of the MSC Program will continue to be examined at a programmatic level, focusing on any updates to the MSC Program from that assessed in the LAX Master Plan EIS/EIR.

1.3 Purpose of this Draft EIR

Since the Initial Study determined that the proposed MSC North Project and future phase(s) of the MSC Program may have a significant effect on the environment, the State *CEQA Guidelines* require the preparation of this Draft EIR. LAWA has undertaken this Draft EIR for the following purposes:

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2 City of Los Angeles, Los Angeles World Airports Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements, April 2004; U.S. Department of Transportation, Federal Aviation Administration, Environmental Impact Statement, Los Angeles International Airport Proposed Master Plan Improvements, January 2005.

- To evaluate the potentially significant environmental effects associated with the implementation of the proposed MSC North Project and future phase(s) of the MSC Program, as required by CEQA;
- To indicate the manner in which those significant impacts can be avoided or significantly lessened;
- To identify any significant and unavoidable adverse impacts that cannot be mitigated;
- To identify reasonable and feasible alternatives to the proposed MSC North Project and future phase(s) of the MSC Program that would eliminate any significant adverse environmental impacts or reduce the impacts to less-than-significant levels;
- To inform the general public, the local community, and responsible trustee, State, and federal agencies of the nature of the proposed MSC North Project and future phase(s) of the MSC Program, its potentially significant environmental effects, feasible mitigation measures to mitigate those effects, and reasonable and feasible alternatives;
- To enable LAWA decision-makers to consider the environmental consequences of the proposed MSC North Project and future phase(s) of the MSC Program and make findings regarding each significant effect that is identified;
- To provide a basis for preparation of any future environmental documents; and
- To facilitate responsible agencies in issuing permits and approvals for the proposed MSC North Project.

According to CEQA and the State *CEQA Guidelines*, public agencies must avoid or lessen significant environmental impacts where feasible. Where impacts cannot be mitigated to less-than-significant levels, public agencies have an obligation to balance the project's significant impacts on the environment against other factors, including economic, social, technological, legal, and other benefits.

LAWA must certify the EIR before approving the proposed MSC North Project. Upon certification, the EIR will serve as the base environmental document for LAWA and will be used as a basis for decisions on implementation of the proposed MSC North Project. Other agencies may also use this EIR in their review and approval processes.

This EIR was prepared in accordance with Section 15151 of the State *CEQA Guidelines*, which defines the standards for EIR adequacy as follows:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection; but for adequacy, completeness, and good faith effort at full disclosure.

1.4 Organization of this Draft EIR

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

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

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

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

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

Chapter 4.1	Air Quality
Chapter 4.2	Greenhouse Gas Emissions
Chapter 4.3	Human Health Risk Assessment
Chapter 4.4	Noise
Chapter 4.5	Public Services
Chapter 4.6	On-Airport Transportation
Chapter 4.7	Construction Surface Transportation

5.0 Alternatives. Chapter 5 evaluates the environmental effects of the alternatives to the proposed MSC North Project and future phase(s) of the MSC Program that were considered. As required by CEQA, Chapter 5 evaluates the potential for these alternatives to avoid or substantially lessen any significant effects of the MSC North Project and future phase(s) of the MSC Program while meeting the objectives of the project.

6.0 Other Environmental Considerations. Chapter 6 includes a discussion of issues required by CEQA that are not covered in Chapter 4. This includes growth-inducing impacts, irreversible environmental changes, unavoidable significant impacts, reasons why the proposed MSC North Project and future phase(s) of the MSC Program is being proposed, notwithstanding unavoidable significant impacts, and potential secondary effects. In addition, Chapter 6 includes a summary of the topics evaluated in the Initial Study but not carried forward for further evaluation in this Draft EIR (impacts found not to be significant).

7.0 List of Preparers, Parties to Whom Sent, References, NOP Comments, and List of Acronyms. Chapter 7 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 NOP; and a list of acronyms used in the Draft EIR.

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

Appendix A	Initial Study, NOP, and Scoping Materials
Appendix B	Air Quality and Greenhouse Gas Emissions Appendix
Appendix C	Human Health Risk Assessment Appendix
Appendix D	Noise Appendix
Appendix E	On-Airport Transportation Appendix
Appendix F	Construction Surface Transportation Appendix
Appendix G	Aircraft Gate Closures at LAX

1.5 Summary of Environmental Impacts

Based on the Initial Study (February 2013), LAWA determined that preparation of an EIR was required because the proposed MSC North Project and future phase(s) of the MSC Program could have potentially significant impacts on Air Quality, Greenhouse Gases, Human Health Risk Assessment, Public Services, and Transportation/Traffic and Mandatory Findings of Significance. During the NOP public comment period, LAWA received a request to analyze the potential impacts of aircraft noise from changes to taxi routes that would occur as a result of the proposed MSC North Project; thus, taxiway noise is also evaluated in this Draft EIR.

Impacts to Aesthetics, Agricultural Resources, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Population and Housing, Recreation, Utilities and Service Systems have been found to be less than significant through the analysis in the Initial Study. These environmental topics are not evaluated further in this Draft EIR.

Table 1-1 presents a summary of findings for each of the resources analyzed in this EIR for the MSC North Project. Resources were also analyzed at a programmatic level for the future phase(s) of the MSC Program; these results are shown in **Table 1-2**. Potentially significant impacts to these resources are evaluated further in Chapter 4.

Table 1-1

Summary of Environmental Impacts for the MSC North Project by Resource Topic

Impact by Discipline	Level of Significance Before Mitigation	Existing Commitments and/or Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
AIR QUALITY				
Construction	Significant	LAX-AQ-1. General Air Quality Control Measures (Measure Number 1a through 1g) LAX-AQ-2. Construction-Related Control Measures (2a through 2o)	Modified LAX-AQ-2 that will require: • Use of 2010 model year on-road vehicles for all vehicles over 19,500 pounds (if available) • Use of Tier 4 (final) equipment for off-road equipment greater than 50 horsepower (if available)	Significant and Unavoidable
Operations	Less than significant	LAX-AQ-4. Operations-Related Control Measures (4a, 4b, 4e, 4f)	None required	Less than significant
Cumulative				
Construction	Significant	Same as for Air Quality-Construction above	Same as for Air Quality-Construction above	Significant and Unavoidable
Operations	Less than significant	Same as for Air Quality-Operations above	None required	Less than significant

Table 1-1

Summary of Environmental Impacts for the MSC North Project by Resource Topic

Impact by Discipline	Level of Significance Before Mitigation	Existing Commitments and/or Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
GREENHOUSE GASES				
Construction and Operations	Significant	LAX-AQ-1. General Air Quality Control Measures (1f, 1g) LAX-AQ-2. Construction-Related Control Measures (2d through 2g, 2i through 2k, 2m, 2o) LAX-AQ-4. Operations-Related Control Measures (4a, 4b, 4e, 4f)	No feasible mitigation identified	Significant and Unavoidable
Cumulative Construction and Operations	Significant	Same as for Greenhouse Gases-Construction and Operations above	No feasible mitigation identified	Significant and Unavoidable
HUMAN HEALTH RISK ASSESSMENT				
Construction	Less than significant	LAX-AQ-1. General Air Quality Control Measures (1a through 1g) LAX-AQ-2. Construction-Related Control Measures (2a through 2o)	None required	Less than significant
Operations: Acute non-chronic hazard index for acrolein	Significant	LAX-AQ-4. Operations-Related Control Measures (4a, 4b, 4e, 4f)	No feasible mitigation identified	Significant and Unavoidable
Cumulative				
Construction	Less than significant	Same as for Human Health Risk Assessment-Construction above	None required	Less than significant
Operations	Significant	Same as for Human Health Risk Assessment-Operations above	No feasible mitigation identified	Significant and Unavoidable

Table 1-1

Summary of Environmental Impacts for the MSC North Project by Resource Topic

Impact by Discipline	Level of Significance Before Mitigation	Existing Commitments and/or Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
NOISE – Aircraft Taxi Noise				
Operations	Less than significant	Not Available	None required	Less than significant
Cumulative	Less than significant	Not Available	None required	Less than significant
PUBLIC SERVICES – Fire Protection Services				
Construction	Less than significant	C-1. Establishment of a Ground Transportation/Construction Coordination Office ST-9. Construction Deliveries ST-12. Designated Truck Delivery Hours ST-14. Construction Employee Shift Hours ST-17. Maintenance of Haul Routes ST-18. Construction Traffic Management Plan ST-19. Closure Restrictions of Existing Roadways ST-21. Construction Employee Parking Locations ST-22. Designated Truck Routes	None required	Less than significant
Operations	Less than significant	FP-1. LAFD Design Recommendations PS-1. Fire and Police Facility Relocation Plan PS-2. Fire and Police Facility Space and Siting Requirements	None required	Less than significant
Cumulative				
Construction	Less than significant	Same as for Public Services-Construction above	None required	Less than significant
Operations	Less than significant	Same as for Public Services-Operations above	None required	Less than significant

Table 1-1

Summary of Environmental Impacts for the MSC North Project by Resource Topic

Impact by Discipline	Level of Significance Before Mitigation	Existing Commitments and/or Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
ON-AIRPORT TRANSPORTATION				
Operations	Less than significant	Not applicable as operational capacity would not be modified.	None required	Less than significant
CONSTRUCTION SURFACE TRANSPORTATION				
Construction	Less than significant	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 required	Less than significant
Cumulative	Significant	Same as for Construction Surface Transportation-Construction above	MM-ST (MSC)-1. Widen Manchester Avenue at Sepulveda Boulevard.	Significant and Unavoidable

Source: Ricondo & Associates, Inc., 2013.

Table 1-2

Summary of Environmental Impacts for the Future Phase(s) of the MSC Program by Resource Topic

Impact by Discipline	Level of Significance Before Mitigation	Existing Commitments and/or Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
AIR QUALITY				
Operations	Less than significant	LAX-AQ-3. Traffic-Related Control Measures (3a through 3r) LAX-AQ-4. Operations-Related Control Measures (4a, 4b, 4e, 4f)	None required	Less than significant
Cumulative				
Operations	Less than significant	Same as for Air Quality-Operations above	None required	Less than significant
GREENHOUSE GASES				
Construction and Operations	Significant	LAX-AQ-1. General Air Quality Control Measures (1f, 1g) LAX-AQ-2. Construction-Related Control Measures (2d through 2g, 2i through 2k, 2m, 2o) LAX-AQ-4. Operations-Related Control Measures (4a, 4b, 4e, 4f)	No feasible mitigation identified	Significant and Unavoidable
Cumulative Construction and Operations	Significant	Same as for Greenhouse Gases-Construction and Operations above	No feasible mitigation identified	Significant and Unavoidable
HUMAN HEALTH RISK ASSESSMENT				
Operations: Acute non-chronic hazard index for acrolein	Significant	LAX-AQ-3. Traffic-Related Control Measures (3a through 3r) LAX-AQ-4. Operations-Related Control Measures (4a, 4b, 4e, 4f)	No feasible mitigation identified	Significant and Unavoidable

Table 1-2

Summary of Environmental Impacts for the Future Phase(s) of the MSC Program by Resource Topic

Impact by Discipline	Level of Significance Before Mitigation	Existing Commitments and/or Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Cumulative				
Operations	Significant	Same as for Human Health Risk Assessment-Operations above	No feasible mitigation identified	Significant and Unavoidable
NOISE – Aircraft Taxi Noise				
Operations	Less than significant	Not Available	None required	Less than significant
Cumulative	Less than significant	Not Available	None required	Less than significant
PUBLIC SERVICES – Fire Protection Services				
Construction	Less than significant	C-1. Establishment of a Ground Transportation/Construction Coordination Office ST-9. Construction Deliveries ST-12. Designated Truck Delivery Hours ST-14. Construction Employee Shift Hours ST-17. Maintenance of Haul Routes ST-18. Construction Traffic Management Plan ST-19. Closure Restrictions of Existing Roadways ST-21. Construction Employee Parking Locations ST-22. Designated Truck Routes	None required	Less than significant
Operations	Less than significant	FP-1. LAFD Design Recommendations PS-1. Fire and Police Facility Relocation Plan PS-2. Fire and Police Facility Space and Siting Requirements	None required	Less than significant

Table 1-2

Summary of Environmental Impacts for the Future Phase(s) of the MSC Program by Resource Topic

Impact by Discipline	Level of Significance Before Mitigation	Existing Commitments and/or Mitigation Measures	New Mitigation Measures	Level of Significance After Mitigation
Cumulative				
Construction	Less than significant	Same as for Public Services-Construction above	None required	Less than significant
Operations	Less than significant	Same as for Public Services-Operations above	None required	Less than significant
ON-AIRPORT TRANSPORTATION				
Operations	Less than significant	MM-ST(BWP)-2. Improve the Intersection of Center Way and World Way South MM-ST (BWP)-3. Widen World Way Across from the TBIT MM-ST (SPAS)-2. Change Departures and Arrivals Level Commercial Vehicles Curbside Operations Under Future (2025) Conditions	None required	Less than significant

Source: Ricondo & Associates, Inc., 2013.

1.6 Environmentally Superior Alternative

Section 15126.6(e)(2) of the State *CEQA Guidelines* requires an EIR to identify an environmentally superior alternative. If the environmentally superior alternative is the "no project" alternative, the EIR must identify an environmentally superior alternative among the other alternatives. As further described in Chapter 5, *Alternatives*, the alternatives to the proposed MSC North Project include:

Alternative 1 - No Project: Under the "No Project" alternative, none of the improvements and activities proposed for the MSC North Project would occur. The proposed Project site would continue to be used for aircraft maintenance, Remain Over Night and Remain All-Day (RON/RAD) aircraft parking, the U.S. Coast Guard facility, electrical substations, and the various other existing uses at the site. LAWA would forego the opportunity to develop new gates that would allow them the flexibility to renovate and redevelop the existing terminals, rehabilitate apron and taxiway pavement within the CTA, and reduce reliance on the West Remote Gates/Pads without negatively affecting existing airline passenger operations. LAWA would continue to rely on the West Remote Gates/Pads to provide remote contact gates and/or parking positions when contact gates at the terminals within the CTA are unavailable.

Alternative 2 – Reduced Project (Fewer Gates): A reduced project alternative was identified that would involve the construction of 7-8 gates rather than the 11 gates proposed as part of the MSC North Project. The concourse would stop just north of World Way West and would avoid impacting the FAA navigational aids, one of the electrical industrial stations, 3 RON parking spaces, the natural gas regulator, and the American Airlines Private Post. All other project components would be included.

Alternative 3 – MSC South: Alternative 3 would involve construction of the southern portion of the MSC rather than the northern portion as proposed. This alternative would impact the American Airlines High Bay Hangar, but would stop just south of World Way West. This alternative would avoid impacting the FAA navigational aids, one of the electrical industrial stations, the American Airlines Maintenance (Non-Power) shop, the American Airlines leasehold parking, and the natural gas regulator. This alternative would also result in a reduced project alternative with 2 fewer aircraft gates than the proposed MSC North Project.

Alternative 4 – Alternate Site (Terminal/Concourse 0): Alternative 4 would involve the construction of "Terminal/Concourse 0" north of World Way and east of Terminal 1. Terminal/Concourse 0 could be constructed with up to 7 gates in the western portion of the area currently occupied by Park One. This alternative would require the relocation of Sky Way (upper and lower roadways) eastward to allow development of the terminal and would also provide additional roadway and curbfront in the CTA. This alternative would eliminate the impacts to the existing facilities at the MSC site, which would remain as they exist today, and would also eliminate the need for an Automated People Mover (APM) from MSC to connect to the CTA.

As further described in Chapter 5, the alternatives to the proposed future phase(s) of the MSC Program include:

Alternative 1 – No Future Phase(s) of the MSC Program: As required by CEQA, a "no project" alternative was considered for the future phase(s) of the MSC Program. In this case, the "no project" alternative would mean that after the MSC North Project is constructed, no additional development of the MSC Program would occur. The MSC would remain an 11-gate facility with the Project components identified as part of the MSC North Project; no other proposed components would be implemented.

Alternative 2 – Reduced Program (Fewer Gates): The future phase(s) of the MSC Program includes up to an additional 18 gates, which when added to the gates proposed for the MSC North Project would provide a concourse with up to 29 gates. An alternative to the future phase(s) of the MSC Program would be a smaller concourse with fewer gates. For purposes of identifying alternatives that may avoid or substantially lessen the significant impacts of the future phase(s) of the MSC Program, a reduced Program alternative of a concourse with a total of 20 gates was considered.

Alternative 3 – No Central Terminal Processor/APM to Existing Terminal: Another alternative considered to the future phase(s) of the MSC Program was an alternative that eliminates the CTP. Instead of the APM going to a CTP, the APM would instead go to one of the existing terminals within the CTA. For purposes of this analysis, it was assumed that the APM would run between Terminal 3 and the MSC.

Alternative 4 – No Central Terminal Processor/No APM: The final alternative considered for the future phase(s) of the MSC Program was an alternative that included no CTP or APM; passengers would check-in, check their luggage, and undergo security screening within one of the existing terminals in the CTA, and then be bused to the MSC, as is assumed to occur for the MSC North Project.

With respect to identifying an environmentally superior alternative among those analyzed in this Draft EIR, the range of feasible alternatives for the MSC North Project includes Alternative 1 - No Project; Alternative 2 - Reduced Project; Alternative 3 - MSC South, and Alternative 4 – Alternative Site (Terminal/Concourse 0). Alternative 1 - No Project is considered to be the overall environmentally superior alternative as it would avoid all construction and operational impacts of the proposed Project and is the only Alternative that would not have a significant unavoidable impact with respect to construction-related regional emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X, greenhouse gas emissions, construction traffic impacts, and the acute non-cancer hazard index for acrolein. However, this Alternative would not meet any of the objectives established for the proposed Project.

In accordance with the CEQA Guidelines requirement to identify an environmentally superior alternative other than the No Project Alternative, a comparative evaluation of the remaining alternatives indicates that Alternative 2 - Reduced Project would be the environmentally superior alternative relative to the other Alternatives. Due to the reduced project size, compared to the proposed Project, the Reduced Project Alternative would result in less construction-related impacts to air quality, health risks, greenhouse gases, and construction surface transportation, and less greenhouse gas emissions related to operations. However, it would most likely have similar impacts related to the acute non-hazard index for acrolein.

It is important to note, while the Reduced Project Alternative is considered the environmentally superior alternative, it would not avoid the significant unavoidable impacts that would occur under the proposed Project with respect to construction-related regional emissions of CO and NO_X, construction traffic impacts and the acute non-cancer hazard index for acrolein. However, the environmentally superior Reduced Project Alternative would eliminate the significant and unavoidable impacts of construction-related regional emissions of VOC, PM_{10}, and $PM_{2.5}$, as well as greenhouse gas emissions, and would serve to incrementally reduce significant impacts of the proposed Project related to construction-related emissions of CO and NO_X, construction traffic impacts, and the acute non-cancer hazard index for acrolein.

For the reasons summarized above, in examining the totality of the environmental impacts associated with Alternative 2 – Reduced Project compared to the overall environmental impacts of each of the other alternatives, Alternative 2 – Reduce Project is considered to be the environmentally superior alternative.

1.7 Areas of Known Controversy and Issues to be Resolved

Several letters were received during the public circulation period for the Initial Study/NOP prepared for this EIR; no comments were received at the Public Scoping Meeting held on February 21, 2013. The primary environmental concerns associated with the proposed MSC North Project and future phase(s) of the MSC Program that were raised are summarized below. The NOP comments are included in **Appendix A** of this EIR.

Noise

Concern was raised regarding the potential for noise to have an impact on residential and other sensitive receptors in the vicinity of LAX as a result of operations of the proposed MSC North Project. Specific noise concerns focused on taxiing aircraft to and from the MSC site. A detailed analysis of potential noise impacts is included as part of this EIR in Section 4.4, *Noise*.

Hazards and Hazardous Materials

Concern was raised regarding potential contaminants and other hazards and hazardous materials located at the MSC site that could pose a risk to the public and the environment with implementation of the proposed MSC North Project. As noted in the Initial Study, a Phase I environmental site assessment[3] was conducted to determine the potential for the presence of hazardous materials contamination of soil and/or groundwater at the MSC site. While the site assessment did not identify any specific hazardous waste sites within the MSC Project site, areas of potential concern during the proposed construction were identified. Mitigation measures contained in the LAX Master Plan Mitigation and Monitoring Reporting Program (MMRP) will be employed to mitigate any hazardous waste that may be encountered during construction. Therefore, further analysis of hazards and hazardous materials is not necessary and was not performed.

Transportation

Concern was raised regarding the proposed MSC North Project and the future phase(s) of the MSC Program and its potential to result in individual or cumulative traffic impacts on the existing circulation system and surrounding communities. Potential impacts associated with construction traffic are analyzed in Section 4.7, *Construction Surface Transportation*. The future

3 Ninyo & Moore, Hazardous Materials Assessment, Midfield Satellite Concourse, Los Angeles International Airport, Los Angeles, California, February 4, 2013.

operation of the MSC North Project would not result in long-term operational changes to traffic activity and traffic flows within the Airport area because it would not change the number of aircraft operations or where aircraft passengers are dropped off or picked up at LAX, therefore it is not studied in this EIR. However, trips associated with operation of the future phase(s) of the MSC Program are analyzed at a program level in this EIR since the LAX Master Plan EIR assumed that no private vehicles would circulate through the CTA. A detailed analysis for transportation related to the future phase(s) of the MSC Program is included as part of this EIR in Section 4.6, *On-Airport Transportation.*

Cumulative Impacts

Comments were provided that emphasized the need for the EIR to study cumulative impacts from the proposed Project. Therefore, cumulative impacts for the MSC North Project and future phase(s) of the MSC Program are discussed relative to each resource topic and are included in each section of Chapter 4.

Relationship to the LAX Master Plan

Concern was raised regarding the relationship of the MSC North Project to components identified in the LAX Master Plan, including the type, location, and size of facilities associated with the proposed MSC North Project compared to the proposed LAX Master Plan improvements. A description of the type, location, and size of facilities associated with the proposed MSC North Project is included in Chapter 2, *Description of the Proposed Project*. An evaluation of the proposed MSC North Project and its consistency with applicable plans, including the LAX Master Plan, is included in Chapter 3, *Overview of Project Setting*.

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2.0 DESCRIPTION OF THE PROPOSED PROJECT

2.1 Midfield Satellite Concourse Background

Los Angeles World Airports (LAWA) is in the midst of a multi-billion dollar modernization program at Los Angeles International Airport (LAX or the Airport). LAX is the nation's third busiest airport in terms of both total annual passengers and total annual aircraft operations. Although it has functioned as an airport since 1928, the main terminal complex at LAX was constructed in 1961 and its facilities are in need of modernization.

The LAX Master Plan, approved by the City of Los Angeles City Council in December 2004, is the strategic framework for future development at LAX. The main components of the LAX Master Plan include the modernization of the runway and taxiway system, redevelopment of the terminal area, access improvements to the Airport, and enhancement of passenger safety, security, and convenience. The LAX Master Plan was the subject of a joint Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) completed in January 2005.[1] The City of Los Angeles City Council certified the Final EIR as complying with the California Environmental Quality Act (CEQA) and the Federal Aviation Administration (FAA) issued a Record of Decision on the Final EIS in compliance with the National Environmental Policy Act (NEPA).

The approved LAX Master Plan includes the development of the "West Satellite Concourse." The 2004 LAX Specific Plan stated that the West Satellite Concourse be included in the LAX Specific Plan Amendment Study. However, in the 2006 Stipulated Settlement, the relevant parties agreed to remove the West Satellite Concourse and associated Automated People Mover from the LAX Specific Plan Amendment Study, allowing for a separate review and approval process. Subsequent to the release of the Final EIR/EIS, the West Satellite Concourse was renamed the Midfield Satellite Concourse (MSC). The LAX Master Plan EIS/EIR assessed the MSC at a programmatic level under CEQA, meaning that additional project level CEQA review is required before LAWA can construct and operate one or more components of the MSC Program, which is the purpose of this EIR. The overall MSC Program, as documented in the LAX Master Plan, includes the following facilities:

- A Midfield Satellite Concourse (MSC);
- A Central Terminal Processor (CTP) in the Central Terminal Area (CTA);
- A connector/conveyance system between the MSC and the CTP; and
- Construction of new taxiways/taxilanes, apron areas, and utilities to service the MSC.

The northern portion of the multi-story MSC facility and associated improvements (MSC North Project) represents the initial phase of the overall MSC Program, and as such the MSC North Project must be developed with careful consideration for future phases of the MSC Program. The MSC North Project must also be developed with the ability to accommodate multiple

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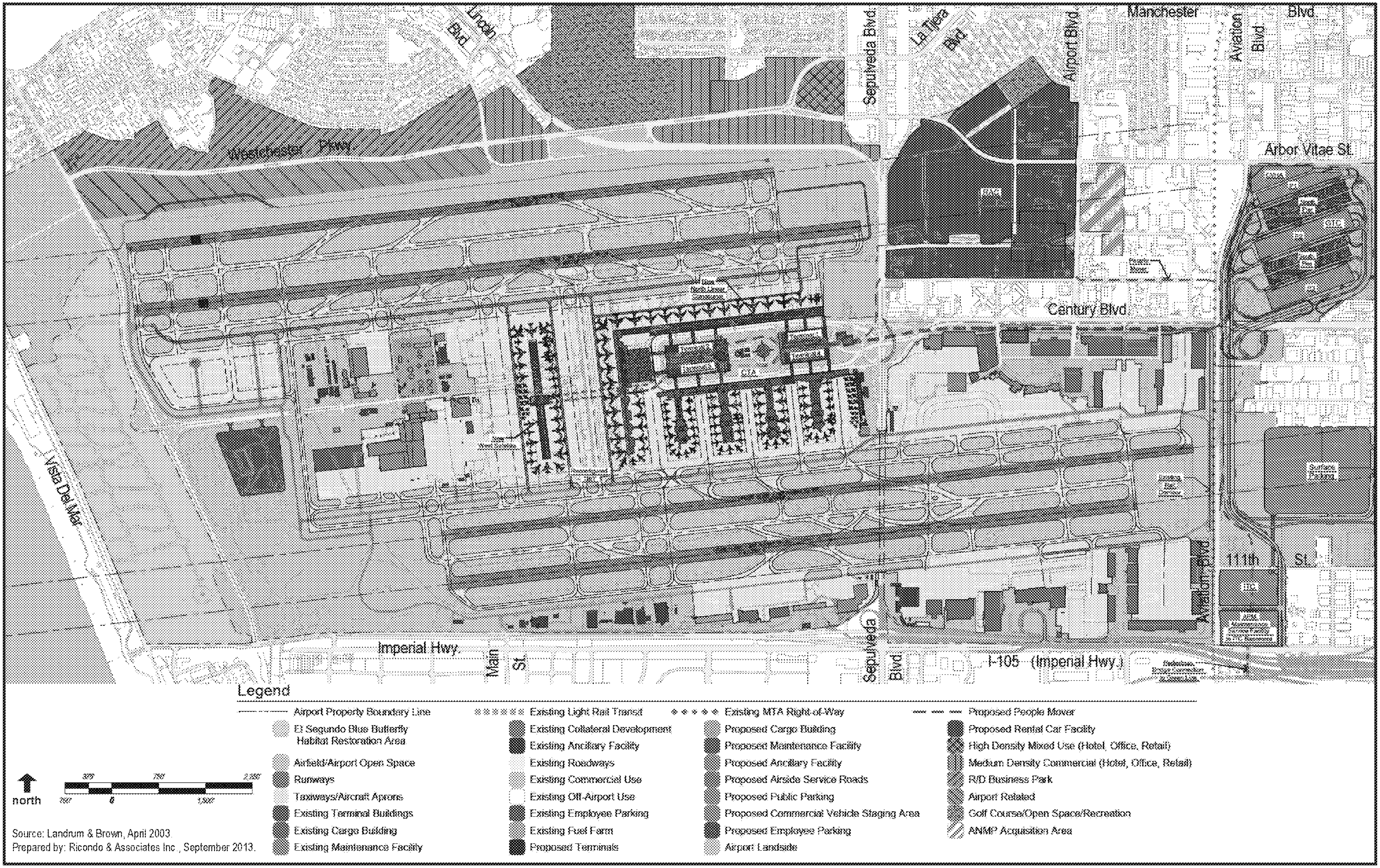
1 City of Los Angeles, Los Angeles World Airports Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements, April 2004; U.S. Department of Transportation, Federal Aviation Administration, Environmental Impact Statement, Los Angeles International Airport Proposed Master Plan Improvements, January 2005.

utilization scenarios over the life of the facility. In the near-term, this facility is intended to provide the capacity necessary to maintain airport flexibility and mitigate impacts to passenger levels of service during construction and implementation of multiple rehabilitation and reconfiguration projects throughout the airport. Longer range goals include providing modern facilities to accommodate new, larger aircraft equipment such as the B787 and A380 while maintaining flexibility to accommodate current fleet mixes and evolving air service and passenger characteristics.

2.2 MSC Program 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 MSC is the fifth project under the LAX Master Plan to be advanced into implementation, with the other projects being the South Airfield Improvement Project (SAIP), the Crossfield Taxiway Project (CFTP), the Bradley West Project, and the West Aircraft Maintenance Area (WAMA) Project. LAWA recently completed the LAX Specific Plan Amendment Study (SPAS), which evaluated and reconsidered certain projects identified in the LAX Master Plan. While the SPAS has been completed and a programmatic EIR has been approved by the Los Angeles City Council, elements of SPAS are under litigation. LAWA is continuing planning efforts associated with the ground transportation elements of SPAS and determining which projects to advance to project-level environmental review in the near future. Concurrently, LAWA is continuing to process and develop projects, such as the Bradley West Project, the WAMA Project, and the MSC.

The main elements of the MSC Program, as described above, are identified on the airfield plan associated with the approved LAX Master Plan. **Figure 2-1** delineates the main components of the approved LAX Master Plan and shows a new concourse where one does not currently exist, labeled "West Satellite," and two crossfield taxiways immediately to the west side of this concourse. The MSC, referred to as the "West Satellite Concourse" in the LAX Master Plan and related EIR, are also noted in Sections 2.4 and 3.2.9 of the LAX Master Plan Final EIR and Sections 2.4 and 2.10 of the Final LAX Master Plan text, as presented below:



LAX Midfield Satellite Concourse Draft EIR

Alternative D – 2015 Enhanced Safety and Security Plan

Figure
2-1

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- Construct a new West Satellite Concourse west of the TBIT building in the area [formerly] occupied by the TWA, US Airways, and American Airlines aircraft maintenance hangars (Final LAX Master Plan page 2-123).
- A new 120-foot-wide by 1,900-foot-long West Satellite Concourse would be constructed west of the TBIT and would be accessed via an airside secure underground APM from the CTA (LAX Master Plan Final EIR page 3-75)
- A new linear West Satellite Concourse would be constructed west of the TBIT and be accessed via an airside secure underground APM [Automated People Mover] from the reconfigured CTA. The concourse would replace the remote gates now located on the west pad facility as well as accommodate the overall net loss of gates created by reconfiguring Terminals 1, 2, and 3 into a continuous linear flightline. The concourse would accommodate approximately 41 aircraft gates (Final LAX Master Plan page 2-85).
- Construct, light, and mark new midfield crossfield taxiways west of the new West Satellite Concourse. Build aircraft parking apron associated with satellite concourse. Relocated Taxiways Q and S[2] that are located immediately to the west of the TBIT building (Final LAX Master Plan page 2-123).
- Construct an underground tunnel for Airside APM and baggage systems from the future West Satellite Concourse to the redeveloped CTA. Construction would be phased to coincide with apron and taxiway reconstruction (Final LAX Master Plan page 2-123).

As an integral part of the LAX Master Plan, along with the many other improvements that are represented in Figure 2-1, the environmental impacts associated with the MSC Program, and all elements of the Master Plan, are addressed directly and indirectly throughout the LAX Master Plan Final EIR.

2.3 Project Objectives

LAWA's focus on addressing aging infrastructure, new technologies, and improving passenger levels of service by reconfiguring or rehabilitating existing facilities has shaped the near-term development plans for the MSC.

The overall objective of the MSC North Project and future phase(s) of the MSC Program is to provide LAWA with the flexibility to accommodate existing demand for aircraft gates while modernizing other terminals at LAX and reducing reliance on the West Remote Gates/Pads.

The MSC North Project would allow LAWA to modernize their existing facilities more effectively by providing gate flexibility to offset the operational impacts of other improvement projects in the CTA. The new concourse facility would be designed to serve both domestic and international traffic and to accommodate all sizes of aircraft. The new gates would also reduce LAWA's reliance on the West Remote Gates/Pads.

Other specific goals and objectives for the MSC North Project and MSC Program include:

- Provide greater flexibility for modernizing existing terminals;

---

2 Taxiways Q and S designated in the LAX Master Plan are now designated as Taxiways S and T.

- Allow LAWA to close gates for renovation without reducing the number of existing gates;
- Improve terminal operations, concessions facilities, and overall passenger experience at LAX; and
- Facilitate the systematic implementation of the LAX Master Plan.

The MSC North Project is planned to operate as an "empty chair" in its early life, providing capacity for the temporary relocation of carrier operations during routine construction or modernization activities in existing facilities. This requires development of highly flexible facilities capable of accommodating international and domestic operations, a wide range of aircraft equipment, and access to multiple processing areas in the CTA. As such, the MSC North Project is intended to be supported by existing processing facilities, with considerations for future phases that may include: direct connection to a centralized processing area via passenger conveyance in a tunnel or on a bridge; incorporation of Customs and Border Protection (CBP) facilities; passenger and baggage processing; and security screening components.

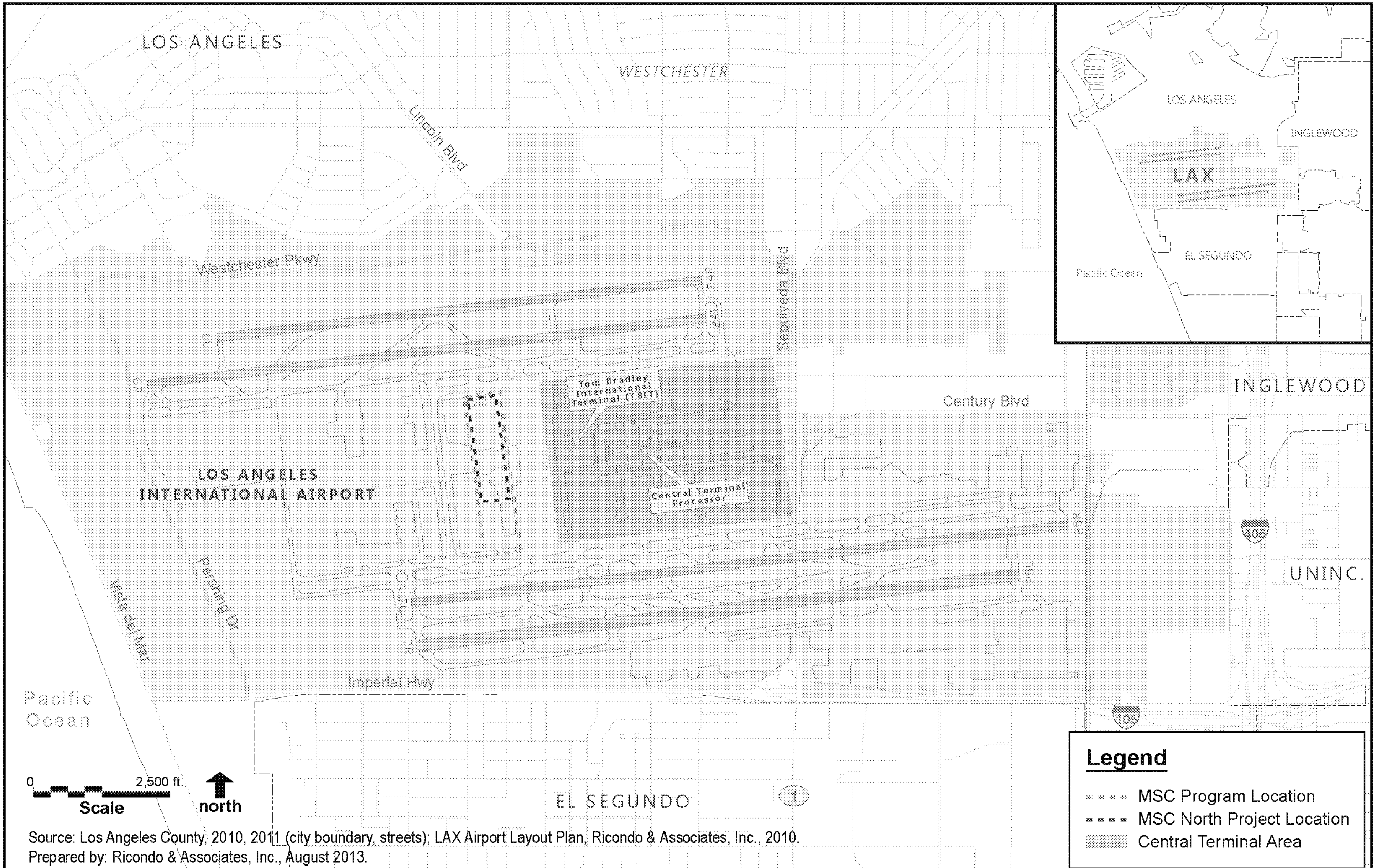
2.4 Project Location

Los Angeles International Airport is located at the western edge of the City of Los Angeles (see **Figure 2-2**). The Airport itself is located within a highly developed, urbanized area consisting of airport, commercial, transportation (i.e., interstate highways) and residential uses. To the north of LAX is the City of Los Angeles community of Westchester, to the east is the City of Inglewood, to the south is the City of El Segundo, and to the west is the Pacific Ocean. Regional access to LAX is provided by the San Diego Freeway (Interstate 405), which is a north-south freeway east of LAX, and the Century Freeway (Interstate 105), which is an east-west freeway south of LAX. Major roadways serving LAX include Sepulveda Boulevard, Century Boulevard, Imperial Highway, and Lincoln Boulevard.

The MSC Program facility, including the concourse building and associated apron areas, would encompass approximately 60 acres in the western portion of the airfield and 6 acres in the CTA for the CTP. Due to the size and scale of the MSC Program and immediate need to enable rehabilitation and modernization of existing facilities, LAWA proposes to implement the program in independent phases. Phase 1 of the MSC Program is the construction of the northern portion of the multi-story MSC facility and associated improvements, referred to as the MSC North Project in this EIR.

Multiple project configurations were analyzed with consideration to on-going projects at the Airport, including Bradley West and CTA enhancement programs, and the impact to the facilities currently occupying the MSC site. Selection of the north site for Phase 1 of the MSC Program was based on three key discriminators:

- Availability of the site – Demolition of the existing maintenance hangar (currently occupied by the former TWA, now Qantas Airlines, Hangar), and construction of Taxilane T, were previously entitled as part of the Bradley West Project. Additionally, Qantas' operations have been earmarked for relocation to the new West Aircraft Maintenance Area upon completion of that construction.
- Retention of American Airlines High Bay maintenance operations – The north alignment allows access to all bays of the maintenance hangar, and preserves remain overnight (RON) aircraft parking areas.



Source: Los Angeles County, 2010, 2011 (city boundary, streets); LAX Airport Layout Plan, Ricondo & Associates, Inc., 2010.
Prepared by: Ricondo & Associates, Inc., August 2013.

LAX Midfield Satellite Concourse Draft EIR	MSC Program Location	Figure 2-2

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- Alignment with current terminal modernization plans in the north CTA – Planned improvements in the north terminal facilities might support future connections to the MSC. Potential future improvements in the north terminals include new APM stations, terminal processing enhancements at the northern terminals (T1, T2, and T3), utility and baggage-system connections through the knock-out panels (built in as part of the Bradley West Project), and other terminal and landside improvements.

Based on the above considerations, the proposed MSC North Project would be located in the northern portion of the MSC Program site within the Air Operations Area (AOA) west of the Tom Bradley International Terminal (TBIT), as shown in Figure 2-2. The MSC North Project site, including the concourse building and associated apron areas, encompasses approximately 36 acres in the western portion of the airfield. Current uses of the MSC North Project site include aircraft maintenance hangars, aircraft aprons, and aircraft parking areas. Uses immediately surrounding the MSC North Project site include taxiways and runways to the north (North Airfield); taxiways and terminals to the east; aircraft maintenance facilities, aircraft parking areas, taxiways, and runways to the south (South Airfield); and taxiways, U.S. Coast Guard facilities, support facilities, and airfield-related uses to the west. Besides the MSC North building and apron areas, the MSC North Project also includes construction of Taxiway C14, which would be located west of existing Taxiway R. The Taxiway C14 site encompasses approximately 25 acres west of the MSC North building site.

In addition to the site in the western portion of the airfield, the MSC Program areas would also include an area for the CTP generally located east of TBIT in the CTA. The current uses of the CTP site include parking garages and terminal roadway connectors. Uses immediately surrounding the CTP site include World Way and passenger terminals (north, west, and south) and parking garages and the Central Utility Plant to the east.

2.5 Project Characteristics

2.5.1 Midfield Satellite Concourse Program

The MSC Program approved in the 2004 LAX Master Plan consists of a new multi-level concourse with conveyance systems connecting the MSC and CTP as well as a new taxilane, taxiways, apron, and utilities required to serve the MSC. The MSC Program is designed to accommodate a range of existing aircraft and equipment, from Airplane Design Group (ADG) III up to ADG VI. ADG III corresponds to narrowbody jets (for example, the Boeing 737 and the Airbus 320). ADG V corresponds to widebody jets such as the Boeing 747 and Airbus A340 and ADG VI aircraft, often referred to as New Large Aircraft (NLA), corresponds to aircraft such as the Boeing 747-8 Series and the Airbus A380.

The overall MSC Program, as documented in the LAX Master Plan, includes the following facilities:

- A Midfield Satellite Concourse (MSC);
- A Central Terminal Processor (CTP) in the Central Terminal Area (CTA);
- A connector/conveyance system between the MSC and the CTP; and
- Construction of new taxiways/taxilanes, apron areas, and utilities to service the MSC.

2.5.2 MSC North Project

The MSC North Project represents Phase 1 of the overall MSC Program. Key characteristics of the proposed concourse include:

- Ability to accommodate simultaneous international and domestic passenger operations;
- Modularity of aircraft parking position layouts, boarding bridge locations, and holdroom areas to provide flexibility for a wide range of aircraft equipment at different times;
- Ability to accommodate point-to-point busing operations and future automated people mover (APM) connections with smooth transitions between the offered modes of travel; and
- Modular segmentation of the building and isolation of the building systems to allow for ongoing maintenance and incremental development of the MSC Program.

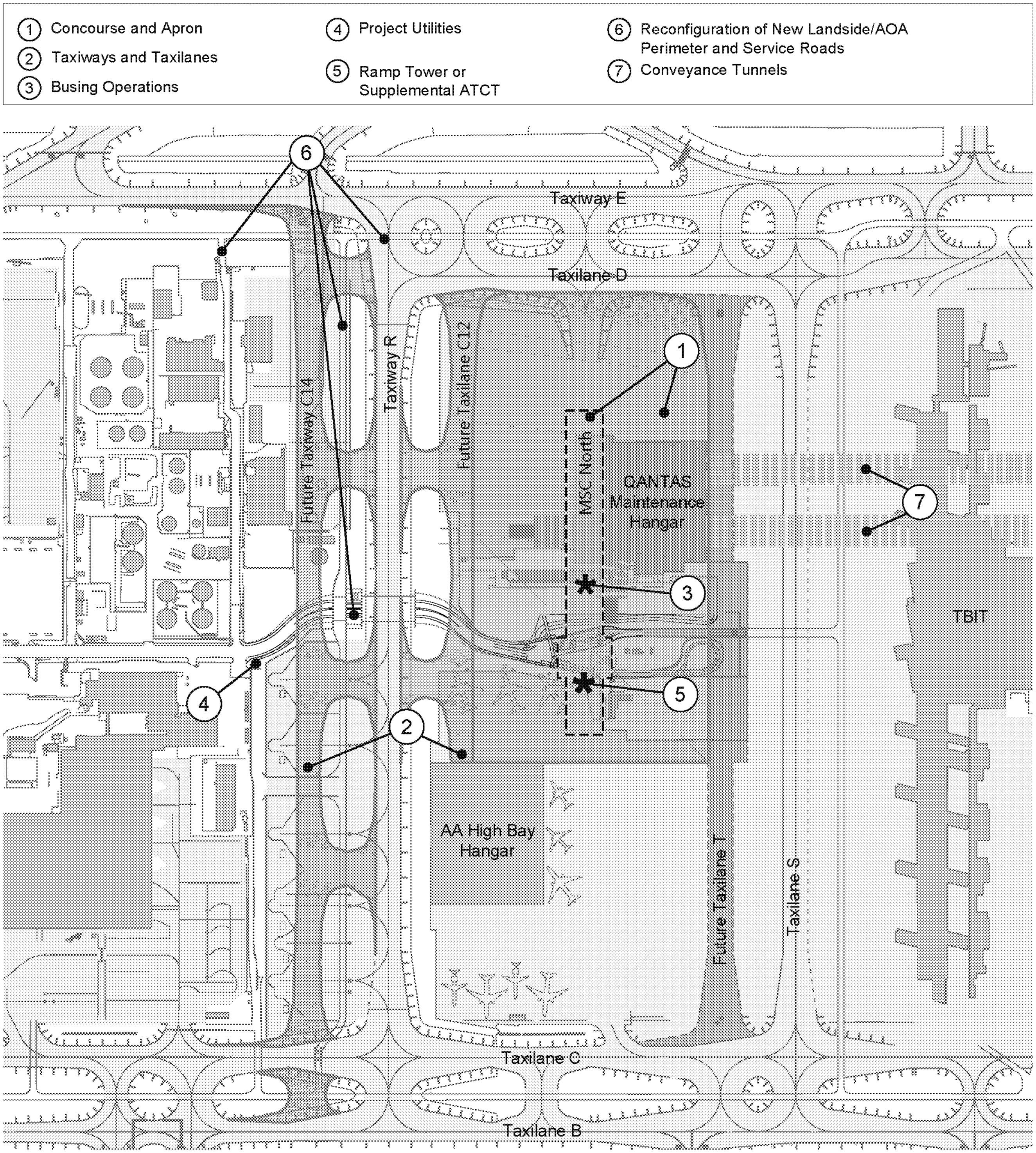
Project components associated with the MSC North Project, which are described in more detail below, include:

- A concourse for up to 11 gates and associated facilities;
- Additional taxiways and taxilanes;
- A ramp tower or FAA supplemental airport traffic control tower to control aircraft movement around the concourse facility and associated airfield;
- Utilities that support the MSC North Project; and
- The removal/relocation of existing facilities at the Project site.

2.5.2.1 Concourse and Apron

The proposed MSC North building (the concourse building and associated apron areas) would be constructed from the north limit of the concourse[3] to a point just south of World Way West (see **Figure 2-3**). The concourse would have the ability to serve both international and domestic flights and could accommodate up to 11 gates for ADG III to ADG VI aircraft. A sample gating plan is shown in **Figure 2-4**. Apron areas associated with the MSC North Project would also include service facilities such as aircraft parking locations, fuel pits, potable water, 400Hz power, and pre-conditioned air.

[3] The north limit of the proposed MSC would be south of the Alt D line defined by Alternative D of the 2004 LAX Master Plan. Alternative D includes the relocation of Runway 6R-24L by 340 feet to the south. It also includes the provision of a new centerfield taxiway (between Runway 6L-24R and Runway 6R-24L) and relocation and improvements to Taxiway E and Taxilane D. The Alt D line was established by the FAA-required object free area limit line south of Taxilane D. The centerfield taxiway would meet ADG VI standards; the realigned Taxiway E and Taxilane D would meet ADG V standards. The MSC North Project would not impact the Alt D line or any of the improvements associated with Alternative D.



Note:
Component numbers 3,5, and 7 represent approximate locations of project components.

0 600 ft
Scale
north

Source: HNTB, Corp., Los Angeles International Draft ALP, July 2012; Ricondo & Associates, Inc., January 2014.
Prepared by: Ricondo & Associates, Inc., February 2014.

LAX Midfield Satellite Concourse Draft EIR	MSC North Project Components	Figure 2-3

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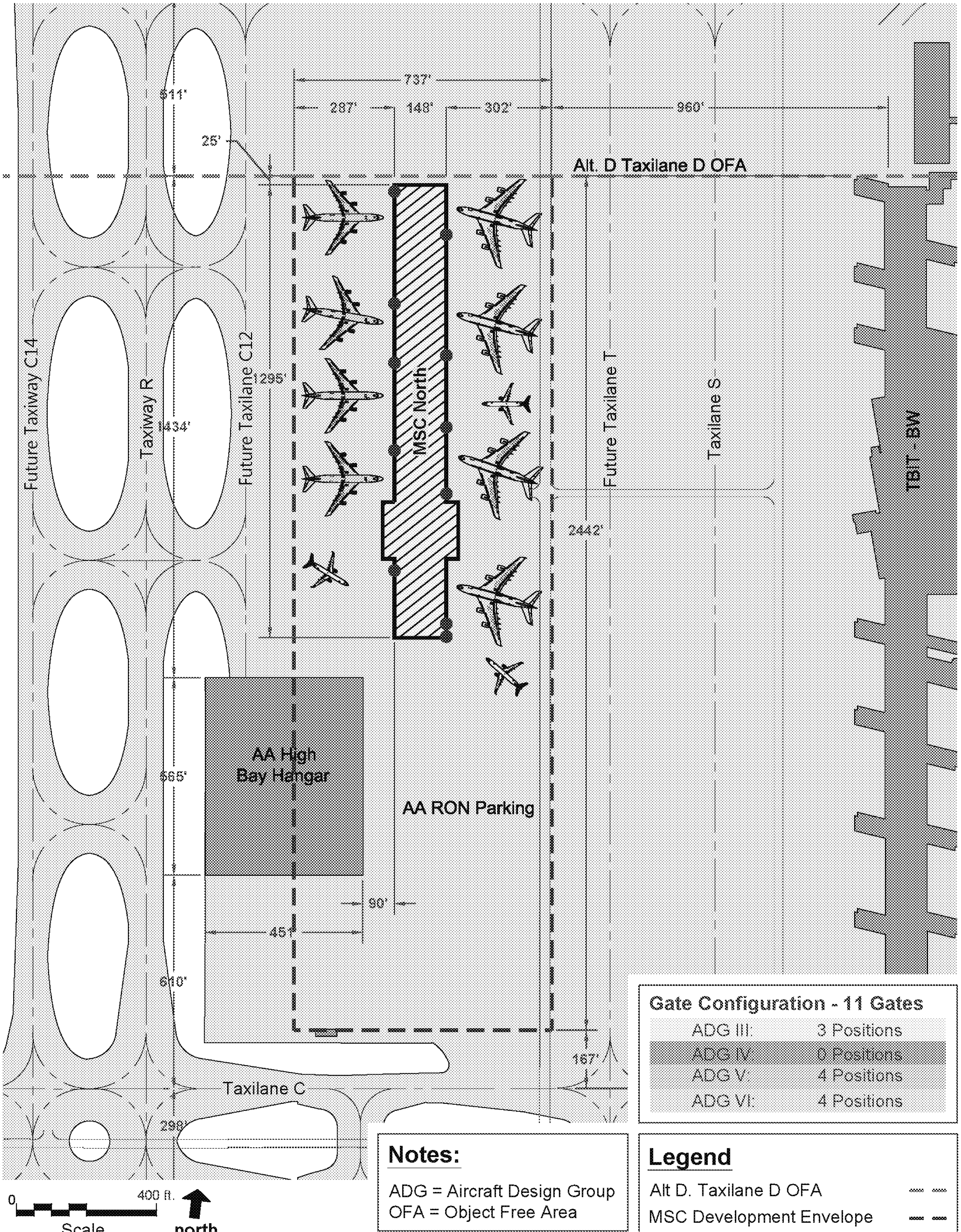

Notes:

ADG = Aircraft Design Group
OFA = Object Free Area

Legend

- Alt D. Taxilane D OFA
- MSC Development Envelope
- Midfield Satellite Concourse
- Gate Location

Source: HNTB, Los Angeles International Airport Layout Plan, August 2010; Simtra Aerotech AB, PathPlanner A5, June 2013; Ricondo & Associates, Inc., July 2013.
Prepared by: Ricondo & Associates, Inc., January 2014.

LAX Midfield Satellite Concourse Draft EIR	Sample Aircraft Parking Plan	Figure 2-4

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The MSC North building would have an estimated footprint of 200,000 square feet, with approximate dimensions of 1,295 feet in length (north-south) and between 148 feet and 160 feet in width (east-west). The floor space of the concourse, which would consist of four levels plus an APM level, would provide up to 800,000 square feet of floor space for facilities such as passenger holdrooms, concessions, restrooms, airline space, utility rooms, and circulation. The MSC North Project would include space for airline operations, baggage handling, concourse circulation, holdrooms, concessions, airline lounges, office space, building support spaces, bus station(s), automated people mover system, and utilities. Conceptual floor plans of the proposed concourse are shown in **Figures 2-5** through **2-10**. **Figures 2-11** and **2-12** provide conceptual sectional views of the proposed building. The MSC North Project would also include provisions for future connection(s) between the proposed concourse facility and TBIT and/or the CTA to accommodate passengers, baggage, and utilities.

2.5.2.2 Busing Operations

Passengers would access the MSC North building by airfield buses powered by clean fuel, traveling between existing CTA terminal facilities and the MSC North building using existing and relocated vehicle service roads (existing vehicle service roads in the vicinity of the MSC North site would be relocated to provide access around the MSC North building). Passengers would obtain tickets, check luggage, and be screened by security at the existing passenger terminals within the CTA and would be bused to and from existing bus gates located within these terminals. One or more bus stations would be integrated to be part of the MSC North building.

Existing busing operations at the Airport consist mainly of passenger trips from the CTA to the West Remote Gates/Pads (a distance ranging between 7,500 and 12,500 feet), and from Terminal 4 to the American Eagle Commuter Terminal (a distance of approximately 5,200 feet). The current fleet consists of 15 diesel-powered articulated buses, 12 compressed natural gas "Co-buses", and 5 Americans with Disabilities Act (ADA) accessible trucks and shuttle vans. Each articulated bus has a capacity of 66 passengers. There are two Co-bus models in use at the Airport; one has a capacity of 77 passengers and the other has a capacity of 99 passengers.

For the MSC North Project, each bus would have to travel a minimum of 1,300 feet (from TBIT) and up to 6,000 feet between the MSC and the CTA, which is substantially shorter distance than current bus trips out to the West Remote Gates/Pads. Gates at the MSC North building could potentially accommodate 4 ADG VI aircraft, 5 ADG V aircraft, and 2 ADG III aircraft or a mix of smaller aircraft. It is assumed that approximately 300 bus trips per day would transport arriving and departing passengers to and from the MSC North building. Baggage transport between the MSC North building and existing CTA terminals is anticipated to be accommodated by airside baggage carts and tugs.

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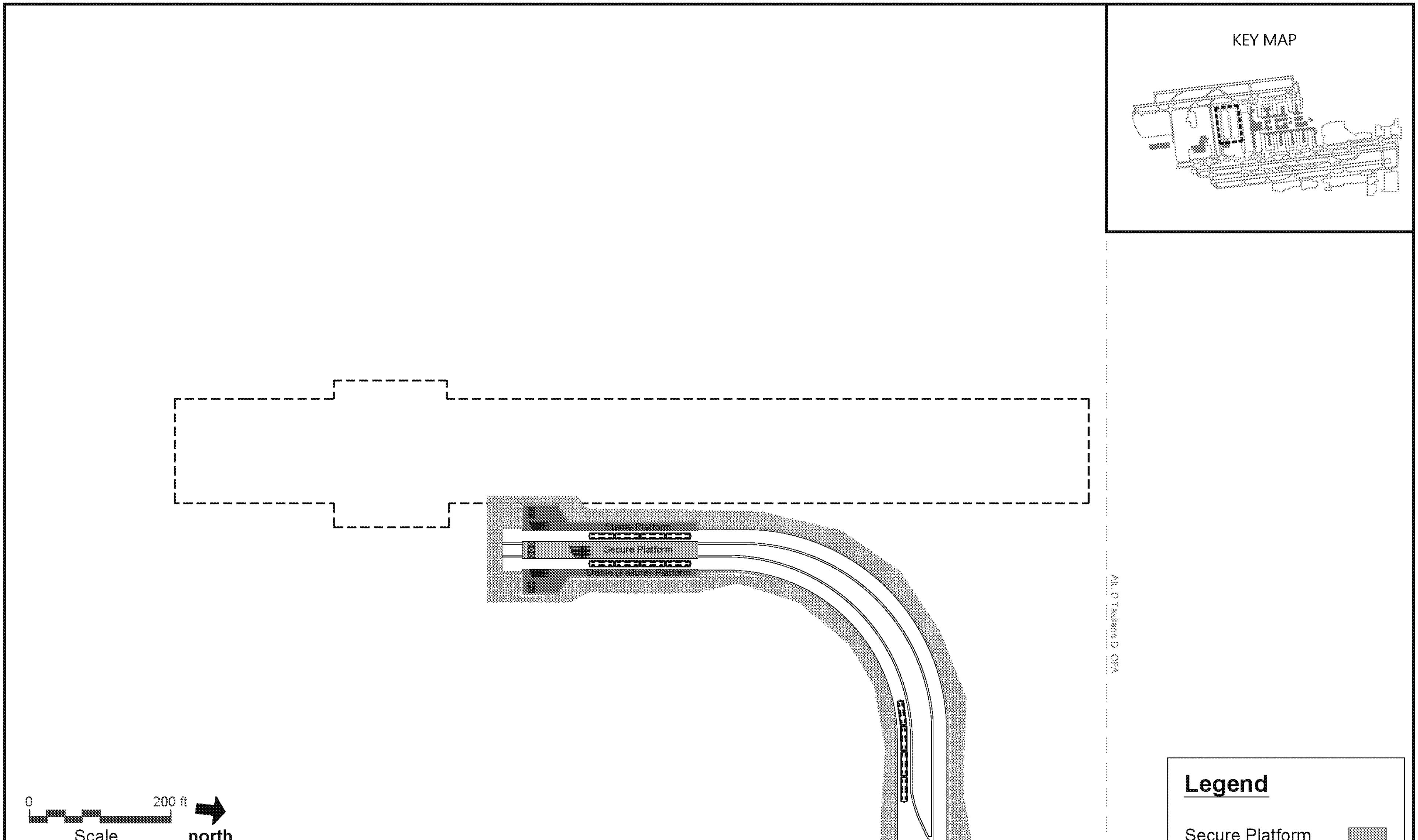

Source: Ricondo & Associates, Inc., May 2013.

Prepared by: Ricondo & Associates, Inc., February 2014.

LAX Midfield Satellite Concourse Draft EIR

APM Level

Figure 2-5

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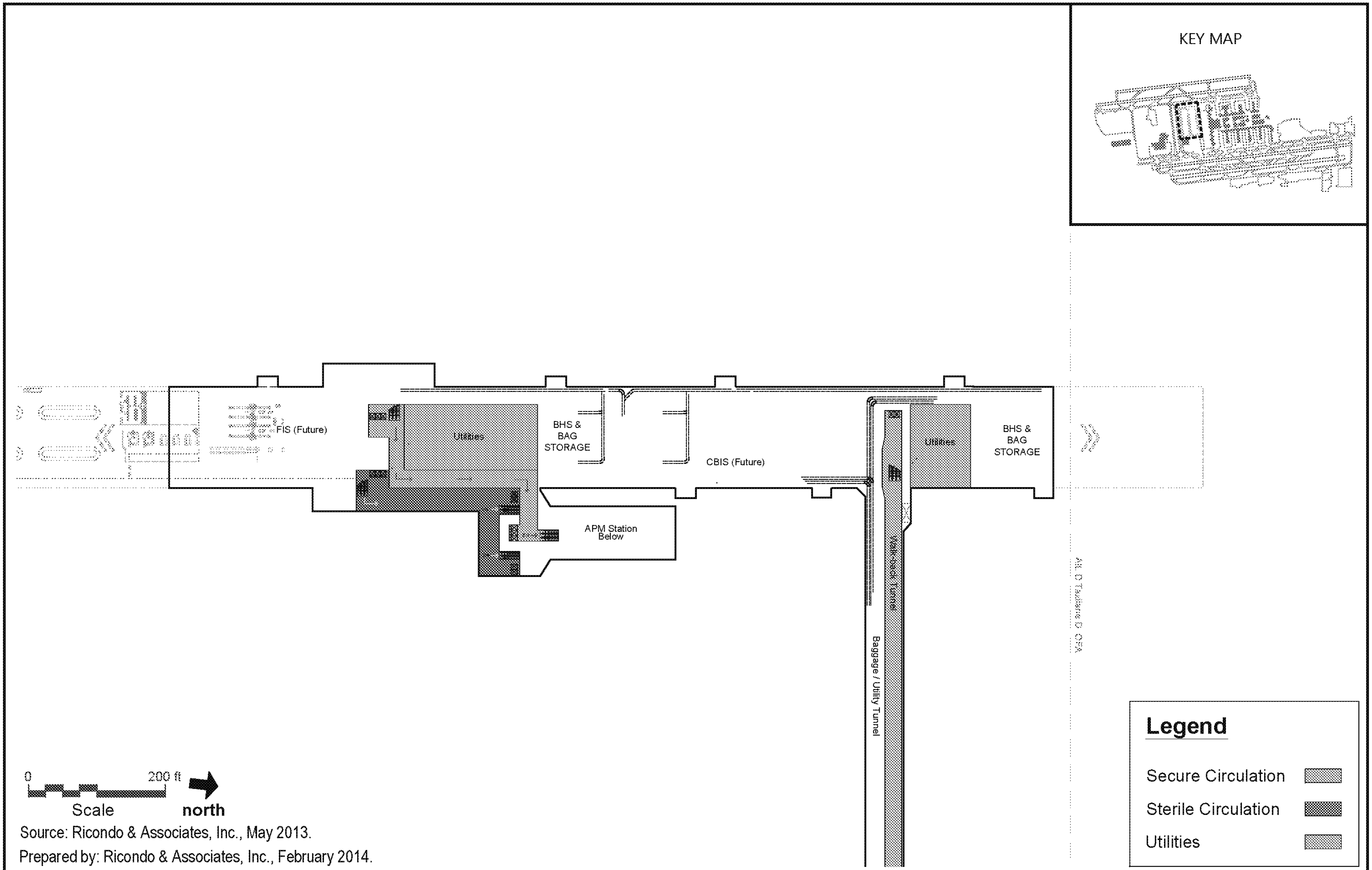

Source: Ricondo & Associates, Inc., May 2013.

Prepared by: Ricondo & Associates, Inc., February 2014.

LAX Midfield Satellite Concourse Draft EIR

Baggage Handling Systems Level

Figure
2-6

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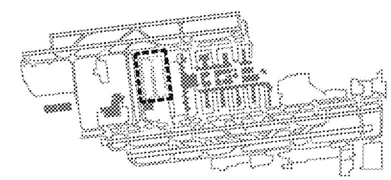

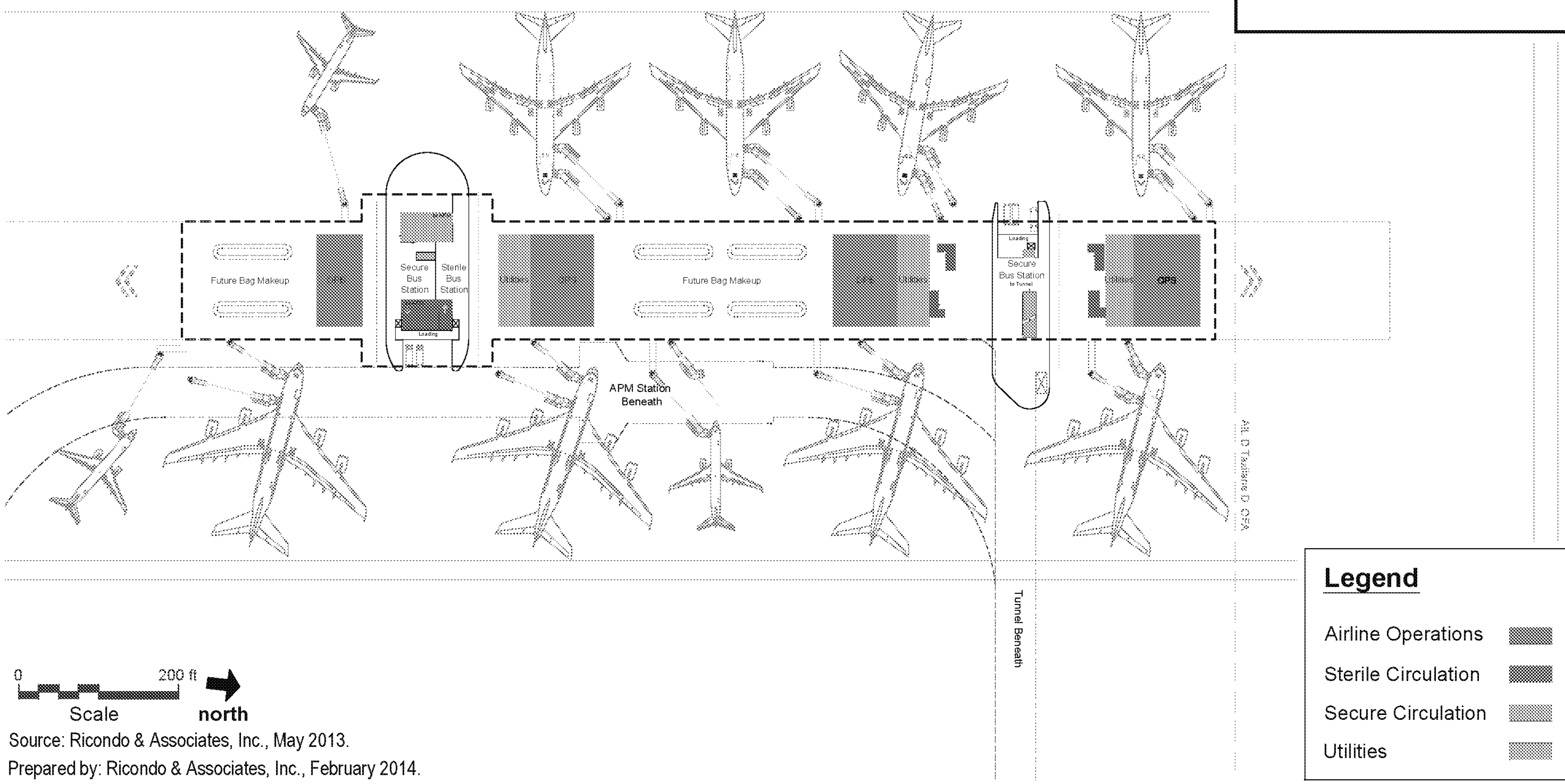

Source: Ricondo & Associates, Inc., May 2013.

Prepared by: Ricondo & Associates, Inc., February 2014.

LAX Midfield Satellite Concourse Draft EIR

Apron Level

Figure

2-7

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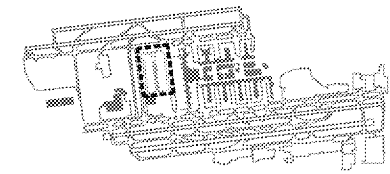
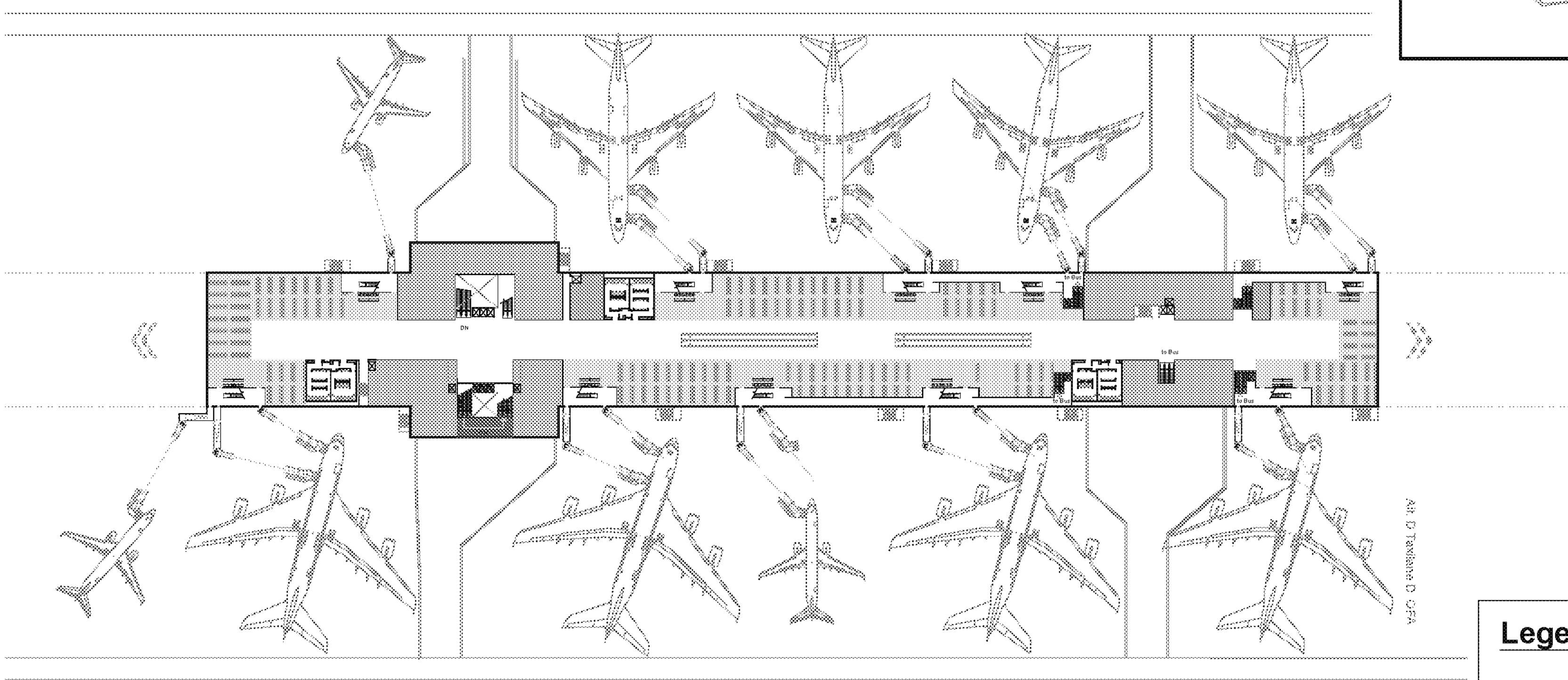
KEY MAP





Legend

- Concession
- Sterile Circulation
- Gate Area
- Holdroom
- Utilities

0 200 ft

Scale north

Source: Ricondo & Associates, Inc., May 2013.

Prepared by: Ricondo & Associates, Inc., February 2014.

LAX Midfield Satellite Concourse Draft EIR

Concourse Level

Figure

2-8

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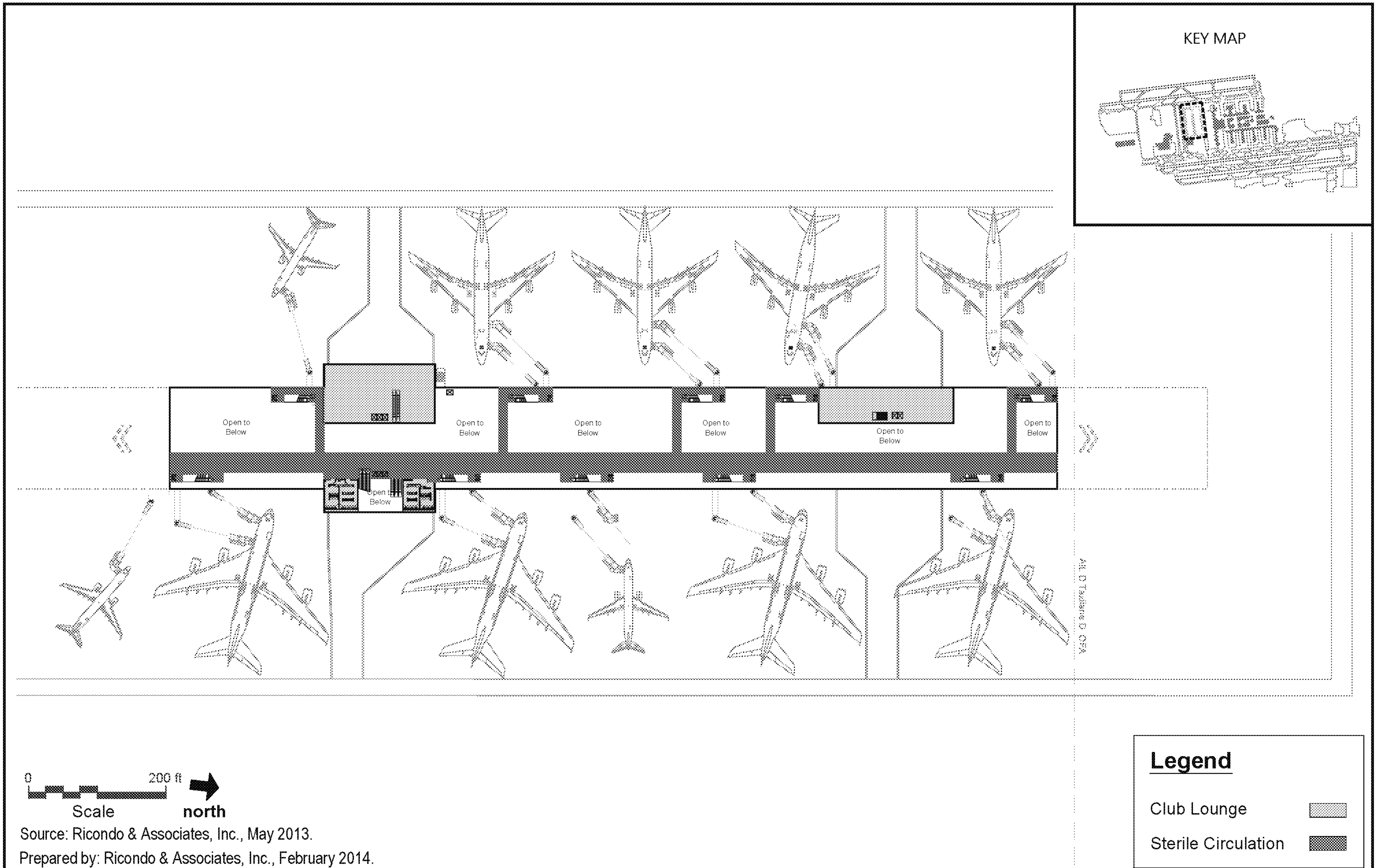

Source: Ricondo & Associates, Inc., May 2013.
Prepared by: Ricondo & Associates, Inc., February 2014.

LAX Midfield Satellite Concourse Draft EIR

Club Level

Figure
2-9

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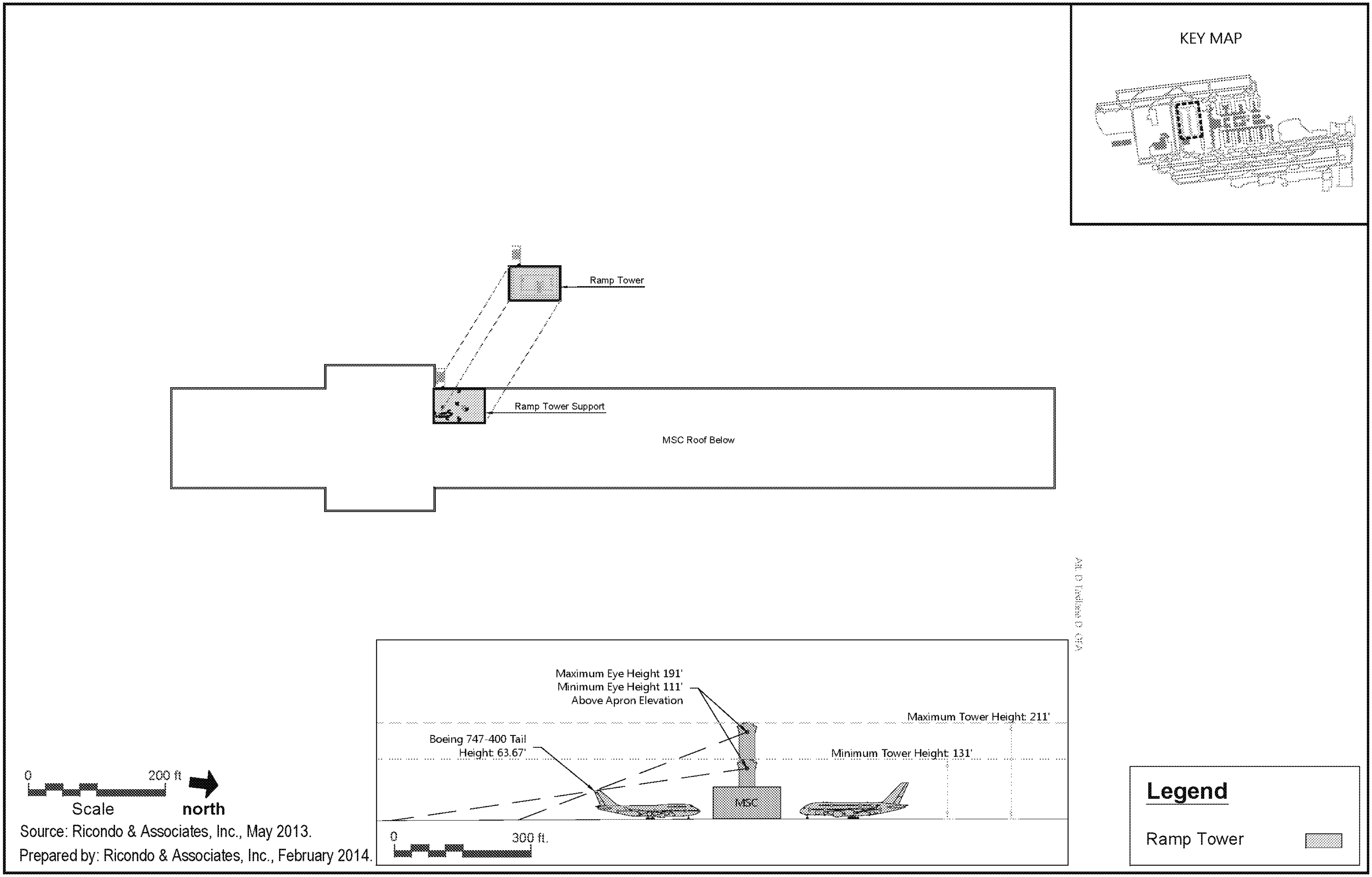

Source: Ricondo & Associates, Inc., May 2013.

Prepared by: Ricondo & Associates, Inc., February 2014.

LAX Midfield Satellite Concourse Draft EIR

Ramp Tower

Figure 2-10

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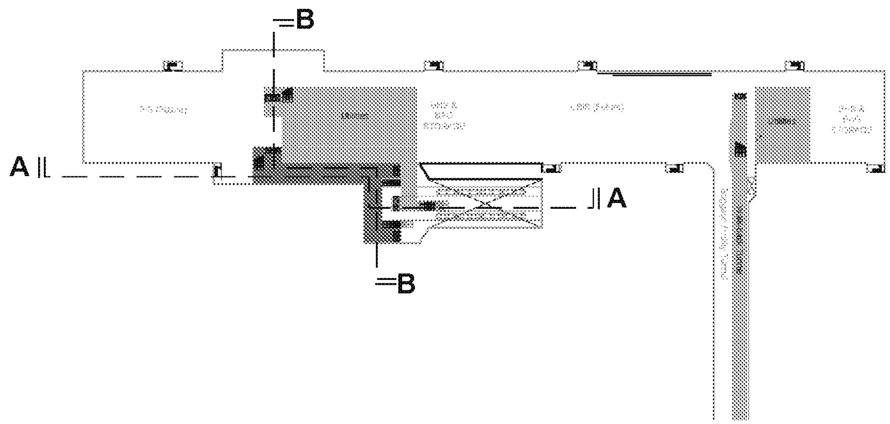
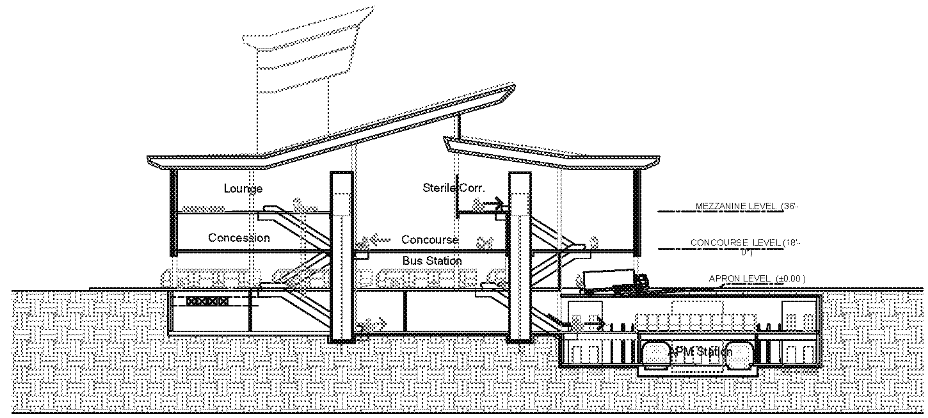
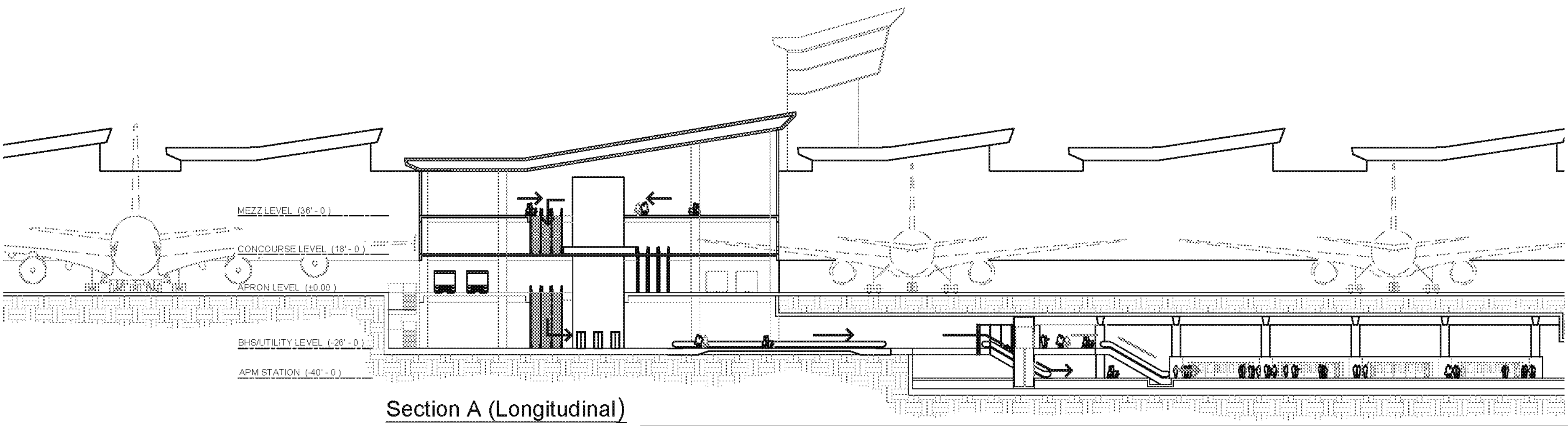




Section B (Enlarged Section - Core Area)



Section A (Longitudinal)

0 Not to Scale
Scale

Source: LAWA, HNTB, Ricondo & Associates, Inc., July 2012.
Prepared by: Ricondo & Associates, Inc., August 2013.

Legend

International Circulation
Domestic Circulation
Sterile Circulation
Secure Circulation
Utilities

LAX Midfield Satellite Concourse Draft EIR

Conceptual Floor Plan - APM Station Sections

Figure
2-11

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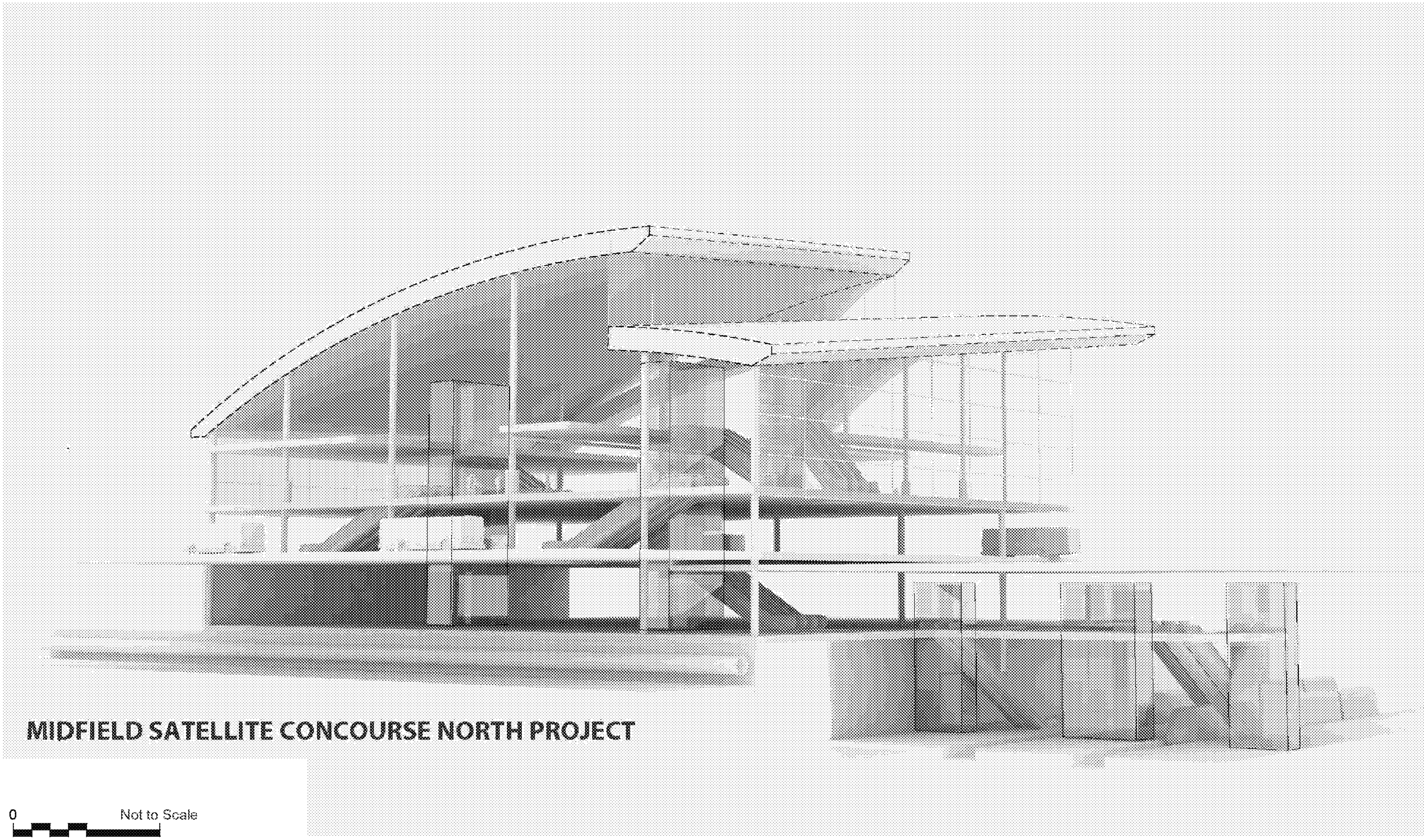

Source: Ricondo & Associates, Inc., July 2013.

Prepared by: Ricondo & Associates, Inc., August 2013.

LAX Midfield Satellite Concourse Draft EIR

Conceptual Section View

Figure
2-12

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2.5.2.3 Taxiways and Taxilanes

A new taxilane would be needed to provide aircraft access from the airfield to the gates on the west side of the MSC North building. Airside improvements associated with the MSC North Project include the construction of Taxilane C12 on the west side of the MSC North building, aircraft apron areas, and service roads (see Figure 2-3). Taxilane C12 would be designed to be 75 feet wide and approximately 2,000 feet long to provide connections to existing Taxilane D and Taxiway E.

Taxilane T, located on the east side of the MSC concourse facility and apron, currently under construction and approved as part of the Bradley West EIR,[4] would provide aircraft access between the gates on the east side of the MSC North building and the airfield.

The MSC North Project also includes a new crossfield taxiway designated as Taxiway C14. Taxiway C14 would be located west of existing Taxiway R (see Figure 2-3). Taxiway C14 would be designed to be 82 feet wide[5] (to ADG VI standards) by approximately 3,600 feet long to provide connections to existing Taxiway B, Taxilane C, and Taxiway E.

2.5.2.4 Ramp Observation Area and/or Supplemental Airport Traffic Control Tower (ATCT)

To ensure that the LAX airport traffic control tower (ATCT) has a clear unobstructed and direct view of aircraft located on runways and taxiways in the vicinity of the MSC North Project, supplemental aircraft movement control, such as a ramp observation area or ramp control tower and/or supplemental FAA ground-control of taxiways from a second ATCT would be included as a project component (see Figure 2-3). It is assumed that a ramp control tower would be integrated into the MSC North building. The ramp control tower would be between 131 and 211 feet tall; the height of the tower will be determined by FAA once it conducts a line-of-sight analysis and shadow analysis (see Figure 2-10). However, if the FAA determines that a supplemental ATCT is required to provide clear unobstructed and direct view in the vicinity of the MSC, this would be constructed as a separate structure on the MSC North Project site, most likely immediately adjacent to the MSC North building. The final location and height of a supplemental ATCT, if required by FAA, would be the subject of additional environmental review under CEQA and NEPA.

2.5.2.5 Reconfiguration of New Landside/AOA Perimeters and Service Roads

As part of the proposed MSC North Project, World Way West would need to be reconfigured as the concourse and apron would be constructed over the current alignment. Landside access to

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

5 Taxiway C14 is being designed to be 82 feet wide, which is the current FAA criteria for taxiways planned to accommodate ADG VI aircraft. Taxilane T is being constructed to be 100 feet wide; at the time this project was designed and approved by FAA, the criteria for ADG VI taxilanes was 100 feet wide, which was reduced to 82 feet upon the release of FAA Advisory Circular (AC) 150/5300-13A on September 28, 2012.

the MSC North Project for employees, services, and deliveries may be provided through a secured AOA post located either on World Way West or Coast Guard Road.

Additionally, four service roads are located in the immediate vicinity of the MSC North Project site. Due to their location, approximately 6,000 linear feet of roadways around the Taxiway C14 and MSC North building sites must be reconfigured in order to proceed with the construction of the MSC North building and Taxiway C14 (see Figure 2-3).

2.5.2.6 Site Preparation for MSC Tunnel

The MSC Program incorporates tunnel facilities to provide a connection between the MSC and the CTA for passengers, baggage, and utilities. Figure 2-3 identifies the preliminary alignments for an automated people mover (APM) tunnel as well as "utilidor" tunnel for baggage, utilities, and a passenger "walk back" tunnel. These are only a representation of the proposed tunnels based on planning to-date, but provide the maximum potential sizes of the tunnels under consideration.

This Project element will require coordination with other LAWA projects to identify which tunnel segments and/or provisions for future tunnels should be constructed as part of the MSC North Project, and to identify their respective alignments from the MSC to their connections in the CTA. Several upcoming LAWA projects (demolition of TBIT North Concourse, Bradley West; East Apron, and Taxilane 'T') offer potential early site preparation construction opportunities for these facilities and the MSC tunnel. It is assumed for this EIR that a 2,600-foot long segment of the tunnel(s) would be constructed from the MSC North building to an East Station in the CTA. The tunnel(s) would be a maximum of 90 feet wide by 60 feet tall with the bottom of the tunnel at an average depth of 50 feet below the apron.

Portions of the tunnel(s) could be constructed using cut and cover (those portions by the MSC North building), while other sections that would traverse under the existing airfield and terminal infrastructure would most likely be constructed by boring. The tunnels would be constructed in compliance with Los Angeles Building Code, Caltrans Bridge Design Specifications, FAA design standards, and Caltrans Seismic Design Criteria. Emergency exit provisions will be incorporated into the design per National Fire Protection Association (NFPA) standards. The maximum distance to an "exit" will be 300 feet, which will consist of fire-rated doors through the center wall between tunnels at a regular spacing as permitted by NFPA in subway or highway tunnels. In addition, the tunnels will be equipped with ventilation systems consisting of jet fans installed in pairs at approximately 200-foot intervals in each tunnel. The tunnels will also include lighting, emergency lighting, drainage, vent shafts, fire protection (sprinkler) systems, and other features as required by the Los Angeles Department of Building and Safety (LADBS).

2.5.2.7 Project Utilities

The MSC North Project site extends across an area that contains various subsurface and aboveground utility lines and facilities. The MSC North Project would include the provision of utilities to serve the proposed concourse facility, including: domestic water, fire suppression water, reclaimed water, sanitary sewer, storm drain, natural gas, electrical, fuel, and communications. In compliance with the LAWA Sustainability Guidelines, the MSC North Project would meet the energy efficiency and water efficiency and conservation requirements of the Los Angeles Green Building Code (Chapter IX, Article 9 of the Los Angeles Municipal Code).

Implementation of the MSC North Project would require the relocation or modification of certain lines and may include connection upgrades to satisfy current code requirements. **Table 2-1** identifies utility lines in the MSC North Project area that require relocation; these are illustrated in **Figure 2-13** and **Figure 2-14**. Additional infrastructure facilities in the MSC North Project area may also require relocation as a result of MSC North Project construction.

Table 2-1

MSC North Project - Summary of Planned Utility Relocations and Modifications

Utility	Description
Domestic Water	Existing 16-inch water line in World Way West connects to a 12-inch transmission line in Pershing Drive, and to an 8-inch service line east of Bradley West. Two (2) 8-inch laterals are proposed from the 16-inch water line to both sides of the MSC North building.
Fire Suppression Water	The existing 24-inch fire water line under World Way West would need to be extended beneath the MSC North building to connect to the fire water network at Bradley West. A utility corridor through the MSC North building would be required, or alternatively the pipe can be retroactively encased within 10 feet either side of the foundation. Two (2) 16-inch laterals from the 24-inch fire water main will connect to a fire water loop around the MSC North building. These connections would provide redundant service to the fire hydrants to be located around the building at 300-foot spacing.
Reclaimed Water	Reclaimed water is currently available at Vault 3 at Bradley West; a twelve-inch service lateral will be extended from this location to the MSC North building. However, the practicability of using reclaimed water for toilets is being investigated.
Sanitary Sewer	An existing 15-inch sewer on the west side of the MSC North building site flows south to the 57-inch Central Outfall Sewer (COS), but its viability and capacity is unknown at this time. Therefore it is not recommended for use in a new structure unless the condition and capacity of the sewer can be verified through further investigation. Thus, for the MSC North building, 8-inch laterals would be connected to a 12-inch collector system on the west side of the MSC North building. This would eventually connect to a 15-18 inch trunk line (either existing or a new line required). The existing sewer lines east of the proposed connection would be abandoned.
Storm Drain	An existing 57-inch storm drain lies in the middle of World Way West. The 57-inch line increases to 63 inches, then increases to 72 inches before joining the reinforced concrete box (RCB) in Pershing Drive. Storm drainage on both sides of the MSC North aprons would connect to the storm drain systems associated with Taxilane T and Taxilane C12. These airfield storm drains are designed to flow downstream into Standard Urban Storm Mitigation Programs (SUSMPs) provided by the CFTP Project. A diversion (24-inch diameter) of the existing storm drain in World Way West will be required to run through the Utility Chase provided by the building Architect. The Taxiway T Project (currently under construction) does not provide additional storm drain capacity on the east side of the MSC North Apron.
Natural Gas	A 6-inch high pressure gas line (LADBS side) located near Taxiway "D" would be constructed to the MSC North Project from the existing 4-inch high-pressure gas line (Sempra side) in World Way West. The existing gas line and meter in World Way West would need to be removed and relocated when the MSC is constructed.
Electrical	Three new duct banks have been constructed in World Way West. There are two Los Angeles Department of Water and Power (LADWP) duct banks, one high voltage and one medium voltage, and one LAWA duct bank. The LAWA duct bank is for distribution to airport facilities, and would be the likely candidate routing for MSC North building service.
Aircraft Fuel	The source of aircraft fuel for the airport is from the LAXFUEL storage facility located adjacent to and north of World Way West. From the LAXFUEL facility, two 18-inch pipelines feed the aircraft hydrant fueling system on the north side of the airport, and two 20-inch

Table 2-1

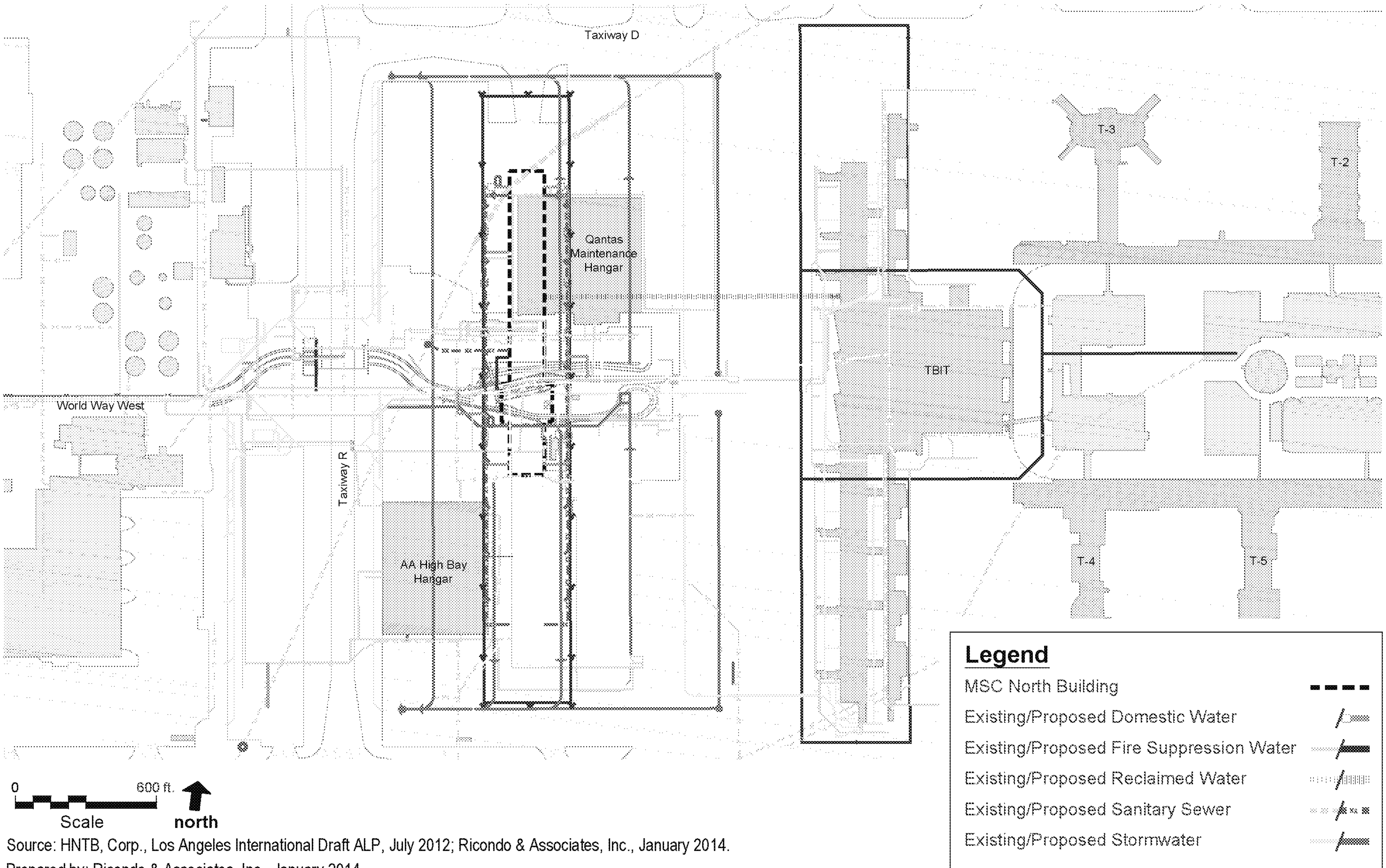
MSC North Project - Summary of Planned Utility Relocations and Modifications

	pipelines similarly feed the south side of the airport. The hydrant fueling system serving the MSC Program would be fed from the existing LAXFUEL north and south feeder pipelines. Two connections and valve vaults are expected for the MSC Program, one on the south side and one on the north side. New fuel lines and hydrants for taxiway construction and/or improvements would be part of the MSC North Project. The LAXFUEL system would also require new fiber optic connections to the valve boxes to enable them to be controlled and monitored remotely. Emergency shut-off switches would be provided at each gate where hydrant fueling exists.
Communications	There is an existing fiber optic system in World Way West that extends from LAWA Admin West east to TBIT and beyond to both the LAWA Admin East and the Telecom building. The (16) 6-inch conduits of the existing fiber optic system runs through the footprint for the proposed MSC North building. It will be relocated into a Utility Chase provided by the building Architect. The FAA fiber optic system must remain in service during relocation.

Source: Ricondo and Associates, Inc., LAX MSC North Project – Building Systems, August 16, 2013.

The relocation, modification, and upgrading of utility systems would involve the placement of new lines or facilities at locations compatible with MSC North Project plans in advance of removal of the affected utility from service. The design and construction of the utility systems improvements will be 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 MSC North Project-related construction activities. For example, the necessary improvements to the underlying utility lines, including relocations necessary to be compatible with proposed MSC North Project plans, would occur when the existing facilities, apron/pavement, and other surface improvements are removed to prepare the site for construction of the MSC North Project elements. In some cases, it will be 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. This may be required 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.



Source: HNTB, Corp., Los Angeles International Draft ALP, July 2012; Ricondo & Associates, Inc., January 2014.

Prepared by: Ricondo & Associates, Inc., January 2014.

LAX Midfield Satellite Concourse Draft EIR

MSC North Utilities - Sewer, Water and Stormwater

Figure
2-13

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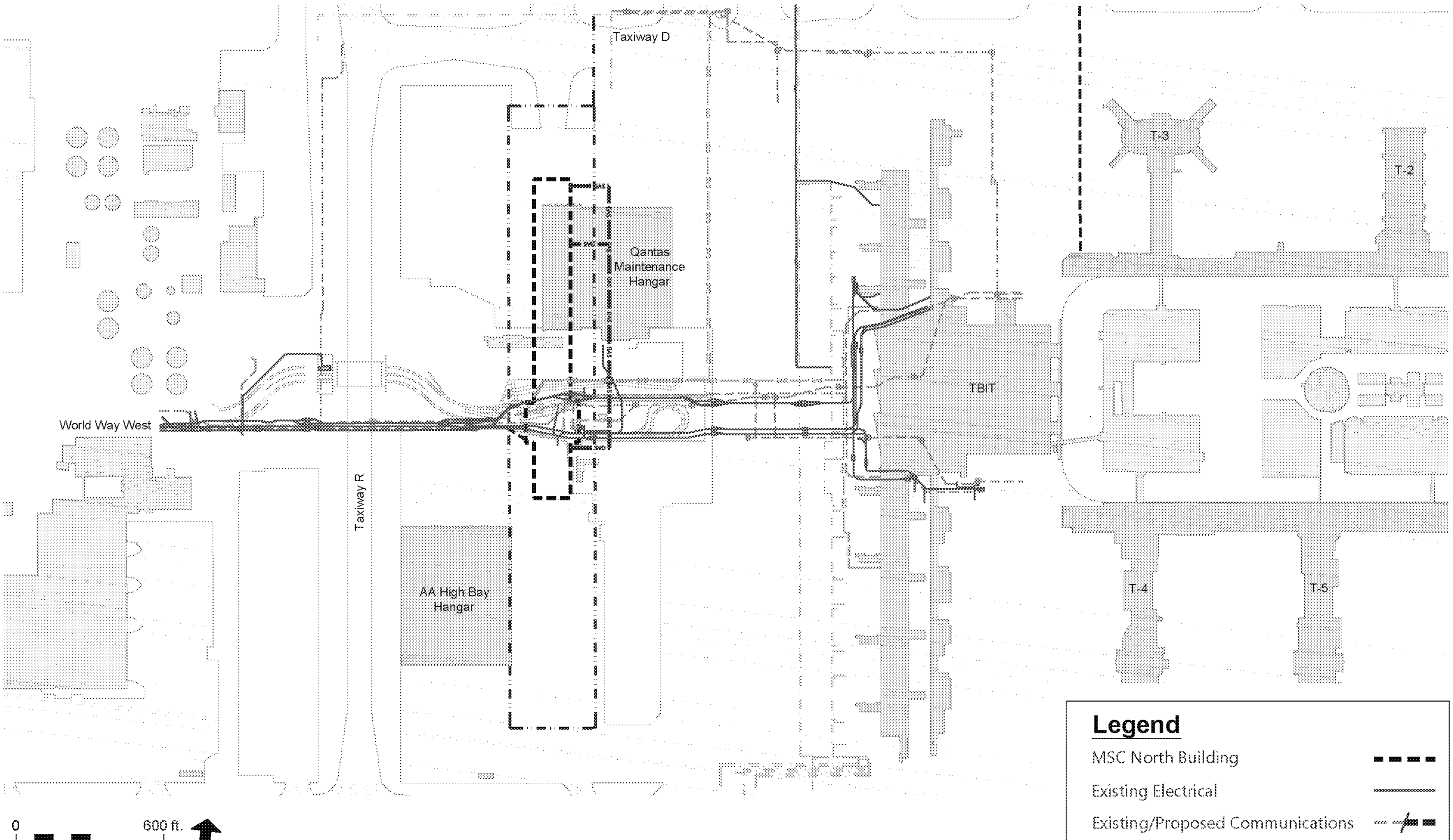

Source: HNTB, Corp., Los Angeles International Draft ALP, July 2012; Ricondo & Associates, Inc., January 2014.

Prepared by: Ricondo & Associates, Inc., January 2014.

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MSC North Utilities - Electrical, Communications, Aircraft Fuel and Natural Gas

Figure 2-14

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2.5.3 Removal/Relocation of Existing Facilities

Construction of the MSC North Project would require the relocation and/or removal of several existing airfield facilities. **Table 2-2** provides an overview of the facilities that would be affected by the proposed MSC North 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 2-15** delineates the existing locations of the affected facilities.

Table 2-2

Summary of Existing Facilities to be Removed/Relocated as part of MSC North Project

Facility	Approximate footprint Area	Current Use	Disposition of Facility/Use
American Airlines Maintenance (Non-Power) Shop	13,800 sq. ft.	Maintenance shop	Building would be demolished. Existing uses would be accommodated at West Aircraft Maintenance Area or consolidated with existing American Airlines facilities.
American Airlines Leasehold Parking	89,500 sq. ft.	Employee Parking	Parking would be removed and consolidated with existing American Airlines parking on the west side of the Airport. Parking for Qantas Hangar and the American Airlines Maintenance (Non-Power) Shop would be provided at the West Aircraft Maintenance Area site.
US Airways Maintenance Facility	17,600 sq. ft.	Aircraft maintenance	Assumed that this would be consolidated with existing American Airlines facilities.
Electrical Vault #2	7,500 sq. ft.	Electrical utility access	The building contains high voltage transformers that provide airfield lighting and would be relocated just to the west of its existing location.
U.S. Coast Guard Facility	39,400 sq. ft.	U.S. Coast Guard offices and facilities	This facility would be relocated off-site by the U.S. Coast Guard.
Water Deluge Tank and Pump Station	9,700 sq. ft.	Water storage and pump facilities	Water tank and pump would need to be relocated, adjacent to the American Airlines High Bay Hangar.
Remain Overnight (RON) Aircraft Parking Spaces	771,000 sq. ft.	Aircraft Parking	These parking spaces would be eliminated. Aircraft that utilize these spaces would utilize other spaces on-Airport.
FAA Navigational Aids (including electrical substation)	28,800 sq. ft.	Beacon and Antenna Array and electrical facilities	FAA facilities will need to be relocated on the Airport, including the substation that powers the FAA NAVAIDS. Several potential locations for these facilities have been identified on Figure 2-15.

Table 2-2

Summary of Existing Facilities to be Removed/Relocated as part of MSC North Project

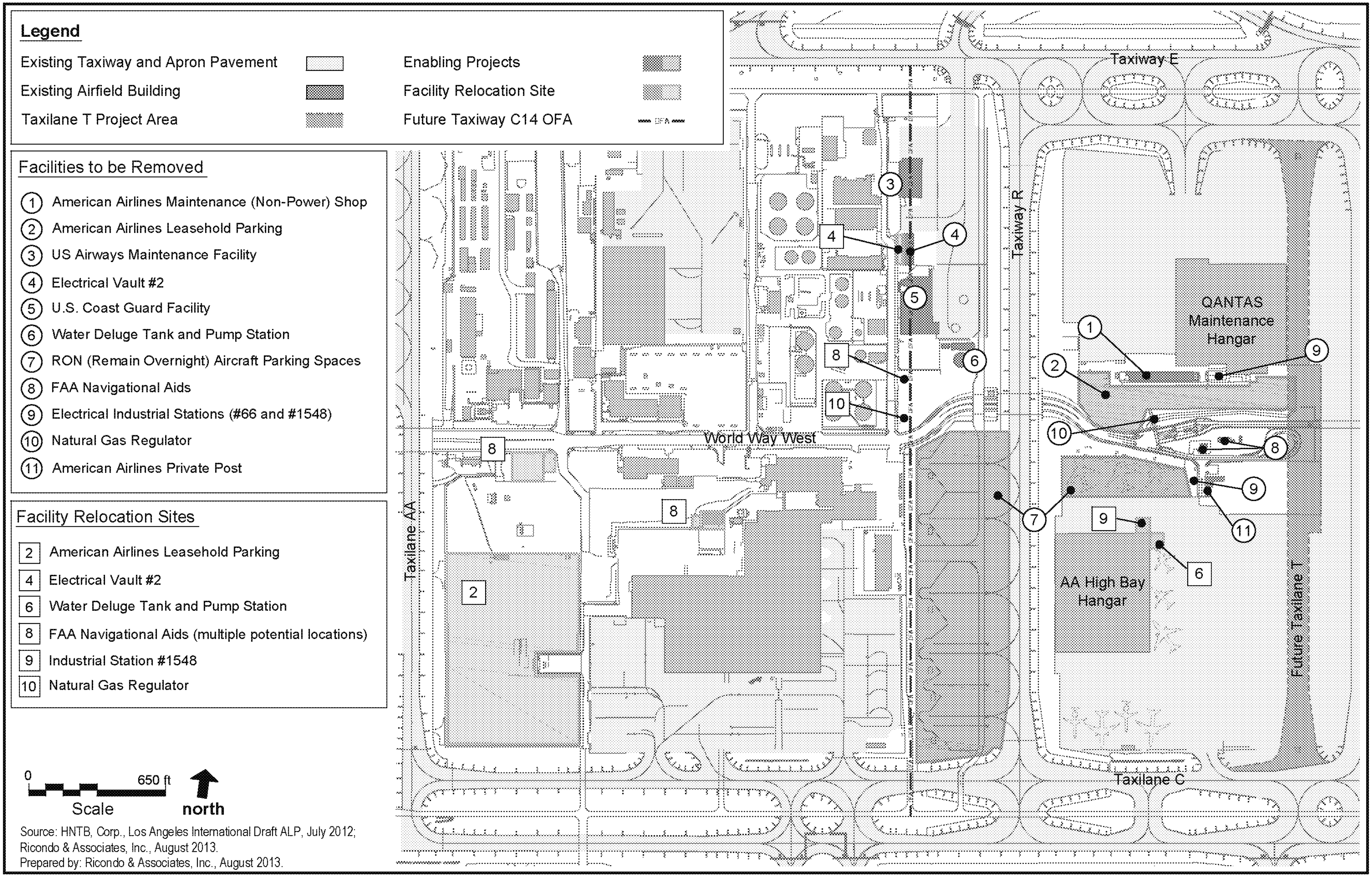
Electrical Industrial Stations #66 and #1548	3,500 sq. ft.	Electrical Station	Electrical Station #66 would be relocated with the Qantas Hangar to the West Aircraft Maintenance Area. Electrical Station #1548 would be relocated adjacent to the American Airlines High Bay Hangar.
Natural Gas Regulator	Approx. 100 sq. ft.	A high to medium pressure valve that regulates the flow of natural gas to Bradley West and the Tom Bradley International Terminal (TBIT)	Facility to be relocated to the west of proposed Taxiway C14.
American Airlines Private Post		Airline support offices for High Bay Hangar	Building would be demolished. Existing uses would be accommodated elsewhere on-Airport.

Source: Ricondo & Associates, Inc., January 2014.

2.5.3.1 Demolition of American Airlines Maintenance (Non-Power) Shop

The American Airlines Maintenance (Non-Power) Shop is located along the north side of World Way West, east of Taxiway R. This building supports the Qantas (former TWA) maintenance hangar, which is proposed to be relocated to the West Aircraft Maintenance Area, and may also include some storage for American Airlines equipment.[6] This building is located within the footprint of the proposed MSC North building and would need to be demolished to enable construction of the MSC North Project. This one-story facility is approximately 13,800 square feet and includes maintenance bays for aircraft service vehicles. It is assumed that the functions of this building supporting the Qantas (former TWA) maintenance hangar would be relocated with the Qantas hangar.

6 The demolition of the Qantas (former TWA) maintenance hangar was environmentally cleared in the *Bradley West Final Environmental Impact Report*; the *West Aircraft Maintenance Area Project Draft Environmental Impact Report* was released for public review on October 17, 2013.



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Existing Facilities Necessary for Removal and/or Relocation

Figure
2-15

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2.5.3.2 Demolition/Relocation of American Airlines Leasehold Parking

The American Airlines leasehold parking is located along World Way West adjacent to the south side of the Maintenance (Non-Power) Shop described above. This facility is an asphalt-paved surface lot approximately 89,500 square feet in area and contains approximately 290 parking spaces. This parking area is located within the footprint of the proposed MSC North building and would need to be demolished to enable construction of the proposed MSC North Project. The American Airlines Leasehold Parking area provides parking for the American Airlines High Bay Hangar facility, the American Airlines Maintenance (Non-Power) Shop, and the Qantas Hangar.

American Airlines has currently provided 1,600 parking spaces for their employees to park at a new parking lot on the west side of the Airport. The parking spaces currently located at the MSC North Project site would be eliminated and vehicles currently parking in this area would park in the existing parking lot on the west side of the Airport (no additional spaces would be required). Vehicles parking in this area for employees of the Qantas Hangar and the American Airlines Maintenance (Non-Power) Shop would park at the WAMA when those facilities are relocated as part of the WAMA project.

2.5.3.3 Demolition of US Airways Maintenance Facility

The US Airways Maintenance Facility is located at the northern end of Coast Guard Road, which is used for vehicle access north of World Way West. This facility would need to be demolished in order to enable construction of Taxiway C14. This facility currently consists of a 17,600-square-foot hangar that houses maintenance, support, and administrative functions. The facility includes 10,000 square yards of apron space on the north, east, and south sides of the hangar. A parking lot is located between the facility and Coast Guard Road with approximately 30 spaces. Landside access to the leasehold is via World Way West and Coast Guard Road. It is assumed that the maintenance functions occurring at this facility would be consolidated with American Airlines facilities as part of the merger of these two airlines and/or can be accommodated at the WAMA site.

2.5.3.4 Demolition/Relocation of Electrical Vault #2

Electrical Vault #2 is located south of the US Airways Maintenance Facility described above; it would also need to be relocated to allow construction of Taxiway C14. Currently, the site includes a 7,500-square foot building and an asphalt pad for service vehicles on the east side. The building contains high voltage transformers that provide power for Taxiway R lights and some of the North Airfield. Electrical Vault #2 would be relocated approximately 100 feet to the west prior to removal of the existing vault.

2.5.3.5 Demolition of U.S. Coast Guard Facility

The U.S. Coast Guard facility is a 39,400 square-foot building located along Coast Guard Road; it is also located within the area necessary for construction of Taxiway C14. The LAX U.S. Coast Guard station (Air Station LA) supports four MH-65C "Dolphin" Helicopters and associated staff. The Air Station Los Angeles maintains a Search and Rescue (SAR) helicopter 24 hours a day, 365 days a year and is responsible for protecting the coastal area of southern

California from Dana Point to Morro Bay. In addition to SAR, Air Station LA helicopters provide Homeland Security Patrols for the Ports of Los Angeles and Long Beach, and Port Hueneme in Ventura County.[7]

The facility currently consists of approximately 25,000 square feet of hangar space with approximately 14,000 square feet of support area for maintenance areas, storage shops, and office space. The facility also includes an 85,000-square yard concrete aircraft apron on the east side of the hangar. Immediately south of the hangar area is a 3,700-square yard parking lot with approximately 75 spaces. This facility would be relocated off-Airport by the U.S. Coast Guard.

2.5.3.6 Demolition/Relocation of a Water Deluge Tank and Pump Station

The Water Deluge Tank and Pump Station is located off of Coast Guard Road just north of World Way West and adjacent to the airfield access road. This aboveground water tank is used for fire suppression systems. The Deluge Tank and Pump Station are an essential part of the fire suppression system for both the American Airlines High Bay Hangar and the Qantas Hangar. This facility would be relocated adjacent to the American Airlines High Bay Hangar.

2.5.3.7 Removal of Remain Overnight (RON) Aircraft Parking Spaces

There are five RON aircraft parking positions located within the southern portion of the future Taxiway C14 and three RON aircraft parking positions located north of the American Airlines High Bay Hangar. These RON parking spaces would be removed; aircraft that utilize these spaces today would utilize other aircraft parking areas on the Airport.

2.5.3.8 Demolition/Relocation of FAA Navigational Aids (Beacon and Antenna Array)

The FAA navigational aids are located at the east end of World Way West and are within the footprint of the proposed MSC North building. The Airport Rotating Beacon and the FAA Remote Transmitter/Receiver (RTR) facility are located at the east end of World Way West immediately east of AOA Post 5. The RTR site is a standalone facility, while the beacon is located on top of a large steel tower structure. Included on the tower structure is an FAA Airport Surface Detection Equipment (ASDE) remote sensor.

In order to accommodate the proposed MSC North Project, these FAA facilities will need to be relocated on the airport. The relocation of the ASDE antenna must be in an area that provides the coverage over the area it currently serves; therefore, the new site must be in the vicinity of the current site, such as the proposed MSC North building. A temporary site, such as the American Airlines High Bay Hangar, may need to be utilized during construction. Several potential on-airport locations for these facilities have been identified by LAWA (see Figure 2-15); FAA is currently conducting a siting study and will select their preferred relocation sites.

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7 U.S. Department of Homeland Security, U.S. Coast Guard, "United States Coast Guard Air Station Los Angeles", accessed online: http://www.uscg.mil/d11/airstaLA/, May 21, 2013.

An electrical substation located on the western side of the American Airlines Maintenance (Non-Power) Shop provides power to the FAA navigational aids described above. This facility is located within the future aircraft apron area of the proposed North MSC building and would also need to be relocated.

2.5.3.9 Demolition of Electrical Industrial Station #66 and Demolition/Relocation of Electrical Industrial Station #1548

There are two electrical industrial stations located in the footprint of the MSC North Project site. Both will need to be demolished to allow for construction of the east aircraft apron.

Industrial Station #66 is located at the south end of the Qantas Hangar and just north of the American Airlines leasehold auto parking area. This station provides power to the Qantas Hangar, the American Airlines Maintenance (Non-Power) Shop and street lighting along the eastern end of World Way West. This station would not be required once the Qantas Hangar is relocated as part of the WAMA Project. Industrial Station #1548 is located just south of the Airport Rotating Beacon on World Way West. This station provides power to the American Airlines High Bay Hangar and to the American Airlines RON parking area adjacent to the High Bay hangar. This station previously provided power to the old American Airlines Low Bay Hangar which has been demolished. Industrial Station #1548 will need to be relocated adjacent to the American Airlines High Bay Hangar.

2.5.3.10 Demolition and Replacement of Natural Gas Regulator

The Natural Gas Regulator is located along World Way West just west of the Airport Rotating Beacon. The facility is a high to medium pressure valve that regulates the flow of natural gas to Bradley West and the TBIT. The regulator is fed from a 4-inch gas main that comes in along World Way West from the west. The Natural Gas Regulator would be relocated west of the proposed Taxiway C14 (see Figure 2-15).

2.5.3.11 Demolition of American Airlines Private Post

American Airlines Private Post supports the American Airlines High Bay maintenance hangar and the American Airlines truck fueling operation, the latter of which has been relocated to another area of the Airport. The Private Post is utilized as support offices for the American Airlines High Bay Maintenance Hangar and used as a check-in point for employees at the American Airlines High Bay Hangar. This facility would need to be demolished in order to construct the MSC North building. With the relocation of the American Airlines Leasehold Parking, the check-in and support functions of this facility would be assumed at a security checkpoint along World Way West.

2.5.4 Construction Phasing

Construction of the MSC North Project is anticipated to occur over approximately five years, beginning in 2014 and finishing in 2019. The general sequence of construction activities that is currently anticipated for the MSC North Project is summarized below:

- The initial phase of construction would focus on the enabling projects, primarily on the relocation of the utility lines and the development of the future Taxiway C14. Activities occurring immediately upon issuance of the contractor's notice to proceed would include the demolition of the U.S. Coast Guard Facility, the US Airways Maintenance Facility, and the relocation and demolition of the Water Deluge Tank and Pump Station, and Electrical Vault #2. Concurrently, new FAA NAVAIDS would be installed, which would be followed by the removal of the existing NAVAIDS. The reconfiguration of World Way West would also progress throughout this opening phase. A temporary batch plant would be established on the Project site and utilized for apron, taxiway, and taxilane construction.
- Also occurring in the early phase of construction would be the relocation of the American Airlines Maintenance (Non-Power) Shop. Shortly after would be the removal of the RON aircraft parking spaces and the relocation of the American Airlines Leasehold Parking, scheduled to begin the first quarter of 2015.
- As the enabling projects reach completion, the construction activities would then focus on facilities associated with the new MSC North building. The installation of MSC-related utilities would complete the initial phase. At this point, construction of the new MSC North building, Taxilane C12, and the tunnel(s) would be underway. Taxilane C12 and the tunnel(s) are anticipated to be completed by the second quarter of 2017.
- In the final year of construction (2018), the apron associated with the MSC North building would be constructed. The remaining on-going projects, including Taxiway C14 and the concourse, would be completed along with the apron by mid-2019.

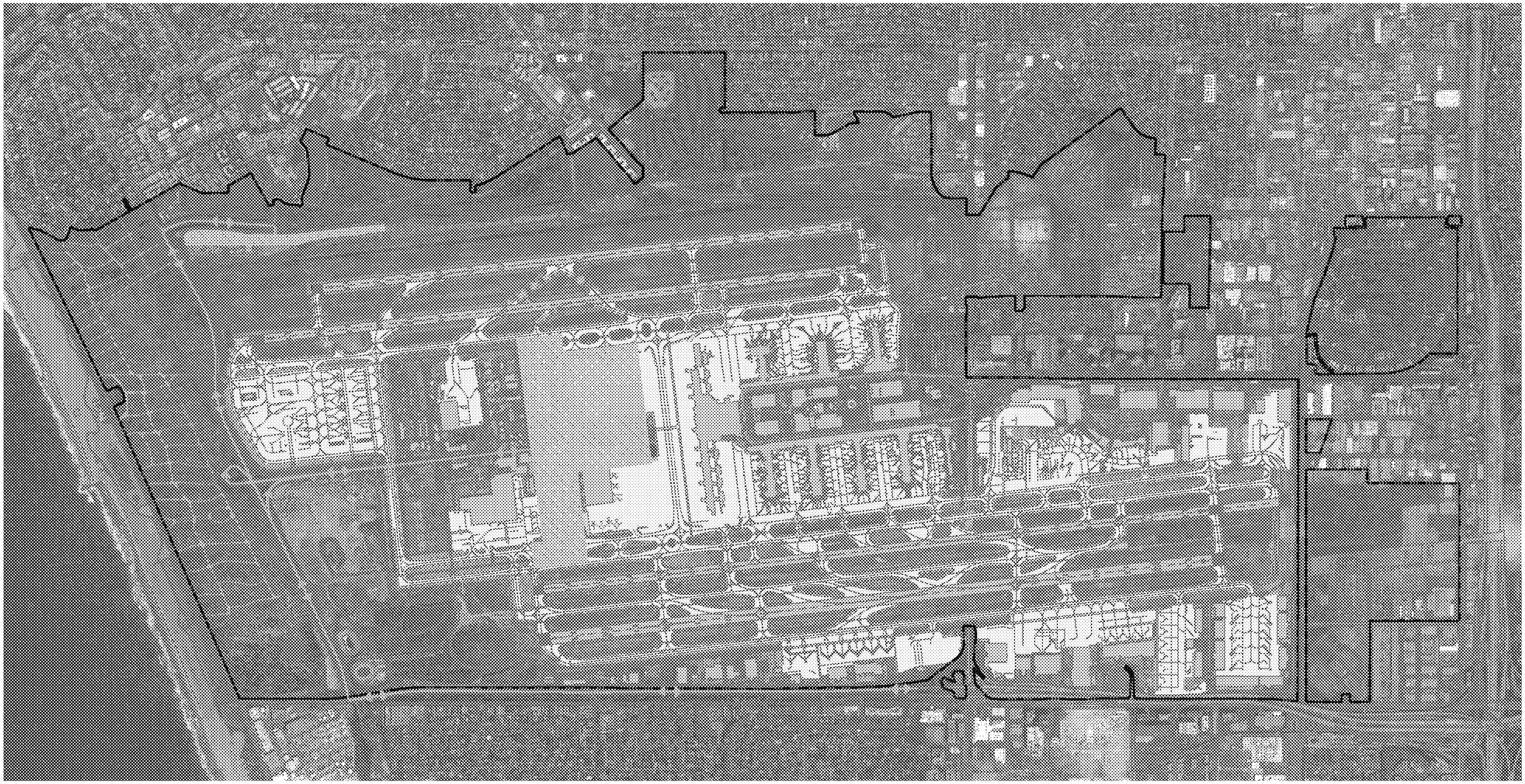
The guidance in FAA Advisory Circular 150/5370-2E, *Operational Safety on Airports During Construction*, has been incorporated into the Project design to address potential impacts on existing airport operations during construction of the MSC North Project.

2.5.5 Construction Staging, Parking, and Haul Routes

2.5.5.1 Contractor Staging

Construction staging for the MSC North Project would occur on the Project site and within LAWA Construction Staging Area A, as shown on **Figure 2-16**. Construction Staging Area A is located within the Airport boundary in the northwestern portion of the Airport, immediately south of Westchester Parkway between Pershing Drive and Lincoln Boulevard, and accommodates construction staging for several on-going LAX Master Plan projects including the Bradley West Terminal project. The western half of Construction Staging Area A currently contains construction trailers, storage areas, loading areas, etc., and over 30-pole mounted lights in the interior. The eastern half of the staging area has been graded and a portion of it is currently being used as a stockpile area. It has over 40 pole-mounted perimeter fence lights running along the entire northern boundary. Portions of this area have been designated for construction staging for the MSC North Project. This area would primarily be used for stockpiling of material until it is needed on the Project site.

Soil that is excavated as part of the construction of the tunnel(s) would be hauled off-site. Construction staging activities would be subject to mitigation measures contained in the LAX Master Plan Mitigation and Monitoring Reporting Program (MMRP).



Legend

LAX Property Boundary	Proposed Construction Staging Location
Existing Taxiway and Apron Pavement	Proposed Construction Haul Route
Existing Runway Pavement	

0 2,500 ft.
Scale
north

Source: Ricondo & Associates, Inc., January, 2014.
Prepared by: Ricondo & Associates, Inc., January, 2014.

LAX Midfield Satellite Concourse Draft EIR

Construction Parking, Staging Areas and Haul Routes

Figure 2-16

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2.5.5.2 Contractor Employee Parking

It is anticipated that construction contractor employee parking would occur directly at the Project site, with access via World Way West. As indicated above, the Project site would also be used as a construction staging area.

2.5.5.3 Contractor Haul Routes

Figure 2-15 also delineates the delivery and haul routes proposed to be used during construction of the MSC North Project. As shown, the primary delivery routes would be Pershing Drive and World Way West, with the western end of Westchester Parkway used to access Construction Staging Area A. For materials delivered to, and stored at, Construction Staging Area A, the contractor haul routes to and from the MSC North Project work area would be on airport property and not on public streets.

2.5.6 Future Phase(s) of the MSC Program

The MSC Program components that are not part of the MSC North Project have only been conceptually planned; thus, only an update of the program-level analysis of these components presented in the certified LAX Master Plan EIR is possible. For those MSC Program components receiving only programmatic environmental review in this EIR, further project-level environmental review under CEQA will be required in the future before they can be implemented. Project-level environmental documents for future phase(s) of the MSC Program will be initiated at such time as LAWA determines that they are needed.

Components associated with the future phase(s) of the MSC Program, as shown in **Figure 2-17**, include:

- Southerly extension of MSC Program building and associated facilities;
- Extension of Taxilane C12;
- Utilities that support the future phase(s) of the MSC Program; and
- Central Terminal Processor.

2.5.6.1 Future Phase(s) of the MSC Program Components

Midfield Satellite Concourse and Associated Facilities

The future phase(s) of the MSC Program would extend the MSC building south in one or more phases. The future phase(s) of the MSC Program would expand the MSC North building with up to 18 additional aircraft gates and an additional footprint with approximate dimensions of 1,000 feet in length (north-south) by 140 to 160 feet in width (east-west). The extension(s) to the MSC North building could have up to four levels and approximately 560,000 square feet in floor space for facilities such as passenger holdrooms, concessions, restrooms, airline space, utility rooms, and circulation. The future phase(s) of the MSC Program, including the concourse building and associated apron areas (see Figure 2-17), would encompass approximately 24 acres in the western portion of the airfield and 6 acres in the CTA for the CTP.

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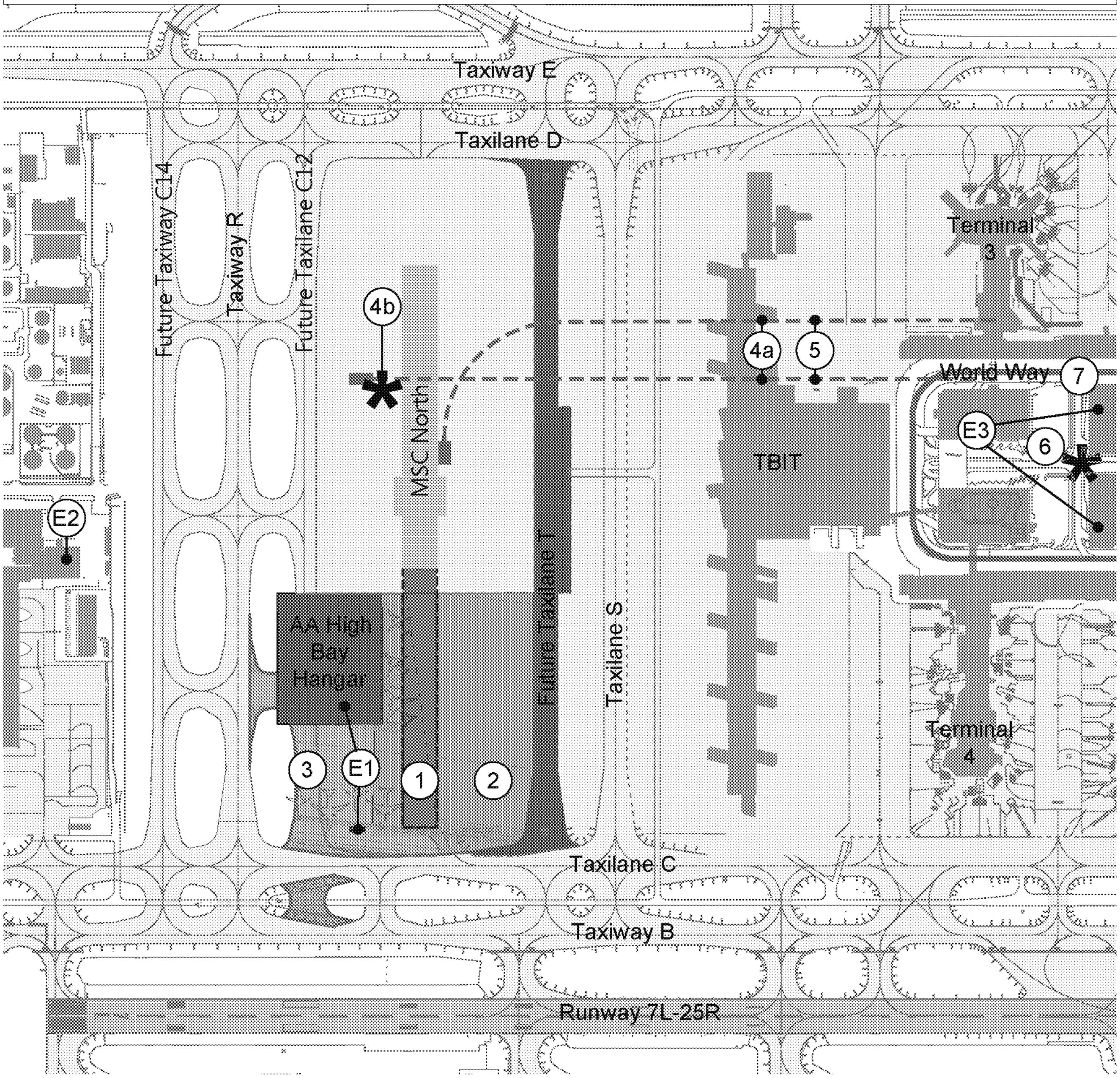
(1) Concourse
(2) Aircraft Apron
(3) Taxilane C12
(4a) Automated People Mover & Baggage Handling System
(4b) Automated People Mover Maintenance Facility
(5) Utilities
(6) Central Terminal Processor
(7) Roadway Modifications to World Way
(E1) Demolition of American Airlines High Bay Hangar and Maintenance Shed
(E2) Additional Utility Plant
(E3) Demolition of Parking Garages P2B and P5



Notes:
Component numbers 4a, 4b, 5, and 6 represent approximate locations of project components.
Taxilane T will be constructed in 2013.

0 700 ft
Scale
north

Source: HNTB, Corp., Los Angeles International Draft ALP, July 2012; Ricondo & Associates, Inc., August 2013.
Prepared by: Ricondo & Associates, Inc., August 2013.

Legend
Existing Taxiway and Apron Pavement
Existing Runway Pavement
Existing Airfield Building
Taxilane T Project Area
Project Components
Program Components

LAX Midfield Satellite Concourse Draft EIR

Components Associated with Future Phases of the MSC Program

Figure **2-17**

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The approved LAX Master Plan also included a conveyance system to move passengers and baggage between the MSC and the CTP, and vice versa. The conveyance system for the future phase(s) of the MSC Program is being planned for passenger and baggage circulation in both a sterile and secure/non-sterile format. A vertical circulation element and an airside APM are anticipated to convey checked-in passengers to the MSC. A maintenance facility to service the airside APM would also need to be constructed on Airport property (see Figure 2-17).

Future Phase(s) of the MSC Program Taxilanes

The future phase(s) of the MSC Program would include the extension of Taxilane C12 south to connect to Taxilane C (see Figure 2-17).

Utilities Supporting Future Phase(s) of the MSC Program

The future phase(s) of the MSC Program would require utilities to accommodate the additional gates, the CTP, the automated people mover and baggage handling system, and facilities (see Figure 2-17) including: domestic water; electrical and communication systems; chilled water and heating hot water; natural gas and fuel systems; and waste water systems. Utility relocations and connections to the MSC building would mostly be completed as part of the MSC North Project. Additional relocations and connections may be necessary for the CTP.

Central Terminal Processor (CTP)

The approved LAX Master Plan included a dual level CTP in the CTA to provide (in part) MSC passenger processing facilities that cannot be fully accommodated in the existing CTA terminals. The CTP would process departing and arriving passengers from a facility that would be centrally positioned within the CTA where parking garages are currently located (see Figure 2-17). The CTP would be constructed in the area where parking structures P2B and P5 are located and extend between World Way North and World Way South. As part of the CTP, roadway modifications along World Way and the associated terminal roadway network would be required. The future phase(s) of the MSC Program assumes that passengers could use common-use airline counters and electronic check-in facilities, and would be able to both check and claim baggage at the CTP. Other passenger services and amenities, as well as airline tenant operations space, could also be provided within the CTP.

2.5.6.2 Enabling Projects

Enabling projects that may be required for the future phase(s) of the MSC Program, as shown in Figure 2-17, include:

- Relocation and demolition of the American Airlines High Bay Hangar and American Airlines maintenance shed;
- Additional utility plant; and
- Relocation and demolition of parking garages P2B and P5.

2.6 Intended Uses of This Draft EIR

The content of this Draft 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 MSC North Project and future phase(s) of the MSC Program in taking action on the Project. Certification of the MSC North Project would complete the project-level CEQA compliance review for the MSC North Project as described in this EIR. This Draft EIR also evaluates the potential environmental impacts of the MSC Program at a programmatic level. A project-level approval for any component of the future phase(s) of the MSC Program will be subject to the appropriate levels of environmental review.

The primary uses of this Draft EIR are (1) to inform decision-makers and the public about the potentially significant environmental effects of the proposed Project and the ways to avoid or reduce the significant environmental effects to the extent feasible; (2) to demonstrate to the public that the environment is being protected; and (3) to ensure that the planning and political processes reflect an understanding of the environmental cost of the proposed Project. The Draft EIR also provides the information and environmental analysis necessary to assist LAWA in considering the approvals and permits required to implement the Project.

2.6.1 Required Approvals/Consultations

In addition to use of this EIR by LAWA, the MSC North Project requires various federal, state, and local approvals. CEQA requires that all state and local agencies consider the environmental consequences of projects over which they have discretionary authority. The approving agencies may use this EIR in their respective decision-making and approval processes. A list of federal, state, and local permits and approvals and consultations anticipated to be required to implement the proposed Project is provided below. Any future phase(s) of the MSC Program will also require a project-level environmental review in compliance with CEQA.

2.6.1.1 Federal

- U.S. Department of Transportation, FAA approval of a Notice of Construction or Alteration to ensure safe and efficient operations during the construction of the MSC. LAWA and its selected contractor would submit FAA Form 7460-1 "Notice of Proposed Construction or Alteration."
- FAA approval of NEPA documentation associated with the relocation of FAA facilities.

2.6.1.2 State and Regional Actions

- South Coast Air Quality Management District review for any permits required under the Clean Air Act for stationary sources.
- The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) administer regulations regarding water quality in the State. Permits or approvals required from the SWRCB and/or RWQCB may include but are not limited to: (1) General Construction Storm Water Permit; (2) Standard Urban Stormwater Mitigation Plan; and (3) Submittal of a Recycled Water Report to the RWQCB for the use of recycled water as a dust control measure for construction.

2.6.1.3 Local

- Certification of the Final EIR for the MSC (MSC North Project and future phase(s) of the MSC Program).
- LAX Plan Compliance Review in accordance with Section 7 of the LAX Specific Plan.
- 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.
- Los Angeles Fire Department approval.
- Grading permits, building permits, and other permits issued by the Department of Building and Safety for the Project and any associated Department of Public Works permits for infrastructure improvements.
- Other federal, state, or local approvals, permits, or actions that may be deemed necessary for the Project.

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3.0 OVERVIEW OF PROJECT SETTING

This section provides an overview of the existing land use, environmental, and development setting associated with the MSC North Project and the future phase(s) of the MSC Program. More detailed descriptions of the existing setting in the project vicinity related to specific environmental issues are provided in Chapter 4, *Environmental Impact Analysis*, of this EIR. 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 MSC North Project and future phase(s) of the MSC Program, result in cumulative impacts. The identification of those other projects focuses, in particular, on other development proposed at LAX and explains the relationship between the MSC North Project and future phase(s) of the MSC Program and each other 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 MSC North Project and future phase(s) of the MSC Program, relate to the LAX Master Plan.

3.1 Land Use Setting

3.1.1 MSC North Project

As indicated in Chapters 1 and 2, and depicted in Figure 2-2, the MSC North Project site is located in the western portion of the airfield within the Air Operations Area (AOA) west of the Tom Bradley International Terminal (TBIT). The subject area is, and has long been, actively used for airport operations and is completely occupied and surrounded by airport facilities. Current land uses of the site include aircraft maintenance hangars, aircraft aprons, and aircraft parking areas. According to the 2004 LAX Specific Plan, the zoning for the MSC North Project site is within the LAX – A Zone: Airport Airside Sub-Area.[1]

Surrounding land uses include the following:

- Taxiways and runways to the north (North Airfield);
- Taxiways and terminals to the east;
- The American Airlines High Bay Hangar, taxiways, and runways to the south (South Airfield); and
- Taxiways, U.S. Coast Guard facilities, support facilities, and airfield-related uses to the west.

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

- The City of Los Angeles communities of Westchester and Playa del Rey north of LAX;
- A mix of commercial, hotel, office, and residential uses east of LAX in the City of Inglewood and unincorporated Los Angeles County;

1 Los Angeles World Airports, Los Angeles International Airport Specific Plan, September 29, 2004.

- Residential, commercial, office, and institutional uses to the south of LAX in the City of El Segundo and the unincorporated LA County community of Del Aire; and
- Dockweiler State Beach, Santa Monica Bay, and the Los Angeles/El Segundo Dunes El Segundo Blue Butterfly Habitat Restoration Area to the west.

3.1.2 MSC Program

The concourse and apron extensions to be included as part of a future phase(s) of the MSC Program would be constructed to the south as a continuation of the MSC North Project in the AOA west of TBIT. Additionally, the proposed Central Terminal Processor (CTP) would be generally located east of TBIT in the CTA. Current uses of the CTP site include parking garages and terminal roadway connectors. Uses immediately surrounding the CTP site include World Way and passenger terminals (north, west, and south) and parking garages and the Central Utility Plant to the east. The zoning for the MSC Program site is within both the LAX-A Zone for the concourse and apron extension, and the LAX – L Zone: Airport Landside Sub-Area for the CTP.

Current uses of the MSC concourse site, as well as surrounding land uses, are described in the previous section, Section 3.1.1.

3.2 Environmental Setting

The following provides an overview of the physical environmental setting at the Project site as it existed at the time the NOP was published (February 8, 2013), noting the environmental issues most relevant to the Project site. Additional information regarding the environmental setting is provided in the discussion of each resource area in Chapter 4.

- Aesthetics – The MSC North 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 near any designated scenic corridors.
- Air Quality – The existing air quality setting at the Project site is subject to air quality pollutants from aircraft arrivals and departures, aircraft movements on taxiways, aircraft maintenance and aircraft engine run-ups, as well as from ground support equipment (GSE) operations and maintenance, and vehicle traffic on and off the airfield.
- Cultural Resources – The findings of the historical resources surveys of LAWA-owned property and adjacent areas conducted as part of the LAX Master Plan EIR, the Specific Plan Amendment Study EIR, and for this EIR indicated that four buildings within the overall boundary of LAX are considered potentially significant historical/architectural resources: (1) Hangar One (listed on the National Register of Historic Places [National Register]) on the southeastern portion of LAX near the northwest corner of Aviation Boulevard and Imperial Highway; (2) the Theme Building and Setting (eligible for listing on the National Register) in the center of the LAX terminals; (3) the WWII Munitions Storage Bunker (eligible for listing on the National Register) near the western boundary of LAX; and (4) the Intermediate Terminal Complex (eligible for listing on the California Register of Historical Resources [California Register]) on the south side of Century Boulevard between Sepulveda Boulevard and Airport Boulevard. None of these

buildings are located within the boundaries of the Project site or in the immediate vicinity of the MSC. Future phase(s) of the MSC Program would include the construction of the CTP located approximately 800 feet west of the Theme Building; however, the proposed CTP would be similar in scale and size to the existing facilities in this area and would not affect this historical resource. No known archaeological sites are located within the boundaries of the Project site or in the immediate vicinity.

- Greenhouse Gases – The primary greenhouse gas emission sources at LAX are emissions of carbon dioxide (CO_2) from combustion of fuels associated with aircraft operations, area traffic, and ongoing construction activities, as well as from building and lighting operations.
- Hydrology/Water Quality – The Project site is impervious and provides a negligible amount of recharge to the regional groundwater basin. Existing surface water pollutants typically include total suspended solids, oil and grease, soap residues, fertilizers, herbicides and pesticides, metals, and fuel hydrocarbons associated with airfield activities and aircraft maintenance.
- Noise – The Project site is located at the center of an active airfield in an area generally removed from the communities near the Airport. The existing noise setting is dominated by aircraft arrivals and departures, aircraft movements, aircraft maintenance and aircraft engine run-ups, GSE operations and maintenance, vehicle traffic on and off the airfield, and periodic construction and demolition activities.
- Transportation/Traffic – The existing traffic setting at the Project site is characterized on the airside by vehicles permitted within the Air Operations Area (AOA) and on the landside by vehicles on World Way South within the CTA and World Way West to the west of the Project site. Operations 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. Traffic on World Way West primarily consists of airline employees, Airport employees, tenants, deliveries, and support services.
- Public Services – Four Los Angeles Fire Department (LAFD) fire stations (80, 51, 5, and 95) are located on Airport property and have direct responsibility for fire protection and emergency services within the Airport boundaries. With the exception of Fire Station 80, which only responds to incidents at LAX, Fire Stations 5 and 95 serve portions of the neighboring communities as well as LAX, and Fire Station 51 serves Dockweiler State Beach in addition to a majority of LAX. Los Angeles World Airports Police Division (LAWAPD) is supplemented by Los Angeles Police Department resources at LAX. In addition, a number of federal law enforcement and safety agencies have law enforcement responsibilities at LAX. The Transportation Security Administration (TSA) administers an extensive passenger and cargo security program; U.S. Customs and Border Protection maintains an armed presence at the Federal Inspection Services areas in each of the five terminals that accommodate international service to screen international passengers for immigration, customs, agricultural protection, and counterterrorism purposes. Further, the United States Federal Bureau of Investigation,

Customs and Border Protection, Drug Enforcement Administration, and U.S. Coast Guard, all have law enforcement responsibilities and personnel at LAX.

3.3 Development Setting/Related Projects

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 MSC North Project and future phase(s) of the MSC Program, result in cumulative impacts to the environment. **Table 3-1** below lists on-going and future projects at LAX within the immediate area of the MSC North Project and future phase(s) of the MSC Program.

- LAX Master Plan Development Projects: the LAX Master Plan Final EIR addresses the overall effects of the approved LAX Master Plan, essentially providing a cumulative impact 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 LAX Master Plan provides a comprehensive plan for a number of improvement projects planned to be implemented over many years throughout the Airport.
- 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 MSC North Project and future phase(s) of the MSC Program, including both LAWA and tenant projects.
- LAX Specific Plan Amendment Study: In accordance with the LAX Master Plan Stipulated Settlement and Section 7.H. of the LAX Specific Plan, LAWA completed the LAX Specific Plan Amendment Study (SPAS) to identify and evaluate alternatives to certain improvements delineated in the LAX Master Plan. Those proposed Master Plan improvements, generally referred to as the "Yellow-Light Projects," included the Ground Transportation Center (GTC), the Automated People Mover (APM) between the GTC and the CTA, reconfiguration of Terminals 1, 2, and 3, reconfiguration of the north runway complex, and on-airport road improvements associated with the GTC. Nine alternatives comprised of various combinations of airfield, terminal, and ground access improvements were addressed within the SPAS Final EIR, and a Staff-Recommended Alternative (Combination of SPAS Alternatives 1 and 9) was approved by the LA City Council in April 2013. While the SPAS has been completed and a programmatic EIR has been approved by the Los Angeles City Council, elements of SPAS are under litigation. LAWA is continuing planning efforts associated with the ground transportation elements of SPAS and determining which projects to advance to project-level environmental review in the near future. Additionally, the Staff-Recommended alternative must still undergo review and approval by FAA in order to be implemented. As such, for related projects included in this EIR, the existing LAX Master Alternative D, which is SPAS Alternative 3, is assumed.
- 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 included in Table 3-1. The list was prepared to document and describe major known local area development projects that may contribute traffic to the MSC study area.

Table 3-1

LAX Development Projects Not Related to the MSC Project Elements

Project	Construction Start Date	End Date	Description
Airfield-Related Improvements			
Runway 7L-25R Safety Area Improvements - South Airfield	Feb-14	Feb-15	Improvements at west end of Runway 7L/25R including runway and connecting taxiway extensions to meet FAA Runway Safety Area (RSA) requirements. Rehabilitation of deteriorating pavement at east end of runway and Taxiway B.
Runway Safety Area Improvements - North Airfield	Jun-14	Jun-19	Improvements to Runways 6L-24R and 6R-24L to meet FAA RSA requirements, and rehabilitate runway pavement.
Terminal-Related Improvements			
LAX Bradley West Project Remaining Work	Nov-13	Dec-17	Completion of replacing existing concourses and aprons at the Tom Bradley International Terminal (TBIT) with new concourses and gates at Bradley West. Remaining work includes demolition of existing TBIT concourses and installation of east gates/aprons along Bradley West concourses. Also includes Taxiway T project and construction of secure/sterile passenger and baggage connection between the TBIT core and Terminal 4 (T-4). Although construction of similar connection between TBIT core and T-3 is also part of the overall Bradley West Project, it is broken out separately below, as its construction would not begin until well after the other Bradley West improvements are completed.
Terminal 3 (T-3) Connector	Jul-19	Jan-22	See LAX Bradley West Project Remaining Work above.
North Terminal Improvements	Aug-13	Aug-17	Major interior improvements and building system upgrades within the North Terminal complex, particularly Terminal 1 (Southwest).
South Terminal Improvements	Nov-11	Feb-18	Major interior improvements and building system upgrades within the South Terminal complex, particularly Terminal 5 (Delta Airlines) and Terminals 6-8 (United).
Infrastructure/Security/Miscellaneous Improvements			
Central Utility Plant Replacement Project (CUP - RP) Remaining Work	Sep-13	Dec-14	Completion of Replacement CUP and related underground piping network within CTA.
Miscellaneous Projects and Improvements	Jan-14	Jul-20	This includes a wide variety of smaller miscellaneous projects and improvements mostly related to repair/replacement of, and upgrades to, existing facilities at LAX, including, but not limited to, runway repair/rehabilitation, elevators/escalators replacement, CTA second level roadway repairs, terminal taxilanes and aprons rehabilitation, passenger boarding bridge replacements, terminals electrical, plumbing, and facilities upgrades, miscellaneous demolition, and more.

Table 3-1

LAX Development Projects Not Related to the MSC Project Elements

Project	Construction Start Date	End Date	Description
West Aircraft Maintenance Area Project	Jan-14	Dec-18	The proposed West Aircraft Maintenance Area project would allow for more efficient and effective maintenance of existing aircraft at the airport, including Aircraft Design Group (ADG) VI aircraft (Airbus A380s and Boeing 747-8s). The proposed Project would include aircraft parking and maintenance facilities, employee parking areas, and related storage, equipment and facilities. The proposed Project would be able to accommodate up to 8 ADG VI aircraft simultaneously or 18 ADG III aircraft (aircraft similar in size to and including Boeing 737's).
Land Development and Miscellaneous Improvements			
LAX Northside Area Development[1]	Jan-15	Dec-22	Development of LAX Northside area with a mix of employment, retail, restaurant, office, hotel, research and development, education, civic, airport support, recreation, and buffer uses that support the needs of surrounding communities and LAWA. The approved development plan provides entitlements for up to 4.5 million square feet of development, subject to a limitation on the total number of vehicle trips (a "trip cap"). Formulation of a new reduced land use development program for the subject area is currently in process, which will be followed by completion of environmental review studies. Schedule for development to be determined.
LAX Master Plan Alt. D/SPAS Development	Jun-15	Jun-25	In accordance with the LAX Master Plan Stipulated Settlement and Section 7.H. of the LAX Specific Plan, LAWA completed the LAX Specific Plan Amendment Study (SPAS) to identify and evaluate alternatives to certain improvements delineated in the LAX Master Plan. Those proposed Master Plan improvements, generally referred to as the "Yellow-Light Projects," include the Ground Transportation Center (GTC), the Automated People Mover (APM) between the GTC and the CTA, reconfiguration of Terminals 1, 2, and 3, reconfiguration of the north runway complex, and on-airport road improvements associated with the GTC. Nine alternatives comprised of various combinations of airfield, terminal, and ground access improvements were addressed within the SPAS Final EIR, and a Staff-Recommended Alternative (combination of SPAS Alternatives 1 and 9) was approved by the LA City Council in April 2013. That alternative must still undergo review and approval by FAA in order to be implemented. As such, for related projects included in this EIR, the existing LAX Master Alternative D, which is SPAS Alternative 3, is assumed.

Table 3-1

LAX Development Projects Not Related to the MSC Project Elements

Project	Construction Start Date	Construction End Date	Description
Other Related (non-LAWA) Projects			
Metro Crenshaw / LAX Transit Corridor and Station[2]	Dec-15	Apr-19	The Los Angeles County Metropolitan Transportation Authority (Metro) recently approved the proposed Crenshaw/LAX Transit Corridor Project, which includes an 8.5-mile light-rail transit line that would connect the existing Metro Green Line and the Metro Expo Line at Crenshaw and Exposition Boulevards. A station is proposed in proximity to LAX, near the intersection of Century Boulevard and Aviation Boulevard.

Notes:
N/A = Not Available;
1 Assumes only that portion of the overall Metro Crenshaw/LAX Transit Corridor and Station project that occurs in the general vicinity of LAX. Estimated schedule based on information obtained from Crenshaw/LAX Transit Corridor Project FEIR and project website.
2 Construction traffic estimates provided by Gibson Transportation Consulting, Inc.

Source: Los Angeles World Airports, July 2013; Ricondo & Associates, August 2013.

Cumulative impacts of the proposed Project and development projects within the vicinity of LAX will be discussed further within each chapter of the EIR. The Cumulative Impacts section of each chapter will provide an analysis of the impacts from the proposed Project and surrounding development projects as they pertain to each specific category of environmental resource.

Planned development projects in the City of Los Angeles and neighboring communities within the vicinity of the traffic study area are listed in **Table 3-2**. The list is based on consultation with representatives of various agencies including the LADOT, City of Culver City, City of El Segundo, City of Inglewood, and Los Angeles County.

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
1	Arco AM/PM and Car Wash	5884 Washington Blvd.	Car wash and storage room totaling 1,200 square feet at an existing fueling station	CC				
2	Auto repair shop	11167 Washington Pl.	Construction of a new vehicle repair shop with 1,196 square feet of repair area with two service bays and 191 square feet of office	CC				Construction nearing completion per field visit on 05/06/13
3	Baldwin Site	12803 - 12823 W. Washington Blvd.	New 3-story commercial (office and retail) development totaling 37,308 square feet	CC				Empty lot per field visit of 05/06/13.
4	Brooke Kaufman	4227 Ince Blvd.	6 condo units on 3 lots	CC	35	3	3	
5	Condominiums	3846 Bentley Ave.	4 units	CC	23	2	2	Building permit
6	Condominiums	4058 Madison Ave.	4 units	CC	23	2	2	Building permit
7	Condominiums (Former Burger King site)	13340 Washington Blvd.	41 unit condominium development with 6 live/work condominium units in Culver City and 35 Units in LA	CC/ LA	240	18	21	Under construction per field visit of 05/06/13.
8	Czuker Site Mixed Use	8770 Washington Blvd.	New mixed use development w/ preliminary concept of up to (approx.) 115 residential units, 41,600 square feet retail; 1,400 square feet café; 53,500 square feet office. Proposed	CC	2,811	138	280	

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
			mixed use with 115-unit condominium, 18,500 square feet office, 16,000 square feet supermarket, 11,500 square feet pharmacy & 2,500 square feet retail. Existing vacant building. DOT case No. OUT08-002.					
9	Culver Studios Amend. No. 6	9336 Washington Blvd.	Phase I includes 25,093 square feet office, 13,634 square feet. support and 302 parking spaces. Phase II includes 63,500 square feet office and 8,741 square feet. support.	CC				
10	Distribution & Warehouse	3434 Wesley St.	10,500 square feet. office, warehouse and distribution	CC	137	16	86	
11	Dr. Brenord Dutt	5800 Uplander Way	Add 3 stories; 57,050 square feet to a 2-story office	CC				
12	FAYNSOD Family Trust	11501-11509 Washington Blvd.	Mixed Use: 3 Retail (2,359 square feet.), 1 Office (937 square feet.), & 2 Apts. (1,867 square feet)	CC	155	9	87	No activity per field visit 05/06/13.
13	Fresh Paint Mixed Use	9355 Culver Blvd.	Addition of second story office and third floor residential unit for a total of 5,708 square feet to an existing office/warehouse	CC				
14	Greg Reitz	8665 Hayden Pl.	63,679 square feet of office	CC				
15	Hampton Inn	3954 Sepulveda Blvd.	77-unit hotel	CC	629	43	45	Building permit

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
16	Irving Residential/ Office	4043 Irving Pl.	Four story; 26 residential units and 3 office units	CC				Building permit
17	Jewish Home for the Aging	3847 Delmas Terrace; 3820-42 Hughes; 9832 Venice Blvd.	184 congregate units; 48 residential care units; 14,000 square feet PACE program	CC/ LA				Pre-application stage. Estimated date of completion 2016.
18	Mixed Use Development (NMS Properties)	9901 Washington Blvd.	14,112 square feet. mixed use development with 131 dwelling units; 12,178 square feet. of retail and three levels of subterranean parking with 244 parking spaces. Proposed mixed-use with 131-unit apartment & 12,000 square feet retail. Existing 16,900 square feet retail removed. DOT case No. WLA08-026.	CC/ LA	8	26	35	Under construction per field visit on 05/06/13 (Spring 2014 opening).
19	Mixed Use	Washington Blvd., south side, between Tildes Ave. and Harter Ave.	Mixed use residential and retail	CC				Construction recently completed.
20	Mixed Use	12601 West Washington Blvd.	Three story mixed use development	CC				Culver City Public Parking lot per field visit on 05/06/13.
21	Mixed Use	12714-12718 Washington Blvd.	5-unit residential and 3,300 square feet retail	CC				Existing small businesses per field visit on 05/06/13.
22	Mixed Use	13365 Washington Blvd. (NE corner of Glencoe	4,183 square feet retail and 19 condominium units	CC	333	14	24	Construction completed but not fully occupied per field

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
		and Washington)						visit on 05/06/13.
23	Office Building	9919 Jefferson Blvd.	113,467 square feet, 3-story office building	CC				Construction fencing around vacant lot per field check of 5/19/13.
24	Office & Retail Bldg.	700-701 Corporate Pointe	240,612 square feet of office and 4,242 square feet of retail	CC	2,811	384	359	
25	Parcel B	9300 Culver Blvd.	74,600 square feet of office, 21,700 square feet of restaurant and 21,700 square feet of retail	CC	6,340	461	627	
26	Radisson Office Tower (aka Entrada Tower)	6161 Centinela Avenue	342,409 square feet office tower and parking structure	CC	3,442	502	462	
27	Restaurant Expansion	5854 Blackwelder St./ 3077 La Cienega Blvd.	Addition of 1,150 square feet to existing restaurant	CC				
28	School expansion; modification to CUP	12095-12101 Washington Blvd.	Conversion of a 20,090 square feet. office building into classrooms and administrative offices; addition of 2,000 square feet	CC				
29	7/11	Sepulveda Blvd. and Braddock Dr., Southeast corner	Former vacant gas station	CC				Under construction per field check of 5/18/13.
30	Triangle Site - Washington/National Transit Oriented Development	Northwest corner of Washington and National Blvds.	New transit oriented development to include light rail station and mixed use development (preliminary concept includes up to 290 dwelling units; 149	CC	19,874	1,235	2,071	Under construction, per field visit on 05/06/13.

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
			room hotel; 200,000 square feet office; 51,500 square feet retail and 20,000 square feet restaurant					
31	Turning Point School (K through 8)	8794 National Blvd.	Addition/remodel of net 9,000 square feet	CC		107	61	
32	Union 76	10638 Culver Blvd.	Gas station and convenience store with new car wash; 2,500 square feet	CC				Building permit
33	Warner Parking Structure	8511 Warner Dr.	51,520 square feet retail/restaurant; 784 parking spaces on 5 levels	CC				
34	11957 Washington Boulevard Office Project.	11957 Washington Blvd; NE corner of Washington St. & Marcesal Ave.	3 story mixed use project with 8,682 square feet commercial and 30 dwelling units	CC				Construction fence around empty lot, per field visit on 05/06/13.
35	Washington/Landmark Mixed Use Development	8810, 8840, 8850 Washington Blvd.	12,257 square feet of restaurant, 38,819 square feet of retail, and 28,708 square feet of office use	CC				
36	Washington Place Office Condos	12402 Washington Pl.	42,000 square feet 4-story office and retail building; 9,300 square feet of retail; 30,400 square feet of office	CC				Existing comic book shop per field visit on 05/06/13.

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
37	West Los Angeles Community College Master Plan	Overland Avenue at Freshman Dr.	Approx. 291,300 square feet 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	10,034	669	664	Parking lot; math/science buildings and new roadway to Jefferson Boulevard are completed. No other changes per field visit on 05/06/13.
38	Aviation Station Project (Transit Oriented Development in Del Aire)	Site bounded by Aviation Boulevard, 117th Street, Judah Avenue and Metro Green Line Station	278 condominiums and townhomes, 112 apartment units, 29,500 square feet of commercial/retail and office space. Includes 797 parking spaces for residents, guests and commercial and office uses.	CO	1,114	171	83	County Board of Supervisors approved project in November 2011. Not yet under construction.
39	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	1,081	47	51	Existing boat yard. No construction per field visit of 05/09/13.
40	Del Rey Shores Apartments (Parcels 100 and 101)	4247-4275 Via Marina	544 apartments (202 existing units to be removed)	CO	800	120	111	Project under construction per field visit of 05/09/13
41	Diner (Parcel 33)	4211 Admiralty Way	351 Apartments; 24,500 square feet retail; 10,000 square feet restaurant (existing restaurant to be removed)	CO	1,145	184	22	"Killer Shrimp" restaurant operating on site per field per field visit of 05/09/13.

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
42	Fisherman's Village (Parcels 55, 56 & W)	13715 Fiji Way	26,570 square feet of specialty retail; 785-seat restaurant; 132-room hotel; 9 boat slips	CO	2,375	98	209	Project under construction per field visit of 05/09/13
43	Gateway Marina Del Rey (Parcel 95)	404-514 Washington Blvd.	16,350 square feet specialty retail center; 9,160 square feet high turn-over, sit-down restaurant with 240 seats; 7,890 square feet. of general office building, 6,100 square feet walk-in bank 72 Apartments; 337 Parking Spaces (removal of 7,500 square feet drive-up bank)	CO	199	-36	128	Existing restaurant, bank and furniture showroom. Per field visit on 05/06/13: vacant businesses, likely prior to demolition.
44	Government Office Building	Panay Way and Via Marina	26,000 square feet	CO	286	40	57	Project well under construction/well under way per field visit on 05/09/13.
45	Lennox Charter High School	11044 and 11111 Freeman Ave.	560 students	CO	862	207	70	
46	Legacy Partners Neptune Marina Apartments (Parcels 10R, FF & 9U)	Marquesas Way and Via Marina	526 apartments (removal of 136 apartments); 114-unit senior living facility; 3,500 square feet of retail; 1.46-acre public wetland park on Via Marina; 4,349 wet slips and 817 dry slips for boats.	CO	3,104	253	228	Approved by Los Angeles County Board of Supervisors on 3/20/12. Project under construction per field visit on 05/09/13.

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
47	Lincoln Boulevard Mixed Use Project	4363 Lincoln Blvd.	158 high-rise residential condominium units; 3,178 square feet of specialty retail; parking structure with 409 parking spaces. Beverly Hills Rent-a car facility (48,000 square feet) to be removed.	CO	386	47	71	Existing building. No construction per field visit of 05/09/13
48	Lincoln Boulevard Mixed Use Project	4363 Lincoln Blvd.	158 high-rise residential condominium units; 3,178 square feet of specialty retail; parking structure with 409 parking spaces. Beverly Hills Rent-a car facility (48,000 square feet) to be removed.	CO	1,062	73	127	Existing building.
49	Marina City Club Towers Marina del Rey	4333 Admiralty Way	600 units	CO	3,516	264	196	No construction per field visit of 05/09/13
50	Marina del Rey Apartment Community (Parcels 12 & 15)	Panay Way and Via Marina	940 apartments; 82 units senior apartments; 4,000 square feet retail; 6,000 square feet commercial	CO	1,785	171	152	Project under construction per field visit of 05/09/13
51	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				Project under construction per field visit of 05/09/13
52	Marina Expressway Homes	Marina Expressway Eastbound & Mindanao Way	28 Single family condominiums	CO				Parking lot and/or marina boat yard per field visit of 05/09/13
53	Marriott Residence Inn (Parcel IR)	Admiralty Way and Via Marina	149-room hotel. Existing Marriott hotel on NE corner	CO	1,201	82	52	Under construction per field visit on 05/09/13.. Marriott Hotel renovation and/or expansion.

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
54	Pacific Ave Townhomes & Retail	6719 Pacific Ave.	35 condos + 2,000 square feet retail + 2,000 square feet other	CO	548	40	56	
55	Residential	3184 Via Dolce	5 or 6 buildings	CO				Project appears to be completed per field check on 05/09/13
56	Sea Glass Town Homes	6719 Pacific Ave.	36 condominiums	CO				
57	Villa Venetia Residential (Parcel 64)	13900-13910 Fiji Way	478 mid-rise apartments (removal of 224 existing apartments); 34 boat slips; 5,000 square feet restaurant	CO	1,106	93	88	Construction on site, per field visit on 05/09/13
58	Aquatics Center	TBD		ES				Draft EIR stage; various sites being considered
59	Central Reliability Center, Central Tool Room	324 W. El Segundo Blvd.	102,000 square feet (existing 126,000 square feet similar)	ES				Application submitted - pending review per 10/12 list.
60	Condominiums	347 Concord St.	3 units	ES	20	3	3	No construction per field visit of 05/08/13
61	Condominiums	425 & 429 Indiana St.	8 units	ES	54	8	8	Construction completed per field visit of 05/08/13
62	Condominiums	1700 Mariposa Ave.	11 units	ES	74	11	11	Under construction per field visit of 05/08/13
63	Condominiums	301, 303, 305 Palm Ave.	7-unit residential condominium, 14,313 square feet (existing 9 apt. units)	ES				Approved by Planning Commission, Commissioned on 2/12/09, pending plan check approval - per 10/12 list

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
64	Condominiums	412 Richmond St.	4 units	ES	27	4	4	No construction per field visit of 05/08/13
65	Data Center	445 North Douglas St.	109,137 square feet	ES	1,202	169	163	Existing Douglas Tech Center building per field visit of 05/08/13
66	Data Center	444 North Nash St.	33,899 square feet	ES	373	53	51	Existing T5 Data Center building.
67	El Segundo Business Park	222 Kansas Street (at Grand Ave.)	business park; high-turnover restaurant	ES	516	43	40	Under construction per field visit of 05/08/13
68	El Segundo Corporate Campus	700-800 N Nash St.	1,740,000 square feet office; 75,000 square feet retail; 7,000 square feet child care; 7,000 square feet medical office; 19,000 square feet health club; 75,000 square feet restaurant; 100-room hotel; 25,000 square feet, light industrial; 75,000 square feet research and development; 65,000 square feet technology/telecommunications.	ES	21,366	2,267	2,795	Per field visit on 05/08/13 - New Hyatt Place Hotel, 750 N. Nash Street.
69	Hotel	101 Continental Blvd.	167 rooms	ES	1,364	80	92	Existing Northrup Grumman building, per field visit on 05/08/13
70	Hotel	1960 East Grand Ave.	150 rooms	ES	1,226	84	50	Existing office building, per field visit on 05/08/13.

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
71	In-n-Out Burget Restaurant with Drive Through	600-630 Sepulveda Blvd.	In-N-Out Burger, (existing Sizzler Restaurant)	ES				Application submitted - 10/12 list.
72	Mixed Use	900, 950 and 960 Sepulveda Blvd.; 901-915 Shelby St.	Warehouse, 67,474 square feet of general office; 11,471 square feet of manufacturing	ES	787	113	109	Existing Boeing facility, per field visit on 05/08/13.
73	LA Air Force Base (Area A)	2400 - 2460 East El Segundo Blvd.	625 condominiums	ES	3,631	275	325	ThreeFifty at South Bay - Condos, per field visit on 05/08/13.
74	LA Air Force Base (Area B)	2350 East El Segundo Blvd.	150,000 square feet of general office replacing 120,000 of existing general office	ES	331	47	45	Building has been demolished on the Aerospace compound, per field visit on 07/08/11 and 05/08/13.
75	Lifeguard Station	105 Vista Del Mar	1,400 square feet	ES				Under construction - per 10/12 list.
76	Light Industrial, Office Retail, warehouse	2100 E. El Segundo Blvd.	Raytheon SAS Main Campus site - 2,089,090 square feet existing building area, 2,142,457 square feet proposed for a total of 4,231,547 square feet built out by 2022	ES				Application submitted -per 10/12 list.
77	Northrup-Grumman	SE corner of Mariposa Ave. and Douglas St.	190,000 square feet industrial uses	ES	1,324	175	186	Surface parking lot. No construction per field visit 05/08/13.
78	Office and Warehouse	130 Arena St.	388 square feet office and 3,019 square feet warehouse (existing vacant/parking?)	ES				Under construction - 10/12 list.

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
79	Office/Operations Center @ Chevron refinery site	116 W. El Segundo Blvd.	38,000 square feet (new construction?)	ES				Under construction - per 10/12 list.
80	Office	1700 East Imperial Ave.	194,119 SF (existing 168,811 square feet Office)	ES				Application submitted - pending review per 10/12 list.
81	Office	888 N Sepulveda Blvd.	120,000 square feet	ES		217	214	Existing dirt surface parking lot adjacent to 898 Sepulveda Boulevard per field visit 05/08/13.
82	Office	2355 Utah	Convert existing office (12,671 square feet)/industrial (29,877 square feet) to all Office and add 1,887 square feet	ES				Under construction per 10/12 list.
83	Office	2383 Utah	Convert existing office (51,209 square feet)/industrial (101,297 square feet) to all Office and add 6,850 square feet	ES				Under construction per 10/12 list.
84	Parking Structure	1955 E. Grand Ave.	810 space parking structure (existing surface lot, west of #145 - Mattel R&D Office)	ES				Application submitted per 10/12 list.
85	Plaza El Segundo Phase 2A	NE Corner of Sepulveda Blvd. and Rosecrans Ave.	Commercial - 92,000 square feet Shopping Center, office use (existing vacant)	ES				Empty lot per field visit of 05/08/13.
86	Power Plant	301 Vista Del Mar	Redevelopment of power plant units 1 and 2 (re-construction of existing).	ES				Approved by CEC - Under Construction - per 10/12 list
87	R&D and office	455 Continental Blvd.	300,000 SF R&D & Office (existing vacant - Mattel "logo" site).	ES				Application submitted per 10/12 list.
88	Senior Housing / Assisted Living Facility	540 E. Imperial Ave.	304 Senior housing/assisted living facility OR 58 single and multi-family	ES				Application approved, pending plan check submittal

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
			residential units					- per 10/12 list
89	Xerox Phase IV	1951-1961 El Segundo Blvd.	255,242 square feet office; 350-room hotel	ES		629	614	
90	Condominiums / Office	13806 Hawthorne Blvd.	171 units and 32,500 square feet of office space	HA	80	213		
91	LA Air Force Base – Area B	NW corner of El Segundo Blvd. and Aviation Blvd.	63,000 square feet warehouse; 560,000 square feet office park; 93,750 square feet base exchange; 43,125 square feet. health club; 34,463 square feet medical office	HA	7,499	815	711	Appears to be completed.
92	Prestige Villas	4500 West 116th St.	116 condominium units	HA	1,110	87	117	
93	Retail Center	SW corner of Inglewood Ave. and Imperial Highway	50,000 square foot retail	HA	2,147	50	187	
94	Single Family Homes	14000 Yukon Ave.	6 units	HA	36	3	3	
95	Condominiums	501 East 99th St.	12 units	IN	72	6	6	
96	Condominiums	940 North Cedar St.	14 units	IN	84	7	7	
97	Condominiums	448 North Edgewood St.	6 units	IN	36	3	3	
98	Condominium	417- 420 N. Market St.	12 units	IN	72	6	6	
99	Condominiums	450 N. Market St.	12 units	IN	72	6	6	

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
100	Condominiums	912 S. Myrtle Ave.	7 units	IN	42	4	4	
101	Condominiums	927 South Osage Ave.	7 units	IN	42	4	4	
102	Condominium	222 W. Spruce Ave.	10 units	IN	60	5	5	
103	Hollywood Park Mixed-Use Development	1050 South Prairie Ave.	2,995 dwelling units; 300-room hotel; 620,000 square feet retail; 75,000 square feet office/commercial; 10,000 square feet of civic use; 300-room hotel with 20,000 square feet of meeting space. Pavilion/casino would be maintained on the project site.	IN	17,222	1,604	-39	Draft EIR released fall 2008. No construction.
104	Mixed retail/restaurant	Florence Ave. and La Brea Ave., SE corner	49,800 square feet	IN				
105	Mixed retail/restaurant	Southwest corner of Century/Prairie (Haagen)	97,490 square feet	IN				
106	Residential	704 N. Market St.	6 units	IN				
107	Senior Center and Housing	111 N. Locust St.	95,188 square feet	IN				
108	Shopping Center	433 North Centinela Ave.	7,384 square feet	IN				
109	Shopping Center	10922 South Prairie Ave.	8,416 square feet	IN				

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
110	Ambrose Hotel	901 Abbot Kinney Blvd.	Hotel, Retail and Restaurant Mixed Use	LA	723	30	54	
111	Animo High School	841 California Ave.	Expansion of 420-student Charter School	LA	1,470	332	176	TDM to reduce traffic by 60% (TSA 6/15/05)
112	Apartments	4090 S. Del Rey Ave.	New 51-unit residential apartment building over 3-level parking garage.	LA	339	26	36	
113	Apartments	4100 S. Del Rey Ave.	77-unit apartments	LA	512	39	54	
114	Apartments	4140 S. Glencoe Ave.	New 4-story, 69-unit apartment project over 2-level, 132 space garage	LA	459	35	48	
115	Apartments	10001 Venice Blvd.	115 unit apartment building	LA	762	59	56	
116	Apartments	3425 S. Motor Ave.	Mixed Use: 115 Apartments & 975	LA	651	45	47	
117	Car Wash	9204 Airport Blvd.	15,380 square feet of car rental facility to be removed. Proposed car wash. DOT case No. CTC08-013	LA	536	21	74	
118	Carousel School	7899 S. La Tijera Blvd.	Addition/Expansion of school serving an additional 20 students	LA	50	16	4	
119	Charter School	5741 S. Crenshaw Blvd.	238 student Middle School, 412 student High School	LA	1,090	301	194	

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
120	Chevron Gas Station	6101 W. Manchester Ave.	1,000 square feet gas station with a drive through Starbucks; 2,000 square feet 24-hour convenience store. Proposed gas station with 4-fueling positions, 2,000 square feet 24-hr convenience store & 1,000 square feet fast food restaurant w/drive-thru. Existing gas station with 6-fueling positions, 500 square feet 24-hr convenience store & 3-stall auto repair to be removed. DOT case No. CTC08-007 & CTC08-036.	LA	658	133	36	
121	Commercial Mixed Use	10612 W. National Blvd.	2,500 square feet Restaurant & 3,500 square feet Retail	LA	475	34	66	
122	Condominiums	12301 W. Pico Blvd.	95 Dwelling Units (Hyde Park) Condominiums	LA	367	28	29	
123	Decron Development	8601 Lincoln Blvd.	Residential Mixed Use at SWC of Lincoln Blvd. and Manchester Blvd.	LA	899	2	105	
124	DWP Maintenance Yard	3233 Thatcher Ave.	Improvement/expansion of the existing LADPW maintenance yard plus addition of 30 new employees to site. DOT case No. CTC09-031.	LA		30	30	Built-out year estimated at 2017.
125	Fresh & Easy Market	5301 S. Crenshaw Blvd.	13,969 square feet Supermarket	LA	856	30	88	
126	Fresh & Easy Express Market	3240 S. Washington Blvd.	4,290 square feet Fresh & Easy Express Neighborhood Market	LA	658	61	69	

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
127	Grosvenor Court	5550 Grosvenor Blvd.	215 condo units	LA	1,260	95	112	Buildout year 2013
128	Loyola Marymount University	1 LMU Dr.	LMU Master Plan to increase enrollment cap to 7,800-student. DOT case No. CTC08-044.	LA	2,540	176	223	Buildout year 2030 (DEIR of Jan. 2010)
129	Loyola Marymount University	1 LMU Dr.	LMU Master Plan to increase enrollment cap to 7,800-student. DOT case No. CTC08-044.	LA	0	147	257	Buildout year 2030 (DEIR of Jan. 2010)
130	Le Lycee Francais	10309 W. National Blvd.	Private High School	LA	946	280	108	
131	Lincoln Center Project	1400 Lincoln Blvd.	Mixed Use	LA	0	196	460	
132	Lincoln Place Apartments	1054 S. Frederick St.	90 New Apartments	LA	665	50	65	
133	Marina del Rey LCP Amendment	1 Marina Expressway	MDR-LCP Amendment	LA	0	0	2,501	
134	McDonald's w/Drive Through	5908 W. Manchester Ave.	3,814 square feet McDonald's	LA	946	94	60	
135	Mixed Use	138 Culver Blvd.	New Scope of Work: 72-unit apartment and 16,000 square feet retail & restaurant space. Existing vacant single family home to be removed. DOT case no. CTC08-058.	LA	1,204	76	145	Buildout year 2015
136	Mixed Use (Playa Legado)	220 Culver Blvd.	63-unit apartment & 6,000 square feet retail space. Existing 4,000 square feet restaurant to be removed. DOT case No. CTC08-059.	LA	180	-6	60	

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
137	Mixed Use	7407 S. La Tijera Blvd.	New 140 Dwelling Unit Apartment & 2,600 square feet Retail over 241 spaces, 3-level parking garage.	LA	799	65	83	
138	Mixed Use	4004 S. Lincoln Blvd.	98 unit condos & 6020 square feet retail. CTC 05-070	LA	1,550	108	101	
139	Mixed Use	3417 S. Motor Ave.	85 Apartments and 2,000 square feet Retail	LA	690	40	80	
140	Mixed Use Development	5101 S. Overhill Dr.	Le Biarritz Residential/Office (2004-CEN-0964)	LA	763	65	78	
141	Mixed Use Development	6819 Pacific Ave.	29-unit apartment, 3,000 square feet restaurant & 1,000 square feet retail space. Existing vacant lot. DOT case No. CTC08-060.	LA	620	51	62	
142	Mixed Use	3115 S. Sepulveda Blvd.	28,000 square feet Specialty Retail Center & 138 Dwelling Unit condominiums	LA	772	73	111	
143	Mixed Use	100 E Sunset Ave.	Mixed Use Project	LA	2,752	146	254	
144	Mixed Use	580 Venice Blvd.	Proposed 5-unit residential plus 5,724 square feet retail space. DOT case number CTC09-070.	LA	287	9	33	
145	Mixed Use	10601 Washington Blvd.	Proposed mixed-use with 132-unit apartment, 26ksf office & 18ksf retail. Existing 11.1ksf Sony Studios production office to be removed. DOT case No. WLA08-042.	LA	2,050	150	252	

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
146	Mixed Use	11955 W. Washington Blvd.	41,000 square feet office & 9,500 square feet retail. Existing vacant building to be removed. DOT case No. OUT08-005.	LA	872	77	87	
147	Mixed Use Hotel, Retail & Restaurant Uses	1027 S. Abbot Kinney Blvd.	New 92-Guest Room Hotel, 3,000 square feet Retail & 2,072 square feet Restaurant Use.	LA	705	27	43	
148	Office Building	5901 Center Dr. (at Howard Hughes Pkwy)	249,020 square feet, five-story office building	LA	2,742	386	371	
149	Office Building	309-315 E. Culver Blvd.	8,000 square feet 3-story office building with first floor parking garage. CTC 10-018	LA			22	
150	Office Building	10100 Culver Blvd.	Proposed 50,000 square feet office building. DOT case No. WLA07-092.	LA		75	96	
151	Office Building	3105 La Cienega Blvd.	133,000 square feet media-related office. Existing 109,000 square feet manufacturing to be removed. DOT case No. WLA08-050.	LA		49	39	
152	Pacific Charter School	2941 W. 70th St.	Expansion of charter school with 355 high school and 400 junior high school students	LA		371		
153	Pioneer Bakery Building	512 E. Rose Ave.	50 Dwelling Unit condos, 6,290 square feet Retail, 4,985 square feet Restaurant	LA	1,134	52	88	
154	Playa Manchester	7280 W. Manchester Blvd.	260 Dwelling Unit condominiums (project expansion)	LA	-156	-32	36	

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
155	Private School	5401 Beethoven St.	452 students (32 student addition) CTC 10-032	LA	775	294	66	Specific Plan Covenant submitted 5/26/11
156	Private School	5400 S. Beethoven St.	260 Student Private Elementary School (K-8)	LA	606	180	122	
157	Private Charter Middle School	5456 W. McConnell Ave.	Private Animo Westside Middle School (500 students)	LA	980	414	145	
158	Radisson Hotel	6225 W. Century Blvd.	340 room hotel; 2,544-space parking structure with 1,733 spaces for airport parking. Proposed 340-room hotel & 1,726-stall airport parking facility with shuttle bus service. Existing 282-stall airport parking facility to be replaced. Trip generation = Daily +4,110, AM +336, PM +346. Built-out year 2012. DOT case no. CTC08-066.	LA	4,110	336	346	
159	Radisson Hotel	6225 W. Century Blvd.	340 room hotel; 2,544-space parking structure with 1,733 spaces for airport parking. Proposed 340-room hotel & 1,726-stall airport parking facility with shuttle bus service. Existing 282-stall airport parking facility to be replaced. Trip generation = Daily +4,110, AM +336, PM +346. Built-out	LA	3,188	246	255	

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
			year 2012. DOT case no. CTC08-066.					
160	Restaurant	1020 W. Venice Blvd.	Proposed 3,895 square feet House of Pies Sit-Down Restaurant	LA	396	33	33	
161	Retail	585 Venice Blvd.	10,400 square feet specialty retail/storage space to replace 10,400 square feet of existing warehouse/manufacturing space. DOT Case No. CTC08-033.	LA			33	
162	South LA Redevelopment	5400 S. Crenshaw Blvd.	60,000 square foot of retail	LA	1,349	22	122	
163	South LA Redevelopment	1636 W. Manchester Ave.	68,250 square feet of offices	LA	751	106	102	
164	South LA redevelopment 5B	3900 W. Martin Luther King Jr. Blvd.	50,000 square feet of office, 200 condos, 3,600 student college	LA	4,008	473	446	
165	South LA Redevelopment	5975 S. Western Ave.	225,000 square feet of industrial development	LA	355	47	49	
166	St. Joseph Center	204 Hampton Dr.	Community Center	LA	339	20	26	
167	Tenant Improvement within existing Shopping Center	245 S. Main St.	Various	LA	0	0	78	
168	Trader Joe's WLA	10850 W. National Blvd.	Expansion & Tenant Improvement	LA	756	29	84	

Table 3-2

LAX Area Background Development Projects

No.	Project Name	Address	Description	City	Net Daily Trips	Net AM Trips	Net PM Trips	Comments
169	United Oil 78	9815 W. National Blvd.	TI of E gas station w/convenience market to add 6 fueling positions.	LA	977	61	105	
170	View Park Prep Middle School/High School	5701 S. Crenshaw Blvd.	Charter School for 400 students	LA		164		
171	Village at Playa Vista (Playa Vista Phase II)	Jefferson Blvd between McConnell Dr. and Centinela Ave.	2,600 residential units; 175,000 square feet office; 150,000 square feet retail; 40,000 square feet community serving	LA	24,220	1,626	2,302	Grading and utility work per field check 5/18/13.
172	Villa Marina Project	13488 W. Maxella Ave.	Mixed Use development (244 dwelling units and 9,000 square feet Retail)	LA	2,155	126	237	
173	Windward School Enrollment Increase	11350 W. Palms Blvd.	75 Student increase to 550 students, maximum	LA	186	70	13	
174	Manhattan Village Shopping Center Enhancement - Component I (Stages 1 and 2)	East side of Sepulveda Blvd., south of Rosecrans Ave.	Addition of 52,000 square feet of GLA, with 14,000 square feet developed in Stage 1 and 38,000 square feet developed in Stage 2	MB	757	14	76	According to FEIR, could be completed as early as 2014.

Source: Los Angeles World Airports, August 2013

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

4.0 ENVIRONMENTAL IMPACT ANALYSIS

This chapter presents an assessment of the environmental impacts of the MSC North Project and future phase(s) of the MSC Program, as described in Chapter 2, Project Description. This chapter describes the physical environment at and within the vicinity of LAX that may be affected by the MSC North Project and the future phase(s) of the MSC Program; the potential impacts to that physical environment; and the measures proposed to mitigate those impacts, as warranted.

As identified in the Notice of Preparation (NOP) published on February 8, 2013 for this EIR, LAWA initially determined, based on an preliminary review of the MSC North Project and future phase(s) of the MSC Program, that four 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 categories of environmental resources were:

- Air Quality
- Greenhouse Gases
- Public Services
- Traffic/Transportation

In addition, public comments received during the scoping comment period requested that the EIR analyze potential noise effects from the change in aircraft taxi operations that would occur if the MSC Project were constructed. Thus, noise associated with aircraft taxi operations was added as a resource category for additional analysis.

Organization

Each of the environmental disciplines addressed in this chapter is discussed in a separate section using a common organization. Sections are numbered 4.1 through 4.7 (Human Health Risk Assessment and Construction Traffic are provided in their own sections). Several sections are divided into subsections to simplify and clarify the discussion. Within each environmental topic section, discussion of the following is provided:

- The **Introduction** briefly describes the issues addressed in the analysis and identifies related topics. The Introduction also identifies any specific issue area of the topic that is not being addressed as part of the MSC EIR and provides a discussion explaining the reasons why. In many cases, a number of specific issue areas were evaluated and impacts determined to be less than significant, as documented in the MSC Initial Study/NOP (February 2013), which is included as **Appendix A**. In accordance with Sections 15063(c)(3)(A) and 15128 of the State *CEQA Guidelines*, further analysis of specific issue areas where impacts were determined to be less than significant in the Initial Study is not required and is not provided in this EIR.
- The **Methodology** describes how the issue was approached, including explanations of any assumptions, equations, or calculations; identification of information sources used for the analysis; and delineation of the study area considered for each environmental discipline. This section also identifies the environmental baseline used to determine the significance of potential impacts. A discussion of the environmental baseline is provided below under Analytical Framework.

- The **Existing Conditions** discusses the existing conditions for the environmental discipline in the study area, including relevant activities, facilities, and regulations. The environmental baseline is described below under Analytical Framework.
- The **CEQA Thresholds of Significance** are quantitative or qualitative measures used to determine whether an environmental impact that would occur as a result of the project would be considered significant. This section identifies the origins of the thresholds of significance used in the analysis. In general, and unless otherwise noted, the thresholds of significance used in the analysis of MSC North Project and future phase(s) of the MSC Program impacts reflect guidance provided in Appendix G of the State *CEQA Guidelines*[1] and/or criteria or guidance included in the *L.A. CEQA Thresholds Guide*.[2]
- The **Applicable LAX Master Plan Commitments and Mitigation Measures** section lists the LAX Master Plan commitments and mitigation measures applicable to the MSC North Project and future phase(s) of the MSC Program. As background, 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)[3] to ensure that mitigation measures and LAX Master Plan commitments identified in the Final EIR are implemented. Mitigation measures are activities, policies, or practices designed to avoid or minimize significant environmental impacts. 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) impacts would be adverse but not significant; and (3) design refinements could be incorporated into the project to reduce or avoid potential impacts. The timing of implementation of LAX Master Plan commitments and mitigation measures is set forth in the LAX Master Plan MMRP. Unless otherwise noted, the impacts analysis for the MSC North Project and future phase(s) of the MSC Program assumes that the applicable LAX Master Plan commitments and mitigation measures would be implemented concurrently with and as part of the Project. To the extent that the LAX Master Plan commitments and mitigation measures would not reduce significant environmental impacts to a level that is less than significant, MSC North Project-specific and/or future phase(s) of the MSC Program-specific mitigation measures, if feasible, are separately identified in the Mitigation Measures section (described below). In addition, mitigation measures identified in other LAWA or City documents are identified, if applicable.
- The **Impact Analysis** section presents the analysis of impacts for the MSC North Project for the build-out horizon year 2019 and the future phase(s) of the MSC Program for the year 2025. Impacts were compared to the thresholds of significance to determine whether they would be, under CEQA, significant or less than significant. For purposes of

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[1] State of California, Guidelines for California Environmental Quality Act (State CEQA Guidelines), California Code of Regulations, Title 14, Chapter 3, Sections 15000-15387.

[2] City of Los Angeles, L.A. CEQA Thresholds Guide, Your Resource for Planning CEQA Analysis in Los Angeles, 2006.

[3] City of Los Angeles, Los Angeles World Airports, Alternative D Mitigation Monitoring and Reporting Program, September 2004.

determining significance, potential impacts were compared to the environmental baseline conditions, as further described in the Analytical Framework below.

- **Cumulative Impacts** are the impacts of the proposed Project in conjunction with past, present, and reasonably foreseeable future projects. The environmental impacts of the proposed Project may be individually minor, but collectively significant when considered in conjunction with other projects.
- **Mitigation Measures** are specified procedures, plans, policies, or activities proposed for adoption by the lead agency to reduce or avoid the significant impacts identified in the analysis of environmental impacts. This section identifies MSC North Project-specific and/or future phase(s) of the MSC Program-specific mitigation measures proposed to address significant impacts that would occur with implementation of the MSC North Project or future phase(s) of the MSC Program. In accordance with the requirements of CEQA, an MMRP would be adopted as part of the MSC North Project, to ensure that implementation of mitigation measures is properly monitored and documented.
- **Level of Significance After Mitigation** is a CEQA determination of the significance of a particular impact after implementation of the proposed mitigation measures. This section identifies any significant impacts that cannot be mitigated to a level that is less than significant. These "significant unavoidable impacts" are also listed in Section 6.1, *Significant Unavoidable Impacts*, of this EIR. The level of significance after mitigation is not included for those environmental topics where no significant impacts would occur and, as a result, where no mitigation measures specific to the Project/Program are required.

Analytical Framework

Program Level vs. Project Level Environmental Entitlements and Analysis

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 MSC Program as an implementing project of the Plan, and thus the LAX Master Plan EIR analyzed the potential impacts of the MSC Program 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 State *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 addressed 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 MSC Program was analyzed in the LAX Master Plan EIR, this EIR is "tiered" from, and incorporates by reference, the LAX Master Plan Final EIR.[4] This EIR provides Project-specific information on the development of the MSC North 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 EIR also discusses the future phase(s) of the MSC Program at a program level, focusing on potentially significant environmental effects that may not have been fully addressed in the prior EIR. This methodology is consistent with State *CEQA Guidelines* Section 15168, which is discussed in greater detail in Section 1.2 of this EIR.

Environmental Baseline

Section 15125 of the State *CEQA Guidelines* requires that an EIR describe the physical environmental conditions in the vicinity of a proposed project "as they exist at the time the notice of preparation is published…." and further states that "[t]his environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

The Notice of Preparation (NOP) for this EIR was published on February 8, 2013. In accordance with the provisions of CEQA, 2013 is the baseline year for characterizing existing conditions in the environmental analysis. Where existing conditions data specific to 2013 were not available or where 2013, by itself, was not an appropriate representation of baseline conditions, this EIR identifies this fact, explains what data was used to determine existing conditions, and provides evidence of why this information is representative of baseline conditions.

For certain analyses, a full year's worth of data was considered necessary and appropriate to characterize existing baseline conditions. Such is the case relative to existing aircraft-related air pollutant emissions and existing airport traffic generation, whereby the variability in airport operations throughout the year, especially seasonal variations, results in "existing" conditions for those topics being very different depending on time of year. Similar to the approach used in the LAX Master Plan Final EIR, airport operations data for the prior calendar year, which in the case of this EIR is 2012, were used to define existing baseline conditions for those topics.

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.

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[4] Los Angeles World Airports, Los Angeles International Airport Master Plan Final Environmental Impact Statement/Environmental Impact Report, April 2004.

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 MSC North Project and future phase(s) of the MSC Program are consistent with the entitlements approved for the LAX Master Plan, and thus, the cumulative effect of the MSC North Project and future phase(s) of the MSC Program have been adequately addressed in the LAX Master Plan Final EIR for most environmental topics.[5] Pursuant to Sections 15130(d) and 15152(f) of the State *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 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 MSC North 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 and global climate change.

As documented in Chapter 3 of this EIR, construction of several LAX development projects (LAX Master Plan projects and other LAX projects) and non-LAX development projects could occur simultaneously with the MSC North Project construction. These projects are described in Section 3.3 of this EIR.

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5 Los Angeles World Airports, Los Angeles International Airport Master Plan Final Environmental Impact Statement/Environmental Impact Report, April 2004.

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4.1 Air Quality

4.1.1 Introduction

This air quality analysis examines potential air quality emissions that could result from construction and operational activities associated with the proposed MSC North Project and future phase(s) of the MSC Program. Greenhouse gas emissions are discussed separately in Chapter 4.2, *Greenhouse Gas Emissions*, of this EIR. Potential impacts related to human health risks from inhalation of toxic air contaminant emissions are addressed in Chapter 4.3, *Human Health Risk Assessment*, of this EIR.

The air quality impact analysis presented below includes development of emission inventories for the proposed MSC North Project and future phase(s) of the MSC Program (i.e., the quantities of specific pollutants, typically expressed in pounds per day or tons per year) based on emissions modeling. The analysis also includes an assessment of localized concentrations for the MSC North Project and future phase(s) of the MSC Program (i.e., the concentrations of specific pollutants within ambient air, typically expressed in terms of micrograms per cubic meter) based on screening criteria and dispersion modeling. The criteria pollutant emissions inventories and localized concentrations were developed using standard industry software/models and federal, state, and locally approved methodologies. Results of the emission inventories were compared to daily emissions thresholds established by the South Coast Air Quality Management District (SCAQMD) for the South Coast Air Basin (Basin).[1] This section is based in part on the detailed information contained in **Appendix B**, *Air Quality and Greenhouse Gas Emissions,* of this EIR.

4.1.1.1 Pollutants of Interest

Six criteria pollutants were evaluated for the proposed MSC North Project and future phase(s) of the MSC Program, including ozone (O_3) using as surrogates volatile organic compounds (VOCs)[2] and oxides of nitrogen (NO_X), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), respirable particulate matter or particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}), and fine particulate matter or particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers ($PM_{2.5}$). These pollutants were analyzed because they were shown to have potentially significant impacts in the air quality analysis documented in Chapter 4.6, *Air Quality*, of the Los Angeles International Airport (LAX) Master Plan Final EIR.[3] In addition, these six criteria pollutants are considered to be pollutants of concern based on the type of emission sources associated with construction and operation of the proposed MSC North Project and future phase(s) of the MSC Program, and are thus included in this assessment. Although lead (Pb) is a criteria pollutant, it was not evaluated in

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

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

3 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, April 2004, Available: http://ourlax.org/pub_finalEIR.aspx.

this EIR because the proposed MSC North Project and future phase(s) of the MSC Program would have negligible impacts on Pb levels in the Basin. The only source of lead emissions from LAX is from aviation gasoline (AvGas) associated with piston-engine general aviation aircraft; however, due to the low number of piston-engine general aviation aircraft operations at LAX, AvGas quantities are low and emissions from these sources would not be affected by the proposed MSC North Project and future phase(s) of the MSC Program. Sulfate compounds (e.g., ammonium sulfate) are generally not emitted directly into the air but are formed through various chemical reactions in the atmosphere; thus, sulfate is considered a secondary pollutant. All sulfur emitted by airport-related sources included in this analysis was assumed to be released and to remain in the atmosphere as SO_2. Therefore, no sulfate inventories or concentrations were estimated.

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

Ozone (O_3)

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

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

Nitrogen Dioxide (NO_2)

NO_2 is a reddish-brown to dark brown gas with an irritating odor. NO_2 forms when nitric oxide reacts with atmospheric oxygen. Most sources of NO_2 are man-made; the primary source of NO_2 is high-temperature combustion. Significant sources of NO_2 at airports are boilers, aircraft operations, and vehicle movements. NO_2 emissions from these sources are highest during high-temperature combustion, such as aircraft takeoff mode.

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

Carbon Monoxide (CO)

CO is an odorless, colorless gas that is toxic. It is formed by the incomplete combustion of fuels. The primary sources of this pollutant in Los Angeles County are automobiles and other mobile sources. The health effects associated with exposure to CO are related to its interaction with hemoglobin once it enters the bloodstream. At high concentrations, CO 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 (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$)

Particulate matter consists of solid and liquid particles of dust, soot, aerosols, and other matter small enough to remain suspended in the air for a long period of time. PM_{10} refers to particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (microns, um or µm) and $PM_{2.5}$ refers to particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers. Particles smaller than 10 micrometers (i.e., PM_{10} and $PM_{2.5}$) represent that portion of particulate matter thought to represent the greatest hazard to public health.[4] PM_{10} and $PM_{2.5}$ can accumulate in the respiratory system and 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, cooking, tobacco smoking, factories, and vehicle movement on, or other man-made disturbances of, unpaved areas. Secondary formation of particulate matter may occur in some cases where gases like sulfur oxides (SO_X)[5] 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 $PM_{2.5}$. Fugitive dust generated by construction activities is a major source of suspended particulate matter.

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

Sulfur Dioxide (SO_2)

Sulfur oxides are formed when fuel containing sulfur (typically, coal and oil) is burned, and during other industrial processes. The term "sulfur oxides" accounts for distinct but related compounds, primarily SO_2 and sulfur trioxide. As a conservative assumption for this analysis, it

4 U.S. Environmental Protection Agency, Particle Pollution and Your Health, September 2003.

5 The term SO_X accounts for distinct but related compounds, primarily SO_2 and, to a far lesser degree, sulfur trioxide. 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 and only the latter term is used henceforth.

was assumed that all SO_X are emitted as SO_2; therefore, SO_X and SO_2 are considered equivalent in this document. Higher SO_2 concentrations are usually found in the vicinity of large industrial facilities.

The physical effects of SO_2 include temporary breathing impairment, respiratory illness, and aggravation of existing cardiovascular disease. Children and the elderly are most susceptible to the negative effects of exposure to SO_2.

4.1.1.2 Scope of Analysis

The air quality analysis conducted for the MSC North Project addresses construction-related emissions, with construction occurring between 2014 and 2019, and operational-related emissions. The air quality analysis conducted for the future phase(s) of the MSC Program addresses operational-related emissions at a program level. The basic steps involved in performing the analysis are listed below.

MSC North Project

Construction

The scope of the evaluation of construction emissions was conducted to;

- Identify construction-related emissions sources for the identified sources;
- Develop peak daily construction emissions inventories;
- Compare emissions inventories with appropriate California Environmental Quality Act (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 MSC North Project; and
- Identify potential construction-related mitigation measures if warranted beyond what is already required through LAX Master Plan commitments and mitigation measures.

Operations

The scope of the evaluation of emissions once the proposed Project is completed (herein called operational emissions) was conducted to:

- Identify operational-related emission sources;
- Develop peak daily operational emissions inventories for the identified sources;
- Compare emissions inventories with appropriate CEQA thresholds for operations;
- Conduct dispersion modeling for operational emissions in 2019;
- Obtain background concentration data from SCAQMD and estimate future concentrations with the MSC North Project;
- Compare peak concentration results with appropriate CEQA thresholds for operations; and

- Identify potential operations-related mitigation measures if warranted beyond what is already required through LAX Master Plan commitments and mitigation measures.

Future Phase(s) of the MSC Program

Criteria pollutant emissions associated with the operations of any future phase(s) of the MSC Program are also discussed on a program-level. A project-level environmental review for future phase(s) of the MSC Program will be initiated at such time as LAWA determines the timing of future phase(s). As related to the MSC Program, on-airport emissions would include those from aircraft, Ground Support Equipment (GSE), and Auxiliary Power Unit (APU) operations, on-airport roadways, and stationary sources. Off-airport emissions would include the consumption of purchased electricity.

Construction

Construction emissions for the future phase(s) of the MSC Program were covered under the LAX Master Plan Final EIR, and therefore will not be quantified at a program-level in this EIR. However, construction emissions will be discussed under a project-level environmental review at such time that LAWA determines the timing of any future phase(s) of the MSC Program.

Operations

Operational effects of the future MSC Program considered:

- Identifying operational-related emission sources;
- Developing peak daily operational emissions inventories for the identified sources; and
- Comparing emissions inventories with appropriate CEQA thresholds for operations.

4.1.2 Methodology

4.1.2.1 MSC North Project

Construction

Construction-related emissions were quantified for CO, VOC, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ for the proposed MSC North Project's construction activities (Project components). Sources of construction emissions evaluated in the analysis include off-road and on-road construction equipment, as well as fugitive emissions of particulate matter (PM_{10} and $PM_{2.5}$) and VOCs.

The basis for the construction emissions analysis are construction schedules that were developed for each individual Project component that together constitute the proposed MSC North Project. Construction activity estimates were developed for each Project component, from which monthly emissions were quantified. Daily emissions were calculated by dividing monthly emissions by the number of work days in the given month, based on a 5-day-per-week workweek, from which maximum daily emissions were derived. Annual and quarterly emissions, as applicable, were based on the monthly emissions estimates.

Emissions estimates for the proposed MSC North Project's construction activities included the application of emission reduction measures required by the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP), the LAX Master Plan-Mitigation Plan for Air Quality (LAX MP-MPAQ) and SCAQMD rules, as well as additional control measures set forth in the LAX Master Plan Community Benefits Agreement. These measures are applicable in varying degrees to each criteria pollutant. The measures that would result in reductions of criteria pollutant emissions are discussed in Section 4.1.5 below.

As further described in Chapter 2, *Project Description*, construction of the proposed Project is expected to occur beginning in 2014 and ending in 2019.

Emission Source Types

Off-Road Equipment

Off-road construction equipment includes bulldozers, loaders, sweepers, and other heavy-duty construction equipment that are not licensed to travel on public roadways. Off-road construction equipment types, models, horsepower, load factor, and estimated daily hours of operation were provided for each individual Project component. Equipment types with corresponding operating hours were matched with specific construction activities for each Project component. Monthly hours of operation were based on two shifts, generally assumed to total 16 hours per day through the duration of each Project component.

Off-road diesel exhaust emission factors for VOC, NO_X, and PM_{10} were based on U.S. Environmental Protection Agency (USEPA) tiered emissions standards, consistent with recommended construction-related air quality control measures developed for LAX. Off-road exhaust emission factors for CO were derived from the California Air Resources Board's (CARB's) OFFROAD2007 Model for each construction year. $PM_{2.5}$ emission factors were developed using the PM_{10} emission factors and $PM_{2.5}$ size profiles derived from the CARB-approved California Emission Inventory and Reporting System (CEIDARS).[6]

Emissions for off-road equipment were calculated by multiplying an emission factor by the horsepower, load factor, usage factor, and operational hours for each type of equipment. Consistent with the LAX Master Plan Alternative D MMRP mitigation measure MM-AQ-2, certain equipment types were assumed to be equipped with diesel particulate filters (DPFs) achieving PM_{10} and $PM_{2.5}$ emissions reductions ranging from 8.3 to 74.7 percent. Diesel construction equipment meeting USEPA Tier 4 emissions standards were not assumed to be equipped with DPFs.

On-Road On-Site Equipment

On-road on-site equipment emissions are generated from on-site pickup trucks, water trucks, haul trucks, dump trucks, cement trucks, and other on-road vehicles that are licensed to travel on public roadways. Exhaust emissions for each construction year from on-road, on-site vehicles were calculated using CARB's EMFAC2011 emission factor model.

6 South Coast Air Quality Management District, Final – Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds, October 2006, Available at: www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html. Accessed February 27, 2013).

On-road on-site equipment types were categorized into vehicles types corresponding to CARB vehicle classes. Emission factors from the EMFAC2011 model are expressed in grams per mile and account for startup, running, and idling operations. In addition, the VOC emission factors include diurnal, hot soak, running, and resting emissions, while the PM_{10} and $PM_{2.5}$ factors include tire and brake wear.

The emission factors were converted to pounds per hour and applied to the hourly activity schedule described previously. Heavy-duty diesel trucks were modeled to comply with USEPA 2007 on-road emissions standards and all diesel trucks were assumed to be fitted with exhaust retrofit devices providing an 85 percent reduction in PM_{10} and $PM_{2.5}$ emissions.

On-Road Off-Site Equipment

On-road off-site vehicle trips include personal vehicles used by construction workers to access the construction site, as well as hauling trips for the transport of various materials to and from the site. In general, off-site hauling trips were based on estimated quantities of various materials, such as concrete, construction materials, cut/fill material, etc. On-road off-site vehicle emissions were calculated by determining total vehicle miles traveled (VMT) by each type of vehicle. The emission factors obtained from EMFAC2011 as described previously (in grams per mile) were applied to the VMT estimates to calculate total emissions.

Fugitive Dust

Fugitive dust is an additional source of PM_{10} and $PM_{2.5}$ emissions associated with construction activities. Fugitive dust includes re-suspended road dust from both off- and on-road vehicles, as well as dust from grading, loading, and unloading activities. Additional sources of fugitive dust quantified in the analysis included building demolition, crushing of demolished pavement, and concrete batching. Fugitive dust emissions were calculated using methodologies, formulas, and values from the USEPA's Compilation of Air Pollutant Factors (AP-42), the SCAQMD's *CEQA Air Quality Handbook*, and documentation associated with CARB's CalEEMod emissions estimator computer program.

Watering, as required under LAWA construction contracts and also being one of the main dust suppression measures recognized in SCAQMD Rule 403, was assumed to reduce fugitive dust emissions by 61 percent.[7]

Fugitive VOCs

A primary source of construction-related fugitive VOC emissions is hot-mix asphalt paving. VOC emissions from asphalt paving operations result from evaporation of the petroleum distillate solvent, or diluent, used to liquefy asphalt cement. Based on the CARB default data contained within CalEEMod, an emission factor of 2.62 pounds of VOC (from asphalt curing) per acre of asphalt material was used to determine VOC emissions from asphalt paving.

Localized Concentration

The localized effects from the on-site portion of daily emissions from the sources described above were evaluated at nearby sensitive receptor locations potentially impacted by the

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7 South Coast Air Quality Management District, Rule 403, June 3 amended 2005, Available at: http://www.aqmd.gov/rules/reg/reg04/r403.pdf, Accessed January 1, 2014.

proposed MSC North Project according to the SCAQMD's localized significance threshold (LST) methodology, which uses on-site mass emission rate look-up tables with Project-specific daily construction site areas (acres) and receptor distances. In accordance with SCAQMD practices, LSTs are only applicable to on-site emissions of the following criteria pollutants: NO_X, CO, PM_{10}, and $PM_{2.5}$.

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

The Project-specific air quality modeling of localized construction impacts was conducted consistent with SCAQMD methodology. The USEPA and SCAQMD-approved dispersion model, AMS/EPA Regulatory Model (AERMOD), was used to model the air quality impacts of CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ emissions. AERMOD can estimate the air quality impacts of single or multiple point, area, or volume sources using historical meteorological conditions. Volume sources were used to represent the emissions from trucks, heavy-duty construction equipment, and fugitive dust. Volume sources are three-dimensional sources of emissions that can be used to model releases from a variety of industrial uses, including moving diesel trucks and equipment. To be conservative, this analysis did not calculate PM_{10} deposition. For the purpose of the dispersion modeling, the maximum daily emissions that could occur due to construction activities from the peak construction year were selected for the LST analysis. It was assumed that an average workday would result in 16 hours of emissions-generating activity. Therefore, the maximum daily emissions were divided by 16 to convert the maximum daily emissions into emission rates in units of pounds per hour.

Source and Receptor Locations

Construction activities were assumed to be located at the MSC North Project site (including Taxiway C14). Most of the construction staging for the MSC North Project would occur at the MSC North Project site. Construction employee parking and material staging for deliveries associated with the construction of the proposed MSC North Project would be split between two lots located on the west side of the Airport, one at the eastern end of World Way West used for all construction employee parking and some material staging and one lot bounded by Westchester Parkway on the north and Pershing Drive on the west, which will be used for material staging only.

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

Meteorology

The meteorological data from the monitoring station located at the LAX Hastings site was used in the analysis. The meteorological data were obtained from the SCAQMD website, which was preprocessed using AERMET. AERMET is a meteorological preprocessor for organizing available meteorological data into a format suitable for use in the AERMOD air quality dispersion model. These files were also developed by the SCAQMD using site specific surface characteristics (i.e., surface albedo, surface roughness, and Bowen ratio) obtained using AERSURFACE. AERSURFACE is a tool that provides realistic and reproducible surface characteristic values, including albedo, Bowen ratio, and surface roughness length, for input into AERMET. The data set used consisted of five years of hourly surface data collected at LAX for calendar years 2005 through 2009; the data included ambient temperature, wind speed, wind direction, and atmospheric stability parameters, as well as mixing height parameters from the appropriate upper air station. All five years of meteorological data were loaded into AERMOD to determine the maximum concentrations over the five-year period for each pollutant and averaging period combination.

Ozone Limiting Method for NO_2 Modeling

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

- Ambient Equilibrium NO_2/ NO_X Ratio: 0.90
- In-stack NO_2/ NO_X Ratio: 0.135
- Default Ozone Value: 40 parts per billion (used only for missing data in the hourly O_3 data file provided by the SCAQMD)

Localized Significance Thresholds

The LSTs for NO_2 were developed based on the 1-hour NO_2 California Ambient Air Quality Standard (CAAQS) of 339 micrograms per cubic meter ($\mu g/m^3$). An exceedance of the 1-hour NO_2 National Ambient Air Quality Standard (NAAQS) is determined based on the USEPA standard, which is the 3-year average of the 98th percentile of the daily maximum 1-hour average. Because the 1-hour NO_2 NAAQS is evaluated over a three-year period, it is appropriately considered for construction activities that could last for multiple years. The 1-hour NO_2 NAAQS was considered in this analysis because of the anticipated construction duration of the proposed MSC North Project. The LSTs for CO were developed based on the 1-hour and 8-hour CAAQS of 23 milligrams per cubic meter (mg/m^3) and 10 mg/m^3, respectively. With respect to CO, the CAAQS are more stringent than the NAAQS; therefore, the NAAQS need not be specifically addressed, but are included in the analysis. For PM_{10} and $PM_{2.5}$, the LSTs were derived based on requirements in SCAQMD Rule 403, Fugitive Dust.

Operations

The operational air quality assessment was conducted in accordance with the *L.A. CEQA Thresholds Guide*[8] and the SCAQMD's *CEQA Air Quality Handbook*[9] for evaluating air quality impacts. The methodology for estimating airport-related emissions and assessing the significance of impacts followed standard practices for determining impacts of aviation sources that have been found acceptable by USEPA, CARB, and SCAQMD; this methodology is summarized below.

Regional and localized operational air quality impacts were assessed based on the incremental increase in emissions for: the 2012 With Project scenario compared to 2012 existing conditions, and the 2019 With Project compared to the 2019 Without Project scenario. In accordance with the State *CEQA Guidelines* and the *L.A. CEQA Thresholds Guide*, the impacts of the proposed Project were compared to baseline conditions to determine significance under CEQA.

Emission Source Types

Aircraft

Information on the number and types of aircraft operations considered at LAX for 2012 and 2019 was developed specifically for the MSC North Project. The aircraft activity levels for the existing conditions are from calendar year 2012. The aircraft activity levels for future conditions were based on aircraft activity growth forecasts for LAX in the year 2019.[10] These data were used to develop airport simulation models (SIMMOD) of aircraft operations for existing and future conditions, with and without the Project. The SIMMOD used information about facilities and operations to predict specific timing, volume, and location (e.g., runway used) for aircraft operations.

The analysis of aircraft emissions was conducted by estimating taxi and idle times without and with the proposed MSC North Project using the LAX MSC North Project SIMMOD results. The completion of the proposed MSC North Project would have a slight beneficial impact on taxi/idle times of aircraft moving around the airfield at LAX (compared to Without Project conditions), based on analysis of arriving and departing passenger aircraft that could use the new gates at MSC North instead of having to use the West Remote Gates/Pads. As no other phases of the landing-takeoff (LTO) cycle (approach, taxi/idle, takeoff, and climbout) would be affected by the

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8 City of Los Angeles, L.A. CEQA Thresholds Guide, (2006) B-1.

9 South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993, as updated by SCAQMD Air Quality Significance Thresholds, March 2011, Available: http://www.aqmd.gov/CEQA/handbook/signthres.pdf.

10 The approved LAX Master Plan includes a gate cap limit at LAX, which effectively limits the number of aircraft passengers that can be processed/accommodated at LAX. This was established in the Final EIS/EIR for the LAX Master Plan, which showed forecasted activity levels for the No Action/No Project alternative essentially the same as for the approved Alternative D. The MSC, while providing modern aircraft gates, does not increase the passenger processing capabilities of the airport and would have no effect on the number or type of aircraft operations at LAX. Therefore, the MSC North Project and the future phase(s) of the MSC Program will comply with the gate cap as discussed in the LAX Master Plan. The MSC North Project will allow LAWA to modernize the existing terminal area without having to reduce the number of available gates and will reduce the number of operations at the West Remote Gates/Pads. Once the future phase(s) of the MSC Program is completed, the West Remote Gates/Pads would be eliminated.

proposed MSC North Project, only taxi/idle emissions were analyzed. A summary of the taxi times are shown in **Table 4.1-1**.

Table 4.1-1

LAX Total Aircraft Operations and Taxi Times, by Calendar Year

Year/Scenario	Annual Operations	Taxi-In Time (minutes per operation)	Taxi-Out Time (minutes per operation)
2012 Existing Conditions	605,480	9.96	11.89
2012 Existing With MSC North Project	605,480	9.94	11.82
2019 Future Without MSC North Project	631,242	9.76	12.37
2019 Future With MSC North Project	631,242	9.74	12.30

Source: Ricondo & Associates, Inc., 2013.

Aircraft emissions were calculated using FAA's Emissions and Dispersion Modeling System (EDMS), Version 5.1.4.1.[11] EDMS is a USEPA approved air quality model that estimates emissions from airport sources based on information input into the model. Emissions produced by LAX activity during four aircraft operational modes (approach, taxi/idle, takeoff, and climbout) were calculated for each scenario. The taxi/idle times were derived from the SIMMOD results. The EDMS default times-in-mode were the basis for climbout, approach, and takeoff times; however, climbout and approach times were adjusted according to the average mixing height adjustment parameters contained in EDMS. For LAX, a mixing height of 1,806 feet above mean sea level was used in the emissions modeling. The incremental change in emissions without and with the MSC North Project would be the Project's operational impact from aircraft.

Ground Support Equipment and Auxiliary Power Units

Ground Support Equipment (GSE) and APU emissions were calculated by EDMS. Data on specific GSE types and times-in-mode were determined on a per aircraft basis using the default assignments in EDMS for the fleet mix of each scenario (2012 existing conditions, 2012 With Project, 2019 Future Without Project, and 2019 Future With Project). The GSE types were then compared against a 2013 GSE survey at LAX, including the use of alternative-fueled GSE (included in **Appendix B**). This information, combined with emission factors obtained from OFFROAD2007 and OFFROAD2011, were used to determine criteria pollutant emissions.

It was assumed that 400 hertz (Hz) electric power and pre-conditioned air would be available at all commercial airline gates. However, since APUs would continue to be used during taxiing, APU emissions were calculated by EDMS using default emissions factors and scenario-specific taxi times, as shown in Table 4.1-1.

[11] Federal Aviation Administration, Emissions and Dispersion Modeling System User's Manual with Supplements, EDMS Version 5.1.4.1, August 2013.

Busing Operations

As discussed in Chapter 2, *Project Description*, passengers would access the MSC North building by airfield buses powered by clean fuel, traveling between existing CTA and the MSC North building. The distance from the CTA to the MSC North is substantially shorter than existing busing operations today, including those to the West Remote Gates/Pads and the American Eagle Commuter Terminal. As the MSC North Project would reduce aircraft operations at the West Remote Gates/Pads, the distance per trip would be reduced. However, even with the reduction in distance, the potential number of operations to the MSC could result in an increase of daily bus trips and total vehicle miles traveled.

Total emissions from buses were calculated using the same methodology assumed for on-road construction vehicles. The 2012 existing fleet mix includes 15 diesel-fueled buses and 12 compressed natural gas (CNG) buses. Emissions factors for diesel buses were obtained from EMFAC2011; emission factors for CNG buses were obtained from the manufacturer.[12] Emission factors were multiplied by the total daily busing distance and number of annual bus trips to obtain emissions in tons per year. For the purposes of this EIR, it's assumed that the LAX bus fleet in 2019 is comprised of all CNG buses.

Data for busing emissions, including VMT and emission factors, are presented in Appendix B.

Stationary Sources

The emissions of criteria pollutants associated with natural gas space heaters and water heaters were estimated using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2.[13] Estimates of natural gas usage were based on facility size (square feet) and type.

Changes in the size of facilities on the MSC North Project site between the existing (2012) and Project year (2019) were used to estimate the change in emissions that would occur on-site from natural gas combustion, and off-site emissions from purchased electricity. Implementation of the proposed MSC North Project would include the removal of several existing nearby buildings in order to construct components of the MSC North Project. As described in Section 2.5, *Project Characteristics*, all facilities would be relocated in-kind or consolidated with an existing facility, aside from the U.S. Coast Guard Facility. As such, the 2012 existing and 2019 Future Without MSC North Project scenarios only quantify the emissions from the U.S. Coast Guard Facility. The 2019 Future With MSC North Project scenario quantifies the emissions from the operations of the completed MSC North facility. Natural gas combustion for heating and cooling needs, as part of the MSC North Project, would be accommodated through the existing Central Utility Plant (CUP); new boilers are not anticipated to be constructed as part of the MSC North Project. Natural gas emissions for the MSC North Project are based on an increase in load at the CUP.

The emissions of criteria pollutants associated with off-Airport utility plant operations to support the additional on-Airport electricity demand was estimated based on the following assumptions:

- Power production in the South Coast Air Basin is primarily by natural gas fired power plants;

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[12] Erwin Zimmermann, COBUS Industries LP, "FWD: Emissions Data," email to Allison Kloiber, October 4, 2013.

[13] South Coast Air Quality Management District, California Emissions Estimator Model, prepared by ENVIRON International Corporation, Available at: http://www.caleemod.com.

- The criteria pollutant emissions estimated by CalEEMod for off-airport utility emissions are from these natural gas facilities;
- The higher heating value for natural gas is 1,020 Btu/cubic foot;
- Emission factors from USEPA were used for CO, VOC, SO_2, and PM_{10};
- NO_X emissions complied with SCAQMD Rule 1135;
- $PM_{2.5}$ emissions were assumed equal to PM_{10}; and
- 22 percent of the total power provided by the Los Angeles Department of Water and Power (LADWP) is generated in the South Coast Air Basin.[14]

Localized Concentration

Because MSC North operations encompass sources located throughout the entire Airport (and thus exceeds the five acres in total size), Project-specific dispersion modeling was conducted to assess localized operational impacts. Dispersion of the on-Airport emissions including those from aircraft, GSE, APU, and busing operations, as well as stationary sources, was modeled using EDMS. EDMS is the FAA-required model for airport air quality analysis of aviation sources and was used to develop projected concentrations of on-Airport air pollutants associated with the proposed MSC North Project. Outputs from the EDMS model were then input in the USEPA and SCAQMD-approved dispersion model, AMS/EPA Regulatory Model (AERMOD), to model the air quality impacts of CO, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ emissions, consistent with SCAQMD methodology.

In regards to source locations, operational activities were assumed to be located at the respective on-Airport locations for individual sources. Aircraft operations were distributed between the taxiways and runways, as well as on the approach and departure paths. GSE and APU operations were located directly at the gates. Busing operations and stationary sources were modeled as area sources along their respective routes and locations.

4.1.2.2 Future Phase(s) of the MSC Program

The MSC Program components that are not part of the MSC North Project, as discussed in Chapter 2, *Project Description*, have only been conceptually planned; thus, only a program-level emissions analysis of these components is possible. For those MSC Program components receiving only programmatic environmental review in the MSC EIR, further project-level environmental review under CEQA will be required in the future before they can be implemented. Project-level environmental documents for future phase(s) of the MSC Program will be initiated at such time as LAWA determines the timing of such improvements.

Construction

Construction emissions for the MSC Program were covered under the LAX Master Plan Final EIR, are anticipated to be substantially the same, and are therefore not analyzed further in this EIR.

[14] Los Angeles Department of Water and Power, 2011 Power Integrated Resource Plan, December 22, 2011.

Operations

Any future phase(s) of the MSC Program would contribute to operational emissions. Emissions in this analysis are presented in terms of a projected future Program operational date of 2025, as presented in LAWA's Specific Plan Amendment Study (SPAS) Final EIR. Direct emissions from aircraft and GSE operations are assumed to be equal to the 2025 SPAS Alternative 3 (LAX Master Plan Alternative D), as this represents the future condition with the full MSC Program, including the CTP. Like the MSC North Project, the future phase(s) of the MSC Program would not result in changes to air traffic patterns or an increase in airport operations, as the MSC Program is only changing the location of aircraft gates; therefore, aircraft and GSE emissions for the future MSC Program are the same as those presented in the SPAS Final EIR for Alternative 3. The taxi-times associated with the 2025 Future Without MSC Program and 2025 Future With MSC Program are shown in **Table 4.1-2**.

Table 4.1-2

LAX Total Aircraft Operations and Taxi Times, by Calendar Year

Year/Scenario	Annual Operations	Taxi-In Time (minutes per operation)	Taxi-Out Time (minutes per operation)
2012 Existing Conditions	605,480	9.96	11.89
2012 Existing With MSC Program	605,480	9.94	11.82
2025 Future Without MSC Program	707,151	10.86	13.72
2025 Future With MSC Program	707,151	10.84	13.64

Source: Ricondo & Associates, Inc., 2013.

Emissions were calculated using roadway volumes and mode splits, along with other assumptions, from the traffic analysis found in Section 4.6, *On-Airport Transportation*, of this EIR. Emission factors were obtained from EMFAC2011. The future phase(s) of the MSC Program include provisions for an Automated People Mover (APM) to connect the MSC concourse with the CTA. As such, the future phase(s) of the MSC Program would eliminate busing of passengers between the MSC and the CTA.

Building emissions for the full MSC Program, including those on-site from natural gas combustion, and off-site from purchased electricity, were calculated using CalEEMod and the same methodology utilized for the MSC North Project, as outlined in Section 4.1.2.1.2. Specific model assumptions can be found in Appendix B.

4.1.3 Existing Conditions

4.1.3.1 Climatological Conditions

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

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

The annual minimum mean, maximum mean, and overall mean temperatures at the airport are 55 degrees Fahrenheit (°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 6.4 knots (7.4 miles per hour [mph] or 3.3 meters per second [m/s]). Maximum recorded gusts range from 27 knots (31 mph or 13.9 m/s) in July to 54 knots (62 mph or 27.8 m/s) in March. The monthly average wind speeds range from 5.7 knots (6.5 mph or 2.9 m/s) in December to 7.4 knots (8.5 mph or 3.8 m/s) in April.[15]

4.1.3.2 Regulatory Setting

Air quality is regulated by federal, state, and local laws. In addition to rules and standards contained in the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA), air quality in the Los Angeles region is subject to the rules and regulations established by CARB and SCAQMD with oversight provided by the USEPA, Region IX.

Federal

The USEPA is responsible for implementation of the CAA. The CAA was first enacted in 1970 and has been amended numerous times in subsequent years (1977, 1990, and 1997). Under the authority granted by the CAA, USEPA has established NAAQS for the following criteria pollutants: O_3, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$. **Table 4.1-3** presents the NAAQS that are currently in effect for criteria air pollutants. As discussed previously, O_3 is a secondary pollutant, meaning that it is formed from reactions of "precursor" compounds under certain conditions. The primary precursor compounds that can lead to the formation of O_3 are VOCs and NO_X.

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

Table 4.1-3

National and California Ambient Air Quality Standards (NAAQS and CAAQS)

Pollutant	Averaging Time	CAAQS	NAAQS Primary	NAAQS Secondary
Ozone (O_3)	8-hour	0.07 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	Same as Primary
	1-Hour	0.09 ppm (180 µg/m^3)	N/A	N/A
Carbon Monoxide (CO)	8-hour	9.0 ppm (10 mg/m^3)	9.0 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)	100 ppb (188 µg/m^3)	N/A [1]
Sulfur Dioxide (SO_2) [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/m3)
	1-Hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	N/A
Respirable Particulate Matter (PM_{10})	AAM	20 µg/m^3	N/A	N/A
	24-Hour	50 µg/m^3	150 µg/m^3	Same as Primary
Fine Particulate Matter ($PM_{2.5}$)	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)	Rolling 3-month Average	N/A	1.5 µg/m^3	Same as Primary
	Monthly	1.5 µg/m^3	N/A	N/A
Sulfates	24-Hour	25 µg/m^3	N/A	N/A

Notes:

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

1 On March 20, 2012, the USEPA took final action to retain the current secondary NAAQS for NO_2 (0.053 ppm averaged over a year) and SO_2 (0.5 ppm averaged over three hours, not to be exceeded more than once per year) (77 Federal Register [FR] 20264).

2 On June 22, 2010, the 1-hour SO_2 NAAQS was updated and the previous 24-hour and annual primary NAAQS were revoked. The previous 1971 SO_2 NAAQS (24-hour: 0.14 ppm; annual: 0.030 ppm) remain in effect until one year after an area is designated for the 2010 NAAQS (75 FR 35520).

Source: California Air Resources Board, Ambient Air Quality Standards Chart, Available at: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed April 12, 2013.

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

LAX is located in the Basin, which is designated as a federal nonattainment area for O_3, $PM_{2.5}$, and Pb. Nonattainment designations under the CAA for O_3 are classified into levels of severity based on the level of concentration above the standard, which is also used to set the required attainment date. The Los Angeles Basin is classified as an extreme nonattainment area for O_3. The Basin was reclassified on September 22, 1998 to attainment/maintenance for NO_2 and on June 11, 2007 for CO since concentrations of these pollutants dropped below the NO_2 and CO NAAQS for several years. More recently, the Los Angeles Basin was reclassified to attainment/maintenance for PM_{10} on July 26, 2013.[16] 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). The attainment status with regard to the NAAQS is presented in **Table 4.1-4** for each criteria pollutant.

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 generally as stringent as, and in several cases more stringent than, the NAAQS; however, in the case of short-term standards for NO_2 and SO_2, the CAAQS are less stringent than the NAAQS. The currently applicable CAAQS are presented with the NAAQS in Table 4.1-3. The attainment status with regard to the CAAQS is presented in Table 4.1-4 for each criteria pollutant. 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 district's to develop stationary source emission standards, issue air quality permits, and enforce permit conditions.

South Coast Air Quality Management District

SCAQMD has jurisdiction over an area of 10,743 square miles consisting of Orange County and the urban, 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.

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

Table 4.1-4

South Coast Air Basin Attainment Status

Pollutant	National Standards (NAAQS)[1]	California Standards (CAAQS)[2]
Ozone	Nonattainment - Extreme	Nonattainment
Carbon Monoxide	Attainment - Maintenance	Attainment
Nitrogen Dioxide	Attainment - Maintenance	Nonattainment
Sulfur Dioxide	Attainment	Attainment
PM_{10}	Attainment - Maintenance	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Lead	Nonattainment	Nonattainment

Notes:
1 Status as of July 31, 2013.
2 Effective April 1, 2013.

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

The SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the CAAQS and NAAQS. SCAQMD and CARB have adopted the 2012 AQMP which incorporates the latest scientific and technological information and planning assumptions, including the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), and updated emission inventory methodologies for various source categories.[17] The Final 2012 AQMP was adopted by the AQMD Governing Board on December 7, 2012. Therefore, the 2012 AQMP is the most appropriate plan to use for consistency analysis. The AQMP builds upon other agencies' plans to achieve federal standards for air quality in the Basin. It incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, and on-road and off-road mobile sources. The 2012 AQMP builds upon improvements in previous plans, and includes new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches. In addition, it highlights the significant amount of emission reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the federal CAA.

The 2012 AQMP's key undertaking is to bring the Basin into attainment with NAAQS for 24-hour $PM_{2.5}$ by 2014. It also intensifies the scope and pace of continued air quality improvement efforts toward meeting the 2023 8-hour O_3 standard deadline with new measures designed to reduce reliance on the CAA Section 182(e)(5) long-term measures for NO_X and VOC reductions. SCAQMD expects exposure reductions to be achieved through implementation of new and advanced control technologies as well as improvement of existing technologies.

The control measures in the 2012 AQMP consist of four components: 1) Basin-wide and Episodic Short-term $PM_{2.5}$ Measures; 2) Contingency Measures; 3) 8-hour O_3 Implementation Measures; and 4) Transportation and Control Measures provided by the Southern California

17 Available at: http://www.aqmd.gov/aqmp/2012aqmp/index.htm, Accessed January 7, 2014.

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

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 proposed MSC North 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. Also, SCAQMD Rule 1113 limits the amount of volatile organic compounds from architectural coatings and solvents, which lowers the emissions of odorous compounds.

Southern California Association of Governments

SCAG is the metropolitan planning organization (MPO) for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for the discussion of regional issues related to transportation, the economy, community development, and the environment. As the federally-designated MPO for the Southern California region, SCAG is mandated by the federal government to research and develop plans for transportation, hazardous waste management, and air quality. Pursuant to California Health and Safety Code 40460(b), SCAG has the responsibility for preparing and approving the portions of the AQMP relating to regional demographic projections and integrated regional land use, housing, employment, and transportation programs, measures, and strategies. SCAG is also responsible under the CAA for determining conformity of transportation projects, plans, and programs with applicable air quality plans. With regard to air quality planning, SCAG has prepared the 2012-2035 RTP/SCS, which addresses regional development and growth forecasts.

Other Related Rules and Policies

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 has 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. This analysis includes the use of diesel particulate traps.

4.1.3.3 Existing Ambient Air Quality

In an effort to monitor the various concentrations of air pollutants throughout the basin, the SCAQMD has divided the region into 38 Source Receptor Areas in which monitoring stations operate. The monitoring station that is most representative of existing air quality conditions in the Project area is the Southwest Coastal Los Angeles Monitoring Station located at 7201 W. Westchester Parkway (referred to as the LAX Hastings site), less than 0.5-mile from Runway 6L-24R (northernmost LAX runway). Criteria pollutants monitored at this station include O_3, CO, SO_2, NO_2, and PM_{10}. The nearest representative monitoring station that monitors $PM_{2.5}$ is the South Coastal Los Angeles County 1 Station, which is located at 1305 E. Pacific Coast Highway (Long Beach). The most recent data available from the SCAQMD for these monitoring stations encompassed the years 2008 to 2012, as shown in **Table 4.1-5**.

Table 4.1-5

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

Pollutant [1,2]	2008	2009	2010	2011	2012
Ozone (O_3)					
Maximum Concentration 1-hr period, ppm	0.086	0.077	0.089	0.078	0.106
Days over State Standard (0.09 ppm)	0	0	0	0	1
Maximum National Concentration 8-hr period, ppm	0.075	0.070	0.070	0.067	0.075
Days over Federal Standard (0.075 ppm)	0	0	0	0	0
Maximum California Concentration 8-hr period, ppm	0.076	0.070	0.070	0.067	0.075
Days over State Standard (0.07 ppm)	1	0	0	0	1
Carbon Monoxide (CO)					
Maximum Concentration 1-hr period, ppm	3.6	2.6	2.6	2.3	2.8
Days over State Standard (20.0 ppm)	0	0	0	0	0
Maximum Concentration 8-hr period, ppm	2.53	1.99	2.19	1.79	1.51
Days over State Standard (9.0 ppm)	0	0	0	0	0
Nitrogen Dioxide (NO_2)					
Maximum Concentration 1-hr period, ppm	0.094	0.077	0.076	0.098	0.077
98^{th} Percentile Concentration 1-hr period, ppm	N/A	0.070	0.061	0.065	N/A
Days over State Standard (0.18 ppm)	0	0	0	0	0
Annual Arithmetic Mean (AAM), ppm	0.014	---	0.012	0.013	0.010
Exceed State Standard? (0.030 ppm)	No	No	No	No	No
Sulfur Dioxide (SO_2)					
Maximum Concentration 1-hr period, ppm	0.021	0.022	0.026	0.011	0.005
Days over State Standard (75 ppb)	0	0	0	0	0
99^{th} Percentile Concentration 1-hr period, ppm	N/A	0.012	0.016	0.008	N/A
Maximum Concentration 24-hr period, ppm	0.004	0.006	0.004	0.002	0.001
Days over State Standard (140 ppb)	0	0	0	0	0
Annual Arithmetic Mean (AAM), ppm	0.001	---	0.000	0.000	0.000
Respirable Particulate Matter (PM_{10}) [3]					
Maximum National Concentration 24-hr period, $\mu g/m^3$	50	52	37	41	31
Days over Federal Standard (150 $\mu g/m^3$)	0	0	0	0	0
Maximum California Concentration 24-hr period, $\mu g/m^3$	50	52	37	41	30
Days over State Standard (50 $\mu g/m^3$)	0	6	*	0	0
Annual National Concentration, $\mu g/m^3$	25.6	25.6	20.6	21.7	19.8
Annual California Concentration, $\mu g/m^3$	25.5	25.5	---	21.4	19.5

Table 4.1-5

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

Pollutant [1,2]	2008	2009	2010	2011	2012
Exceed State Standard? (20 μg/m^3)	Yes	Yes	*	Yes	No
Fine Particulate Matter ($PM_{2.5}$) [3]					
Maximum National Concentration 24-hr period, μg/m^3	57.2	63.0	35.0	39.7	49.8
Days over Federal Standard (35 μg/m^3)	8	6	0	2	4
Maximum California Concentration 24-hr period, μg/m^3	57.2	63.0	35.0	39.7	49.8
Annual National Concentration, μg/m^3	14.1	12.8	10.3	11.3	10.4
Exceed State Standard? (12 μg/m^3)	Yes	Yes	No	No	No

Notes:

AAM = Annual arithmetic mean
ppb = parts per billion (by volume)
ppm = parts per million (by volume)
μg/m^3 = micrograms per cubic meter
* = insufficient data to determine the value
N/A = not applicable

1 Monitoring data from the Southwest Coastal Los Angeles Station (Station No. 820) was used for O_3, CO, NO_2, SO_2, and PM_{10} concentrations. Monitoring Data from the South Coastal Los Angeles County 1 Monitoring Station (Station No. 072) was used for $PM_{2.5}$ concentrations.

2 An exceedance is not necessarily a violation. Violations are defined in 40 CFR 50 for NAAQS and 17 CCR 70200 for CAAQS.

3 Statistics may include data that are related to an exceptional event.

Source: California Air Resource Board, iADAM: Air Quality Data Statistics, Available at: http://www.arb.ca.gov/adam/, Accessed April 4, 2013; California Air Resource Board, AQMIS2, Available at: http://www.arb.ca.gov/aqmis2/aqmis2.php, Accessed May 14, 2013.

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

Ozone - The maximum 1-hour O_3 concentration recorded during the 2008 to 2012 period was 0.106 ppm, recorded in 2012. During the reporting period, the California standard was exceeded once. The maximum 8-hour O_3 concentration was 0.076 ppm recorded in 2008. The California standards were exceeded once during the reporting period, while the NAAQS were not violated.

Carbon Monoxide - The highest 1-hour CO concentration recorded was 3.6 ppm, recorded in 2008. The maximum 8-hour CO concentration recorded was 2.53 ppm recorded in 2008. As demonstrated by the data, the standards were not exceeded during the five-year period.

Nitrogen Dioxide - The highest 1-hour NO_2 concentration recorded was 0.098 ppm in 2011. The maximum 98th percentile 1-hour concentration was 0.070 ppm, recorded in 2009. The highest recorded NO_2 annual arithmetic mean was 0.014 ppm recorded in 2008. As shown, the standards were not exceeded during the five-year period.

Sulfur Dioxide - The highest 1-hour concentration of SO_2 was 0.026 ppm recorded in 2010, while the highest 99th percentile 1-hour concentration recorded was 0.016 ppm in 2010. The maximum 24-hour concentration was 0.006 ppm, recorded in 2009. The highest annual arithmetic mean concentration was 0.001, recorded in 2008. As shown, the standards were not exceeded during the five-year period.

Respirable Particulate Matter (PM_{10}) - The highest recorded 24-hour PM_{10} concentration recorded was 52 µg/m^3 in 2009. During the period 2008 to 2012, the CAAQS for 24-hour PM_{10} was exceeded 6 days in 2009 but no days any other year; the NAAQS was not violated. The maximum annual arithmetic mean recorded was 25.6 µg/m^3 in 2008 and 2009.

Fine Particulates ($PM_{2.5}$) - The maximum 24-hour $PM_{2.5}$ concentration recorded was 63.0 µg/m^3 in 2009. The 24-hour NAAQS was exceeded between 0 and 8 days annually from 2008-2012. The highest annual arithmetic mean of 14.1 was recorded in 2008.

4.1.3.4 Existing Airport Emissions

The existing (2012) airport-related emissions, including those from aircraft, GSE and APU operations, on-airport roadways, and stationary sources, are shown in **Table 4.1-6**.

Table 4.1-6

Existing (2012) Airport Emissions

	Peak Daily Emissions (lbs/day)					
Emission Source	**CO**	**VOC**	**NO_X**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Aircraft [1]	15,598	2,599	17,517	1,700	244	244
Ground Support Equipment [1]	3,572	251	1,417	2	58	56
Auxiliary Power Units [1]	563	47	550	75	76	76
Busing Operations [1]	2	<1	13	<1	<1	<1
On-Airport Roadways [2]	681	80	1,481	<1	30	28
On-Airport Stationary [3]	<1	2	<1	<1	<1	<1
On-Airport Subtotal	20,417	2,980	20, 978	1,776	409	405
Off-Airport Stationary [3, 4]	<1	<1	<1	<1	<1	<1
Off-Airport Subtotal	<1	<1	<1	<1	<1	<1
Total Existing Emissions	20,417	2,980	20,978	1,776	409	397

Notes:
1 Total emissions for LAX.
2 Emissions from traffic within the central terminal area (CTA) only.
3 Emissions for MSC North Project site only.
4 Off-site stationary emissions include those from purchased electricity,

Source: Ricondo & Associates, Inc., 2013.

4.1.4 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 4.1-7**. In accordance with the SCAQMD *CEQA Air Quality Handbook*, a significant air quality impact would occur if the estimated incremental increase in construction-related or operations-related emissions attributable to the proposed MSC North Project or future phase(s) of the MSC Program would be greater than the daily emission thresholds presented in Table 4.1-7.

Table 4.1-7

SCAQMD CEQA Mass Emission Thresholds of Significance for Air Pollutant Emissions in the South Coast Air Basin

	Mass Emission Thresholds (lbs/day)	
Pollutant	**Construction**	**Operations**
Carbon monoxide, CO	550	550
Volatile organic compounds, VOC [1]	75	55
Nitrogen oxides, NO_X	100	55
Sulfur dioxide, SO_2	150	150
Respirable particulate matter, PM_{10}	150	150
Fine particulate Matter, $PM_{2.5}$	55	55
Lead, Pb [2]	3	3

Notes:

1 The emissions of VOCs and reactive organic gases are essentially the same for the combustion emission sources that are considered in this EIR. This EIR will typically refer to organic emissions as VOCs.

2 The only source of lead emissions from LAX is from aviation gasoline (AvGas) associated with piston-engine general aviation aircraft; however, due to the low number of piston-engine general aviation aircraft operations at LAX, AvGas quantities are low and emissions from these sources would not be materially affected by the Project.

Source: South Coast Air Quality Management District, "SCAQMD Air Quality Significance Thresholds," March 2011. Available at: www.aqmd.gov/ceqa/handbook/signthres.pdf, Accessed October 28, 2013.

The SCAQMD has also developed operational and construction-related thresholds of significance[18] for air pollutant concentration impacts from projects proposed in the Basin. These thresholds are summarized in **Table 4.1-8**. In accordance with the SCAQMD *CEQA Air Quality Handbook*, a significant air quality impact would occur if the estimated incremental ambient concentrations due to construction-related or operations-related emissions would be greater than the concentration thresholds presented in Table 4.1-8. The SCAQMD's recommended thresholds for the evaluation of localized air quality impacts are based on the difference between the maximum monitored ambient pollutant concentrations in the area and the CAAQS or NAAQS. Therefore, the thresholds depend upon the concentrations of pollutants monitored locally with respect to a project site. For pollutants that already exceed the CAAQS or NAAQS (e.g., PM_{10} and $PM_{2.5}$), the thresholds are based on SCAQMD Rule 403 for construction and Rule 1303, Table A-2 for operations as described in the *Final Localized Significance Threshold Methodology*.

[18] South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993; as updated by SCAQMD Air Quality Significance Thresholds, March 2011, Available at: http://www.aqmd.gov/CEQA/handbook/signthres.pdf.

Table 4.1-8

SCAQMD CEQA Project-Related Concentration Thresholds of Significance for Air Pollutant Concentrations in the South Coast Air Basin

Pollutant	Project-Related Concentration Thresholds [1]			
	Averaging Period	**Construction**	**Operations**	**Project Only or Total**
PM_{10}	Annual	1.0 μg/m^3	1.0 μg/m^3	Project Only
PM_{10}	24-hour	10.4 μg/m^3	2.5 μg/m^3	Project Only
$PM_{2.5}$	24-hour	10.4 μg/m^3	2.5 μg/m^3	Project Only
CO	1-hour	20 ppm (23 mg/m^3)	20 ppm (23 mg/m^3)	Total incl. Background
CO	8-hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)	Total incl. Background
NO_2	1-hour (State)	0.18 ppm (339 μg/m^3)	0.18 ppm (339 μg/m^3)	Total incl. Background
NO_2	1-hour (Federal) [2]	0.100 ppm (188 μg/m^3)	0.100 ppm (188 μg/m^3)	Total incl. Background
NO_2	Annual (State) [3]	0.030 ppm (57 μg/m^3)	0.030 ppm (57 μg/m^3)	Total incl. Background
SO_2	1-hour (State)	0.25 ppm (655 μg/m^3)	0.25 ppm (655 μg/m^3)	Total incl. Background
SO_2	1-hour (Federal) [4]	0.075 ppm (196 μg/m^3)	0.075 ppm (196 μg/m^3)	Total incl. Background
SO_2	24-hour	0.04 ppm (105 μg/m^3)	0.04 ppm (105 μg/m^3)	Total incl. Background

Notes:

1 The concentration threshold for CO and NO_2 is the CAAQS, which is at least as stringent as the NAAQS. The concentration threshold for PM_{10} and $PM_{2.5}$ has been developed by SCAQMD for construction or operational impacts associated with proposed projects.

2 To evaluate impacts of the proposed Project to ambient 1-hour NO_2 levels, the analysis includes both the current SCAQMD 1-hour State NO_2 threshold and the more stringent revised 1-hour federal ambient air quality standard of 188 μg/m^3. To attain the federal standard, the 3-year average of 98th percentile of the daily maximum 1-hour average at a receptor must not exceed 0.100 ppm.

3 The State standard is more stringent than the federal standard.

4 To attain the SO_2 federal 1-hour standard, the 3-year average of the 99th percentile of the daily maximum 1-hour averages at a receptor must not exceed 0.075 ppm.

Source: SCAQMD, 1993, 2011; USEPA, 2010a (75 FR 6474, Primary National Ambient Air Quality Standards for Nitrogen Dioxide, Final Rule, February 9, 2010) and 2010b (75 FR 35520, Primary National Ambient Air Quality Standard for Sulfur Dioxide, Final Rule, June 22, 2010).

The methodology requires that the anticipated increase in ambient air concentrations, determined using a computer-based air quality dispersion model, be compared to localized significance thresholds for PM_{10}, $PM_{2.5}$, NO_2, and CO.[19] The significance threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust) and Rule 1303 (New Source Review Requirements), while the thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of the Project site that would not cause or contribute to an exceedance of the relevant ambient air quality standards. The significance thresholds for $PM_{2.5}$ are intended to constrain emissions so as to aid in the progress toward attainment of the ambient air quality standards.[20] For the purposes of this analysis, the localized construction and operations emissions resulting from development of the proposed

[19] South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, (2008).

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

MSC North Project are assessed with respect to the thresholds in Table 4.1-8 using dispersion modeling (i.e., AERMOD).

4.1.5 Applicable LAX Master Plan Commitments and Mitigation Measures

As part of the LAX Master Plan, LAWA adopted commitments and control measures pertaining to air quality (denoted with "AQ") in the Alternative D MMRP. Of the three commitments and four control measures that were designed to address air quality impacts related to implementation of the LAX Master Plan, none of the commitments are applicable to the proposed MSC North Project or future phase(s) of the MSC Program, but all of the control measures were considered in the air quality analysis herein (denoted below as LAX-AQ-1, LAX-AQ-2, LAX-AQ-3, and LAX-AQ-4). The portions of the air quality control measures that would be applicable to the proposed MSC North Project and/or future phase(s) of the MSC Program are summarized below in **Table 4.1-9**, **Table 4.1-10**, **Table 4.1-11** and **Table 4.1-12**.

LAX-AQ-1 – General Air Quality Control Measures

- This measure describes a variety of specific actions to reduce air quality impacts associated with projects at LAX, and applies to all projects. Some components of LAX-AQ-1 are not readily quantifiable, but would be implemented as part of LAX Master Plan projects. Specific measures are identified in **Table 4.1-9**.

LAX-AQ-2 – LAX Master Plan - Mitigation Plan for Air Quality; Construction-Related Measures

- This measure describes numerous specific actions to reduce fugitive dust emissions and exhaust emissions from on-road and off-road mobile and stationary sources used in construction. Some components of LAX-AQ-2 are not readily quantifiable, but are being implemented as part of LAX Master Plan projects. These control strategies are expected to reduce construction-related emissions. Specific measures are identified in **Table 4.1-10**.

LAX-AQ-3 – Transportation-Related Mitigation Measures

- This measure applies to mass transit, surface traffic, and on-site parking facilities. The principal feature of this measure is to replicate and expand the current LAX FlyAway service to other communities within regions of Los Angeles County. This initiative also includes a public outreach program to encourage the use of both the existing and new facilities. The remaining, secondary transportation-related air quality control measures may also be implemented. It should be noted that no estimate of the air quality benefit (i.e. emissions reduction) of these secondary measures is made in this analysis. Specific measures are identified in **Table 4.1-11**.

LAX-AQ-4 – Operations-Related Control Measures

- The principal feature of this measure is the conversion of LAX GSE to low and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). It should be noted that no estimate of the air quality benefit (i.e., emission reductions) of other secondary measures is made in this analysis. Specific measures are identified in **Table 4.1-12**.

Table 4.1-9

General Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
1a	Watering (per SCAQMD Rule 403 and CalEEMod default) – two times daily.	Fugitive Dust	55% PM_{10} and $PM_{2.5}$
1b	Ultra-low sulfur diesel (ULSD) fuel will be used in construction equipment.	On- and Off-Road Mobile	Assumed in modeling
1c	Post a publicly visible sign with the telephone number and person to contact regarding dust complaints; this person shall respond and take corrective action within 24 hours.	Fugitive Dust	NQ
1d	Prior to final occupancy, the applicant demonstrates that all ground surfaces are covered or treated sufficiently to minimize fugitive dust emissions.	Fugitive Dust	NQ
1e	All roadways, driveways, sidewalks, etc., being installed as part of the project should be completed as soon as possible; in addition, building pads should be laid as soon as possible after grading.	Fugitive Dust	NQ
1f	Prohibit idling or queuing of diesel-fueled vehicles and equipment in excess of five minutes. This requirement will be included in specifications for any LAX projects requiring on-site construction.[2]	On- and Off-Road Mobile	NQ
1g	Require that all construction equipment working on-site is properly maintained (including engine tuning) at all times in accordance with manufacturers' specifications and schedules.	Mobile and Stationary	NQ

Notes:
NQ = Not Quantified
1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-1, unless otherwise noted.
2 From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.M and LAWA's Design and Construction Handbook, Section 1.31.9.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Design and Construction Handbook, November 2012.

Table 4.1-10

Construction-Related Control Measures [1]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
2a	All diesel-fueled equipment used for construction will be outfitted with the best available emission control devices, where technologically feasible, primarily to reduce emissions of diesel particulate matter (DPM), including fine PM ($PM_{2.5}$), and secondarily, to reduce emissions of NO_X. This requirement shall apply to diesel-fueled off-road equipment (such as construction machinery), diesel-fueled on-road vehicles (such as trucks), and stationary diesel-fueled engines (such as electric generators). (It is unlikely that this measure will apply to equipment with Tier 4 engines.) The emission control devices utilized in construction equipment shall be verified or certified by CARB or USEPA for use in on- road or off-road vehicles or engines. For multi-year construction projects, a reassessment shall be conducted annually to determine what constitutes a best available emissions control device.[2]	Off-Road Mobile	85% PM_{10} and $PM_{2.5}$, adjusted for compatibility
2b	Watering (per SCAQMD Rule 403 and CalEEMod default) – three times daily.	Fugitive Dust	61% PM_{10} and $PM_{2.5}$
2c	Pave all construction access roads at least 100 feet onto the site from the main road.	Fugitive Dust	NQ
2d	To the extent feasible, have construction employees' work/commute during off-peak hours.	On-Road Mobile	NQ
2e	Make available on-site lunch trucks during construction to minimize off-site worker vehicle trips.	On-Road Mobile	NQ
2f	Utilize on-site rock crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck haul trips.	On-Road Mobile	NQ
2g	Specify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using "clean burning diesel" fuel and exhaust emission controls.[3]	Stationary Point Source Controls	NQ
2h	Suspend use of all construction equipment during a second-stage smog alert in the immediate vicinity of LAX.	Mobile and Stationary	NQ
2i	Utilize construction equipment having the minimum practical engine size (i.e., lowest appropriate horsepower rating for intended job).	Mobile and Stationary	NQ
2j	Prohibit tampering with construction equipment to increase horsepower or to defeat emission control devices.	Mobile and Stationary	NQ
2k	The contractor or builder shall designate a person or persons to ensure the implementation of all components of the construction-related measure through direct inspections, record reviews, and investigations of complaints.	Administrative	NQ

Table 4.1-10

Construction-Related Control Measures [1]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
2l	LAWA will locate rock-crushing operations and construction material stockpiles for all LAX-related construction in areas away from LAX-adjacent residents, to the extent possible, to reduce impacts from emissions of fugitive dust.[4]	Stationary	Can be quantified in modeling assumptions
2m	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[5]	Mobile	NQ
2n	On-road trucks used on LAX construction projects with a gross vehicle weight rating of at least 19,500 pounds shall, at a minimum, comply with USEPA 2007 on-road emissions standards for PM_{10} and NO_X.[6]	On-Road Mobile	Assumed in modeling
2o	Prior to January 1, 2015, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet USEPA Tier 3 off-road emission standards. After December 31, 2014, all off-road diesel-power construction equipment greater than 50 horsepower shall meet USEPA Tier 4 off-road emissions standards. Tier 4 equipment shall be considered based on availability at the time the construction bid is issued. LAWA will encourage construction contractors to apply for SCAQMD “SOON” funds to accelerate clean-up of off-road diesel engine emissions.[7]	Off-Road Mobile	Assumed in modeling

Notes:
NQ = Not Quantified
1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.
2 From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.F.
3 From LAX Master Plan Mitigation Measure MM-AQ-2 and LAWA's Design and Construction Handbook, Section 1.31.9.
4 From Community Benefits Agreement Measure X.L.
5 From Community Benefits Agreement Measure X.N.
6 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.
7 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

Table 4.1-11

Traffic-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
3a	Construct on-site or off-site bus turnouts, passenger benches, or shelters to encourage transit system use.	Transit Ridership
3b	Construct on-site or off-site pedestrian improvements, including showers for pedestrian employees to encourage walking/bicycling to work by LAX employees.	Transit Ridership
3c	Link Intelligent Transportation Systems (ITS) with off-airport parking facilities with ability to divert/direct trips to these facilities to reduce traffic/parking congestion and the associated air emissions in the immediate vicinity of the airport.	Highway/Roadway Improvements
3d	Expand ITS and Adaptive Traffic Control Systems (ATCS), concentrating on I-405 and I-105 corridors, extending into South Bay and Westside surface street corridors to reduce traffic/parking congestion and associated air emissions in the immediate vicinity of the airport.	Highway/Roadway Improvements
3e	Link LAX traffic management system with airport cargo facilities, with ability to re-route cargo trips to/from these facilities to reduce traffic/parking congestion and associated air emissions in the immediate vicinity of the airport.	Highway/Roadway Improvements
3f	Develop a program to minimize use of conventional-fueled fleet vehicles during smog alerts to reduce air emissions from vehicles at the airport.	Highway/Roadway Improvements
3g	Provide free parking and preferential parking locations for ultra low emission vehicles/super low emission vehicles/zero emission vehicles (ULEV/SULEV/ZEV) in all (including employee) LAX lots; provide free charging stations for ZEV; include public outreach to reduce air emissions from automobiles accessing airport parking.	Parking
3h	Develop measures to reduce air emissions of vehicles in line to exit parking lots such as pay-on-foot (before getting into car) to minimizing idle time at parking check out, including public outreach.	Parking
3i	Implement on-site circulation plan in parking lots to reduce time and associated air emissions from vehicles circulating through lots looking for parking.	Parking
3j	Encourage video conferencing capabilities at various locations on the airport to reduce off-site local business travel and associated VMT and air emissions in the vicinity of the airport.	Parking
3k	Expand LAWA's rideshare program to include all airport tenants.	Additional Ridership
3l	Promote commercial vehicles/trucks/vans using terminal areas (LAX and regional intermodal) to install SULEV/ZEV engines to reduce vehicle air emissions.	Clean Vehicle Fleets
3m	Promote "best-engine" technology for rental cars using on-airport rent-a-car facilities to reduce vehicle air emissions.	Clean Vehicle Fleets
3n	Consolidate non-rental car shuttles using SULEV/ZEV engines to reduce vehicle air emissions.	Clean Vehicle Fleets

Table 4.1-11

Traffic-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
3o	Cover, if feasible, any parking structures that receive direct sunlight, to reduce volatile emissions from vehicle gasoline tanks; and install solar panels on these roofs where feasible to supply electricity or hot water to reduce power production demand and associated air emissions at utility plants.	Energy Conservation
3p	LAWA will develop an information technology system that LAWA employees and the general public can utilize with consumer electronics that will provide real-time information regarding local and regional traffic conditions for travel to and from LAX.[2]	Traffic Management
3q	LAWA will incorporate quick entry and exit parking systems in the project level design of future parking lots/structures associated with the SPAS project.[3]	Parking
3r	LAWA will include advanced signage in the design of future parking structures that could advise airport users of available parking spaces within the structure.[4]	Parking

Notes:

1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-3, unless otherwise noted.

2 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.

3 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.

4 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

Table 4.1-12

Operations-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
4a	LAX GSE will be converted to low- and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). Both LAWA- and tenant-owned equipment will be included in this conversion program, which will be implemented in phases. LAWA will assign a GSE coordinator whose responsibility it will be to ensure the successful conversion of GSE in a timely manner. This coordinator will have adequate authority to negotiate on behalf of the City and have sufficient technical support to evaluate technical issues that arise during the implementation of this measure.[2]	Airside Operations

Table 4.1-12

Operations-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
4b	All passenger gates newly constructed at LAX shall be equipped with and able to provide grid electricity to parked aircraft (for lighting and ventilation) from and after the date of initial operation. LAWA will ensure that all aircraft (unless exempt) use the gate-provided grid electricity in lieu of electricity provided by operation of an auxiliary or ground power unit. This provision applies in conjunction with construction or modification of passenger gates.[3]	Airside/Terminal
4e	LAWA will require the conversion of sweepers to alternative fuels or electric power for ongoing airfield and roadway maintenance. In the 2006 GSE inventory, two of ten sweepers were electric powered and one was either CNG or LPG fueled. HEPA filters will be installed on airport sweepers where the use of HEPA filters is technologically and financially feasible and does not pose a safety hazard to airport operations.[4]	General
4f	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[5]	Operational Vehicles

Notes:

1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-4, unless otherwise noted.

2 From Community Benefits Agreement Measure X.F.

3 From Community Benefits Agreement Measure X.A.

4 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-3.

5 From Community Benefits Agreement Measure X.N.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

4.1.6 Impact Analysis

4.1.6.1 MSC North Project

Construction Emissions

Regional Construction Impacts

The worst-case daily emissions were calculated from a peak-month average day for each year of construction. The total daily emission rates are presented in **Table 4.1-13** for all criteria and precursor pollutants studied (CO, VOC, NO_X, SO_X, PM_{10}, and $PM_{2.5}$). As shown, construction-related daily (short-term) emissions of CO, VOC, NO_X, PM_{10}, and $PM_{2.5}$ would exceed SCAQMD significance thresholds. These calculations include appropriate reductions achieved with implementation of mandated dust control, as required by SCAQMD Rule 403 (Fugitive Dust). These calculations also include implementation of measures to reduce emissions from the combustion of fossil fuels. The MSC North Project would use equipment that meet stringent emission standards for NO_X, PM_{10}, and $PM_{2.5}$, which would result in substantial emission reductions compared to fleet-wide average emissions for heavy-duty construction equipment and trucks in the southern California region. As discussed in Section 4.1.5, on-road trucks would comply with the USEPA 2007 on-road emissions standards for NO_2 and DPM (primarily $PM_{2.5}$). Compliance with the USEPA 2007 on-road emission standards would result in a reduction of NO_2 and DPM by approximately 40 percent and 22 percent, respectively, compared to fleet-wide average emissions for heavy-duty trucks.[21] Off-road diesel-powered construction equipment greater than 50 horsepower (hp) would meet USEPA Tier 3 off-road emissions standards prior to January 1, 2015, and Tier 4 standards after December 31, 2014. Compliance with the USEPA Tier 3 and Tier 4 off-road emissions standards would also result in substantial reduction in emissions of NO_2 and DPM compared to fleet-wide average emissions for heavy-duty construction equipment.

Table 4.1-13

MSC North Project Maximum Construction Emissions (lbs/day)

Pollutant	Peak Daily Emissions	Threshold	Significant?
Carbon monoxide, CO	1,235	550	Yes
Volatile organic compounds, VOC	118	75	Yes
Nitrogen oxides, NO_X	1,156	100	Yes
Sulfur dioxide, SO_2	4	150	No
Respirable particulate matter, PM_{10}	308	150	Yes
Fine particulate Matter, $PM_{2.5}$	105	55	Yes

Source: Ricondo & Associates, Inc., 2013.

21 The SCAQMD requested that LAWA consider requiring haul trucks meet the 2010 on-road emission standards for LAWA projects. LAWA has agreed to incorporate that requirement into the Project, if sufficient equipment that meets these standards is available within 120 miles of the Project (see Section 4.1.8). However, because LAWA cannot guarantee that sufficient equipment is available that meets the 2010 on-road emission standards, the analysis was based on meeting the 2007 on-road emission standards.

Localized Construction Impacts

As discussed in Section 4.1.2, *Methodology*, the localized effects from the on-site portion of daily emissions were evaluated at nearby sensitive receptor locations potentially impacted by the MSC North Project consistent with the methodologies in the SCAQMD's *Final Localized Significance Threshold Methodology*. The SCAQMD recommends that lead agencies perform project-specific air quality modeling for larger projects.[22] The MSC North Project area exceeds five acres in total size; therefore, Project-specific dispersion modeling was used to assess localized construction impacts rather than the mass emission rate look-up tables. The Project-specific air quality modeling of localized construction impacts was performed consistent with the mass emission rate look-up tables in SCAQMD's *Final Localized Significance Threshold Methodology* (June 2008). The results of the LST dispersion modeling are summarized in **Table 4.1-14**. As shown, emissions from construction activities would not result in exceedances of the localized concentration-based thresholds for any criteria pollutants at nearby sensitive receptors.

Table 4.1-14

Construction Peak Concentrations

Pollutant	Averaging Period	Construction (μg/m³)	Background (μg/m³)	Total (μg/m³)	Threshold (μg/m³)	Significant?
CO	1-hr	57	4,104	4,161	23,000	No
	1-hr NAAQS	57	4,104	4,161	40,000	No
	8-hr	39	2,884	2,919	10,000	No
NO_2	1-hr	53	184	238	339	No
	1-hr NAAQS	39	122	162	188	No
	Annual	2	26	29	57	No
SO_2	1-hr	0.19	68	68	655	No
	1-hr NAAQS	0.19	21	21	196	No
	3-hr	0.16	39	39	1,300	No
	24-hr	0.05	16	16	105	No
	Annual NAAQS	0.01	3	3	80	No
PM_{10}	24-hr	4.4	-	4.4	10.4	No
	Annual	0.9	-	0.9	1.0	No
$PM_{2.5}$	24-hr	1.2	-	1.2	10.4	No

Source: Ricondo & Associates, Inc., 2013.

Odors

Potential sources that may emit odors during construction activities include the use of architectural coatings and solvents and from diesel emissions. SCAQMD Rule 1113 limits the amounts of VOCs from architectural coatings and solvents. The MSC North Project would

[22] South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, (2008) 1-5.

comply with DPM reduction strategies such as compliance with USEPA 2007 on-road emission standards for heavy-duty trucks and USEPA Tier 4 off-road emission standards for heavy-duty construction equipment. Due to mandatory compliance with SCAQMD Rules and compliance with DPM reduction strategies, no construction activities or materials are proposed which would create objectionable odors affecting a substantial number of people. In addition, the nearest sensitive receptors are located beyond the LAX property line and would be further buffered by the dissipation of odors with distance and prevailing winds. Therefore, no significant impact would occur and no mitigation measures would be required.

Operational Emissions

Regional Operational Impacts

Based on the proposed construction schedule, as detailed in Appendix B, it is anticipated that the MSC North Project would be completed in 2019; therefore, operational impacts were analyzed for year 2019. As previously mentioned, the MSC North Project would not alter the airspace traffic, runway operational characteristics, or the practical capacity of the Airport. As such, changes in emissions from aircraft operations over the 2012 existing conditions are due to increased travel demand and changes in aircraft fleet mixes that are projected to occur by 2019 irrespective of the proposed MSC North Project. Therefore, this analysis compares emissions from the following scenarios: the 2012 With Project compared to the 2012 existing conditions, and the 2019 Without Project compared to the 2019 With Project scenario. Additionally, the implementation of the MSC North Project would require passenger bus trips between the MSC North building and the CTA, as a passenger processing facility and people mover would not be implemented until a future phase of the MSC Program. The MSC North building would also require additional heating and cooling load from the CUP.

The analyses presented below identify impacts of the proposed MSC North Project compared to existing (2012) conditions, and a comparison between the future (2019) Without MSC North Project and With Project conditions, to identify any air quality effects of the proposed MSC North Project.

Comparison of 2012 With MSC North Project and 2012 Existing Conditions

A comparison between emissions from the 2012 existing conditions and the 2012 With Project scenarios for aircraft, busing, GSE, and APU operations are shown in **Tables 4.1-15** through **4.1-18**. Emissions from on-Airport stationary sources and off-Airport electricity consumption are shown in **Table 4.1-19**. Total operational emissions for both 2012 scenarios are shown in **Table 4.1-20**.

Table 4.1-15

Aircraft Emissions – 2012 Existing Conditions Compared to 2012 With MSC North Project

Pollutant	2012 Existing (TPY)	2012 Existing (lbs/day)	2012 With MSC North Project (TPY)	2012 With MSC North Project (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
Carbon monoxide, CO	2,854	15,598	2,842	15,530	-12	-67
Volatile organic compounds, VOC	476	2,599	474	2,591	-1.6	-8.7
Nitrogen oxides, NO_X	3,206	17,517	3,203	17,505	-2.2	-12
Sulfur dioxide, SO_2	311	1,700	310	1,696	-0.7	-3.8
Respirable particulate matter, PM_{10}	44.7	244	44.6	244	-0.1	-0.5
Fine particulate Matter, $PM_{2.5}$	44.7	244	44.6	244	-0.1	-0.5

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-16

Busing Emissions – 2012 Existing Conditions Compared to 2012 With MSC North Project

Pollutant	2012 Existing (TPY)	2012 Existing (lbs/day)	2012 With MSC North Project (TPY)	2012 With MSC North Project (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
Carbon monoxide, CO	0.43	2.33	1.10	6.02	0.7	3.7
Volatile organic compounds, VOC	0.00	0.00	0.00	0.00	0.0	0.0
Nitrogen oxides, NO_X	2.36	12.90	6.09	33.30	3.7	20
Sulfur dioxide, SO_2	0.00	0.00	0.00	0.00	0.0	0.0
Respirable particulate matter, PM_{10}	0.03	0.18	0.09	0.47	0.1	0.3
Fine particulate Matter, $PM_{2.5}$	0.03	0.17	0.08	0.43	0.1	0.3

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-17

GSE Emissions – 2012 Existing Conditions Compared to 2012 With MSC North Project

Pollutant	2012 Existing (TPY)	2012 Existing (lbs/day)	2012 With MSC North Project (TPY)	2012 With MSC North Project (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
Carbon monoxide, CO	654	3,572	654	3,572	0.0	0.0
Volatile organic compounds, VOC	46	251	46	251	0.0	0.0
Nitrogen oxides, NO_X	259	1,417	259	1,417	0.0	0.0
Sulfur dioxide, SO_2	0.3	1.7	0.3	1.7	0.0	0.0
Respirable particulate matter, PM_{10}	11	58	11	58	0.0	0.0
Fine particulate Matter, $PM_{2.5}$	10	56	10	56	0.0	0.0

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-18

APU Emissions – 2012 Existing Conditions Compared to 2012 With MSC North Project

Pollutant	2012 Existing (TPY)	2012 Existing (lbs/day)	2012 With MSC North Project (TPY)	2012 With MSC North Project (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
Carbon monoxide, CO	103	563	103	560	-0.5	-2.6
Volatile organic compounds, VOC	8.6	47	8.6	47	-0.0	-0.2
Nitrogen oxides, NO_X	101	550	100	547	-0.5	-2.5
Sulfur dioxide, SO_2	14	75	14	75	-0.1	-0.3
Respirable particulate matter, PM_{10}	14	76	14	76	-0.1	-0.4
Fine particulate Matter, $PM_{2.5}$	14	76	14	76	-0.1	-0.4

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-19

Stationary Source Emissions – 2012 Existing Conditions Compared to 2012 With MSC North Project

Pollutant	2012 Existing (TPY)	2012 Existing (lbs/day)	2012 With MSC North Project (TPY)	2012 With MSC North Project (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
Carbon monoxide, CO	0.01	0.04	0.31	1.70	0.3	1.7
Volatile organic compounds, VOC	0.31	1.69	2.64	14.44	2.3	13
Nitrogen oxides, NO_X	0.01	0.05	0.37	2.02	0.4	2.0
Sulfur dioxide, SO_2	0.00	0.00	0.00	0.01	0.0	0.0
Respirable particulate matter, PM_{10}	0.00	0.00	0.03	0.15	0.0	0.2
Fine particulate Matter, $PM_{2.5}$	0.00	0.00	0.03	0.15	0.0	0.2

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-20

Total Operational Emissions – 2012 Existing Conditions Compared to 2012 With MSC North Project

Pollutant	2012 Existing (TPY)	2012 Existing (lbs/day)	2012 With MSC North Project (TPY)	2012 With MSC North Project (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
Carbon monoxide, CO	3,612	19,735	3,600	19,671	-12	-65
Volatile organic compounds, VOC	531	2,900	531	2,903	0.7	3.9
Nitrogen oxides, NO_X	3,568	19,497	3,569	19,505	1.4	7.6
Sulfur dioxide, SO_2	325	1,776	324	1,772	-0.8	-4.1
Respirable particulate matter, PM_{10}	69.4	379	69.3	379	-0.1	-0.4
Fine particulate Matter, $PM_{2.5}$	69.0	377	68.9	376	-0.1	-0.5

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-21 presents the incremental increase in operational emissions of the proposed MSC North Project over the 2012 existing conditions. The incremental emissions were then compared to the significance thresholds. As shown, the incremental emissions between the 2012 existing condition and the 2012 With Project scenario would not exceed SCAQMD's thresholds for any pollutant.

Table 4.1-21

2012 MSC North Project Emissions Compared to 2012 Existing Conditions (lbs/day)

Pollutant	2012 Existing	2012 With MSC North Project	Incremental Difference	Threshold	Exceed Threshold?
Carbon monoxide, CO	19,735	19,671	-65	550	No
Volatile organic compounds, VOC	2,900	2,903	3.9	55	No
Nitrogen oxides, NO_X	19,497	19,505	7.6	55	No
Sulfur dioxide, SO_2	1,776	1,772	-4.1	150	No
Respirable particulate matter, PM_{10}	379	379	-0.4	150	No
Fine particulate matter, $PM_{2.5}$	377	376	-0.5	55	No

Source: Ricondo & Associates, Inc., 2013.

Comparison of 2019 Future With MSC North Project and 2019 Future Without MSC North Project

A comparison between emissions from the 2019 Future Without and With Project scenarios for aircraft, busing, GSE, and APU operations are shown in **Tables 4.1-22** through **4.1-25**. Emissions from on-airport stationary sources and off-airport electricity consumption are shown in **Table 4.1-26**. Total operational emissions for both 2019 scenarios are shown in **Table 4.1-27**.

Table 4.1-22

Aircraft Emissions – 2019 Without Project Compared to 2019 With MSC North Project

	2019 Future Without MSC North Project		2019 Future With MSC North Project		Incremental Change	
Pollutant	(TPY)	(lbs/day)	(TPY)	(lbs/day)	(TPY)	(lbs/day)
Carbon monoxide, CO	3,203	17,549	3,190	17,481	-12	-68
Volatile organic compounds, VOC	526	2,881	524	2,872	-1.6	-8.7
Nitrogen oxides, NO_X	3,582	19,628	3,580	19,616	-2.2	-12
Sulfur dioxide, SO_2	345	1,890	344	1,886	-0.7	-3.7
Respirable particulate matter, PM_{10}	48.8	267	48.7	267	-0.1	-0.5
Fine particulate Matter, $PM_{2.5}$	48.8	267	48.7	267	-0.1	-0.5

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-23

Busing Emissions – 2019 Without Project Compared to 2019 With MSC North Project

	2019 Future Without MSC North Project		2019 Future With MSC North Project		Incremental Change	
Pollutant	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**
Carbon monoxide, CO	0.29	1.57	0.38	2.09	0.1	0.5
Volatile organic compounds, VOC	0.00	0.00	0.00	0.00	0.0	0.0
Nitrogen oxides, NO_X	3.59	19.7	4.77	26.1	1.2	6.4
Sulfur dioxide, SO_2	0.00	0.00	0.00	0.00	0.0	0.0
Respirable particulate matter, PM_{10}	0.01	0.03	0.01	0.03	0.0	0.0
Fine particulate Matter, $PM_{2.5}$	0.01	0.03	0.01	0.03	0.0	0.0

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-24

GSE Emissions – 2019 Without Project Compared to 2019 With MSC North Project

	2019 Future Without MSC North Project		2019 Future With MSC North Project		Incremental Change	
Pollutant	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**
Carbon monoxide, CO	809	4,431	808	4,429	-0.3	-1.7
Volatile organic compounds, VOC	42	232	42	232	0.0	-0.2
Nitrogen oxides, NO_X	188	1,029	188	1,028	-0.2	-0.9
Sulfur dioxide, SO_2	1.1	6	1.1	6	0.0	0.0
Respirable particulate matter, PM_{10}	8.4	46	8.4	46	0.0	0.0
Fine particulate Matter, $PM_{2.5}$	8.1	44	8.1	44	0.0	0.0

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-25

APU Emissions – 2019 Without Project Compared to 2019 With MSC North Project

	2019 Future Without MSC North Project		2019 Future With MSC North Project		Incremental Change	
Pollutant	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**
Carbon monoxide, CO	111	607	110	605	-0.5	-2.5
Volatile organic compounds, VOC	9.4	51	9.3	51	0.0	-0.2
Nitrogen oxides, NO_X	106	580	105	577	-0.4	-2.4
Sulfur dioxide, SO_2	15	79	14	79	-0.1	-0.3
Respirable particulate matter, PM_{10}	15.3	84	15.2	83	-0.1	-0.3
Fine particulate Matter, $PM_{2.5}$	15.3	84	15.2	83	-0.1	-0.3

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-26

Stationary Source Emissions – 2019 Without Project Compared to 2019 With MSC North Project

Pollutant	2019 Future Without MSC North Project (TPY)	2019 Future Without MSC North Project (lbs/day)	2019 Future With MSC North Project (TPY)	2019 Future With MSC North Project (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
Carbon monoxide, CO	0.01	0.04	0.31	1.70	0.3	1.7
Volatile organic compounds, VOC	0.31	1.69	2.64	14.5	2.3	13
Nitrogen oxides, NO_X	0.01	0.05	0.37	2.03	0.4	2.0
Sulfur dioxide, SO_2	0.00	0.00	0.00	0.01	0.0	0.0
Respirable particulate matter, PM_{10}	0.00	0.00	0.03	0.15	0.0	0.2
Fine particulate Matter, $PM_{2.5}$	0.00	0.00	0.03	0.15	0.0	0.2

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-27

Total Operational Emissions – 2019 Without Project Compared to 2019 With MSC North Project

Pollutant	2019 Future Without MSC North Project (TPY)	2019 Future Without MSC North Project (lbs/day)	2019 Future With MSC North Project (TPY)	2019 Future With MSC North Project (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
(Carbon monoxide, CO	4,122	22,588	4,110	22,518	-13	-70
Volatile organic compounds, VOC	578	3,166	578	3,170	0.7	3.8
Nitrogen oxides, NO_X	3,879	21,256	3,878	21,249	-1.3	-7.0
Sulfur dioxide, SO_2	361	1,975	360	1,971	-0.7	-4.1
Respirable particulate matter, PM_{10}	72.5	397	72.3	396	-0.1	-0.7
Fine particulate Matter, $PM_{2.5}$	72.1	395	72.0	395	-0.1	-0.7

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-28 compares the 2019 Future With MSC North Project operational emissions to the 2019 Future Without MSC North Project Scenario. The incremental project emissions were then compared to the significance thresholds. As shown, the MSC North Project would decrease emissions from all criteria pollutants except for VOC. The total emissions from the operation of the proposed MSC North Project as compared to the 2019 Future Without MSC North Project scenario would not exceed SCAQMD's thresholds for any pollutant.

Table 4.1-28

2019 Future With MSC North Project Emissions Compared to 2019 Future Without MSC North Project Conditions (lbs/day)

Pollutant	2019 Future Without MSC North Project	2019 Future With MSC North Project	Incremental Difference	Threshold	Exceed Threshold?
Carbon monoxide, CO	22,588	22,518	-70	550	No
Volatile organic compounds, VOC	3,166	3,170	3.8	55	No
Nitrogen oxides, NO_X	21,256	21,249	-7.0	55	No
Sulfur dioxide, SO_2	1,975	1,971	-4.1	150	No
Respirable particulate matter, PM_{10}	397	396	-0.7	150	No
Fine particulate matter, $PM_{2.5}$	395	395	-0.7	55	No

Source: Ricondo & Associates, Inc., 2013.

Localized Operational Impacts

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

The incremental peak concentrations of CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ for the 2012 With MSC North Project scenario over the 2012 existing conditions are shown in **Table 4.1-29**. To be conservative, the 2012 With Project concentrations were assumed equal to the 2019 Future With MSC North Project concentrations. These concentration impacts were compared to the SCAQMD CEQA significant thresholds for operations as presented in Table 4.1-8. As shown, emissions from operational activities associated with the MSC North Project would not result in exceedances of the localized operational-based thresholds at nearby receptors.

Table 4.1-29

2012 With MSC North Project Incremental Peak Concentrations Compared to 2012 Existing Conditions

Pollutant	Averaging Period	Project ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total ($\mu g/m^3$)	Threshold ($\mu g/m^3$)	Significant?
CO	1-hr	306	4,104	4,410	23,000	No
	1-hr NAAQS	306	4,104	4,410	40,000	No
	8-hr	163	2,884	3,047	10,000	No
NO_2	1-hr	129	184	313	339	No
	1-hr NAAQS	42	122	164	188	No
	Annual	5	26	31	57	No
SO_2	1-hr	26	68	94	655	No
	1-hr NAAQS	13	21	34	196	No
	3-hr	11	39	50	1,300	No
	24-hr	4	16	20	105	No
	Annual NAAQS	1	3	4	80	No
PM_{10}	24-hr	1.1	-	1.1	2.5	No
	Annual	0.2	-	0.2	1.0	No
$PM_{2.5}$	24-hr	1.1	-	1.1	2.5	No

Source: Ricondo & Associates, Inc., 2013.

The incremental peak concentrations of CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ for the 2019 Future With MSC North Project scenario compared to the 2019 Future Without MSC North Project scenario are shown in **Table 4.1-30**. These concentration impacts were then compared to the SCAQMD CEQA significance thresholds for operations as presented in Table 4.1-8. As shown, emissions from operational activities associated with the MSC North Project would not result in exceedances of the localized operational-based thresholds at nearby receptors.

Table 4.1-30

2019 Future With MSC North Project Incremental Peak Concentrations Compared to 2019 Future Without MSC North Project Conditions

Pollutant	Averaging Period	Project ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total ($\mu g/m^3$)	Threshold ($\mu g/m^3$)	Significant?
CO	1-hr	688	4,104	4,792	23,000	No
	1-hr NAAQS	688	4,104	4,792	40,000	No
	8-hr	148	2,884	3,033	10,000	No
NO_2	1-hr	88	184	272	339	No
	1-hr NAAQS	28	122	151	188	No
	Annual	2	26	28	57	No
SO_2	1-hr	39	68	107	655	No
	1-hr NAAQS	17	21	38	196	No
	3-hr	8	39	47	1,300	No
	24-hr	3	16	19	105	No
	Annual NAAQS	1	3	4	80	No
PM_{10}	24-hr	1.3	-	1.3	2.5	No
	Annual	0.3	-	0.3	1.0	No
$PM_{2.5}$	24-hr	1.3	-	1.3	2.5	No

Source: Ricondo & Associates, Inc., 2013.

Odors

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

4.1.6.2 Future Phase(s) of the MSC Program

The impacts discussed below provide a program-level analysis of conceptually planned MSC Program components. Further project-level environmental review under CEQA will be required in the future before any of these components can be implemented. Project-level environmental documents for future phase(s) of the MSC Program will be initiated at such time as LAWA determines the timing of such improvements.

Operational Emissions

Regional Operational Impacts

This section analyzes the estimated emissions from the full implementation of the MSC Program, including the southern extension of the MSC concourse, the CTP, and APM Maintenance Facility. For the purposes of this analysis, it is assumed that the MSC Program would be fully implemented by 2025. Emissions include those from aircraft, GSE, APUs, and natural gas consumption for space heating. As the LAX Master Plan Final EIR did not account for public traffic circulation within the CTA, emissions estimates for the 2025 scenarios also included traffic within the CTA. Although any future phase(s) of the MSC Program may include an APM, it is expected to be an electric system, and therefore would not contribute to operational criteria pollutant emissions.

As previously mentioned, the future phase(s) of the MSC Program would not alter the airspace traffic, runway operational characteristics, or the practical capacity of the Airport. As such, changes in emissions from aircraft operations over the 2012 existing conditions are due to increased travel demand and changes in aircraft fleet mixes that are projected to occur by 2025 irrespective of the future phase(s) of the MSC Program. Therefore, the analysis presented below compares emissions from the following scenarios: the 2012 With MSC Program compared to the 2012 existing conditions, and the 2025 Future With MSC Program scenario compared to the 2025 Future Without MSC Program conditions.

Comparison of 2012 With MSC Program and 2012 Existing Conditions

A comparison between emissions from the 2012 existing conditions and the 2012 With MSC Program scenarios for aircraft, GSE, and APU operations are shown in **Tables 4.1-31** through **4.1-33**. Emissions from on-Airport stationary sources and off-Airport electricity consumption are shown in **Table 4.1-34**. Total operational emissions for both 2012 scenarios are shown in **Table 4.1-35**.

Table 4.1-31

Aircraft Emissions – 2012 Existing Conditions Compared to 2012 With MSC Program

	2012 Existing		2012 With MSC Program		Incremental Change	
Pollutant	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**
Carbon monoxide, CO	2,854	15,598	2,842	15,530	-12	-67
Volatile organic compounds, VOC	476	2,599	474	2,591	-1.6	-8.7
Nitrogen oxides, NO_X	3,206	17,517	3,203	17,505	-2.2	-12
Sulfur dioxide, SO_2	311	1,700	310	1,696	-0.7	-3.8
Respirable particulate matter, PM_{10}	44.7	244	44.6	244	-0.1	-0.5
Fine particulate Matter, $PM_{2.5}$	44.7	244	44.6	244	-0.1	-0.5

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-32

GSE Emissions – 2012 Existing Conditions Compared to 2012 With MSC Program

Pollutant	2012 Existing (TPY)	2012 Existing (lbs/day)	2012 With MSC Program (TPY)	2012 With MSC Program (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
Carbon monoxide, CO	654	3,572	654	3,572	0.0	0.0
Volatile organic compounds, VOC	46	251	46	251	0.0	0.0
Nitrogen oxides, NO_X	259	1,417	259	1,417	0.0	0.0
Sulfur dioxide, SO_2	0.3	1.7	0.3	1.7	0.0	0.0
Respirable particulate matter, PM_{10}	11	58	11	58	0.0	0.0
Fine particulate Matter, $PM_{2.5}$	10	56	10	56	0.0	0.0

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-33

APU Emissions – 2012 Existing Conditions Compared to 2012 With MSC Program

Pollutant	2012 Existing (TPY)	2012 Existing (lbs/day)	2012 With MSC Program (TPY)	2012 With MSC Program (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
Carbon monoxide, CO	103	563	103	560	-0.5	-2.6
Volatile organic compounds, VOC	8.6	47	8.6	47	0.0	-0.2
Nitrogen oxides, NO_X	101	550	100	547	-0.5	-2.5
Sulfur dioxide, SO_2	14	75	14	75	-0.1	-0.3
Respirable particulate matter, PM_{10}	14	76	14	76	-0.1	-0.4
Fine particulate Matter, $PM_{2.5}$	14	76	14	76	-0.1	-0.4

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-34

Stationary Source Emissions – 2012 Existing Conditions Compared to 2012 With MSC Program

Pollutant	2012 Existing (TPY)	2012 Existing (lbs/day)	2012 With MSC Program (TPY)	2012 With MSC Program (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
Carbon monoxide, CO	0.01	0.04	0.63	3.46	0.6	3.4
Volatile organic compounds, VOC	0.31	1.69	6.77	37.0	6.5	35
Nitrogen oxides, NO_X	0.01	0.05	0.78	4.26	0.8	4.2
Sulfur dioxide, SO_2	0.00	0.00	0.01	0.03	0.0	0.0
Respirable particulate matter, PM_{10}	0.00	0.00	0.06	0.32	0.1	0.3
Fine particulate Matter, $PM_{2.5}$	0.00	0.00	0.06	0.32	0.1	0.3

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-35

Total Operational Emissions – 2012 Existing Conditions Compared to 2012 With MSC Program

Pollutant	2012 Existing (TPY)	2012 Existing (lbs/day)	2012 With MSC Program (TPY)	2012 With MSC Program (lbs/day)	Incremental Change (TPY)	Incremental Change (lbs/day)
Carbon monoxide, CO	3,611	19,733	3,599	19,667	-12	-67
Volatile organic compounds, VOC	531	2,900	535	2,926	4.8	26
Nitrogen oxides, NO_X	3,566	19,484	3,564	19,474	-1.9	-11
Sulfur dioxide, SO_2	325	1,776	324	1,772	-0.8	-4.1
Respirable particulate matter, PM_{10}	69.3	379	69.2	378	-0.1	-0.6
Fine particulate Matter, $PM_{2.5}$	68.9	377	68.8	376	-0.1	-0.6

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-36 presents the incremental increase in operational emissions of the 2012 With MSC Program over the 2012 existing conditions. The incremental emissions were then compared to the significance thresholds. As shown, the incremental emissions between the 2012 existing conditions and the 2012 With MSC Program scenario would decrease emissions from all criteria pollutants except for VOC. Therefore, the operation of the proposed 2012 MSC Program as compared to the 2012 existing conditions would not exceed SCAQMD's thresholds for any pollutant.

Table 4.1-36

2012 MSC Program Emissions Compared to 2012 Existing Conditions (lbs/day)

Pollutant	2012 Existing	2012 With MSC Program	Incremental Difference	Threshold	Exceed Threshold?
Carbon monoxide, CO	19,733	19,667	-67	550	No
Volatile organic compounds, VOC	2,900	2,926	26	55	No
Nitrogen oxides, NO_X	19,484	19,474	-11	55	No
Sulfur dioxide, SO_2	1,776	1,772	-4.1	150	No
Respirable particulate matter, PM_{10}	379	378	-0.6	150	No
Fine particulate matter, $PM_{2.5}$	377	376	-0.6	55	No

Source: Ricondo & Associates, Inc., 2013.

Comparison of 2025 Future With MSC Program and 2025 Future Without MSC Program

A comparison between emissions from the 2025 Future Without and With MSC Program scenarios for aircraft, GSE, and APU operations are shown in **Tables 4.1-37** through **4.1-39**. Although it is assumed that 400 hertz (Hz) electric power and pre-conditioned air would be available at all commercial airline gates, APUs would continue to be used during taxiing; therefore, APU emissions were included in the analysis. To be conservative, GSE emissions are also included; however, as GSE operations are a function of aircraft operations, it is assumed that both the 2025 Future Without MSC Program and the 2025 Future With MSC Program Scenarios would have the same emissions from GSE. Emissions from on-Airport stationary sources and off-airport electricity consumption are shown in **Table 4.1-40**. On-Airport roadway emissions for traffic traveling through the CTA are shown in **Table 4.1-41**. Total operational emissions for both 2025 scenarios are shown in **Table 4.1-42**.

Table 4.1-37

Aircraft Emissions – 2025 Without Program Compared to 2025 With MSC Program

	2025 Future Without MSC Program		2025 Future With MSC Program		Incremental Change	
Pollutant	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**
Carbon monoxide, CO	3,767	20,643	3,753	20,563	-15	-80
Volatile organic compounds, VOC	611	3,348	609	3,338	-1.8	-10
Nitrogen oxides, NO_X	4,785	26,219	4,782	26,204	-2.7	-15
Sulfur dioxide, SO_2	448	2,453	447	2,449	-0.9	-4.7
Respirable particulate matter, PM_{10}	62.4	342	62.3	342	-0.1	-0.5
Fine particulate Matter, $PM_{2.5}$	62.4	342	62.3	342	-0.1	-0.5

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-38

GSE Emissions – 2025 Without Program Compared to 2025 With MSC Program

	2025 Future Without MSC Program		2025 Future With MSC Program		Incremental Change	
Pollutant	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**
Carbon monoxide, CO	996	5,459	996	5,459	0.0	0.0
Volatile organic compounds, VOC	33	179	33	179	0.0	0.0
Nitrogen oxides, NO_X	182	997	182	997	0.0	0.0
Sulfur dioxide, SO_2	0.0	0.0	0.0	0.0	0.0	0.0
Respirable particulate matter, PM_{10}	4.1	23	4.1	23	0.0	0.0
Fine particulate Matter, $PM_{2.5}$	4.0	22	4.0	22	0.0	0.0

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-39

APU Emissions – 2025 Without Program Compared to 2025 With MSC Program

	2025 Future Without MSC Program		2025 Future With MSC Program		Incremental Change	
Pollutant	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**
Carbon monoxide, CO	139	764	139	761	-0.6	-3.1
Volatile organic compounds, VOC	13	70	13	69	-0.1	-0.3
Nitrogen oxides, NO_X	144	789	143	786	-0.6	-3.2
Sulfur dioxide, SO_2	19	106	19	106	-0.1	-0.4
Respirable particulate matter, PM_{10}	21	116	21	116	-0.1	-0.5
Fine particulate Matter, $PM_{2.5}$	21	116	21	116	-0.1	-0.5

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-40

Stationary Source Emissions – 2025 Without Program Compared to 2025 With MSC Program

	2025 Future Without MSC Program		2025 Future With MSC Program		Incremental Change	
Pollutant	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**
Carbon monoxide, CO	0.01	0.04	0.63	3.45	0.6	3.4
Volatile organic compounds, VOC	0.31	1.69	6.77	37.1	6.5	35
Nitrogen oxides, NO_X	0.01	0.05	0.73	4.27	0.8	4.2
Sulfur dioxide, SO_2	0.00	0.00	0.00	0.03	0.0	0.0
Respirable particulate matter, PM_{10}	0.00	0.00	0.06	0.32	0.1	0.3
Fine particulate Matter, $PM_{2.5}$	0.00	0.00	0.06	0.32	0.1	0.3

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-41

On-Airport Roadway Emissions – 2025 Without Program Compared to 2025 With MSC Program

	2025 Future Without MSC Program		2025 Future With MSC Program		Incremental Change	
Pollutant	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**
Carbon monoxide, CO	43	258	41	246	-1.9	-11
Volatile organic compounds, VOC	4.5	27	4.3	26	-0.2	-1.1
Nitrogen oxides, NO_X	72	432	69	414	-2.9	-18
Sulfur dioxide, SO_2	<1	<1	<1	<1	<1	<1
Respirable particulate matter, PM_{10}	1.5	9.2	1.5	8.8	-0.1	-0.4
Fine particulate Matter, $PM_{2.5}$	1.4	8.5	1.4	8.1	-0.1	-0.4

Source: Ricondo & Associates, Inc., 2013.

Table 4.1-42

Total Operational Emissions – 2025 Without Program Compared to 2025 With MSC Program

	2025 Future Without MSC Program		2025 Future With MSC Program		Incremental Change	
Pollutant	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**	**(TPY)**	**(lbs/day)**
Carbon monoxide, CO	4,946	27,124	4,930	27,032	-16	-91
Volatile organic compounds, VOC	661	3,625	666	3,650	4.4	24
Nitrogen oxides, NO_X	5,183	28,437	5,178	28,405	-5.5	-32
Sulfur dioxide, SO_2	467	2,560	466	2,554	-0.9	-5.1
Respirable particulate matter, PM_{10}	89.3	490	89.1	489	-0.2	-1.1
Fine particulate Matter, $PM_{2.5}$	89.0	488	88.8	487	-0.2	-1.1

Source: Ricondo & Associates, Inc., 2013.

Table 4.2-43 compares the 2025 Future With MSC Program operational emissions to the 2025 Future Without MSC Program Scenario. The incremental emissions were then compared to the significance thresholds. As shown, the MSC Program would decrease emissions from all criteria pollutants except for VOC over the 2025 Without Program scenario. The incremental emissions from the operation of the proposed MSC Program would not exceed SCAQMD's thresholds for any pollutant.

Table 4.1-43

2025 Future With MSC Program Emissions Compared to 2025 Future Without MSC Program Conditions (lbs/day)

Pollutant	2025 Future Without MSC Program	2025 Future With MSC Program	Incremental Difference	Threshold	Exceed Threshold?
Carbon monoxide, CO	27,124	27,032	-91	550	No
Volatile organic compounds, VOC	3,625	3,650	24	55	No
Nitrogen oxides, NO_X	28,437	28,405	-32	55	No
Sulfur dioxide, SO_2	2,560	2,554	-5.1	150	No
Respirable particulate matter, PM_{10}	490	489	-1.1	150	No
Fine particulate matter, $PM_{2.5}$	488	487	-1.1	55	No

Source: Ricondo & Associates, Inc., 2013.

Localized Operational Impacts

As shown in Table 4.1-36, net on-site operational emissions for the 2012 With MSC Program scenario would actually be improved over the 2012 existing conditions for CO, NO_x, SO_2, PM_{10}, and $PM_{2.5}$; VOC emissions increase slightly (less than 1 percent increase over existing conditions). As shown in Table 4.1-43, net on-site operational emissions for the 2025 Future With MSC Program scenario, would also be improved over the 2025 Future Without Program for CO, NO_X, SO_2, PM_{10}, and $PM_{2.5}$; a slight increase in VOC emissions would be expected (less than 1 percent). Therefore, localized concentration impacts to off-site sensitive receptors would be less than significant. As a result, operations of the MSC Program would result in less than significant localized operational impacts.

Odors

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

4.1.7 Cumulative Impacts

The SCAQMD has provided guidance on an acceptable approach to addressing the cumulative impacts issue for air quality.[23] "As Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

As shown in Table 4.1-13, construction of the proposed MSC North Project would exceed the Project-specific significance thresholds for emissions of CO, VOC, NO_X, PM_{10}, and $PM_{2.5}$. As a result, the proposed Project would have a cumulatively considerable contribution for construction emissions and would result in a cumulatively significant construction impact. As shown in Tables 4.1-21 and 4.1-28, operations of the proposed MSC North Project would not exceed the Project-specific significance thresholds for CO, VOC, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ when compared to the 2012 Existing Conditions and 2019 Future Without Project conditions, respectively. Thus, the proposed MSC North Project would not have a cumulatively considerable contribution for operational emissions and would result in cumulatively less than significant operational impacts. As shown in Tables 4.1-36 and 4.1-43, operations of the proposed future phase(s) of the MSC Program would not exceed the significance thresholds for CO, VOC, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ when compared to the 2012 Existing Conditions and 2025 Future Without Program conditions, respectively. Thus, the proposed future phase(s) of the MSC Program would not have a cumulatively considerable contribution for operational emissions and would result in a cumulatively less than significant operational impact.

For disclosure purposes, a list of past, present, and probable future LAWA projects that could overlap in time for construction are provided in **Table 4.1-44** along with estimated mass emissions. Emissions for several of these related LAWA projects were estimated or obtained from publicly available and readily accessible environmental documents. Construction emissions for other projects were estimated based on the ratio of the project costs as compared to the proposed MSC North Project, the ratio of construction trip intensity, and the ratio of the emissions using the proposed MSC North Project as a reference baseline. Calculation details are provided in Appendix B.

23 Available at: http://www.aqmd.gov/hb/2003/030929a.html. Accessed: October, 2013.

Table 4.1-44

Cumulative Construction Projects Peak Daily Emissions Estimates (tons/quarter)

	Peak Potentially Overlapping Daily Emissions					
Related LAWA Project During Construction	**CO**	**VOC**	**NO_X**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
N/A Midfield Satellite Concourse – North [1]	35.0	3.6	12.5	<1	9.5	2.2
1. Runway Safety Area Improvements – South Airfield	--- [2]	--- [2]	--- [2]	--- [2]	--- [2]	--- [2]
2. Runway Safety Area Improvements – North Airfield	4.9	0.3	1.4	<1	0.2	0.0
3. LAX Bradley West Project – Remaining Work	6.4	1.1	8.1	<1	2.0	0.7
4. Terminal 3 Connector	--- [2]	--- [2]	--- [2]	--- [2]	--- [2]	--- [2]
5. North Terminals Improvements	0.3	0.1	0.4	<1	0.1	0.0
6. South Terminals Improvements	0.6	0.3	0.8	<1	0.1	0.1
7. Central Utility Plant Replacement – Remaining Work	--- [2]	--- [2]	--- [2]	--- [2]	--- [2]	--- [2]
8. Miscellaneous Projects and Improvements	23.9	6.4	32.3	<1	4.2	1.7
9. West Aircraft Maintenance Area Project	2.4	0.1	1.2	<1	0.3	0.2
10. LAX Northside Area Development	8.8	3.0	2.5	<1	0.8	0.2
11. LAX Master Plan Alt. D/SPAS Development [3]	61.7	12.2	157.2	<1	64.5	10.2
12. Metro Crenshaw / LAX Transit Corridor and Station	4.9	1.0	8.8	<1	1.0	0.6
Total From Other Construction Projects Emissions	113.9	24.6	212.8	<1	73.1	13.6
Total Cumulative Construction Project Emissions	**148.9**	**28.2**	**225.3**	**<1**	**82.6**	**15.9**
SCAQMD Construction Emission Significance Thresholds [4]	25.09	3.42	4.56	6.84	6.84	2.51
Emissions Exceed SCAQMD Project-Level Threshold?	Yes	Yes	Yes	No	Yes	Yes

Notes:
1 Project construction is estimated to occur from 2014 to 2019.
2 Project is not anticipated to result in overlapping construction emissions during the estimated combined peak day.
3 Improvements contemplated under this Project still require a number of federal and local approvals, including completion of environmental review documents and processes, and are several years away from implementation. For the purposes of this cumulative impacts analysis, conservative assumptions were made relative to construction of such improvements beginning early enough to overlap construction of the proposed Project.
4 The SCAQMD daily construction emission significance thresholds were converted to tons per quarter by multiplying the daily threshold by 365 days, dividing by 4, and applying the conversion rate of 2,000 pounds per ton.

Sources: CDM Smith (list and characteristics of proposed Project and concurrent projects), August 2013; Crenshaw/LAX Transit Corridor Project FEIR (Metro Crenshaw/LAX Transit Corridor cost), August 2011, Available at: www.metro.net/projects/crenshaw_corridor.com (Metro Crenshaw/LAX Transit Corridor schedule), Accessed November 12, 2012; Ricondo & Associates, Inc., November 2013.

4.1.8 Mitigation Measures

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

North Project and the future phase(s) of the MSC Program. Mitigation measures described in Section 4.1.5 also include those required by the Community Benefits Agreement. 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, as well as LAX projects that are independent of the LAX Master Plan. In addition, the Los Angeles Green Building Code Tier 1 standards, which are applicable to all projects with a Los Angeles Department of Building and Safety permit-valuation over $200,000, require the proposed MSC North Project and the future phase(s) of the MSC Program to implement a number of measures that would reduce criteria pollutant and greenhouse gas emissions. These include measures such as: further reduce vehicle and equipment idling times; comply with Tier 4 emission standards for non-road diesel equipment; retrofit existing diesel equipment with particulate filters and oxidation catalysts; replace aging equipment with new low-emission models; and consider the use of alternative fuels for construction equipment.

The SCAQMD has previously noted that Tier 4-final construction equipment was assumed for the majority of vehicles used on LAWA construction projects; however some vehicles were assumed to only use tier 4-interim engines. The SCAQMD requested that LAWA investigate if additional tier 4-final equipment is available. In addition, the SCAQMD noted that haul trucks were assumed to meet 2007 emission standards, but that 2010 truck emission standards would provide additional NO_x emission reductions. SCAQMD has requested that LAWA consider only using trucks meeting 2010 emissions standards.

LAWA will include in bid documents for the MSC North Project language specifying that contractors should use equipment on the MSC North Project that meets the most stringent emission requirements. In the event that the contractor can demonstrate that equipment is not available within 120 miles of LAX that meets the most stringent emission requirements, they will be able to utilize equipment that meets the next lowest requirements (e.g., if Tier 4 final equipment is not available, they would be permitted to use Tier 4 interim equipment). Because it is difficult for LAWA to determine whether equipment is available that meet the most stringent emission requirements, for purposes of this analysis, LAWA has kept the equipment mix specified in the Draft EIR, but will require contractors to use equipment that meets stricter standards if available.

Specifically, LAWA will modify the following construction-related air quality control measures (LAX-AQ-2):

- Measure 2n: On-road trucks used on LAX construction projects with a gross vehicle weight rating of at least 19,500 pounds shall, at a minimum, comply with USEPA 2010 on-road emissions standards for PM_{10} and NO_x. Contractor requirements to utilize such on-road haul trucks or the next cleanest vehicle available will be subject to the provisions of LAWA Air Quality Control Measure 2p below.
- Measure 2o: Prior to January 1, 2015, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet, at a minimum, USEPA Tier 3 off-road emission standards. After December 31, 2014, all off-road diesel-power construction equipment greater than 50 horsepower shall meet USEPA Tier 4(final) off-road emissions standards. Tier 4(final) equipment shall be considered based on availability at the time the construction bid is issued. Contractor requirements to utilize Tier 4(final) equipment or next cleanest equipment available will be subject to the provisions of LAWA Air Quality Control Measure 2p below. LAWA will encourage construction

contractors to apply for SCAQMD "SOON" funds to accelerate clean-up of off-road diesel engine emissions.

- Measure 2p: The on-road haul truck and off-road construction equipment requirements set forth in Air Quality Control Measures 2n and 2o above shall apply unless any of the following circumstances exist and the Contractor provides a written finding consistent with project contract requirements that:
  - The Contractor does not have the required types of on-road haul trucks or off-road construction equipment within its current available inventory and intends to meet the requirements of the Measures 2n and 2o as to a particular vehicle or piece of equipment by leasing or short-term rental, and the Contractor has attempted in good faith and due diligence to lease the vehicle or equipment that would comply with these measures, but that vehicle or equipment is not available for lease or short-term rental within 120 miles of the project site, and the Contractor has submitted documentation to LAWA showing that the requirements of this exception provision (Measure 2p) apply.
  - The Contractor has been awarded funding by SCAQMD or another agency that would provide some or all of the cost to retrofit, repower, or purchase a piece of equipment or vehicle, but the funding has not yet been provided due to circumstances beyond the Contractor's control, and the Contractor has attempted in good faith and due diligence to lease or short-term rent the equipment or vehicle that would comply with Measures 2n and 2o, but that equipment or vehicle is not available for lease or short-term rental within 120 miles of the project site, and the Contractor has submitted documentation to LAWA showing that the requirements of this exception provision (Measure 2p) apply.
  - Contractor has ordered a piece of equipment or vehicle to be used on the construction project in compliance with Measures 2n and 2o at least 60 days before that equipment or vehicle is needed at the project site, but that equipment or vehicle has not yet arrived due to circumstances beyond the Contractor's control, and the Contractor has attempted in good faith and due diligence to lease or short-term rent a piece of equipment or vehicle to meet the requirements of Measures 2n and 2o, but that equipment or vehicle is not available for lease or short-term rental within 120 miles of the project, and the Contractor has submitted documentation to LAWA showing that the requirements of this exception provision (Measure 2p) apply.
  - Construction-related diesel equipment or vehicle will be used on the project site for fewer than 20 calendar days per calendar year. The Contractor shall not consecutively use different equipment or vehicles that perform the same or a substantially similar function in an attempt to use this exception (Measure 2p) to circumvent the intent of Measures 2n and 2o.

  In any of the situations described above, the Contractor shall provide the next cleanest piece of equipment or vehicle as provided by the step down schedules in **Table 4.1-45** for Off-Road Equipment and **Table 4.1-46** for On-Road Equipment.

Table 4.1-45

Off-Road Vehicle Compliance Step-Down Schedule

Compliance Alternative	Engine Standard	CARB-verified DECS (VDECS)
1	Tier 4 *interim*	N/A*
2	Tier 3	Level 3
3	Tier 2	Level 3
4	Tier 1	Level 3
5	Tier 2	Level 2
6	Tier 2	Level 1
7	Tier 2	Uncontrolled
8	Tier 1	Level 2

Notes:
Equipment less than Tier 1, Level 2 shall not be permitted.
* Tier 4 (interim or final) or 2007 model year equipment not already supplied with a factory-equipped diesel particulate filter shall be outfitted with Level 3 VDECS.

Source: CDM Smith, January 2014.

Table 4.1-46

On-Road Vehicle Compliance Step-Down Schedule

Compliance Alternative	Engine Model Year	CARB-verified DECS (VDECS)
1	2007	N/A*
2	2004	Level 3
3	1998	Level 3
4	2004	Uncontrolled
5	1998	Uncontrolled

Notes:
Equipment with a model year earlier than model year 1998 shall not be permitted.
* Tier 4 (interim or final) or 2007 model year equipment not already supplied with a factory-equipped diesel particulate filter shall be outfitted with Level 3 VDECS.
Nothing in the above measures shall require an emissions control device (i.e., VDECS) that does not meet OSHA standards.

Source: CDM Smith, January 2014.

As stated above, LAWA is committed to mitigating temporary construction-related emissions to the extent practicable and will implement the mitigation measures specified in Section 4.1.5 and those discussed above. Although these measures would not mitigate impacts to a level that is less than significant, they would reduce impacts associated with the proposed Project to the extent feasible.

4.1.9 Level of Significance After Mitigation

Even with incorporation of feasible construction-related mitigation measures as described above, the maximum peak daily construction-related regional mass emissions resulting from the proposed MSC North Project would be significant for CO, VOC, NO_X, PM_{10}, and $PM_{2.5}$, as shown by the emissions inventory. Dispersion modeling demonstrates that the MSC North Project construction-related airborne concentrations would remain below the ambient air quality standards for all pollutants. There are no additional feasible Project-specific mitigation measures that would reduce the temporary construction-related impacts below significance thresholds.

Operational emissions of the proposed MSC North Project would not exceed the Project-specific significance thresholds for CO, VOC, NO_X, SO_2, PM_{10}, and $PM_{2.5}$. Similarly, the future phase(s) of the MSC Program would not exceed the significance thresholds for CO, VOC, NO_X, SO_2, PM_{10}, and $PM_{2.5}$. All criteria pollutants and precursors are also below the respective significance thresholds for localized concentrations.

Therefore, the MSC North Project would result in significant and unavoidable construction-related air quality impacts and would also result in cumulatively considerable significant and unavoidable construction-related air quality impacts.

4.2 Greenhouse Gas Emissions

4.2.1 Introduction

This greenhouse gas (GHG) analysis examines potential GHG and global climate change (GCC) impacts that could result from construction and operational activities associated with the proposed MSC North Project and future phase(s) of the MSC Program. This section describes applicable federal, State, and local regulations that address GHG emissions and GCC in California and the City of Los Angeles; existing climate conditions and influences on GCC are also described. The analysis accounts for energy and resource conservation measures that have been incorporated into the proposed MSC North Project and future phase(s) of the MSC Program, as well as pertinent State-mandated GHG emission reduction measures. The analysis also assesses potential cumulative and project-related contributions to GCC that could result from the proposed MSC North Project or future phase(s) of the MSC Program. Air quality effects associated with criteria pollutant (ambient air pollutant) emissions are discussed in Chapter 4.1, *Air Quality*, of this EIR. GHG emission calculations prepared for the proposed MSC North Project and future phase(s) of the MSC Program are provided in Appendix B, *Air Quality and Greenhouse Gas Emissions*, of this EIR.

4.2.1.1 Global Climate Change (GCC)

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

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

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

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

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

California Climate Action Team Report, the following climate change effects are predicted in California over the course of the next century:[3]

- A diminishing Sierra snowpack declining by 70 to 90 percent, threatening the state's water supply;
- Increasing temperatures, as noted above, of up to approximately 10 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 Sacramento-San Joaquin River Delta from a 4- to 33-inch rise in sea level. This would exacerbate flooding in already vulnerable regions;
- Increased vulnerability of forests due to pest infestation and increased temperatures;
- Increased challenges for the state's important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Sacramento-San Joaquin River Delta; and
- Increased electricity demand, particularly in the hot summer months.

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

4.2.1.2 Greenhouse Gases

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

Climate change is driven by "forcings" and "feedbacks." Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. A feedback is "an internal climate process that amplifies or dampens the climate response to a specific forcing."[4] The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effects of a gas over a specified time horizon

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

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

resulting from the emission of a unit mass of gas relative to a reference gas."[5] Individual GHG species have varying GWP and atmospheric lifetimes. The carbon dioxide equivalent (CO_2e) -- the mass emissions of an individual GHG multiplied by its GWP -- is a consistent methodology for comparing GHG emissions because it normalizes various GHG emissions to a consistent metric. The reference gas for GWP is CO_2; CO_2 has a GWP of 1. Compared to CH_4's GWP of 21, CH_4 has a greater global warming effect than CO_2 on a molecule-per-molecule basis. **Table 4.2-1** identifies the GWP of several select GHGs.

Table 4.2-1

Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100 Year Time Horizon)
Carbon Dioxide	50 - 200	1
Methane	12 + 3	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: Perfluromethane (CF4)	50,000	6,500
PFC: Perfluoroethane (C2F6)	10,000	9,200
Sulfur Hexafluoride (SF6)	3,200	23,900

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

In estimating the GHG emissions, the *GHG Protocol Corporate Accounting and Reporting Standard* (GHG Protocol), developed by the World Business Council for Sustainable Development and World Resources Institute,[7] provides standards and guidance for 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 European Union Emissions Trading Scheme to the California Climate Action Registry (CCAR), as well as hundreds of GHG inventories prepared by individual companies. Other

5 U.S. Environmental Protection Agency, Glossary of Climate Terms, Available: www.epa.gov/climatechange/glossary.html, Accessed October 10, 2013.

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

7 World Business Council for Sustainable Development and World Resources Institute, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition, April 2004, Available: http://www.ghgprotocol.org/files/ghgp/public/ghg-protocol-revised.pdf.

organizations, such as the Transportation Research Board's Airport Cooperative Research Program Report 11 *Guidance for Preparing Airport Greenhouse Gas Inventories* and the FAA (FAA Order 1050.1E, Change 1, Guidance Memo #3) were also considered.

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); and
- 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.

4.2.2 Methodology

A number of methodologies and significance thresholds have been proposed for analyzing impacts on GCC. However, at this time no definitive thresholds or methodologies that are applicable to the proposed MSC North Project or future phase(s) of the MSC Program have been adopted for determining the significance of the MSC's cumulative contribution to GCC in CEQA documents.

For the purposes of this EIR, as is explained in more detail below, total GHG emissions from the proposed MSC North Project and future phase(s) of the MSC Program were quantified to determine whether the proposed MSC North Project and future phase(s) of the MSC Program would be consistent with the Global Warming Solutions Act of 2006, also known as AB 32 (i.e., reduction of State-wide GHG emissions to 1990 levels by 2020). The mandate of AB 32 demonstrates California's commitment to reducing GHG emissions and the State's associated contribution to climate change, without intending to limit population or economic growth within the State.

Various guidance documents, such as The Climate Registry *General Reporting Protocol* (version 2.0, March 2013), the joint California Air Resources Board (CARB), California Climate Action Registry (CCAR), and International Council for Local Environmental Initiatives (ICLEI) *Local Government Operations Protocol* (LGOP) (version 1.1, May 2010), and the Association of Environmental Professionals (AEP) *Community-wide GHG Emissions Protocol*, propose generally consistent methodologies for preparing GHG inventories. However, these methodologies have been developed for varying purposes and not specifically for CEQA. Relying on these guidance documents, this analysis addresses both direct and indirect GHG emissions, which are defined as follows:

- Direct Emissions: Direct sources of GHG emissions from the proposed MSC North Project and future phase(s) of the MSC Program include airfield operations; on-Airport stationary sources, including heating/cooling; construction and operation equipment; construction haul trips and construction worker commute trips.

- Indirect Emissions: Indirect sources of GHG emissions related to the proposed MSC North Project and future phase(s) of the MSC Program include the consumption of purchased electricity, solid waste disposal, water usage, and wastewater treatment.

CARB believes that consideration of so-called indirect emissions provides a more complete picture of the GHG footprint of a facility: "As facilities consider changes that would affect their emissions – addition of a cogeneration unit to boost overall efficiency even as it increases direct emissions, for example – the relative impact on total (direct plus indirect) emissions by the facility should be monitored. Annually reported indirect energy usage also aids the conservation awareness of the facility and provides information" to CARB to be considered for future strategies by the industrial sector.[8] For these reasons, CARB has proposed requiring the calculation of direct and indirect GHG emissions as part of the AB 32 reporting requirements. Additionally, the California Office of Planning and Research (OPR) directs lead agencies to "make a good-faith effort, based on available information, to calculate, model, or estimate…GHG emissions from a project, including the emissions associated with vehicular traffic, energy consumption, water usage and construction activities."[9] Therefore, direct and indirect emissions have been calculated for the proposed MSC North Project and future phase(s) of the MSC Program.

As related to the proposed MSC North Project and future phase(s) of the MSC Program, direct GHG emissions would include those from any direct changes in aircraft and GSE operations, busing operations, and emissions from the use of natural gas for heating and cooling of facilities. Indirect emissions would include consumption of purchased electricity, the disposal and decomposition of waste generated by the operation of the proposed MSC North Project and future phase(s) of the MSC Program, water consumption, and wastewater treatment.

This analysis considers only those GHG emissions resulting from the proposed MSC North Project and future phase(s) of the MSC Program that would contribute to an incremental (net) increase compared to existing conditions. The future operation of the proposed MSC North Project would not result in long-term operational changes to surface traffic activity and surface traffic flows within the Airport area and, in the long-term, the proposed MSC North Project would not change the number of airline passengers traveling to/through the Airport. Thus, new on-road vehicle traffic would not be generated and emissions from vehicle traffic are not included for the 2019 Without Project and With Project scenarios. Since potential impacts resulting from GHG emissions are long-term rather than acute, GHG emissions are calculated on an annual basis.

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8 California Air Resources Board (ARB), 2007a. Initial Statement of Reasons for Rulemaking, Proposed Regulation for Mandatory Reporting of Greenhouse Gas Emissions Pursuant to the California Global Warming Solutions Act of 2006 (Assembly Bill 32). Planning and Technical Support Division Emission Inventory Branch, October 19, 2007.

9 Office of Planning and Research (OPR), Technical Advisory, CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review, June 2008, p. 5, Available: http://opr.ca.gov/docs/june08-ceqa.pdf. Accessed: April 2013.

While the MSC North Project-related emissions are assessed on a project level, GHG emissions associated with any future phase(s) of the MSC Program are also discussed on a program-level. A project-level environmental review for future phase(s) of the MSC Program will be initiated at such time as LAWA determines the specific timing of future phase(s). As related to the MSC Program, direct incremental GHG emissions would include those from aircraft and GSE operations, on-Airport roadways, and stationary sources. Indirect emissions would include consumption of purchased electricity, the disposal and decomposition of waste generated by the operation of the MSC Program, water consumption, and wastewater treatment.

4.2.2.1 MSC North Project

This section discusses the methodologies used in quantifying GHG emissions associated with construction and operation of the proposed MSC North Project. These methodologies meet the requirements of the South Coast Air Quality Management District (SCAQMD) and CARB for evaluations conducted under CEQA.

Construction

GHG emissions associated with construction of the proposed MSC North Project were calculated based on methodologies provided in The Climate Registry *General Reporting Protocol* (GRP) Version 2.0.[10] The GRP is the guidance document that LAWA and other members of The Climate Registry must use to prepare annual GHG inventories for the Registry. Therefore, for consistency, the GRP also was used in this study. However, to adapt the GRP for CEQA purposes, a refinement to the GRP operational and geographical boundaries was necessary. The GRP requires all emissions to be reported, as well as all direct and indirect emissions owned or controlled by the reporting entity (in this case, LAWA). This analysis focuses on GHG emissions affected by the proposed MSC North Project.

The proposed MSC North Project-related construction sources for which GHG emissions were calculated include:

- Off-road construction equipment
- On-road equipment and delivery/haul trucks
- Construction worker commute vehicles

The parameters used to develop construction GHG emissions for these sources, including construction schedule, equipment usage, and load factors, are generally the same as those outlined for construction criteria air pollutant emissions, presented in Section 4.1, *Air Quality*.

In accordance with SCAQMD guidance, GHG emissions from construction have been amortized over the 30-year lifetime of the proposed MSC North Project to enable comparison to the SCAQMD and LA CEQA thresholds of significance (i.e., total construction GHG emissions were divided by 30 to determine an annual construction emissions estimate comparable to operational emissions).

[10] California Climate Action Registry, General Reporting Protocol, Version 3.1, January 2009.

Operations

In accordance with the State *CEQA Guidelines* and the *L.A. CEQA Thresholds Guide*, the operational GHG impacts were assessed based on the net new incremental increase in emissions to determine significance under CEQA. Impacts were assessed for the following scenarios: the 2012 With Project compared to the 2012 existing conditions, and the 2019 With Project compared to the 2019 Without Project scenario.

As discussed in Chapter 2, *Project Description*, the intent of the proposed MSC North Project is to provide LAWA with the flexibility to accommodate existing demand for aircraft gates while modernizing other terminals at LAX, rehabilitating apron and taxilane pavement within the CTA, and reducing reliance on the West Remote Pads/Gates. In doing so, the proposed MSC North Project would only change the location of aircraft gates, where passengers will board and de-board. This will not result in changes to air traffic patterns or an increase in the number or type of airport operations. As a result, the MSC North Project will not increase surface vehicle traffic for passengers traveling to or from LAX. The MSC North Project would increase the number of employees at the Airport by less than 2 percent, which as stated in the Initial Study is not anticipated to be significant. Thus, on-road motor vehicle GHG emissions were not included in the inventory, since there would be few vehicle trips associated with the operation of the proposed MSC North Project. The future operation of the proposed MSC North Project would not result in long-term operational changes to surface traffic or traffic flows within the Airport area.

Aircraft

Information on the number and types of aircraft operations at LAX for 2012 and 2019 was developed for the MSC North Project. The aircraft activity levels for the baseline conditions are from calendar year 2012. The aircraft activity levels for future conditions were based on aircraft activity growth forecasts for LAX in the year 2019. These data were used to develop airport simulation models (SIMMOD) of aircraft operations for baseline and future conditions, without and with the proposed Project. The SIMMOD is an industry accepted tool used to generate information about airport facilities and operations that predicts specific timing, volume, and location (e.g., runway used) for future aircraft operations.

The analysis of aircraft emissions was conducted by estimating taxi and idle times without and with the proposed MSC North Project using the LAX MSC North Project SIMMOD results. The completion of the proposed MSC North Project would have a slight beneficial impact on taxi/idle times of aircraft moving around the airfield at LAX (compared to Without Project conditions in the same timeframe), based on analysis of arriving and departing passengers that could use the new gates at MSC North instead of having to use the West Remote Pads/Gates under the existing 2012 facilities. As no other phases of the landing-takeoff (LTO) cycle (approach, taxi/idle, takeoff, and climbout) and no changes to the runways at the airport would occur from the proposed MSC North Project, only taxi/idle emissions were analyzed. A summary of the taxi times are shown in **Table 4.2-2**.

Table 4.2-2

Assumed Aircraft Operations and Taxi Times, MSC North Project by Calendar Year

Year/Scenario	Operations	Average Taxi-In Time (minutes)	Average Taxi-Out Time (minutes)
2012 Existing Conditions	605,480	9.96	11.89
2012 Existing With MSC North Project	605,480	9.94	11.82
2019 Future Without MSC North Project	631,242	9.76	12.37
2019 Future With MSC North Project	631,242	9.74	12.30

Source: Ricondo & Associates, Inc., 2013.

Aircraft CO_2 emissions were calculated using FAA's Emissions and Dispersion Modeling System (EDMS), Version 5.1.4.1.[11] EDMS is an air quality model that estimates certain pollutant emissions from airport sources based on information input into the model. Emissions produced by LAX activity during four aircraft operational modes (approach, taxi/idle, takeoff, and climbout) were calculated for each scenario. The taxi/idle times were derived from the SIMMOD results. The EDMS default times-in-mode were the basis for climbout, approach, and takeoff times; however, climbout and approach times were adjusted according to the average mixing height adjustment parameters contained in EDMS. For LAX, a mixing height of 1,806 feet above mean sea level was used in the emissions modeling.

CH_4 and N_2O emissions are not directly estimated by EDMS; therefore, it was necessary to estimate emissions using other methods. Emissions were calculated using fuel burn from EDMS and emission factors from the U.S. Energy Information Administration.[12]

Ground Support Equipment (GSE) and Auxiliary Power Units (APU)

Data on specific GSE types and times-in-mode were determined on a per aircraft basis using the default assignments in EDMS for the fleet mix of each scenario (2012 Existing Conditions, 2012 With Project, 2019 Future Without Project, and 2019 Future With Project). The GSE types were then compared against a 2013 GSE survey at LAX. This information, combined with emission factors obtained from OFFROAD2007 were used to determine CO_2, NH_4, and N_2O emissions.

Although operations of APUs are expected to contribute to GHG emissions, EDMS does not estimate CO_2 emissions or fuel consumption; therefore APUs are not included in the emissions inventory. Thus, the emissions estimates associated with the proposed MSC North Project are conservative, as they do not reflect the emissions reductions that would occur from aircraft being relocated from the West Remote Pads/Gates that would have preconditioned air and gate power, such that aircraft APUs for those operations would be substantially reduced.

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[11] U.S. Department of Transportation, Federal Aviation Administration, Emissions and Dispersion Modeling System (EDMS 5.1.3) User's Manual (FAA-AEE-07-01 Rev. 8 - 11/15/10), 2010.

[12] U.S. Energy Information Administration, "Voluntary Reporting of Greenhouse Gases Program Fuel Emission Coefficients," January 31, 2011, available: www.eia.gov/oiaf/1605/coefficients.html#tbl7.

Busing Operations

As discussed in Chapter 2, *Project Description*, passengers would access the MSC North building by airfield buses powered by clean fuel, traveling between existing CTA terminal facilities and the MSC North building. The distance from the CTA to the MSC North is substantially shorter than existing busing operations today, including those to the West Remote Pads/Gates and the American Eagle Commuter Terminal. As the MSC North Project is intended to reduce existing busing operations to the West Remote Pads/Gates, the distance per trip would be reduced. However, even with the reduction in distance, the potential number of operations to the MSC could result in an increase of daily bus trips and total vehicle miles traveled (see Appendix B).

Total emissions from buses were calculated using the same methodology assumed for on-road construction vehicles discussed in Chapter 4.1, *Air Quality*. The 2012 baseline fleet mix includes 15 diesel-fueled buses and 12 compressed natural gas (CNG) buses. GHG emissions factors for diesel buses were obtained from EMFAC2011; GHG emission factors for CNG buses were obtained from USEPA data.[13] Emission factors were multiplied by the total daily busing distance and number of annual bus trips to obtain emissions in metric tons (MT) of CO_2 per year. For the purposes of this EIR, it's assumed that the LAX bus fleet in 2019 is comprised of all CNG buses.

Building Emissions

Building emissions could occur directly from natural gas combustion used for space heating and indirectly from electricity and solid waste disposal. In addition to electricity purchased by LAWA and its tenants to operate LAX, electricity is also used indirectly to supply water to LAX and to deliver water and wastewater treatment facilities.

Changes in the size of facilities on the MSC North Project site between the existing (2012) and Project year (2019) were used to estimate the change in GHG emissions that would occur from natural gas combustion, purchased electricity, wastewater treatment, water consumption, and solid waste disposal. Implementation of the proposed MSC North Project would include the removal of several existing nearby buildings in order to construct components of the MSC North Project. As described in Section 2.5, *Project Characteristics*, all facilities would be relocated in-kind or consolidated with an existing facility, aside from the U.S. Coast Guard Facility. As such, the 2012 baseline and 2019 Without Project scenarios only quantify the GHG emissions from the U.S. Coast Guard facility. The 2019 With Project scenario quantifies the emissions from the operations of the completed MSC North building. Natural gas combustion for heating and cooling needs, as part of the MSC North Project, would be accommodated through the existing Central Utility Plant (CUP); new boilers are not anticipated to be constructed as part of the MSC North Project. Natural gas GHG emissions for the MSC North are based on an increase in load at the CUP.

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13 U.S. Environmental Protection Agency, Emission Factors for Greenhouse Gas Inventories, September 26, 2011, available: www.epa.gov/climateleadership/documents/emission-factors.pdf.

Direct and indirect building emissions were estimated based on facility square footages using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2.[14] Default model assumptions were adjusted based on site specific data (see Appendix B). Emissions are given in units of metric tons of CO_2e ($MTCO_2e$).

4.2.2.2 Future Phase(s) of the MSC Program

The MSC Program components that are not part of the MSC North Project, as discussed in Chapter 2, *Project Description*, have only been conceptually planned; thus, only a program-level GHG analysis of these components is possible. For those MSC Program components receiving only programmatic environmental review in the MSC EIR, further project-level environmental review under CEQA will be required in the future before they can be implemented. Project-level environmental documents for future phase(s) of the MSC Program will be initiated at such time as LAWA determines the specific timing.

Any future phase(s) of the MSC Program would contribute to GCC through the emissions of GHG, including direct and indirect emissions. Emissions in this GHG analysis are presented in terms of a projected future Program operational date of 2025, as presented in LAWA's Specific Plan Amendment Study (SPAS) Final EIR since GHG emissions were not analyzed in the LAX Master Plan Final EIR.

For purposes of this analysis construction emissions for the future phase(s) of the MSC Program are assumed to be equal to the construction emissions of the MSC North Project. This assumption was made because the future phase(s) of the MSC Program have only been conceptually planned. Although the MSC North Project as proposed would include 11 gates and the future phase(s) of the MSC Program could include up to 18 gates, the MSC North building includes the northern half of the building, as well as the central core. The southern extension of the MSC (including associated aircraft apron and the extension of Taxilane C12) would be roughly equivalent to the northern half of the building while the CTP would be roughly equivalent to the central core of the MSC in terms of building size. Because the MSC North Project also includes the demolition and relocation of various facilities, the construction of Taxiway C14, and the construction of tunnels to the CTP, the assumption that construction emissions for the future phase(s) of the MSC Program would be equal to the construction emissions estimated for the MSC North Project is over-stated, but reasonable for this Program-level analysis.

Direct emissions from aircraft and GSE operations with the future phase(s) of the MSC Program were assumed equal to the 2025 SPAS Alternative 3 (LAX Master Plan Alternative D), as this represents the future condition with the full MSC Program, including the CTP. Like the MSC North Project, the future phase(s) of the MSC Program would not result in changes to air traffic patterns or an increase in airport operations when compared to the without Program condition,

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14 South Coast Air Quality Management District, California Emissions Estimator Model, prepared by ENVIRON International Corporation, available: http://www.caleemod.com/.

as the full MSC Program is only changing the location of aircraft gates. The taxi-times associated with the 2025 Future Without MSC Program and 2025 Future With MSC Program are shown in **Table 4.2-3**.[15]

Table 4.2-3

Assumed Aircraft Operations and Taxi Times, MSC Program by Calendar Year

Year/Scenario	Annual Operations	Taxi-In Time (minutes per operation)	Taxi-Out Time (minutes per operation)
2012 Existing Conditions	605,480	9.96	11.89
2012 Existing With MSC Program	605,480	9.94	11.82
2025 Future Without MSC Program	707,151	10.86	13.72
2025 Future With MSC Program	707,151	10.84	13.64

Source: Ricondo & Associates, Inc., 2013.

As the LAX Master Plan Final EIR did not account for public traffic circulation within the CTA, GHG emissions are also included for on-Airport roadways. Emissions were calculated using roadway volumes and mode splits, along with other assumptions, from the traffic analysis found in Section 4.6, *On-Airport Transportation*. Emission factors were obtained from EMFAC2011.

The future phase(s) of the MSC Program include provisions for an electric Automated People Mover (APM) to connect the MSC concourse with the CTA. As such, the future phase(s) of the MSC Program do not require the busing of passengers. GHG emissions for the APM have been quantified in terms of purchased electricity. Building emissions for the full MSC Program, including those from natural gas combustion, purchased electricity, solid waste disposal, water consumption, and wastewater treatment, have been calculated using CalEEMod and the same methodology for the MSC North Project, as outlined in Section 4.2.2.1.2. Specific model assumptions can be found in Appendix B.

15 The approved LAX Master Plan includes a gate cap limit at LAX, which effectively limits the number of aircraft passengers that can be processed/accommodated at LAX. This was established in the Final EIS/EIR for the LAX Master Plan, which showed forecasted activity levels for the No Action/No Project alternative essentially the same as for the approved Alternative D. The MSC, while providing modern aircraft gates, does not increase the passenger processing capabilities of the airport and would have no effect on the number or type of aircraft operations at LAX. Therefore, the MSC North Project and the future phase(s) of the MSC Program will comply with the gate cap as discussed in the LAX Master Plan. The MSC North Project will allow LAWA to modernize the existing terminal area without having to reduce the number of available gates and will reduce the number of operations at the West Remote Pads/Gates. Once the future phase(s) of the MSC Program is completed, the West Remote Pads/Gates would be eliminated.

4.2.3 Existing Conditions

4.2.3.1 Regulatory Setting

International and Federal Regulations and Directives

International Governmental Panel on Climate Change (IPCC)

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

United Nations Framework Convention on Climate Change

On March 21, 1994, the U.S. joined other countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the 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.

Kyoto Protocol

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. The U.S. symbolically signed the Kyoto Protocol in 1998. However, in order for the Kyoto Protocol to be formally ratified, it must be adopted by the U.S. Senate, which has not been done to date. The original GHG reduction commitments made under the Kyoto Protocol expired at the end of 2012. A second commitment period was agreed to at the Doha, Qatar, meeting held December 8, 2012, which extended the commitment period to December 31, 2020.

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

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

Endangerment Finding

The USEPA subsequently published its endangerment finding for GHGs in the Federal Register,[16] which responds to the court case noted above. The USEPA Administrator determined that six GHGs, taken in combination, endanger both the public health and welfare of current and future generations. Although the endangerment finding discusses the effects of six GHGs, it acknowledges that transportation sources only emit four of the key GHGs: CO_2, CH_4, N_2O, and HFCs. Further, the USEPA Administrator found that the combined emissions of these GHGs from new motor vehicles contribute to air pollution that endangers the public health and welfare under the CAA, Section 202(a).

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

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

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

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

State 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

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

possible incorporation of new energy efficient technologies and methods. The latest amendments were made in April 2008 and went into effect on January 1, 2010. 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 1493 (AB 1493) - Pavley

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

Executive Order S-3-05

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

California Assembly Bill 32 (AB 32)

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

California Senate Bill 375 (SB 375)

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

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

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

California Executive Order S-01-07 established a Statewide goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020 from 2005. The Executive Order also mandated the creation of Low Carbon Fuel Standard (LCFS) for transportation fuels. The LCFS requires that the life-cycle GHG emissions for the mix of fuels sold in California decline on average. Each fuel provider may meet the standard by selling fuel with lower carbon content, using previously banked credits from selling fuel that exceeded the LCFS, or purchasing credit from other fuel providers who have earned credits.[17] On December 29, 2011, U.S. District Judge Lawrence O'Neill granted an injunction to prevent CARB from implementing the LCFS because it violates a federal law on interstate commerce. CARB's motion to stay the decision was also subsequently denied on January 24, 2012 (Rocky Mountain Farmers Union v. Goldstene, E.D. Cal., No. 09-cv-02234).

Senate Bill 97 (SB 97)

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

Renewables Portfolio Standard

Senate Bill 1078 (SB 1078) (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, the Governor signed Executive Order S-14-08, which expands the State's Renewable (Energy) Portfolio Standard (RPS) to 33 percent renewable power by 2020. On September 15, 2009, the Governor issued Executive Order S-21-0911 requiring CARB, under its AB 32 authority, to adopt regulations to meet a 33 percent RPS target by 2020. The CARB regulations would use a phased-in or tiered requirement to increase the amount of electricity from eligible renewable sources over an eight year period beginning in 2012. CARB adopted the regulations in September 2010. In March 2011, the Legislature passed SB X1-2, which was signed into law by the Governor the following month. SB X1-2 requires utilities to procure renewable energy products equal to 33 percent of retail sales by December 31, 2020 and also establishes interim targets: 20 percent by

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

18 Senate Bill 97, August 24, 2007.

December 31, 2013 and 25 percent by December 31, 2016. SB X1-2 also applies to publicly-owned utilities in California. According to the most recent data available from the Los Angeles Department of Water and Power (LADWP), the utility provider for the City of Los Angeles, approximately 19 percent of its electricity purchases in 2011 were from eligible renewable sources.[19]

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* (Green LA).[20] 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 LA's airports is to "green the airports," and the following actions are identified: 1) fully implement the Sustainability Performance Improvement Management System (discussed below); 2) develop and implement policies to meet the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) green building rating standards in future construction; 3) improve recycling, increase use of alternative fuel sources, increase use of recycled water, increase water conservation, reduce energy needs, and reduce GHG emissions; and 4) evaluate options to reduce aircraft-related GHG emissions.

Climate LA

In 2008, the City of Los Angeles followed up Green LA with an implementation plan called *Climate LA - Municipal Program Implementing the Green LA Climate Action Plan* (Climate LA).[21] 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.

City of Los Angeles Green Building Code (LAGBC)

In December 2010, the Los Angeles City Council approved Ordinance No. 181,481, which amended Chapter IX of the Los Angeles Municipal Code (LAMC) by adding a new Article 9 to incorporate various provisions of the 2010 CALGreen Code. The requirements of the adopted LAGBC apply to new building construction, building renovations, and building additions within the City of Los Angeles. Specific mandatory requirements and elective measures are provided for three categories: (1) low-rise residential buildings; (2) nonresidential and high-rise

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19 Los Angeles Department of Water and Power, "Power Content Label," https://www.ladwp.com. Accessed August 2013.

20 City of Los Angeles, Green LA - An Action Plan to Lead the Nation in Fighting Global Warming, 2007.

21 City of Los Angeles, Climate LA - Municipal Program Implementing the Green LA Climate Action Plan, 2008.

residential buildings; and (3) additions and alterations to nonresidential and high-rise residential buildings. Key measures in the LAGBC that apply to nonresidential buildings include, but are not limited to, the following:

- Construction – A Storm Water Pollution Prevention Plan conforming to the State Storm Water National Pollutant Discharge Elimination System Construction Permit or local ordinance, whichever is stricter, is required for a project regardless of acreage disturbed;
- Construction – Construction waste reduction of at least 50 percent of construction debris;
- Construction – 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled;
- Transportation Demand – Designated parking for any combination of low emitting, fuel-efficient, and carpool/vanpool vehicles shall be provided;
- Energy Conservation – Electric vehicle supply wiring for a minimum of 5 percent of the total number of parking spaces shall be provided;
- Energy Conservation – Energy conservation for new buildings must exceed California Energy Commission (CEC) requirements, based on the 2008 Energy Efficiency Standards, by 15 percent using an Alternative Calculation Method approved by the CEC;
- Energy Conservation – Each appliance provided and installed shall meet Energy Star requirements, if an Energy Star designation is applicable for that appliance;
- Renewable Energy – Future access, off-grid prewiring, and space for electrical solar systems shall be provided;
- Water – A schedule of plumbing fixtures and fixture fittings shall be provided that will reduce the overall use of potable water within the building by at least 20 percent based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code; and
- Wastewater – Each building shall reduce wastewater by 20 percent based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code.

LAWA Sustainability Plan

LAWA's Sustainability Plan,[22] 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, and LAGBC). The Sustainability Plan presents initiatives for the fiscal year 2008-2009 and long-term objectives and targets to meet the fundamental objectives identified above.

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22 City of Los Angeles, Los Angeles World Airports, Sustainability Plan, April 2008.

LAWA has developed *Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects* (LAWA Guidelines).[23] The LAWA 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 LAWA Guidelines is based on the LEED® rating systems for buildings. The LAWA Guidelines incorporate a "LAWA-Sustainable Rating System" based on the number of planning and design points and construction points a project achieves, based on the criteria and performance standards defined in the LAWA Guidelines.

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

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

- LAGBC (Ordinance 181479);
- Low Impact Development (Ordinance 181899);
- Standard Urban Stormwater Mitigation Plan (Ordinance 173494);
- Demolition Debris Recycling Program (Ordinance 181519);
- LAX Construction & Maintenance Services – Recycling Program; and
- LAX Master Plan – Mitigation Monitoring and Reporting Program (MMRP). Highlights of the LAX Master Plan MMRP include, but are not limited to the following measures:
  - C-1: Work with LAWA to approve and coordinate staging areas, haul routes, etc.;
  - MM-AQ-2: Utilize on-site rock-crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck-haul trips; and
  - W-1: Maximize use of Reclaimed Water.

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

Given that the LAGBC has replaced LEED® in the Los Angeles Municipal Code, LAWA has based its new sustainable construction standards on the mandatory and voluntary tiers defined in the LAGBC. All building projects with an LADBS permit-valuation over $200,000 shall

[23] City of Los Angeles, Los Angeles World Airports, Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects, February 2010.

achieve LAGBC Tier 1 conformance, to be certified by LADBS during final plan check (on the issued building permit) and validated by the LADBS inspector during final inspection (on the Certificate of Occupancy). Tier 1 refers specific practices that are to be incorporated into projects to "achieving enhanced construction levels by incorporating additional green building measures." Should a project pose unique issues/circumstances based on the scope and/or location of work, LAWA may require more prescriptive approaches to resolving issues such as energy performance, site drainage, etc.

For tenant projects, the permittee/tenant shall submit copies of all LADBS Green Building Forms to the LAWA Project Manager prior to issuance of a Notice-to-Proceed. This information may be published in LAWA's Annual Sustainability Reports in accordance with the GRI Sustainability Reporting Guidelines and Airport Operators Sector Supplement.

The proposed MSC North Project and future phase(s) of the MSC Program would comply with the mandatory requirements for nonresidential buildings including the mandatory requirements for LAGBC Tier 1 conformance, which are provided in **Table 4.2-4**. Not all measures are applicable to the proposed MSC North Project or future phase(s) of the MSC Program, as some measures provide requirements for residential buildings or facilities not proposed as part of the MSC North Project or future phase(s) of the MSC Program. The specific measures that are applicable and would be included as parts of the design of the proposed MSC North Project and future phase(s) of the MSC Program are indicated in the right-hand column in Table 4.2-4.

Table 4.2-4

City of Los Angeles Green Building Code (LAGBC) Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

	Measures		
Checklist for the City of Los Angeles	**Mandatory**	**CALGreen Tier 1**	**Applicable to Proposed Project**
Requirements			
Project meets all of the requirements of Divisions 5.1 through 5.5.	X		X (Not including measures for residential buildings or uses not associated with the Project; see below)
Planning and Design			
A5.106.4 Bicycle parking and changing rooms. Comply with Sections 5.106.4.1 through 5.106.4.2; or meet local ordinance, whichever is stricter.	X		Not applicable; See A5.106.4.1 See A5.106.4.2
A5.106.4.1 Short–term bicycle parking. If the project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack.	X		Not applicable; MSC will not have landside access for visitor traffic
A5.106.4.2 Long-term bicycle parking. For buildings with over ten tenant-occupants, provide secure bicycle parking for 5% of motorized vehicle parking capacity, with a minimum of one space.	X		Not applicable, no parking will be provided

Table 4.2-4

City of Los Angeles Green Building Code (LAGBC) Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

	Measures		
Checklist for the City of Los Angeles	**Mandatory**	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.106.5.1 Designated parking. Provide designated parking, by means of permanent marking or a sign, for any combination of low-emitting, fuel-efficient, and carpool/van pool vehicles as shown in Table A5.106.5.1.1 for Tier 1 at ten percent of total spaces.		X	Not applicable; no parking will be provided
A5.106.5.3.2 Electric vehicle supply wiring. Provide a minimum number of 208/240 V 40 amp, grounded AC outlet(s), that is equal to 5% of the total number of parking spaces.	X		Not applicable; no parking will be provided
A5.106.8 Light pollution reduction. Comply with lighting power requirements in the California Energy Code and design interior and exterior lighting such that zero direct-beam illumination leaves the building site. Meet or exceed exterior light levels and uniformity ratios for lighting zones 1-4 as defined in Chapter 10 of the following strategies:	X		X
1. Shield all exterior luminaires or use cutoff luminaries.	X		X
2. Contain interior lighting within each source.	X		X
3. Allow no more than 0.01 horizontal foot-candle 15 ft beyond the site.	X		X
4. Contain all exterior lighting within property boundaries.	X		X
A5.106.10 Grading and paving. The site shall be planned and developed to keep surface water away from buildings. Construction plans shall indicate how site grading or a drainage system will manage all surface water flows.	X		X
Energy Efficiency			
A5.203.1 Energy performance. Using an Alternative Calculation Method approved by the California Energy Commission, calculate each nonresidential building's TDV energy and CO_2 emissions, and compare it to the standard or "budget" building.			
A5.203.1.1 Tier 1. Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 15 percent		X	X
A5.203.1.3 Energy Efficiency. Exceed California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 15 percent.	X **(6/01/11)**		Measure included in A5.203.1.1
Energy Systems			
A.5.210.1 ENERGY STAR equipment and appliances. All residential grade equipment and appliances provided and installed shall be ENERGY STAR labeled if ENERGY STAR is applicable to that equipment or appliance.	X		Not applicable; equipment and appliances will be commercial grade
Renewable Energy			
A5.211.4 Prewiring for future solar. Install conduit from the building roof or eave to a location within the building identified as suitable for future installation of a charge controller (regulator) and inverter.	X		X

Table 4.2-4

City of Los Angeles Green Building Code (LAGBC) Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

	Measures		
Checklist for the City of Los Angeles	**Mandatory**	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.211.4.1 Off grid prewiring for future solar. If battery storage is anticipated, conduit shall run to a location within the building that is stable, weather-proof, insulated against very hot and very cold weather, and isolated from occupied spaces.	X		Not applicable; will not include battery storage for off-grid energy
Water Efficiency and Conservation **Indoor Water Use**			
A5.303.1.1 Buildings in excess of 50,000 square feet. Separate submeters shall be installed as follows:			
1. For each individual leased, rented, or other tenant space within the building project to consume more than 100 gal/day.	X		X
2. For spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory or beauty salon or barber shop projected to consume more than 100 gal/day.	X		X
A5.303.1.2 Excess consumption. Any building within a project or space within a building that is projected to consume more than 1,000 gal/day.	X		X
A5.303.2. 20 Percent Savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 20 percent shall be provided. (Calculate savings by Water Use Worksheets.)	X		X
A5.303.2.1 Multiple showerheads serving one shower. When single shower fixtures are served by more than one showerhead, the combined flow rate of all the showerheads shall not exceed the maximum flow rates specified in the 20 percent reduction column contained in Table 5.303.2.3 or the shower shall be designed to only allow one showerhead to be in operation at a time.	X		X
A5.303.2.3.1 Tier 1 – 30 percent savings. A schedule of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 30 percent shall be provided.		X	X
A5.303.4 Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods:			
1. The installation of water-conserving fixtures or	X		X
2. Utilizing non-potable water systems	X		X
A5.303.6 Plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the requirements listed for each type of Items listed in Table 5.303.6.			
1. Water closets (toilets) – flushometer type	X		X
2. Water closets (toilets) – tank type	X		X
3. Urinals	X		X

Table 4.2-4

City of Los Angeles Green Building Code (LAGBC) Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

	Measures		
Checklist for the City of Los Angeles	**Mandatory**	**CALGreen Tier 1**	**Applicable to Proposed Project**
4. Public lavatory faucets	X		X
5. Public metering self-closing faucets	X		X
6. Residential bathroom lavatory sink faucets	X		Not applicable; residential uses are not part of MSC
7. Residential kitchen faucets	X		Not applicable; residential uses are not part of MSC
8. Residential shower heads	X		Not applicable; residential uses are not part of MSC
9. Single shower fixtures served by more than one showerhead	X		X
Outdoor Water Use			
A5.304.1 Water budget. A water budget shall be developed for landscape irrigation use.[2]	X		Not applicable; there will be no landscaping as part of MSC
A5.304.2 Outdoor potable water use. Buildings on sites with 1,000 square feet or more of cumulative landscaped area shall have separate meters or submeters for indoor and outdoor potable water use.	X		Not applicable; there will be no landscaping as part of MSC
A5.304.3 Irrigation design. Buildings on sites with 1,000 square feet or more of cumulative irrigated landscaped area shall have irrigation controllers and sensors which include the following criteria, and meet manufacturer's recommendations.			
A5.304.3.1 Irrigation controllers. Automatic irrigation system controllers installed at the time of final inspection shall comply with the following:			
1. Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.	X		Not applicable; there will be no landscaping as part of MSC
2. Weather–based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controllers(s). Soil moisture-based controllers are not required to have rain sensor input.	X		Not applicable; there will be no landscaping as part of MSC
A5.304.4 Potable water reduction. Provide water efficient landscape irrigation design that reduces by use of potable water.			

Table 4.2-4

City of Los Angeles Green Building Code (LAGBC) Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures: Mandatory	Measures: CALGreen Tier 1	Measures: Applicable to Proposed Project
A5.304.4.1 Tier 1 – Reduce the use of potable water to a quantity that does not exceed 60 percent of ETo times the landscape area.		X	Not applicable; there will be no landscaping as part of MSC
A5.304.4.3 Verification of compliance. A calculation demonstrating the applicable potable water use reduction required by this section shall be provided.		X	Not applicable; there will be no landscaping as part of MSC
Material Sources			
A5.405.4 Recycled content, Tier 1. Use materials, equivalent in performance to virgin materials, with post-consumer or pre-consumer recycled content value (RCV)		X	X
Weather Resistance and Moisture Management			
A5.407.1 Weather protection. Provide a weather-resistant exterior wall and foundation envelope as required by Los Angeles Building Code Section 1403.2 and California Energy Code Section 150, manufacturer's installation instructions, or local ordinance, whichever is more stringent.[1]	X		X
A5.407.2 Moisture control. Employ moisture control measures by the following methods:			
A5.407.2.1 Sprinklers. Prevent irrigation spray on structures.	X		X
A5.407.2.2 Entries and openings. Design exterior entries and openings to prevent water intrusion into buildings.	X		X
Construction Waste Reduction, Disposal and Recycling			
A5.408.1 Construction waste diversion. Comply with Section 66.32 of the LAMC.	X		X
A5.408.3.1 Enhanced construction waste reduction. Divert to recycle or salvage non-hazardous construction and demolition debris generated at the site in compliance with Tier 1 – at least 65 percent reduction.		X	X
A5.408.4 Excavated soil and land clearing debris. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled.	X		Not applicable; no clearing of vegetated, non-developed areas will occur
Building Maintenance and Operation			
A5.410.1 Recycling by occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling.[1]	X		X

Table 4.2-4

City of Los Angeles Green Building Code (LAGBC) Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

	Measures		
Checklist for the City of Los Angeles	**Mandatory**	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.410.2 Commissioning. For new buildings 10,000 square feet and over, building commissioning for all building systems covered by T24, Part 6, process systems, and renewable energy systems shall be included in the design and construction processes of the building project. Commissioning requirements shall include as a minimum items listed in 5.410.2.	X		X
A5.410.2.1 Owner's Project Requirements. Documented before the design phase of the project begins; the Owner's Project Requirements shall include items listed in 5.410.4.	X		X
A5.410.2.2 Basis of Design (BOD). A written explanation of how the design of the building systems meets the Owner's Project Requirements shall be completed at the design phase of the building project and shall include at a minimum items listed in 5.410.2.3.	X		X
A5.410.2.3 Commissioning plan. A commissioning plan describing how the project will be commissioned shall be started during the design phase of the building project and shall include at a minimum items listed in 5.410.2.3.	X		X
A5.410.2.4 Functional performance testing shall demonstrate the correct installation and operation of each component system, and system-to-system interface in accordance with the approved plans and specifications.	X		X
A5.410.2.5 Post construction documentation and training. A systems manual and systems operations training are required.	X		X
A5.410.2.5.1 Systems manual. The systems manual shall be delivered to the building owner and facilities operator and shall include the items listed in 5.410.2.5.1.	X		X
A5.410.2.5.2 Systems operations training. The training of the appropriate maintenance staff for each equipment type and/or system shall include the items listed in 5.410.2.5.1.	X		X
A5.410.2.6 Commissioning report. A complete report of commissioning process activities undertaken through the design, construction and post-construction phases of the building project shall be completed and provided to the owner or representative.	X		X
A5.410.4 Testing, adjusting and balancing. Testing and adjusting of systems shall be required for buildings less than 10,000 square feet.			
A5.410.4.2 Systems. Develop a written plan of procedures for testing and adjusting systems. Systems to be included for testing and adjusting shall include at a minimum, as applicable to the project, the systems listed in 5.410.3.2.	X		Not applicable for buildings greater than 10,000 square feet
A5.410.4.3 Procedures. Perform testing and adjusting in accordance with industry best practices and applicable national standards on each system.	X		Not applicable for buildings greater than 10,000 square feet

Table 4.2-4

City of Los Angeles Green Building Code (LAGBC) Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

	Measures		
Checklist for the City of Los Angeles	**Mandatory**	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.410.4.3.1 HVAC balancing. Before a new space-conditioning system serving a building or space is operated for normal use, the system should be balanced in accordance with the procedures defined by national standards listed in 5.410.3.3.1.	X		Not applicable for buildings greater than 10,000 square feet
A5.410.4.4 Reporting. After completion of testing, adjusting and balancing, provide a final report of testing signed by the individual responsible for performing these services.	X		Not applicable for buildings greater than 10,000 square feet
A5.410.4.5 Operation and maintenance manual. Provide the building owner with detailed operating and maintenance instructions and copies of guaranties/warranties for each system prior to final inspection.	X		Not applicable for buildings greater than 10,000 square feet
A5.410.4.5.1 Inspections and reports. Include a copy of all inspection verifications and reports required by the Department.	X		Not applicable for buildings greater than 10,000 square feet
Fireplaces			
A5.503.1 Fireplaces. Install only a direct-vent sealed-combustion gas or sealed wood-burning fireplace, or a sealed woodstove, and refer to residential requirements in the California Energy Code, Title 24, Part 6, Subchapter 7, Section 150.	X		Not applicable; MSC will not include fireplaces or woodstoves
A5.503.1.1 Woodstoves. Woodstove shall comply with US EPA Phase II emission limits.	X		Not applicable; MSC will not include woodstoves
Pollutant Control			
A5.504.3 Covering of duct openings and protection of mechanical equipment during construction. At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the Department to reduce the amount of dust or debris which may collect in the system.	X		X
A5.504.4 Finish material pollutant control. Finish materials shall comply with Sections 5.504.4.1 through 5.504.4.4.			
A5.504.4.1 Adhesives, sealants, caulks. Adhesives and sealants used on the project shall meet the requirements of the following standards.			
1. Adhesives, adhesive bonding primers, adhesive primers sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in Tables 5.504.4.1 and 5.504.4.2.	X		X

Table 4.2-4

City of Los Angeles Green Building Code (LAGBC) Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

	Measures		
Checklist for the City of Los Angeles	**Mandatory**	**CALGreen Tier 1**	**Applicable to Proposed Project**
2. Aerosol adhesives, and smaller unit sizes of adhesive and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with Statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, or California Code of Regulations, Title 17, commencing with Section 94507.	X		X
A5.504.4.3 Paints and coatings. Architectural paints and coatings shall comply with Table 5.504.4.3 unless more stringent local limits apply.	X		X
A5.504.4.3.1 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC in section 94522(a)(3) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances (CCR, Title 24, Section 94520 *et seq*).	X		X
A5.504.4.3.2 Verification. Verification of compliance with this section shall be provided at the request of the Department.	X		X
A5.504.4.4 Carpet systems. All carpet installed in the building interior shall meet the testing and product requirements of one of the standards listed in 5.504.4.4.	X		X
A5.504.4.4.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.	X		X
A5.504.4.4.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 804.4.1.	X		X
A5.504.4.5 Composite wood products. Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in Table 5.504.4.	X		X
A5.504.4.5.2 Documentation. Verification of compliance with this section shall be provided as requested by the Department. Documentation shall include at least one of the following: 1. Product certification and specifications 2. Chain of custody certifications 3. Other methods acceptable to the Department	X		X
A5.504.4.6 Resilient flooring systems. Comply with the VOC-emission limits defined in the 2009 CHPS criteria and listed on its Low-emitting Materials List (or Product Registry) or certified under the FloorScore program of the Resilient Floor Covering Institute.	X		X
A5.504.4.6.1 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet pollutant emission limits.	X		X

Table 4.2-4

City of Los Angeles Green Building Code (LAGBC) Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

Checklist for the City of Los Angeles	Measures		
	Mandatory	CALGreen Tier 1	Applicable to Proposed Project
A5.504.4.7 Resilient flooring systems Tier 1. For 80 percent of floor area receiving resilient flooring, install resilient flooring complying with the VOC-emission limits defined in the 2009 CHPS criteria and listed on its Low-emitting Materials List or certified under the FloorScore program of the Resilient Floor Covering Institute.		X	X
A5.504.4.4.7.2 Verification of compliance. Documentation shall be provided verifying that resilient flooring materials meet pollutant emission limits.		X	X
A5.504.4.8 Thermal Insulation, Tier 1. Comply with Chapter 12-13 in Title 24, Part 12 and with the VOC-emission limits defined in 2009 CHPS criteria listed on its Low-emitting Materials List.		X	X
A5.504.4.8.2 Verification of compliance. Documentation shall be provided verifying that thermal insulation materials meet pollutant emission limits.		X	X
A5.504.5 Hazardous particulates and chemical pollutants. Minimize and control pollutant entry into buildings and cross-contamination of regularly occupied areas.			
A5.504.5.3 Filters. In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media for outside and return air prior to occupancy that provides at least a MERV of 8.	X		X
Indoor Moisture and Radon Control			
A5.505.1 Indoor moisture control. Buildings shall meet or exceed the provisions of Los Angeles Building Code, Sections 1203 and Chapter 14.[2]	X		X
Air Quality and Exhaust			
A5.506.1 Outside air delivery. For mechanically or naturally ventilated spaces in buildings, meet the minimum requirements of Section 121 of the California Energy Code, CCR, Title 24, Pat 6 and Chapter 4 of CCR, Title 8, or the applicable local code, and Division 1, whichever is more stringent.[2]	X		X
A5.506.2 Carbon dioxide (CO_2) monitoring. For buildings equipped with demand control ventilation, CO_2 sensors and ventilation controls shall be specified and installed in accordance with the requirements of the latest edition of the California Energy Code, CCR, Title 24, Part 6, Section 121(c).[2]	X		X
Outdoor Air Quality			
A5.508.1 Ozone depletion and global warming reductions. Installations of HVAC, refrigeration, and fire suppression equipment shall comply with Sections 5.508.1.1 and 5.508.1.2.			
A5.508.1.1 CFCs. Install HVAC/refrigeration equipment that does not contain CFCs.[2]	X		X

Table 4.2-4

City of Los Angeles Green Building Code (LAGBC) Tier 1 Requirements for Newly-Constructed Nonresidential Buildings

	Measures		
Checklist for the City of Los Angeles	**Mandatory**	**CALGreen Tier 1**	**Applicable to Proposed Project**
A5.508.1.2 Halons. Install fire suppression equipment that does not contain Halons.[2]	X		X

Notes:
1 Not all measures are applicable to the proposed Project, as some measures provide requirements for residential buildings or facilities not present at the proposed Project.
2 These measures are currently required by statute or in regulation.

Source: City of Los Angeles, Los Angeles Green Building Code, Article 9 of Chapter IX of the LAMC. http://ladbs.org/LADBSWeb/LADBS_Forms/Publications/LAGreenBuildingCodeOrdinance.pdf, 2010.

4.2.3.2 Existing Greenhouse Gas Setting

According to the IPCC in 2007, worldwide man-made emissions of GHGs were approximately 40,000 million metric tons of CO_2e ($MMTCO_2e$), including ongoing emissions from industrial and agricultural sources, but excluding emissions from land use changes (i.e., deforestation, biomass decay). Total U.S. GHG emissions in 2010 were 6,822 $MMTCO_2e$, or about 19 percent of worldwide GHG emissions.[24] California is a substantial contributor of global GHGs as it is the second largest contributor in the United States (Texas is number one). CARB compiles GHG inventories for the State of California. Based on the 2010 GHG inventory data (i.e., the latest year for which data are available), California emitted 452 $MMTCO_2e$ *including* emissions resulting from imported electrical power in 2010 and 408 $MMTCO_2e$ *excluding* emissions related to imported power.[25] **Table 4.2-5** identifies and quantifies statewide anthropogenic GHG emissions and sinks in 1990 and 2010. California emissions are due in part to its large size and large population. By contrast, California had the fifth lowest CO_2 emissions per capita from fossil fuel combustion in the U.S., due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth by more than half of what it would have been otherwise.[26]

Between 1990 and 2010, the population of California grew by approximately 7.5 million (from 29.8 to 37.3 million).[27] This represents an increase of approximately 25 percent from 1990 population levels. In addition, the California economy, measured as gross state product, grew

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24 U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010, (2012).

25 California Air Resources Board, California Greenhouse Gas 2000-2010 Inventory by Scoping Plan Category - Summary, Available: www.arb.ca.gov/cc/inventory/data/data.htm, accessed October 2013.

26 California Air Resources Board, California Greenhouse Gas 2000-2010 Inventory by Scoping Plan Category - Summary, Available: www.arb.ca.gov/cc/inventory/data/data.htm, accessed October 2013.

27 U.S. Census Bureau, Data Finders, Available: www.census.gov/, Accessed April 2013; California Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, January 2011 and 2012, with 2000 Benchmark, Available: www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php, Accessed October 2013.

from $773 billion in 1990 to $1.88 trillion in 2010 representing an increase of approximately 143 percent (over twice the 1990 gross state product).[28] Despite the population and economic growth, California's net GHG emissions only grew by approximately 6 percent. The California Energy Commission attributes the slow rate of growth to the success of California's renewable energy programs and its commitment to clean air and clean energy.[29]

Table 4.2-5

State of California GHG Emissions [1]

Category	Total 1990 Emissions ($MMTCO_2e$)	Percent of Total 1990 Emissions	Total 2010 Emissions ($MMTCO_2e$)	Percent of Total 2010 Emissions
Transportation	150.7	35%	173.2	38%
Electric Power	110.6	26%	93.3	21%
Commercial	14.4	3%	14.5	3%
Residential	29.7	7%	29.4	7%
Industrial	103.0	24%	86.0	19%
Recycling and Waste [2]	–	–	7.0	2%
High GWP/Non-Specified [3]	1.3	<1%	15.7	3%
Agriculture	23.4	5%	32.5	7%
Forestry	0.2	<1%	0.2	<1%
Forestry Sinks	-6.7	–	– [4]	–
Net Total	**426.6**	**100%**	**451.6**	**100%**

Notes:
1 Numbers may not add up exactly due to rounding.
2 Included in other categories for the 1990 emissions inventory.
3 High GWP gases are not specifically called out in the 1990 emissions inventory.
4 Revised methodology under development (not reported for 2010).

Source: CARB, 2007, 2013

The baseline Project-related operational emissions (2012), including those from aircraft, GSE, busing operations, and on-Airport roadways, are shown in **Table 4.2-6**. Indirect off-Airport emissions, including the consumption of purchased electricity, disposal of solid waste, and water consumption, are shown as they relate to current uses of the MSC North Project site; these emissions are not representative of the entire Airport.

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28 California Department of Finance, Gross Domestic Product, California, Available: www.dof.ca.gov/html/fs_data/latestecondata/FS_Misc.htm, Accessed April 2013. Estimated gross state product for 1990 and 2012 are based on current dollars as of June 2012.

29 California Energy Commission, Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004, (2006).

Table 4.2-6

Existing (2012) Operational GHG Emissions

	Annual Emissions (metric tons CO_2e [1,2] per year)			
Emission Source	CO_2 [3]	CH_4 [4,9]	N_2O [5,9]	Total
Aircraft	688,996	399	6,764	696,159
Ground Support Equipment	31,305	217	768	32,290
Auxiliary Power Units [6]	N/A	N/A	N/A	N/A
Busing Operations [7]	321	<1	<1	321
On-Airport Roadways [8]	46,253	174	1,099	47,526
On-Airport Stationary	9	<1	<1	9
On-Airport Subtotal	**766,884**	**790**	**8,631**	**776,305**
Building Electricity	191	<1	<1	191
Solid Waste Disposal	17	<1	<1	17
Indoor Water Usage	80	<1	<1	80
Off-Airport Subtotal	**288**	**<1**	**<1**	**288**
Total Existing Emissions	**767,172**	**790**	**8,631**	**776,593**

Notes:
1 CO_2e = carbon dioxide equivalent
2 CO_2e emissions are determined by multiplying the individual pollutant emissions by its respective GWP. The GWP for CH_4 is 21 and the GWP for N_2O is 310.
3 CO_2 = carbon dioxide
4 CH_4 = methane
5 N_2O = nitrous oxide
6 The EDMS model does not provide GHG emissions or fuel consumption data for APUs; therefore GHG emissions cannot be estimated.
7 Busing emissions only include GHG emissions from diesel-fueled buses (approximately 54 percent of the existing fleet); emissions factors for GHG pollutants were not available for alternatively-fueled buses.
8 This inventory only includes traffic traveling through the central terminal area (CTA).
9 CH_4 and N_2O emissions were estimated from the Los Angeles World Airports *GHG Emissions Inventory* (CDM, 2008).

Source: Ricondo & Associates, Inc., 2013.

4.2.4 Thresholds of Significance

As noted in the MSC Initial Study, for the purposes of this EIR, and in accordance with Appendix G of the State *CEQA Guidelines*, environmental impacts related to GHG emissions is considered significant if the proposed Project would:

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

The *L.A. CEQA Thresholds Guide* does not contain significance thresholds or criteria for use in evaluating GHGs.

Section 15064.7 of the State *CEQA Guidelines* defines a threshold of significance as an identifiable quantitative, qualitative or performance level of a particular environmental effect, compliance with which determines the level of impact significance. CEQA gives wide latitude to lead agencies in determining what impacts are significant and does not prescribe thresholds of significance, analytical methodologies, or specific mitigation measures. CEQA leaves the determination of significance to the reasonable discretion of the lead agency and encourages lead agencies to develop and publish thresholds of significance to use in determining the significance of environmental effects. However, neither the SCAQMD nor the City of Los Angeles has yet established project-level specific quantitative significance thresholds for GHG emissions. In the latest State *CEQA Guidelines* amendments, which went into effect on March 18, 2010, the Governor's Office of Planning and Research (OPR) encourages lead agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses. However, the City of Los Angeles has not yet developed a Greenhouse Reduction Plan meeting the requirements set forth in the latest OPR guidelines.

In addition to the above guidelines, in October 2008, CARB published draft preliminary guidance to agencies on how to establish interim significance thresholds for analyzing GHG emissions in *Recommended Approaches for Setting Interim Thresholds for Greenhouse Gases under the California Environmental Quality Act.* For industrial projects, the CARB guidance proposed that projects that emit less than 7,000 $MTCO_2e$ per year (with a 30-year amortization of emissions), as well as meeting performance standards for construction and transportation, may be considered less than significant. This threshold would apply to project-related emissions above the baseline.

SCAQMD released a draft guidance document regarding interim CEQA GHG significance thresholds in October 2008 and adopted this proposal in December 2008. SCAQMD proposed a tiered approach, whereby the level of detail and refinement needed to determine significance increases with a project's total GHG emissions. SCAQMD also proposed a screening level of 10,000 $MTCO_2e$ per year for industrial projects and 3,000 $MTCO_2e$ per year for residential and commercial projects, under which project impacts are considered "less than significant." The 10,000 $MTCO_2e$ per year screening level was intended to achieve the same policy objective of capturing 90 percent of the GHG emissions from new development projects in the industrial sector; similarly, the 3,000 $MTCO_2e$ per year screening level was intended to achieve the same policy objective of capturing 90 percent of the GHG emissions from new development projects in the residential and commercial sector.[30] For projects with GHG emissions increases greater than 10,000 $MTCO_2e$ per year (for industrial projects) or 3,000 $MTCO_2e$ (for residential and commercial projects), the use of a percent emission reduction target (e.g., 30 percent) was proposed to determine significance. This emission reduction target is a reduction below what is considered "business as usual." As noted earlier, SCAQMD also proposes that projects amortize construction emissions over the 30-year lifetime of any given project for comparison relative to these thresholds. Proposed project construction emissions can be amortized by calculating total construction period emissions and dividing by the 30-year lifetime of the project.

Since there are currently no formally adopted significance thresholds for daily GHG emission for either construction or transportation operations, amortized emissions from the MSC North Project and future phase(s) of the MSC Program were compared to the 10,000 $MTCO_2e$ SCAQMD threshold (total GHG emissions above the baseline) for industrial projects.

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

4.2.5 Applicable LAX Master Plan Commitments and Mitigation Measures

As part of the LAX Master Plan, LAWA adopted commitments and control measures pertaining to air quality (denoted with "AQ") in the LAX Master Plan (Alternative D MMRP). Of the three commitments and four control measures that were designed to address air quality impacts related to implementation of the LAX Master Plan, none of the commitments are applicable to the proposed MSC North Project or future phase(s) of the MSC Program, but all of the control measures are applicable and were considered in the GHG analysis herein (denoted below as LAX-AQ-1, LAX-AQ-2, LAX-AQ-3, and LAX-AQ-4). The portions of the air quality control measures that would be applicable to the proposed Project and that would provide co-benefits of reducing GHG emissions are summarized below in **Table 4.2-7**, **Table 4.2-8, Table 4.2-9** and **Table 4.2-10**.

LAX-AQ-1 – General Air Quality Control Measures

- This measure describes a variety of specific actions to reduce air quality impacts associated with projects at LAX, and applies to all projects. Some components of LAX-AQ-1 are not readily quantifiable, but would be implemented as part of the proposed MSC North Project and future phase(s) of the MSC Program. Specific measures are identified in **Table 4.2-7**.

Table 4.2-7

General Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
1f	Prohibit idling or queuing of diesel-fueled vehicles and equipment in excess of five minutes. This requirement will be included in specifications for any LAX projects requiring on-site construction.[2]	On- and Off-Road Mobile	NQ
1g	Require that all construction equipment working on-site is properly maintained (including engine tuning) at all times in accordance with manufacturers' specifications and schedules.	Mobile and Stationary	NQ

Notes:
NQ = Not Quantified
1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-1, unless otherwise noted.
2 From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.M and LAWA's Design and Construction Handbook, Section 1.31.9.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Design and Construction Handbook, November 2012.

LAX-AQ-2 – LAX Master Plan - Mitigation Plan for Air Quality; Construction-Related Measures

- This 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 used in construction. Some components of LAX-AQ-2 are not readily quantifiable, but will be implemented as part of the proposed MSC North Project and future phase(s) of the MSC Program. Several of these mitigation strategies, presented in Table 4.2-8 are expected to further reduce construction-related CO_2 emissions associated with the MSC North Project and future phase(s) of the MSC Program.

Table 4.2-8

Construction-Related Control Measures [1]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
2d	To the extent feasible, have construction employees' work/commute during off-peak hours.	On-Road Mobile	NQ
2e	Make available on-site lunch trucks during construction to minimize off-site worker vehicle trips.	On-Road Mobile	NQ
2f	Utilize on-site rock crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck haul trips.	On-Road Mobile	NQ
2g	Specify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using "clean burning diesel" fuel and exhaust emission controls.[2]	Stationary Point Source Controls	NQ
2i	Utilize construction equipment having the minimum practical engine size (i.e., lowest appropriate horsepower rating for intended job).	Mobile and Stationary	NQ
2j	Prohibit tampering with construction equipment to increase horsepower or to defeat emission control devices.	Mobile and Stationary	NQ
2k	The contractor or builder shall designate a person or persons to ensure the implementation of all components of the construction-related measure through direct inspections, record reviews, and investigations of complaints.	Administrative	NQ
2m	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[3]	Mobile	NQ

Table 4.2-8

Construction-Related Control Measures [1]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
2o	Prior to January 1, 2015, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet USEPA Tier 3 off-road emission standards. After December 31, 2014, all off-road diesel-power construction equipment greater than 50 horsepower shall meet USEPA Tier 4 off-road emissions standards. Tier 4 equipment shall be considered based on availability at the time the construction bid is issued. LAWA will encourage construction contractors to apply for SCAQMD "SOON" funds to accelerate clean-up of off-road diesel engine emissions.[4]	Off-Road Mobile	Assumed in modeling

Notes:
NQ = Not Quantified
1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.
2 From LAX Master Plan Mitigation Measure MM-AQ-2 and LAWA's Design and Construction Handbook, Section 1.31.9.
3 From Community Benefits Agreement Measure X.N.
4 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

LAX-AQ-3 – Transportation-Related Mitigation Measures

- This measure applies to mass transit, surface traffic, and on-site parking facilities. The principal feature of this measure is to replicate and expand the current LAX FlyAway service to other communities within regions of Los Angeles County. This initiative also includes a public outreach program to encourage the use of both the existing and new facilities. The remaining, secondary transportation-related air quality control measures may also be implemented. It should be noted that no estimate of the air quality benefit (i.e. emissions reduction) of these secondary measures is made in this analysis. Specific measures are identified in **Table 4.2-9**.

Table 4.2-9

Traffic-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
3c	Link Intelligent Transportation Systems (ITS) with off-airport parking facilities with ability to divert/direct trips to these facilities to reduce traffic/parking congestion and the associated air emissions in the immediate vicinity of the airport.	Highway/Roadway Improvements

Table 4.2-9

Traffic-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
3d	Expand ITS and Adaptive Traffic Control Systems (ATCS), concentrating on I-405 and I-105 corridors, extending into South Bay and Westside surface street corridors to reduce traffic/parking congestion and associated air emissions in the immediate vicinity of the airport.	Highway/Roadway Improvements
3f	Develop a program to minimize use of conventional-fueled fleet vehicles during smog alerts to reduce air emissions from vehicles at the airport.	Highway/Roadway Improvements
3g	Provide free parking and preferential parking locations for ultra low emission vehicles/super low emission vehicles/zero emission vehicles (ULEV/SULEV/ZEV) in all (including employee) LAX lots; provide free charging stations for ZEV; include public outreach to reduce air emissions from automobiles accessing airport parking.	Parking
3h	Develop measures to reduce air emissions of vehicles in line to exit parking lots such as pay-on-foot (before getting into car) to minimizing idle time at parking check out, including public outreach.	Parking
3i	Implement on-site circulation plan in parking lots to reduce time and associated air emissions from vehicles circulating through lots looking for parking.	Parking
3j	Encourage video conferencing capabilities at various locations on the airport to reduce off-site local business travel and associated VMT and air emissions in the vicinity of the airport.	Parking
3k	Expand LAWA's rideshare program to include all airport tenants.	Additional Ridership
3l	Promote commercial vehicles/trucks/vans using terminal areas (LAX and regional intermodal) to install SULEV/ZEV engines to reduce vehicle air emissions.	Clean Vehicle Fleets
3m	Promote "best-engine" technology for rental cars using on-airport rent-a-car facilities to reduce vehicle air emissions.	Clean Vehicle Fleets
3n	Consolidate non-rental car shuttles using SULEV/ZEV engines to reduce vehicle air emissions.	Clean Vehicle Fleets
3o	Cover, if feasible, any parking structures that receive direct sunlight, to reduce volatile emissions from vehicle gasoline tanks; and install solar panels on these roofs where feasible to supply electricity or hot water to reduce power production demand and associated air emissions at utility plants.	Energy Conservation
3p	LAWA will develop an information technology system that LAWA employees and the general public can utilize with consumer electronics that will provide real-time information regarding local and regional traffic conditions for travel to and from LAX.[2]	Traffic Management
3q	LAWA will incorporate quick entry and exit parking systems in the project level design of future parking lots/structures associated with the SPAS project.[3]	Parking
3r	LAWA will include advanced signage in the design of future parking structures that could advise airport users of available parking spaces within the structure.[4]	Parking

Table 4.2-9

Traffic-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure

Notes:
1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-3, unless otherwise noted.
2 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.
3 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.
4 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

LAX-AQ-4 – Operations-Related Control Measures

- The principal feature of this measure is the conversion of LAX GSE to low and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). It should be noted that no estimate of the air quality benefit (i.e., emission reductions) of other secondary measures is made in this analysis. Specific measures are identified in **Table 4.2-10**.

Table 4.2-10

Operations-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
4a	LAX GSE will be converted to low- and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). Both LAWA- and tenant-owned equipment will be included in this conversion program, which will be implemented in phases. LAWA will assign a GSE coordinator whose responsibility it will be to ensure the successful conversion of GSE in a timely manner. This coordinator will have adequate authority to negotiate on behalf of the City and have sufficient technical support to evaluate technical issues that arise during the implementation of this measure.[2]	Airside Operations
4b	All passenger gates newly constructed at LAX shall be equipped with and able to provide grid electricity to parked aircraft (for lighting and ventilation) from and after the date of initial operation. LAWA will ensure that all aircraft (unless exempt) use the gate-provided grid electricity in lieu of electricity provided by operation of an auxiliary or ground power unit. This provision applies in conjunction with construction or modification of passenger gates.[3]	Airside/Terminal

Table 4.2-10

Operations-Related Air Quality Control Measures [1]

Measure Number	Measure	Type of Measure
4e	LAWA will require the conversion of sweepers to alternative fuels or electric power for ongoing airfield and roadway maintenance. In the 2006 GSE inventory, two of ten sweepers were electric powered and one was either CNG or LPG fueled. HEPA filters will be installed on airport sweepers where the use of HEPA filters is technologically and financially feasible and does not pose a safety hazard to airport operations.[4]	General
4f	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[5]	Operational Vehicles

Notes:

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

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

4.2.6 Impact Analysis

4.2.6.1 MSC North Project

Construction

Construction of the MSC North Project is expected to begin in July 2014 and be completed by June 2019, for a total of five years of construction. Construction of the MSC North Project would not affect the existing runways or movement of aircraft around the airfield. Thus, construction-related GHG emissions for the MSC North Project are associated with construction equipment and vehicle exhaust. Consistent with SCAQMD guidance, GHG emissions have been quantified from on-site construction activities, off-site hauling, vendor deliveries, and construction worker commuting as generated by the proposed MSC North Project. Annual GHG emissions for construction of the MSC North Project are presented in **Table 4.2-11**.

SCAQMD recommends that construction emissions be amortized over the lifetime of a proposed project, which is assumed to be 30 years. The total CO_2e amortized over the life of the MSC North Project is equal to 5,015 $MTCO_2e$ per year. Construction-related significance is not determined on an individual basis for GHG emissions; rather, Section 4.2.6.2 below evaluates the significance of the combined construction- and operations-related GHG emissions for the proposed MSC North Project.

Table 4.2-11

Construction Greenhouse Gas Emissions

	CO_2e (Metric Tons)						
Emission Source	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Total**
On-site Equipment	9,222	12,756	18,920	21,096	16,690	4,184	82,868
On-site Trucks	4,657	5,339	6,518	9,752	13,388	3,212	42,867
Off-site Deliveries	235	186	2,105	948	999	688	19,559
Off-site Workers	2,658	3,633	3,010	3,374	5,619	1,264	5,160
Total [1]	**16,772**	**21,914**	**30,554**	**35,169**	**36,696**	**9,348**	**150,454**
30 year Amortized Total							**5,015**

Note:

1 Numbers may not total due to rounding.

Source: Ricondo & Associates, Inc., 2013.

Operations

Operation of the proposed MSC North Project would not result in changes to air traffic patterns or an increase in Airport operations as the MSC North Project would only change the location of aircraft gates.[31] However, this change in location of gates would result in shorter average aircraft taxi distances and thus a decrease in overall average aircraft taxi/idle times as compared to the 2019 Without Project scenario. The proposed MSC North Project would, however, result in additional GHG emissions from passenger busing trips and building operations of the MSC North facility when compared to existing uses of the MSC North Project site.

[31] The approved LAX Master Plan includes a gate cap limit at LAX, which effectively limits the number of aircraft passengers that can be processed/accommodated at LAX. This was established in the Final EIS/EIR for the LAX Master Plan, which showed forecasted activity levels for the No Action/No Project alternative essentially the same as for the approved Alternative D. The MSC, while providing modern aircraft gates, does not increase the passenger processing capabilities of the airport and would have no effect on the number or type of aircraft operations at LAX. Therefore, the MSC North Project and the future phase(s) of the MSC Program will comply with the gate cap as discussed in the LAX Master Plan. The MSC North Project will allow LAWA to modernize the existing terminal area without having to reduce the number of available gates and will reduce the number of operations at the West Remote Pads/Gates. Once the future phase(s) of the MSC Program is completed, the West Remote Pads/Gates would be eliminated.

The analysis presented below compares emissions from the following scenarios: the 2012 With Project compared to the 2012 existing conditions, and the 2019 With Project compared to the 2019 Without Project scenario.

Comparison of 2012 With MSC North Project and 2012 Existing Conditions

Operational GHG emissions, including direct emissions from aircraft, ground support equipment, busing operations, and natural gas consumption, and indirect emissions from the consumption of purchased electricity, disposal of solid waste, and water consumption, for the 2012 MSC North Project compared to the 2012 existing conditions are presented in **Table 4.2-12**. Indirect emissions represent mitigated emissions based on the specific measures that would be included as part of the MSC North Project design, as included in Table 4.2-4 and outlined in Section 4.2.3.1.

Table 4.2-12 also shows the incremental emissions of the MSC North Project compared to the significance threshold. As shown, total GHG emissions from amortized construction and operation of the 2012 MSC North Project compared against the 2012 existing conditions would exceed the SCAQMD's proposed threshold of 10,000 $MTCO_2e$ per year for industrial projects. Therefore, GHG emissions resulting from the 2012 MSC North Project construction and operations would have a significant impact on climate change over the 2012 existing conditions based on a significance threshold of 10,000 $MTCO_2e$ per year.

Table 4.2-12

2012 MSC North Project Greenhouse Gas Emissions Compared to Existing (2012) Conditions

Emission Source	2012 Existing Conditions CO_2e (Metric Tons)	2012 MSC North Project CO_2e (Metric Tons)	Incremental Difference CO_2e (Metric Tons)
Aircraft [1]	696,159	694,603	-1,556
Ground Support Equipment [1]	32,290	32,290	-
Busing Operations [1]	321	830	509
On-Airport Stationary [2]	9	347	338
Building Electricity [2]	191	5,525	5,334
Solid Waste Disposal [2]	17	92	75
Indoor Water Usage [2]	80	1,191	1,111
Construction (Amortized) [2]	-	5,015	5,015
Total Net	**729,067**	**739,893**	**10,844**
SCAQMD GHG Threshold for Industrial Projects			10,000
Above the Threshold?			**Yes**

Notes:
1 Total emissions for LAX.
2 Emissions for MSC North Project site only.

Source: Ricondo & Associates, Inc., 2013.

Comparison of 2019 Future With MSC North Project and 2019 Future Without MSC North Project

Operational GHG emissions, including direct emissions from aircraft, ground support equipment, busing operations, and natural gas consumption, and indirect emissions from the consumption of purchased electricity, disposal of solid waste, and water consumption, for 2019 conditions Without and With the proposed MSC North Project are presented in **Table 4.2-13**. Indirect emissions represent mitigated emissions based on the specific measures that would be included as part of the MSC North Project design, as included in Table 4.2-4 and outlined in Section 4.2.3.1.

Table 4.2-13 also compares the incremental increase in operational emissions of the proposed MSC North Project including amortized construction GHG emissions, to the significance threshold. As shown, total GHG emissions from amortized construction and operation of the proposed MSC North Project would exceed the significance threshold of 10,000 $MTCO_2e$ per year. Based on the above analysis, GHG emissions resulting from proposed MSC North Project construction and operations would have a significant impact on climate change.

Table 4.2-13

2019 Future With MSC North Project Greenhouse Gas Emissions Compared to 2019 Future Without MSC North Project Conditions

Emission Source	2019 Future Without MSC North Project CO_2e (Metric Tons)	2019 Future With MSC North Project CO_2e (Metric Tons)	Incremental Difference CO_2e (Metric Tons)
Aircraft [1]	772,056	770,528	-1,528
Ground Support Equipment [1]	34,269	34,188	-81
Busing Operations [1]	572	760	188
On-Airport Stationary [2]	9	347	338
Building Electricity [2]	191	5,525	5,334
Solid Waste Disposal [2]	17	92	75
Indoor Water Usage [2]	80	1,191	1,111
Construction (Amortized) [2]	-	5,015	5,015
Total Net	**807,194**	**817,646**	**10,452**
SCAQMD GHG Threshold for Industrial Projects			10,000
Above the Threshold?			**Yes**

Notes:
1 Total emissions for LAX.
2 Emissions for MSC North Project site only.

Source: Ricondo & Associates, Inc., 2013.

4.2.6.2 Future Phase(s) of the MSC Program

The impacts discussed below provide a program-level GHG analysis of conceptually planned components of the future phase(s) of the MSC Program. Further project-level environmental review under CEQA will be required in the future before any of these components can be implemented. Project-level environmental documents for future phase(s) of the MSC Program will be initiated at such time as LAWA determines the specific timing of such improvements.

As stated previously, construction GHG emissions for the future phase(s) of the MSC Program are assumed to be equal to the construction GHG emissions estimated for the MSC North Project. Operational GHG emissions, including both direct and indirect emissions for the MSC Program, have been calculated for the full MSC building, the CTP, and APM Maintenance Facility. For the purposes of this analysis, it is assumed that the MSC Program would be fully implemented by 2025. Direct emissions include those from aircraft, ground support equipment, and natural gas consumption for space heating. As the LAX Master Plan Final EIR did not account for public traffic circulation within the CTA, GHG emissions are also included for on-airport roadways. Indirect emissions include the consumption of purchased electricity, disposal of solid waste, and water consumption. The future phase(s) of the MSC Program may include an Automated People Mover (APM), for which indirect emissions have been calculated.

The analysis presented below compares emissions from the following scenarios: the 2012 With Program compared to the 2012 existing conditions, and the 2025 With Program compared to the 2025 Without Program scenario.

Comparison of 2012 With MSC Program and 2012 Existing Conditions

Operational GHG emissions, including direct emissions from aircraft, ground support equipment, on-airport roadways, and natural gas consumption, and indirect emissions from the consumption of purchased electricity, disposal of solid waste, and water consumption, for the 2012 With MSC Program compared to the 2012 existing conditions are presented in **Table 4.2-14**. Indirect emissions represent mitigated emissions based on the specific measures that would be included as part of the future phase(s) of the MSC Program design, as included in Table 4.2-4 and outlined in Section 4.2.3.1.

Table 4.2-14 also shows the incremental emissions of the MSC Program compared to the significance thresholds. As shown, total GHG emissions from amortized construction and operation of the 2012 MSC Program compared against the 2012 existing conditions would exceed the significance threshold of 10,000 $MTCO_2e$ per year. Therefore, GHG emissions resulting from the 2012 MSC Program construction and operations would have a significant impact on climate change over the 2012 existing conditions.

Table 4.2-14

2012 With MSC Program Greenhouse Gas Emissions Compared to Existing (2012) Conditions

Emission Source	2012 Existing CO_2e (Metric Tons)	2012 With MSC Program CO_2e (Metric Tons)	Incremental Difference CO_2e (Metric Tons)
Aircraft [1]	696,159	694,603	-1,556
Ground Support Equipment [1]	32,290	32,290	-
On-Airport Roadways [1]	47,526	47,526	-
On-Airport Stationary [2]	9	799	790
Building Electricity [2]	191	12,858	12,667
Solid Waste Disposal [2]	17	211	194
Indoor Water Usage [2]	80	2,705	2,625
Construction (Amortized) [3]	-	10,030	10,030
Total Net	**776,272**	**801,022**	**24,750**
SCAQMD GHG Threshold for Industrial Projects			10,000
Above the Threshold?			**Yes**

Notes:
1 Total emissions for LAX.
2 Emissions for MSC Program site only.
3 For purposes of this analysis, it was assumed that amortized construction emissions would be double the emissions of the MSC North Project for the full MSC Program.

Source: Ricondo & Associates, Inc., 2013; Los Angeles World Airports, *LAX Specific Plan Amendment Study Draft EIR*, 2012.

Comparison of 2025 Future With MSC Program and 2025 Future Without MSC Program

Table 4.2-15 quantifies the operational GHG emissions for the 2025 Future With MSC Program and the 2025 Future Without MSC Program for direct emissions from aircraft, ground support equipment, on-airport roadways, and natural gas consumption, and indirect emissions from the consumption of purchased electricity, disposal of solid waste, and water consumption. Table 4.2-15 also compares the incremental increase in operational emissions against the significance thresholds. As shown, total GHG emissions from amortized construction and operation of the MSC Program would exceed the significance threshold of 10,000 $MTCO_2e$ per year. Therefore, the proposed MSC Program would also result in a significant impact with regard to GHG emissions.

Table 4.2-15

2025 Future With MSC Program Greenhouse Gas Emissions Compared to 2025 Future Without MSC Program Conditions

Emission Source	2025 Future Without MSC Program CO_2e (Metric Tons)	2025 Future With MSC Program CO_2e (Metric Tons)	Incremental Difference CO_2e (Metric Tons)
Aircraft [1]	1,002,195	1,000,287	-1,908
Ground Support Equipment [1]	78,838	78,838	-
On-Airport Roadways [1]	26,305	25,199	-1,106
On-Airport Stationary [2]	347	799	452
Building Electricity [2]	5,525	12,858	7,333
Solid Waste Disposal [2]	92	211	119
Indoor Water Usage [2]	1,191	2,705	1,514
Construction (Amortized) [3]	-	10,030	10,030
Total Net	**1,114,493**	**1,130,927**	**16,434**
SCAQMD GHG Threshold for Industrial Projects			10,000
Above the Threshold?			**Yes**

Notes:
1 Total emissions for LAX.
2 Emissions for affected facilities only.
3 For purposes of this analysis, it was assumed that amortized construction emissions would be double the emissions of the MSC North Project for the full MSC Program.

Source: Ricondo & Associates, Inc., 2013; Los Angeles World Airports, *LAX Specific Plan Amendment Study Draft EIR*, 2012.

4.2.6.3 Consistency with Greenhouse Gas Reduction Plans

As discussed previously, the proposed MSC North Project and future phase(s) of the MSC Program would comply with the LAWA Guidelines and the LAGBC Tier 1 requirements. LAWA has based its new sustainable construction standards on the mandatory and voluntary tiers defined in the LAGBC. All building projects with an LADBS permit-valuation over $200,000 shall achieve LAGBC Tier 1 conformance, to be certified by LADBS during final plan check (on the issued building permit) and validated by the LADBS inspector during final inspection (on the Certificate of Occupancy).

The requirements of the adopted LAGBC apply to new building construction, building renovations, and building additions within the City of Los Angeles. Specific mandatory requirements and elective measures are provided for three categories: (1) low-rise residential buildings; (2) non-residential and high-rise residential buildings; and (3) additions and alterations to non-residential and high-rise residential buildings. The proposed MSC North Project and future phase(s) of the MSC Program would comply with the mandatory requirements for nonresidential buildings including the mandatory requirements for Tier 1 conformance. Specific measures that would be included as part of the MSC North Project and future phase(s) of the MSC Program design are listed in Table 4.2-4. Certain measures of note include but are not limited to compliance with enhanced construction waste reduction goals, exceeding the California Energy Code requirements (based on the 2008 Energy Efficiency Standards) by 15 percent, use of plumbing fixtures and fixture fittings that will reduce the overall use of potable water within the building by 30 percent, providing readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, and use of low-emitting adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, caulks, and other materials. As a result, the proposed MSC North Project and future phase(s) of the MSC Program would be consistent with plans to reduce GHG emissions.

4.2.6.4 Summary of Impacts

Based on the information presented above in Section 4.2.6.1, construction of the MSC North Project would result in the generation of 150,454 metric tons of construction-related GHG, primarily in the form of CO_2 over the approximately 5-year construction period. Although construction activities would comply with LAWA's current program for sustainability and reducing GHG emissions in project design and construction, construction-related GHG emissions for the MSC North Project would create a substantial increase in GHG emissions compared to baseline emission levels.

Development of the MSC North building would be consistent with LAWA's plans related to sustainability and the LAGBC Tier 1 requirements; however, the building square footage under the proposed MSC North Project would create a larger energy demand associated with heating, cooling, and lighting, than existing uses at the MSC North Project site, and therefore an increase in GHG emissions.

As such, the operation of the proposed MSC North Project, combined with the amortized construction GHG emissions, would result in a substantial increase in GHG emissions and impact to climate change.

Development of the MSC Program would be consistent with LAWA's plans related to sustainability and the LAGBC Tier 1 requirements; however, the increase in facility square footage under the future phase(s) of the MSC Program would create a larger energy demand associated with the heating, cooling, and lighting, than existing uses at the Project site, and therefore an increase in GHG emissions.

4.2.7 Cumulative Impacts

As discussed previously in Section 4.2.4 (Thresholds of Significance), the *CEQA Guidelines* do not include or recommend any particular threshold of significance; instead, the *CEQA Guidelines* leave that decision to the discretion of the lead agency (§15064.4).[32] The California Natural Resources Agency (CNRA) noted in its Public Notice for the added sections on GHG, that the impacts of GHG emissions should be considered in the context of a cumulative impact, rather than a project impact. The Public Notice states:[33]

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

It is the accumulation of GHGs in the atmosphere that may result in global climate change. Climate change impacts are cumulative in nature, and thus no typical single project would result in emissions of such a magnitude that it, in and of itself, would be significant on a project basis. A typical single project's GHG emissions will be small relative to total global or even statewide GHG emissions. Thus, the analysis of significance of potential impacts from GHG emissions related to a single project is already representative of the long-term impacts on a cumulative basis. Therefore, projects that exceed the project-specific significance thresholds are considered to be cumulatively considerable. Conversely, projects that do not exceed the project-specific thresholds for GHG emissions are not considered to be cumulatively considerable.

As discussed in Section 4.2.6, *Impact Analysis*, the proposed MSC North Project's combined amortized construction and operational GHG emissions would exceed the significance threshold of 10,000 $MTCO_2e$ per year. Similarly, the combined amortized construction and operational GHG emissions for the future phase(s) of the MSC Program would exceed the significance threshold of 10,000 $MTCO_2e$ per year. Therefore, in accordance with the discussion above, the proposed MSC North Project and the future phase(s) of the MSC Program would cause cumulatively considerable impacts with respect to GHG emissions.

4.2.8 Mitigation Measures

The proposed MSC North Project and future phase(s) of the MSC Program include design features to reduce construction equipment operations/duration, as described in Section 4.2.5. This includes the reduction of GHG emissions associated with the proposed MSC North Project and future phase(s) of the MSC Program through compliance with the Tier 1 requirements of the

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[32] Natural Resources Agency, Guidelines for Implementation of the California Environmental Quality Act, Available at: http://ceres.ca.gov/ceqa/docs/FINAL_Text_of_Proposed_Amendemts.pdf. Accessed: October 2013.

[33] Natural Resources Agency, Guidelines for Implementation of the California Environmental Quality Act, Available at: http://ceres.ca.gov/ceqa/docs/Notice_of_Proposed_Action.pdf Accessed: October 2013.

LAGBC. There are no other feasible mitigation measures to reduce construction-related GHG emissions other than those already identified above in Section 4.2.5, *Applicable LAX Master Plan Commitments and Mitigation Measures*, and in Chapter 4.1, *Air Quality*, of this EIR.

For operational impacts, the proposed MSC North Project and future phase(s) of the MSC Program would comply with the requirements of the City of Los Angeles Green Building Ordinance and with LAWA policies and programs related to sustainability and reducing GHG emissions that are implemented on a 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 agency-wide can be a more effective approach than mitigating GHG emissions at a project level.[34] **Tables 4.2-16** and **4.2-17** present a comprehensive list of suggested mitigation measures for new development projects throughout the state of California. The list presented in Table 4.2-16 is prepared by the California Office of the Attorney General relative to addressing GHG emissions and climate change impacts within an EIR.[35] The list presented in Table 4.2-17 is prepared by the OPR and presents examples of measures that have been used by some public agencies to reduce GHG emissions.[36] Tables 4.2-16 and 4.2-17, and the text below, indicate how the proposed MSC North Project and future phase(s) of the MSC Program, as well as LAWA's overall sustainability actions and objectives, relate to each of the applicable measures.

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34 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.

35 State of California Department of Justice, Office of the California Attorney General, Addressing Climate Change at the Project Level, available: ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf

36 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 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Incorporate green building practices and design elements.	Development of the MSC North Project and future phase(s) of the MSC North Program would be subject to LAWA's sustainability guidelines (i.e., LAWA Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects [LSAG] and/or the City of Los Angeles Green Building Ordinance). Those guidelines and ordinance requirements address green building practices and design elements. LAWA requires new terminal facilities to achieve LAGBC Tier 1 conformance.
Meet recognized green building and energy efficiency benchmarks.	As noted above, the MSC North Project and future phase(s) of the MSC Program would be subject to LSAG and/or the Green Building Ordinance, which include provisions for energy efficiency and conservation. For example, the Green Building Ordinance requires that a project exceed CEC 2008 Energy Efficiency Standards by 15 percent.
Install energy efficient lighting (e.g., light emitting diodes [LEDs]), heating and cooling systems, appliances, equipment, and control systems.	The use of energy efficient lighting, systems, and equipment in new facilities is standard practice by LAWA and is generally reflected in the requirements of the Green Building Ordinance.
Use passive solar design, e.g., orient buildings and incorporate landscaping to maximize passive solar heating during cool seasons, minimize solar heat gain during hot seasons, and enhance natural ventilation. Design buildings to take advantage of sunlight.	Utilization of passive solar design features in new development is an option available through LSAG and would be considered during design of the MSC North Project and future phase(s) of the MSC Program.
Install light colored "cool" roofs and cool pavements.	LSAG includes provisions for "heat island" reduction including the use of cool roofs as an option available for the MSC North Project and future phase(s) of the MSC Program.
Install efficient lighting (including LEDs) for traffic, street, and other outdoor lighting.	As indicated above, the use of energy efficient lighting is standard practice by LAWA and would also occur in meeting the energy conservation requirements of the Green Building Ordinance, which would be applicable to the MSC North Project and future phase(s) of the MSC Program. With regard to traffic lights, LAWA and LADOT install LEDs for any major upgrades to existing signals or addition of new signals.
Reduce unnecessary outdoor lighting.	Any developments involving outdoor lighting under the MSC North Project and future phase(s) of the MSC Program is anticipated to avoid unnecessary lighting, as a means to help achieve the energy conservation requirements of the Green Building Ordinance.

Table 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Provide education on energy efficiency to residents, customers, and/or tenants.	Provisions for education of LAWA contractors, suppliers, tenants, and the community relative to the benefits of sustainability measures are included in the LSAG, which are applicable to the MSC North Project and future phase(s) of the MSC Program.
Renewable Energy and Energy Storage	
Meet "reach" goals for building energy efficiency and renewable energy use.	While the ability to achieve "zero net energy" buildings in conjunction with the MSC North Project and future phase(s) of the MSC Program is uncertain, the energy efficiency and conservation provisions of Green Building Ordinance would support progress towards such a goal.
Install solar, wind, and geothermal power systems and solar hot water heaters.	Based on land constraints and airfield safety considerations, it is generally infeasible to install alternative energy systems at the airport. LAWA is, however, committed to, and a participant in, LADWP's "Green Power for LA" program, which promotes the use of green power provided through LADWP.
Install solar panels on unused roof and ground space over carports and parking areas.	As noted above, land constraints and airfield safety considerations limit the opportunities for solar panels at the airport.
Where solar systems cannot feasibly be incorporated into the project at the outset, build "solar ready" structures.	Please see above.
Incorporate wind and solar energy systems into agriculture projects where appropriate.	Not applicable.
Include energy storage where appropriate to optimize renewable energy generation systems and avoid peak energy use.	Although separate from the MSC Program, the LAX Central Utility Plant (CUP) Replacement Project, currently under construction, includes a thermal energy storage system (i.e., large tank below grade to store cooled water, which can reduce needs during peak energy use periods). The new CUP will provide the heating and cooling needs of the MSC North Project and possibly the future phase(s) of the MSC Program.
Use on-site generated biogas, including CH_4, in appropriate applications.	Not applicable.
Use combined heat and power (CHP) in appropriate applications.	The CUP Replacement Project, described above, also includes cogeneration for the production of electricity from heat generated during the production of steam.
Water Conservation and Efficiency	

Table 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Incorporate water-reducing features into building and landscape design.	Provisions for incorporating water-reducing features into building and landscape design are included in the Green Building Ordinance, which would be applicable to the MSC North Project and future phase(s) of the MSC Program.
Create water-efficient landscapes.	Not applicable.
Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls and use water-efficient irrigation methods.	Not applicable.
Make effective use of gray water. (Gray water is untreated household wastewater from bathtubs, showers, bathroom wash basins, and water from clothes washing machines. Gray water to be used for landscape irrigation.)	Not applicable; generation of such gray water from the types of uses associated with MSC North Project and future phase(s) of the MSC Program would be negligible.
Implement low-impact development practices that maintain the existing hydrology of the site to manage storm water and protect the environment.	The MSC North Project and future phase(s) of the MSC Program would comply with the City's Low Impact Development (LID) Ordinance requirements, as applicable.
Devise a comprehensive water conservation strategy appropriate for the project and location.	As indicated above, the Green Building Ordinance includes provisions for water conservation, which would be applicable to the MSC North Project and future phase(s) of the MSC Program.
Design buildings to be water-efficient. Install water-efficient fixtures and appliances.	Please see above.
Offset water demand from new projects so that there is no net increase in water use.	Please see above.
Provide education about water conservation and available programs and incentives.	Provisions for education of LAWA contractors, suppliers, tenants, and the community relative to the benefits of sustainability measures, which water conservation is an element, are included in the LSAG.
Solid Waste Measures	
Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard.)	The Green Building Ordinance includes provisions for waste reduction and management, including, but not limited to, reuse and recycling of construction and demolition waste, which would be applicable to the MSC North Project and future phase(s) of the MSC Program.
Integrate reuse and recycling into residential, industrial, institutional, and commercial projects.	In addition to the requirements of the Green Building Ordinance, LAWA has a comprehensive facility-wide solid waste diversion/recycling program at LAX, which would be applicable to the MSC North Project and future phase(s) of the MSC Program.
Provide easy and convenient recycling opportunities for residents, the public, and tenant businesses.	Please see above.

Table 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Provide education and publicity about reducing waste and available recycling services.	Please see above.
Land Use Measures	
Ensure consistency with "smart growth" principles – mixed-use, infill, and higher-density projects that provide alternatives to individual vehicle travel and promote the efficient delivery of services and goods.	Not applicable.
Meet recognized "smart growth" benchmarks.	Not applicable.
Educate the public about the many benefits of well-designed, higher density development.	Not applicable.
Incorporate public transit into the project's design.	Not applicable.
Preserve and create open space and parks. Preserve existing trees and plant replacement trees at a set ratio.	Not applicable.
Develop "brownfields" and other underused or defunct properties near existing public transportation and jobs.	Not applicable.
Include pedestrian and bicycle facilities within projects and ensure that existing non-motorized routes are maintained and enhanced.	Not applicable.
Transportation and Motor Vehicles	
Meet an identified transportation-related benchmark.	Not applicable.
Adopt a comprehensive parking policy that discourages private vehicle use and encourages the use of alternative transportation.	Not applicable.
Build or fund a major transit stop within or near the development.	Not applicable.
Promote "least polluting" ways to connect people and goods to their destinations.	The 2019 LAX bus fleet wil be comprised of clean-fueled CNG vehicles to provide transportation of passengers to the MSC North facility. As part of the future phase(s) of the MSC Program, an electric Automated People Mover could be constructed.
Incorporate bicycle lanes, routes, and facilities into street systems, new subdivisions, and large developments.	Not applicable.
Require amenities for non-motorized transportation, such as secure and convenient bicycle parking.	Not applicable. Such facilities are already available at the airport.
Ensure that the project enhances, and does not disrupt or create barriers to, non-motorized transportation.	Not applicable.
Connect parks and open space through shared pedestrian/bike paths and trails to encourage walking and bicycling. Create bicycle lanes and walking paths direction to the location of schools, parks, and other destination points.	Not applicable.
Work with the school districts to improve pedestrian and bicycle access to schools and to restore or expand school bus service using lower-emitting vehicles.	Not applicable.

Table 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Institute teleconferencing, telecommute, and/or flexible work hour programs to reduce unnecessary employee transportation.	The basic nature of the MSC North Project and future phase(s) of the MSC Program requires the physical presence of workers. However, LAWA does offer flexible work hour programs to employees, which would continue agency-wide and is not particular to the MSC North Project or future phase(s) of the MSC Program.
Provide information on alternative transportation options for consumers, residents, tenants, and employees to reduce transportation-related emissions.	It is anticipated that any transit access improvements at LAX would be reflected in the routes, schedules, and other information available from the affected transit agencies.
Educate consumers, residents, tenants, and the public about options for reducing motor vehicle-related GHG emissions. Include information on trip reduction; trip linking; vehicle performance and efficiency (e.g., keeping tires inflated); and low or zero-emission vehicles.	Not applicable..
Purchase, or create incentives for purchasing, low or zero-emission vehicles.	The majority of LAWA's vehicle fleet is comprised of low-emissions vehicles, and LAWA continues to increase that percentage. LAWA would continue that program agency-wide, but is it not specific to the MSC North Project or future phase(s) of the MSC Program.
Create a ridesharing program. Promote existing ridesharing programs e.g., by designating a certain percentage of parking spaces for ridesharing vehicles, designating adequate passenger loading and unloading for ridesharing vehicles, and providing a website or message board for coordinating rides.	Please see above.
Create or accommodate car sharing programs, e.g., provide parking spaces for car share vehicles at convenient locations accessible by public transportation.	Please see above.
Provide a vanpool for employees.	Please see above.
Create local "light vehicle" networks, such as neighborhood electric vehicle systems.	Not applicable.
Enforce and follow idling time limits for commercial vehicles, including delivery and construction vehicles.	The LAX Master Plan MMRP and state law include provisions to limit construction vehicle idling, which would apply to the MSC North Project and future phase(s) of the MSC Program.
Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles.	Not applicable. Such facilities are already available at the airport.
Require best management practices in agriculture and animal operations to reduce emissions, conserve energy and water, and utilize alternative energy sources, including biogas, wind, and solar.	Not applicable.
Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas, and other open space that provide carbon sequestration benefits.	Not applicable.

Table 4.2-16

Evaluation of Potential GHG Mitigation Measures from the California Office of the Attorney General

Measure	Discussion
Protect existing trees and encourage the planting of new trees. Adopt a tree protection and replacement ordinance.	Not applicable.

Source: Ricondo & Associates, Inc., 2013.

Table 4.2-17

Evaluation of Potential GHG Mitigation Measures from the California 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.	Not Applicable.
Encourage infill, redevelopment, and higher-density development, whether in incorporated or unincorporated settings.	Not Applicable.
Encourage new developments to integrate housing, civic, and retail amenities (jobs, schools, parks, and shopping opportunities) to help reduce VMT resulting from discretionary automobile trips.	Not Applicable.
Apply advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods, and services.	The MSC North Project and future phase(s) of the MSC Program include provisions for tunneling of a future Automated People Mover (APM). Also, 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.	Not applicable.
Implement street improvements that are designed to relieve pressure on a region's most congested roadways and intersections.	Not applicable. Beyond the scope/control of the project.
Limit idling time for commercial vehicles, including delivery and construction vehicles.	The LAX Master Plan MMRP and state law include provisions to limit construction vehicle idling, which would apply to the proposed MSC North Project and future phase(s) of the MSC Program.

Table 4.2-17

Evaluation of Potential GHG Mitigation Measures
from the California Office of Planning and Research

Measure	Discussion
Urban Forestry	
Plant trees and vegetation near structures to shade buildings and reduce energy requirements for heating/cooling.	Not applicable.
Preserve or replace on-site trees (that are removed due to development) as a means of providing carbon storage.	Not applicable.
Green Buildings	
Encourage public and private construction of LEED®-certified (or equivalent) buildings.	The MSC North Concourse would be designed and constructed to LAGBC Tier 1 conformance.
Energy Conservation Policies and Actions	
Recognize and promote energy saving measures beyond Title 24 requirements for residential and commercial projects.	The MSC North Concourse would be designed and constructed to LAGBC Tier 1 conformance.
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 at LAX is part of LAWA's Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects. Additionally, new contact gates to be constructed as part of the MSC North Project and future phase(s) of the MSC Program would be equipped with the electrical infrastructure necessary to support charging stations for electric ground service equipment.
Educate the public, schools, other jurisdictions, professional associations, business, and industry about reducing GHG emissions.	Provisions for education of LAWA contractors, suppliers, tenants, and the community relative to the benefits of sustainability measures are included in the LSAG, which would apply to the proposed MSC North Project and future phase(s) of the MSC Program.
Replace traffic lights, street lights, and other electrical uses to energy efficient bulbs and appliances.	The use of energy efficient lighting is standard practice by LAWA and would also occur in meeting the energy conservation requirements of the Green Building Ordinance, which would be applicable to the proposed MSC North Project and future phase(s) of the MSC Program.
Purchase Energy Star equipment and appliances for public agency use.	The utilization of Energy Star equipment is required by the Green Building Ordinance, and would apply to the proposed MSC North Project and future phase(s) of the MSC Program.

Table 4.2-17

Evaluation of Potential GHG Mitigation Measures
from the California Office of Planning and Research

Measure	Discussion
Incorporate on-site renewable energy production, including installation of photovoltaic cells or other options.	Although separate from the MSC North Project and future phase(s) of the MSC Program, the LAX Central Utility Plant (CUP) Replacement Project, currently under construction, includes a thermal energy storage system (i.e., large tank below grade to store cooled water, which can reduce needs during peak energy use periods). It also includes cogeneration for the production of electricity from heat generated during the production of steam. The new CUP will provide the heating and cooling needs of the MSC North Project and possibly the future phase(s) of the MSC Program. Also, utilization of passive solar design features in new development is an option available through LSAG and would be considered during design of the MSC North Project and future phase(s) of the MSC Program.
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.	Not applicable.
Design, build, and operate schools that meet the Collaborative for High Performance Schools best practices.	Not applicable.
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, would be applied to the MSC North Project and future phase(s) of the MSC Program.
Convert landfill gas into energy sources for use in fueling vehicles, operating equipment, and heating buildings.	Not applicable.
Purchase government vehicles and buses that use alternative 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.	The majority of LAWA's vehicle fleet is comprised of low-emissions vehicles, and LAWA continues to increase that percentage. LAWA would continue that program agency-wide, but is it not specific to the MSC North Project and future phase(s) of the MSC Program. Additionally, the new contact gates to be constructed as part of the MSC North Project and future phase(s) of the MSC Program would be equipped with the electrical infrastructure necessary to support charging stations for electric ground service equipment.
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.	Not applicable.
Offer rebates and low-interest loans to residents that make energy-saving improvements on their homes.	Not applicable.

Table 4.2-17

Evaluation of Potential GHG Mitigation Measures
from the California Office of Planning and Research

Measure	Discussion
Create bicycle lanes and walking paths directed to the location of schools, parks, and other destination points.	Not applicable.
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 has a comprehensive rideshare and vanpool program available to all employees. LAWA's Rideshare Program offers financial incentives and discounts to participating employees. This program would continue agency-wide and is not specific to the MSC North Project and future phase(s) of the MSC Program.
Encourage large businesses to develop commute trip reduction plans that encourage employees who commute alone to consider alternative transportation modes.	Please see above.
Develop shuttle systems around business district parking garages to reduce congestion and create shorter commutes.	Beyond the scope/control of the project.
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.	Not applicable.
Programs to Reduce Solid Waste	
Create incentives to increase recycling and reduce generation of solid waste by residential users.	Not applicable.
Implement a Construction and Demolition Waste Recycling Ordinance to reduce the solid waste created by new development.	LSAG includes provisions for waste reduction and management, including, but not limited to, reuse and recycling of construction and demolition waste, which would be applicable to the MSC North Project and future phase(s) of the MSC Program.
Implement a Construction and Demolition Waste Recycling Ordinance to reduce the solid waste created by new development.	LAWA has an ongoing waste reduction and recycling program.

Source: Ricondo & Associates, Inc., 2013.

4.2.9 Level of Significance after Mitigation

Based on the discussion above, the amount of greenhouse gas emissions associated with construction and operation of the proposed MSC North Project and future phase(s) of the MSC Program would be substantial. Although the project would comply with Tier 1 requirements of the LAGBC, and LAWA policies and programs related to sustainability, the MSC North Project and MSC Program impacts, as well as the cumulative potential impacts related to global climate change, are considered to be significant and unavoidable. There are no additional feasible Project-specific mitigation measures that are not already incorporated under previous plans.

4.3 Human Health Risk Assessment

4.3.1 Introduction

The Human Health Risk Assessment (HHRA) addresses potential impacts to people exposed to toxic air contaminants (TACs) anticipated to be released as a result of the proposed MSC North Project and future phase(s) of the MSC Program. Potential impacts to human health associated with releases of TACs may include increased cancer risks and increased chronic (long-term) and acute (short-term) non-cancer health hazards from inhalation of TACs by people working, living, recreating, or attending school on or near the Project site. The objective of this HHRA is to estimate increased incremental health risk associated with construction and operational activities of the proposed MSC North Project and future phase(s) of the MSC Program.

The LAX Master Plan Final EIR[1] 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 MSC North Project, but did assess construction impacts associated with implementation of all components of the LAX Master Plan.

Several operational sources are included in this MSC North Project HHRA. Operational emissions associated with aircraft activity on the ground at LAX, with transporting passengers between the MSC North Project and the Central Terminal Area (CTA), and with the MSC North building heating and cooling units were analyzed for 2019 Without and With the Project as well as for 2012 baseline conditions, as discussed in Section 4.1, *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 MSC North Project-specific operations. This EIR also includes a qualitative evaluation of impacts associated with the future phase(s) of the MSC Program. At such time that LAWA determines the timing of future phase(s) of the MSC Program, a more detailed HHRA would be conducted as part of the required CEQA evaluation.

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

The HHRA was conducted in four steps as defined in South Coast Air Quality Management District[2] (SCAQMD), California Environmental Protection Agency[3] (CalEPA) and U.S. Environmental Protection Agency[4] (USEPA) guidance, consisting of:

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

Specifically, this HHRA addresses the following issues:

- Quantitative assessment of potential cancer risks and chronic non-cancer health hazards due to the release of TACs associated with the proposed MSC North Project construction and operational activities;
- Quantitative evaluation of possible acute non-cancer health hazards due to the release of TACs associated with the proposed MSC North Project construction and operational activities;
- Qualitative assessment of potential cancer risks and chronic non-cancer health hazards due to the release of TACs associated with the future phase(s) of the MSC Program operational activities; and
- Qualitative evaluation of possible acute non-cancer health hazards due to the release of TACs associated with the future phase(s) of the MSC Program operational activities.

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

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

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

4 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.

chemicals, as well as interactions among pollutants. These uncertainties were discussed in detail in the LAX Master Plan Final EIR Technical Report 14a and Technical Report S-9a.[5] This HHRA relied upon the best data and methodologies available; however, the nature and types of uncertainties described in the LAX Master Plan Final EIR Technical Reports also apply to this HHRA.

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

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

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

4.3.2 Methodology

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

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

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5 City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, January 2005.

Details of the methodologies, as well as health risk calculations, are provided in **Appendix C** of this EIR.

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

4.3.2.1 Selection of Toxic Air Contaminants of Concern

TACs of concern evaluated in this HHRA are shown in **Table 4.3-1**. They were selected based on emissions estimates and human toxicity information, results of the LAX Master Plan HHRA, and a review of health risk assessments included in the Crossfield Taxiway Project (CFTP) Final EIR, LAX Bradley West Project Final EIR, and LAX Specific Plan Assessment Study (SPAS) Final EIR. The primary TACs that contribute to health risk from diesel exhaust are from diesel particulate matter (DPM) and formaldehyde. However, all the TACs listed in Table 4.3-2 were included within this HHRA.

These TACs represent those pollutants that are most conducive to cancer risk, as well as adverse chronic and acute health exposure.

Table 4.3-1

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

Toxic Air Contaminant	Type
Acetaldehyde	VOC
Acrolein	VOC
Benzene	VOC
1,3-Butadiene	VOC
Ethylbenzene	VOC
Formaldehyde	VOC
n-Hexane	VOC
Methyl alcohol	VOC
Methyl ethyl ketone	VOC
Propylene	VOC
Styrene	VOC
Toluene	VOC
Xylene (total)	VOC
Naphthalene	PAH
Arsenic	PM-Metal
Cadmium	PM-Metal
Chromium VI	PM-Metal

Table 4.3-1

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

Toxic Air Contaminant	Type
Copper	PM-Metal
Lead	PM-Metal
Manganese	PM-Metal
Mercury	PM-Metal
Nickel	PM-Metal
Selenium	PM-Metal
Vanadium	PM-Metal
Diesel PM	Diesel Exhaust
Chlorine	PM-Inorganics
Silicon	PM-Inorganics
Sulfates	PM-Inorganics

Notes:
PAH = Polycyclic aromatic hydrocarbons
PM = Particulate matter
VOC = Volatile organic compounds

Source: Ricondo & Associates, Inc., December 2013.

4.3.2.2 Exposure Assessment

The exposure assessment includes identification of exposed populations, selection of exposure pathways, and calculation of exposure concentrations and total dose. For the HHRA analysis of the proposed MSC North Project, receptors selected for quantitative evaluation were: off-Airport workers, off-Airport adult residents, off-Airport child residents, off-Airport school children, and on-Airport workers. Each receptor represents a unique population and set of exposure conditions. As a whole, they cover a range of exposure scenarios for people who may be affected by the construction and operational emissions of the proposed MSC North Project. Receptors for which exposure scenarios were prepared were selected to provide protective risks and hazards estimated for MEI and to demonstrate the range of risks and hazards in the vicinity of the Airport. As previously noted, by providing estimates for the most exposed individuals for determination of significance, the general population is protected.

Different receptors could be exposed to TAC in several ways, called exposure pathways. An exposure pathway consists of four basic parts: a TAC source (e.g., diesel engines); a release mechanism (e.g., diesel engine exhaust); a means of transport from the release point to the receptor (e.g., local winds); and a route of exposure (e.g., inhalation). Numerous possible complete exposure pathways exist for receptors at or near LAX, but most are anticipated to make minimal to negligible contribution to total risks and hazards. For this HHRA, the inhalation pathway is the most important complete exposure pathway, contributing the majority of risk associated with the proposed MSC North 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 plants, and other indirect pathways, were addressed quantitatively in the programmatic HHRA developed for the LAX Master Plan EIR (see LAX Master Plan Final EIR Technical Report 14a and Technical Report S-9a).

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

The assessment of chronic non-cancer health hazard impacts due to the release of TACs associated with the construction of the proposed MSC North Project assumes that exposure concentrations of TACs are constant over a 70-year period for residential receptors. Exposure parameters used to calculate LADD and ADD for all receptors for the inhalation pathway are summarized in **Table 4.3-2**.

Table 4.3-2

Parameters Used to Estimate Exposures to TACs of Concern

	Off-Airport Receptors				
	Off-Airport Resident				
Exposure Pathway Inhalation of Particulates and Gases	Adult (70 years)	Adult (30 years)	Child	Off-Airport School Child	Off-Airport Worker
Daily Breathing Rate (m^3/day)	20[2]	20[2]	15[2]	6[2]	10[2]
Exposure Frequency (days/yr)	350[1,3]	350[1,3]	350[1,3]	200[4]	245[1]
Exposure Duration (years)	70[1,5]	30[1,5]	6[2]	6[4]	40[1]
Body Weight (kg)	70[1,6]	70[1,6]	15[2]	40	70[1,6]
Averaging Time - Non-cancer (days)	25,550[1,6]	10,929	2,190[6]	2,190[6]	14,600[6]
Averaging Time - Cancer (days)	25,550[1,6]	25,550	25,550[1,6]	25,550[1,6]	25,550[1,6]

Notes:
1 Cal/EPA, Air Toxic Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003.
2 USEPA, Exposure Factors Handbook, USEPA/600/P-95/002Fa, 1997.
3 USEPA, Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors, Office of Solid Waste and Emergency Response, Washington D.C., August, 1991.
4 Site-specific. See Appendix C, Attachment C.1, C.3, and C.4.
5 70 year exposure duration will be used as basis for determining significance.
6 USEPA, Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual, Part A, USEPA/540/1-89/002, Office of Emergency and Remedial Response, Washington D.C., 1989.

Source: Ricondo & Associates, Inc., December 2013.

4.3.2.3 Toxicity Assessment

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

4.3.2.4 Risk Characterization

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

For the proposed MSC North Project, grid point locations were analyzed along the Airport fence-line and within the Airport area, as shown in **Figure 4.3-1**. These locations are anticipated to represent MEI, based on previous dispersion modeling for LAX. Concentrations of each TAC at these locations were used in calculating cancer risk, and chronic and acute non-cancer health hazard estimates. These calculations were used to identify locations with maximum cancer risks and maximum non-cancer health hazards and serve as the basis for significance determinations.

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

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

Nineteen (19) of the 326 grid point locations that are located closest to the schools nearest the LAX fence-line (i.e., Saint Bernard High School at 9100 Falmouth Avenue in Playa Del Rey and Visitation Catholic Elementary School north of LAX at 8740 Emerson Avenue in Westchester) 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 19 grid point locations provides direct information on potential impacts on students, faculty, and staff at these schools. To ensure a conservative analysis for school children, grid point locations were placed between the schools and construction and operational sources and somewhat closer to these TAC sources.

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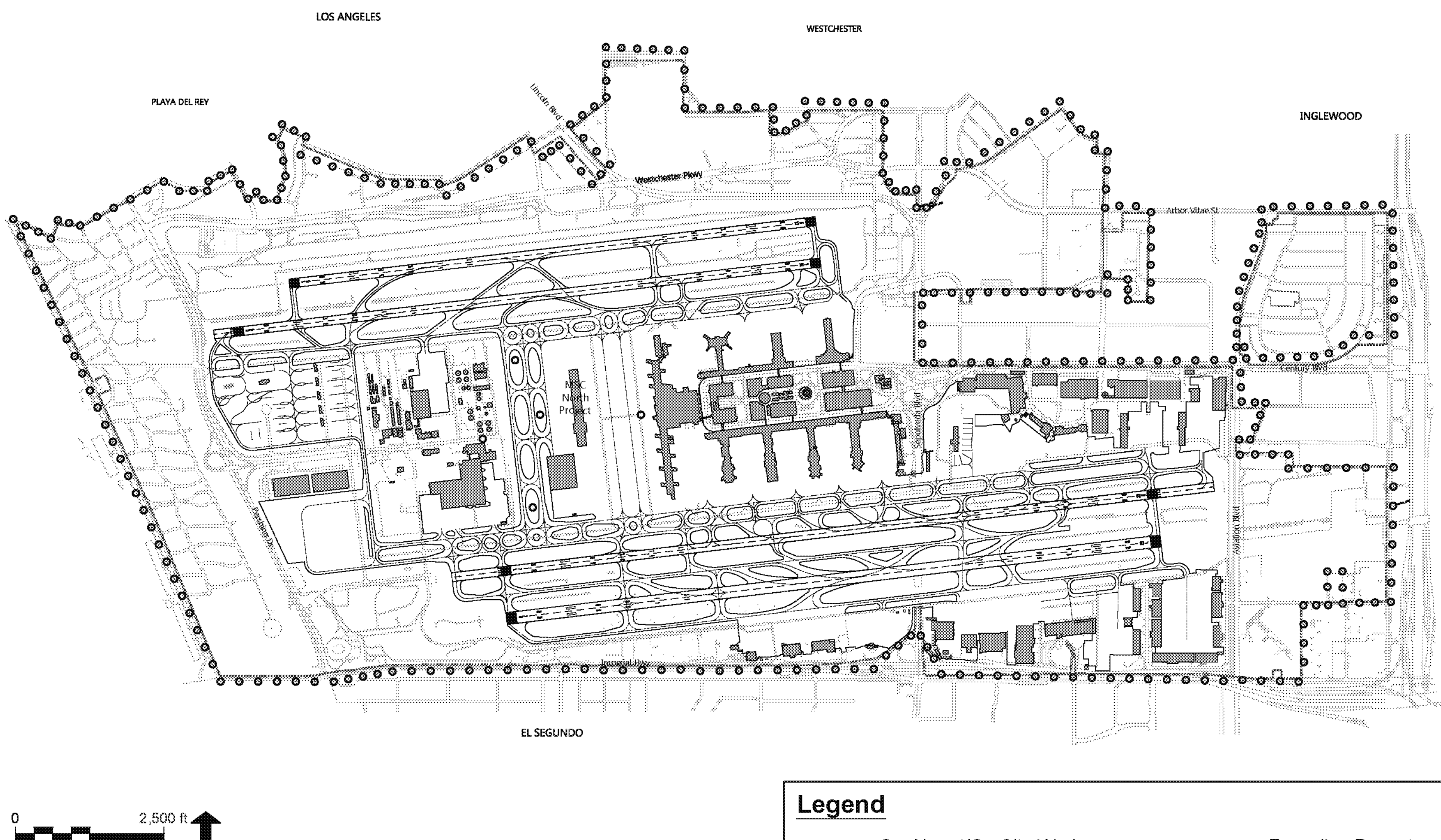

Source: Ricondo & Associates, Inc., January, 2014.
Prepared by: Ricondo & Associates, Inc., January, 2014.

Legend

- On-Airport/On-Site Workers
- On-Airport/Off-Site Workers
- Fenceline Receptors
- Airport Property Line

LAX Midfield Satellite Concourse Draft EIR

Receptor Locations

Figure
4.3-1

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Evaluation of Cancer Risks and Chronic Non-Cancer Health Hazard

Cancer risks of TACs were estimated by multiplying exposure estimates for TACs by the pollutant-specific cancer risk factor. The result is a risk estimate expressed as the odds of developing cancer. Cancer risks were based on an exposure duration of 70 years.

Chronic non-cancer health hazard estimates of TACs were calculated by dividing exposure estimates of each TAC by the chronic REL. RELs are estimates of the highest exposure levels that would not cause adverse health effects even if exposures continue over a lifetime. A ratio that is less than one indicates that the proposed MSC North Project exposure was less than the highest exposure level that would cause adverse health effects and, hence, no impact to human health would be expected.

Evaluation of Acute Non-Cancer Health Hazard Impacts

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

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

Evaluation of Health Effects for On-Airport Construction Workers

Impacts to construction workers were evaluated by comparing estimated acute 8-hour concentrations at six receptors on-Airport, one of which is located at the construction site, to the CalOSHA 8-hour average time-weighted average permissible exposure level (PEL-TWA) standards.

4.3.2.5 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). Emission rates of organic TACs were developed from VOC emission inventories for the same construction and operational sources analyzed in Section 4.1 of this EIR. TACs associated with small particles, or those particles less than 10 microns in diameter (PM_{10}), are the focus for particulate emissions, because this size fraction can deposit in the lung and is therefore primarily responsible for inhalation exposure.

Emission rates of particulate-bound TACs were developed from the PM_{10} emission inventories also included in Section 4.1. Speciation profiles[6] for VOC and PM_{10} emissions from individual source types, primarily developed by the California Air Resources Board (CARB), were used to calculate TAC emissions.[7] These emissions form the basis for modeling concentrations of TACs in air on and around LAX.

MSC North Project

Construction Emissions

Construction of the MSC North Project would result in temporary emissions of various air pollutants from construction equipment, vehicles used by workers commuting to the job site, trucks used for haul/delivery trips, and demolition (material crushing and grading). Methods for estimating source emissions are detailed in Section 4.1, *Air Quality*. For emissions estimating, the period of construction for the proposed MSC North Project was anticipated to be approximately 5 years.

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

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

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

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

Operational Emissions

The MSC North Project would not alter the airspace traffic, runway operational characteristics, or the practical capacity of the Airport.[8] Therefore, changes in emissions from aircraft operations over the 2012 baseline are due to increased travel demand and changes in aircraft fleet mixes that are projected to occur by 2019 irrespective of the proposed MSC North Project, as discussed in Section 4.1, *Air Quality*. However, the implementation of the MSC North Project would require passenger bus trips between the MSC North building and the CTA, and additional heating and cooling load from the Central Utility Plant. TAC emissions were analyzed for 2019 Without and With Project scenarios, as well as for 2012 baseline conditions, in order to determine the incremental impact. Evaluation of potential impacts to human health associated with these proposed MSC North Project-specific operational sources (e.g., passenger busing, utility increases to meet demands, and the difference in taxi times for 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, Organic Profile No. 816 for gasoline off-road equipment, and EPA Profile No. 5565 for aircraft engine exhaust. TAC inventories for operation source PM emissions were developed from Profile No. 110 for natural gas combustion and Profile No. 425 for diesel-fueled equipment.

Future Phase(s) of the MSC Program

The future phase(s) of the MSC Program components that are not part of the MSC North Project, as discussed in Chapter 2, *Description of the Proposed Project*, have only been conceptually planned; thus, only a program-level HRA of these components is possible. For those MSC Program components receiving only programmatic environmental review in this EIR, further project-level environmental review under CEQA will be required in the future before any of the MSC Program components can be implemented. Project-level environmental documents for future phase(s) of the MSC Program will be initiated at such time as LAWA determines the timing of these phase(s).

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8 The approved LAX Master Plan includes a gate cap limit at LAX, which effectively limits the number of aircraft passengers that can be processed/accommodated at LAX. This was established in the Final EIS/EIR for the LAX Master Plan, which showed forecasted activity levels for the No Action/No Project alternative essentially the same as for the approved Alternative D. The MSC, while providing modern aircraft gates, does not increase the passenger processing capabilities of the airport and would have no effect on the number or type of aircraft operations at LAX. Therefore, the MSC North Project and the future phase(s) of the MSC Program will comply with the gate cap as discussed in the LAX Master Plan. The MSC North Project will allow LAWA to modernize the existing terminal area without having to reduce the number of available gates and will reduce the number of operations at the West Remote Gates/Pads. Once the future phase(s) of the MSC Program is completed, the West Remote Gates/Pads would be eliminated.

Construction Emissions

Construction TAC emissions of the MSC Program which were covered under the LAX Master Plan Final EIR at a programmatic level, are anticipated to be substantially the same, and are therefore not quantified in this EIR.

Operational Emissions

Any future phase(s) of the MSC Program would contribute to operational TAC emissions. TAC emissions in this analysis are presented in terms of a projected future Program operational date of 2025. Evaluation of potential impacts to human health associated with operational sources of the future phase(s) of the MSC Program are discussed qualitatively in this HHRA.

Exposure Concentrations

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

Concentrations were estimated at 326 grid point locations at or near the LAX property line (fence-line), at one grid node at the LAX Theme Building, and at five grid point locations near the construction area. Receptor type (i.e., recreational, residential, commercial, or school) for each grid point location was dictated by land use at or near the grid point location. Modeled concentrations at the fence-line are higher than concentrations modeled farther out from the airport where people currently reside, work, recreate, and go to school due to pollutant dispersion over distance. Concentrations at these fence-line locations reasonably represent concentrations of TACs for use in evaluating MEI.

Nineteen (19) of the 326 fenceline grid point locations are located close to school sites nearest to the LAX fence-line (i.e., Saint Bernard High School in Playa Del Rey and Visitation Catholic Elementary School in Westchester). These grid point locations were selected to assess risks and hazards for sensitive receptors attending or working at schools near the fence-line.

Six grid point locations were modeled at on-site locations to represent where on-Airport workers might receive the greatest exposure to TACs. The TAC concentrations were compared to the California Occupational Safety and Health Administration (CalOSHA) 8-hour PEL-TWAs.

4.3.3 Existing Conditions

4.3.3.1 Regulatory Setting

Federal

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

State

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

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

California Air Resources Board Air Toxics Control Measure (ATCM)

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

In addition to limiting exhaust from idling trucks, CARB promulgated emission standards for off-road diesel construction equipment such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. A CARB regulation that became effective on June 15, 2008, aims to reduce emissions by installation of diesel soot filters and encouraging the replacement of older, dirtier engines with newer emission controlled models. The regulation requires that fleets limit their unnecessary idling to 5 minutes; there are exceptions for vehicles that need to idle to perform work (such as a crane providing hydraulic power to the boom), vehicles being serviced, or in a queue waiting for work. A prohibition against acquiring certain vehicles (e.g., Tier 0 and Tier 1) began on March 1, 2009; however, CARB is not enforcing this part of the regulation until "it receives authorization from USEPA."[9] Implementation of the fleet averaging emission standards is staggered based on fleet size, with the largest operators to begin compliance in 2014.[10] By 2020, CARB estimates that DPM will be reduced by 74 percent and smog forming NO_X (an ozone precursor emitted from diesel engines) by 32 percent, compared to what emissions would be without the regulation.[11]

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

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

Regional/Local

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

4.3.3.2 Existing Health Risk in the Project Area

The SCAQMD has released a draft final Basin-wide air toxics study (*MATES III, Multiple Air Toxics Exposure Study*, May 2008). The MATES III Study represents one of the most comprehensive air toxics studies ever conducted in an urban environment. The MATES III Study was aimed at estimating the cancer risk from TAC emissions throughout the Basin by conducting a comprehensive monitoring program, an updated emissions inventory of TACs, and a modeling effort to fully characterize health risks for those living in the Basin. The MATES III Study concluded that the average carcinogenic risk from air pollution in the Basin is approximately 1,200 in one million. Mobile sources (e.g., cars, trucks, trains, ships, aircraft, etc.) represent the greatest contributors. Approximately 85 percent of the risk is attributed to

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

10 CARB, In-Use Off-Road Diesel Vehicle Regulation, Overview, Revised May 2012, Available at: http://www.arb.ca.gov/msprog/ordiesel/faq/overview_fact_sheet_dec_2010-final.pdf, Accessed November 2013.

11 CARB, "Emissions and Health Benefits of Regulation for In-Use Off-Road Diesel Vehicles," Available at: http://www.arb.ca.gov/msprog/ordiesel/documents/OFRDDIESELhealthFS.pdf, Accessed November 2013.

DPM emissions, approximately 10 percent to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde), and approximately 5 percent of all carcinogenic risk is attributed to stationary sources (which include industries and other certain businesses, such as dry cleaners and chrome plating operations).

As part of the MATES III Study, the SCAQMD has prepared a series of maps that show regional trends in estimated outdoor inhalation cancer risk from toxic emissions, as part of an ongoing effort to provide insight into relative risks. The maps' estimates represent the number of potential cancers per million people associated with a lifetime of breathing air toxics (24 hours per day outdoors for 70 years) in parts of the area. The estimated lifetime cancer risk from exposure to TACs for those residing within the vicinity of the proposed Project is estimated at 884 cancers per million, while the vast majority of the area surrounding LAX ranges between 500 to 1,200 cancers per million.[12] However, the visual resolution available in the map is 1 kilometer by 1 kilometer and, thus, impacts for individual neighborhoods are not discernible on this map. In general, the risk of the Project site is comparable with other areas in the Los Angeles area; the risk from air toxics is lower near the coastline, and increases inland, with higher risks concentrated near large diesel sources (e.g., freeways, airports, and ports).

The CARB also prepares a series of maps that show regional trends in estimated outdoor inhalable cancer risk from air toxic emissions. The Year 2010 Los Angeles County Central map, which is the most recently available map to represent existing conditions, shows cancer risk ranging from 500 to 1,500 cancers per million in the Project area, which is generally consistent with the SCAQMD's risk maps.[13]

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

Sources of Toxic Air Contaminants of Concern

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

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12 South Coast Air Quality Management District, Multiple Air Toxics Exposure Study III Model Estimated Carcinogenic Risk, Available at: http://www3.aqmd.gov/webappl/matesiii/, Accessed January 9, 2013.

13 California Air Resources Board, Cancer Inhalation Risk: Local Trend Maps, Available at: http://www.arb.ca.gov/ch/communities/hlthrisk/cncrinhl/rskmapvwtrend.htm.400. Accessed January 9, 2014.

Exposed Populations

Screening-level air dispersion modeling conducted for the LAX Master Plan Final EIS/EIR indicated that the greatest area of human health impact from airport activities is confined to the airport property. However, health risks from LAX may accrue to populations in the nearby area. The exposed population within this potential area of impact includes workers, residents, and sensitive receptors such as schools, hospitals, and nursing. The airport is bound to the north and south by residential areas which are likely to contain populations that are particularly sensitive to air pollution. These population groups include children, elderly, and acutely and chronically ill persons (especially those with cardio-respiratory diseases). Sensitive land uses in close proximity to the Project site include the following:

- The El Segundo residential neighborhood located approximately 1,300 feet to the south of Runway 7R-25L.
- The Westchester residential neighborhood located approximately 1,300 feet to the north of Runway 6L-24R.

4.3.4 CEQA Thresholds of Significance

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

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

The above thresholds utilized for this HHRA are based on SCAQMD guidance. The SCAQMD is in the process of developing an "Air Quality Analysis Guidance Handbook" (Handbook) to replace the 1993 SCAQMD CEQA Air Quality Handbook. Although not yet published, SCAQMD has made certain sections of the Handbook available, including their air quality significance thresholds, which provide thresholds for TACs.[14] The threshold for workers is based on standards developed by CalOSHA.[15]

4.3.5 Applicable LAX Master Plan Commitments and Mitigation Measures

As part of the LAX Master Plan, LAWA adopted commitments and control measures pertaining to air quality (denoted with "AQ") in the Alternative D MMRP. Of the three commitments and four control measures that were designed to address air quality impacts related to implementation of the LAX Master Plan, none of the commitments are applicable to the proposed MSC North Project or future phase(s) of the MSC Program, but all of the control measures were considered in the air quality analysis herein (denoted below as LAX-AQ-1, LAX-AQ-2, LAX-AQ-3, and LAX-AQ-4).

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

LAX-AQ-1 – General Air Quality Control Measures.

This measure describes a variety of specific actions to reduce air quality impacts associated with projects at LAX, and applies to all projects. Some components of LAX-AQ-1 are not readily quantifiable, but would be implemented as part of LAX Master Plan projects. Specific measures are identified in **Table 4.3-3**.

Table 4.3-3

General Air Quality Control Measures[1]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
1a	Watering (per SCAQMD Rule 403 and CalEEMod default) – twice daily.	Fugitive Dust	55% PM_{10} and $PM_{2.5}$
1b	Ultra-low sulfur diesel (ULSD) fuel will be used in construction equipment.	On- and Off-Road Mobile	Assumed in modeling

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

[15] 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, accessed August 2013.

Table 4.3-3

General Air Quality Control Measures[1]

1c	Post a publicly visible sign with the telephone number and person to contact regarding dust complaints; this person shall respond and take corrective action within 24 hours.	Fugitive Dust	NQ
1d	Prior to final occupancy, the applicant demonstrates that all ground surfaces are covered or treated sufficiently to minimize fugitive dust emissions.	Fugitive Dust	NQ
1e	All roadways, driveways, sidewalks, etc., being installed as part of the project should be completed as soon as possible; in addition, building pads should be laid as soon as possible after grading.	Fugitive Dust	NQ
1f	Prohibit idling or queuing of diesel-fueled vehicles and equipment in excess of five minutes. This requirement will be included in specifications for any LAX projects requiring on-site construction.[2]	On- and Off-Road Mobile	NQ
1g	Require that all construction equipment working on-site is properly maintained (including engine tuning) at all times in accordance with manufacturers' specifications and schedules.	Mobile and Stationary	NQ

Notes:

NQ = Not Quantified

1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-1, unless otherwise noted.

2 From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.M and LAWA's Design and Construction Handbook, Section 1.31.9.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Design and Construction Handbook, November 2012.

LAX-AQ-2 - Construction-Related Control Measures.

This measure describes numerous specific actions to reduce fugitive dust emissions and exhaust emissions from on-road and off-road mobile and stationary sources used in construction. Some components of LAX-AQ-2 are not readily quantifiable, but would be implemented as part of LAX projects. These control strategies are expected to reduce construction-related emissions. Specific measures are identified in **Table 4.3-4**.

Table 4.3-4

Construction-Related Control Measures[1]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
2a	All diesel-fueled equipment used for construction will be outfitted with the best available emission control devices, where technologically feasible, primarily to reduce emissions of diesel particulate matter (DPM), including fine PM ($PM_{2.5}$), and secondarily, to reduce emissions of NO_X. This requirement shall apply to diesel-fueled off-road equipment (such as construction machinery), diesel-fueled on-road vehicles (such as trucks), and stationary diesel-fueled engines (such as electric generators). (It is unlikely that this measure will apply to equipment with Tier 4 engines.) The emission control devices utilized in construction equipment shall be verified or certified by CARB or USEPA for use in on- road or off-road vehicles or engines. For multi-year construction projects, a reassessment shall be conducted annually to determine what constitutes a best available emissions control device.[2]	Off-Road Mobile	85% PM_{10} and $PM_{2.5}$, adjusted for compatibility
2b	Watering (per SCAQMD Rule 403 and CalEEMod default) – three times daily.	Fugitive Dust	61% PM_{10} and $PM_{2.5}$
2c	Pave all construction access roads at least 100 feet onto the site from the main road.	Fugitive Dust	NQ
2d	To the extent feasible, have construction employees' work/commute during off-peak hours.	On-Road Mobile	NQ
2e	Make available on-site lunch trucks during construction to minimize off-site worker vehicle trips.	On-Road Mobile	NQ
2f	Utilize on-site rock crushing facility, when feasible, during construction to reuse rock/concrete and minimize off-site truck haul trips.	On-Road Mobile	NQ
2g	Specify combination of electricity from power poles and portable diesel- or gasoline-fueled generators using "clean burning diesel" fuel and exhaust emission controls.[3]	Stationary Point Source Controls	NQ
2h	Suspend use of all construction equipment during a second-stage smog alert in the immediate vicinity of LAX.	Mobile and Stationary	NQ
2i	Utilize construction equipment having the minimum practical engine size (i.e., lowest appropriate horsepower rating for intended job).	Mobile and Stationary	NQ
2j	Prohibit tampering with construction equipment to increase horsepower or to defeat emission control devices.	Mobile and Stationary	NQ

Table 4.3-4

Construction-Related Control Measures[1]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions
2k	The contractor or builder shall designate a person or persons to ensure the implementation of all components of the construction-related measure through direct inspections, record reviews, and investigations of complaints.	Administrative	NQ
2l	LAWA will locate rock-crushing operations and construction material stockpiles for all LAX-related construction in areas away from LAX-adjacent residents, to the extent possible, to reduce impacts from emissions of fugitive dust.[4]	Stationary	Can be quantified in modeling assumptions
2m	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[5]	Mobile	NQ
2n	On-road trucks used on LAX construction projects with a gross vehicle weight rating of at least 19,500 pounds shall, at a minimum, comply with USEPA 2007 on-road emissions standards for PM_{10} and NO_X.[6]	On-Road Mobile	Assumed in modeling
2o	Prior to January 1, 2015, all off-road diesel-powered construction equipment greater than 50 horsepower shall meet USEPA Tier 3 off-road emission standards. After December 31, 2014, all off-road diesel-power construction equipment greater than 50 horsepower shall meet USEPA Tier 4 off-road emissions standards. Tier 4 equipment shall be considered based on availability at the time the construction bid is issued. LAWA will encourage construction contractors to apply for SCAQMD "SOON" funds to accelerate clean-up of off-road diesel engine emissions.[7]	Off-Road Mobile	Assumed in modeling

Table 4.3-4

Construction-Related Control Measures[1]

Measure Number	Measure	Type of Measure	Quantified Emissions Reductions

Notes:
NQ = Not Quantified
1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-2, unless otherwise noted.
2 From LAX Master Plan Mitigation Measure MM-AQ-2 and Community Benefits Agreement Measure X.F.
3 From LAX Master Plan Mitigation Measure MM-AQ-2 and LAWA's Design and Construction Handbook, Section 1.31.9.
4 From Community Benefits Agreement Measure X.L.
5 From Community Benefits Agreement Measure X.N.
6 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.
7 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-1.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

LAX-AQ-3 - Transportation-Related Control Measures.

This measure applies to mass transit, surface traffic, and on-site parking facilities. The principal feature of this measure is to replicate and expand the current LAX FlyAway service to other communities within regions of Los Angeles County. This initiative also includes a public outreach program to encourage the use of both the existing and new facilities. The remaining, secondary transportation-related air quality control measures may also be implemented. It should be noted that no estimate of the air quality benefit (i.e. emissions reduction) of these secondary measures is made in this analysis. Specific measures are identified in **Table 4.3-5**.

Table 4.3-5

Traffic-Related Air Quality Control Measures[1]

Measure Number	Measure	Type of Measure
3a	Construct on-site or off-site bus turnouts, passenger benches, or shelters to encourage transit system use.	Transit Ridership
3b	Construct on-site or off-site pedestrian improvements, including showers for pedestrian employees to encourage walking/bicycling to work by LAX employees.	Transit Ridership
3c	Link Intelligent Transportation Systems (ITS) with off-airport parking facilities with ability to divert/direct trips to these facilities to reduce traffic/parking congestion and the associated air emissions in the immediate vicinity of the airport.	Highway/Roadway Improvements

Table 4.3-5

Traffic-Related Air Quality Control Measures[1]

Measure Number	Measure	Type of Measure
3d	Expand ITS and Adaptive Traffic Control Systems (ATCS), concentrating on I-405 and I-105 corridors, extending into South Bay and Westside surface street corridors to reduce traffic/parking congestion and associated air emissions in the immediate vicinity of the airport.	Highway/Roadway Improvements
3e	Link LAX traffic management system with airport cargo facilities, with ability to re-route cargo trips to/from these facilities to reduce traffic/parking congestion and associated air emissions in the immediate vicinity of the airport.	Highway/Roadway Improvements
3f	Develop a program to minimize use of conventional-fueled fleet vehicles during smog alerts to reduce air emissions from vehicles at the airport.	Highway/Roadway Improvements
3g	Provide free parking and preferential parking locations for ultra low emission vehicles/super low emission vehicles/zero emission vehicles (ULEV/SULEV/ZEV) in all (including employee) LAX lots; provide free charging stations for ZEV; include public outreach to reduce air emissions from automobiles accessing airport parking.	Parking
3h	Develop measures to reduce air emissions of vehicles in line to exit parking lots such as pay-on-foot (before getting into car) to minimizing idle time at parking check out, including public outreach.	Parking
3i	Implement on-site circulation plan in parking lots to reduce time and associated air emissions from vehicles circulating through lots looking for parking.	Parking
3j	Encourage video conferencing capabilities at various locations on the airport to reduce off-site local business travel and associated VMT and air emissions in the vicinity of the airport.	Parking
3k	Expand LAWA's rideshare program to include all airport tenants.	Additional Ridership
3l	Promote commercial vehicles/trucks/vans using terminal areas (LAX and regional intermodal) to install SULEV/ZEV engines to reduce vehicle air emissions.	Clean Vehicle Fleets
3m	Promote "best-engine" technology for rental cars using on-airport rent-a-car facilities to reduce vehicle air emissions.	Clean Vehicle Fleets
3n	Consolidate non-rental car shuttles using SULEV/ZEV engines to reduce vehicle air emissions.	Clean Vehicle Fleets
3o	Cover, if feasible, any parking structures that receive direct sunlight, to reduce volatile emissions from vehicle gasoline tanks; and install solar panels on these roofs where feasible to supply electricity or hot water to reduce power production demand and associated air emissions at utility plants.	Energy Conservation

Table 4.3-5

Traffic-Related Air Quality Control Measures[1]

Measure Number	Measure	Type of Measure
3p	LAWA will develop an information technology system that LAWA employees and the general public can utilize with consumer electronics that will provide real-time information regarding local and regional traffic conditions for travel to and from LAX.[2]	Traffic Management
3q	LAWA will incorporate quick entry and exit parking systems in the project level design of future parking lots/structures associated with the SPAS project.[3]	Parking
3r	LAWA will include advanced signage in the design of future parking structures that could advise airport users of available parking spaces within the structure.[4]	Parking

Notes:
1 These measures are from LAX Master Plan Mitigation Measure MM-AQ-3, unless otherwise noted.
2 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.
3 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.
4 From LAX Specific Plan Amendment Study Measure MM-AQ (SPAS)-2.

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

LAX-AQ-4 - Operations-Related Control Measures.

The principal feature of this measure is the conversion of LAX GSE to low and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). It should be noted that no estimate of the air quality benefit (i.e., emission reductions) of other secondary measures is made in this analysis. Specific measures are identified in **Table 4.3-6**.

Table 4.3-6

Operations-Related Air Quality Control Measures[1]

Measure Number	Measure	Type of Measure
4a	LAX GSE will be converted to low- and ultra-low emission technology (e.g., electric, fuel cell, and other future low-emission technologies). Both LAWA- and tenant-owned equipment will be included in this conversion program, which will be implemented in phases. LAWA will assign a GSE coordinator whose responsibility it will be to ensure the successful conversion of GSE in a timely manner. This coordinator will have adequate authority to negotiate on behalf of the City and have sufficient technical support to evaluate technical issues that arise during the implementation of this measure.[2]	Airside Operations
4b	All passenger gates newly constructed at LAX shall be equipped with and be able to provide grid electricity to parked aircraft (for lighting and ventilation) from and after the date of initial operation. LAWA will ensure that all aircraft (unless exempt) use the gate-provided grid electricity in lieu of electricity provided by operation of an auxiliary or ground power unit. This provision applies in conjunction with construction or modification of passenger gates.[3]	Airside/Terminal
4e	LAWA will require the conversion of sweepers to alternative fuels or electric power for ongoing airfield and roadway maintenance. In the 2006 GSE inventory, two of ten sweepers were electric powered and one was either CNG or LPG fueled. HEPA filters will be installed on airport sweepers where the use of HEPA filters is technologically and financially feasible and does not pose a safety hazard to airport operations.[4]	General
4f	LAWA will ensure that there is available and sufficient infrastructure on-site, where not operationally or technically infeasible, to provide fuel to alternative-fueled vehicles to meet all requests for alternative fuels from contractors and other users of LAX. This will apply to construction equipment and to operations-related vehicles on-site. This provision will apply in conjunction with construction or modification of passenger gates related to implementation of the LAX Master Plan relative to the provision of appropriate infrastructure for electric GSE.[5]	Operational Vehicles

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

Sources: City of Los Angeles, Los Angeles World Airports (LAWA), and FAA, Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047, April 2004; Los Angeles World Airports and LAX Coalition for Economic, Environmental, and Educational Justice, Cooperation Agreement, Los Angeles International Airport Master Plan Program, December 2004; Los Angeles World Airports, Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

4.3.6 Impact Analysis

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

4.3.6.1 MSC North Project

Health Risks to On-Airport Workers

Effects on on-Airport workers were evaluated by comparing estimated maximum 8-hour average TAC concentration to the CalOSHA 8-hour Time-Weighted Average Permissible Exposure Levels (PEL-TWA). The estimated maximum 8-hour average TAC concentrations for on-Airport locations for both construction and operational (2019 Future With MSC North Project compared to the 2019 Future Without MSC North Project) scenarios for the MSC North Project are several orders of magnitude below the PEL-TWA and, thus would not exceed those considered acceptable by CalOSHA standards, as shown in **Table 4.3-7**. Therefore, impacts related to health risks to on-Airport workers would be less than significant for the MSC North Project.

Table 4.3-7

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

Toxic Air Contaminant [1]	Project Construction Concentrations (mg/m^3) [2]	Project Operation Concentrations (mg/m^3) [2]	CalOSHA PEL TWA (mg/m^3) [3]
Acetaldehyde	0.002101	0.002568	45
Acrolein	0.000036	0.001453	0.25
Benzene	0.000572	0.001593	0.32 [4]
1,3-Butadiene	0.000054	0.001132	2.2
Ethylbenzene	0.000087	0.000303	435
Formaldehyde	0.004205	0.007433	0.37 [4]
Hexane, n-	0.000045	0.000000	180
Methanol	0.000009	0.001087	260
Methyl ethyl ketone	0.000422	0.000009	590
Naphthalene	0.000024	0.000330	50
Propylene	0.000742	0.003080	N/A [5]
Styrene	0.000017	0.000207	215
Toluene	0.000421	0.001297	37
Xylene (total)	0.000297	0.001190	435
Diesel PM	0.001943	0.013096	N/A [5]
Arsenic	0.000002	0.000001	0.01
Cadmium	0.000003	0.000001	0.005
Chlorine	0.000271	0.000005	1.5

Table 4.3-7

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

Toxic Air Contaminant [1]	Project Construction Concentrations (mg/m^3) [2]	Project Operation Concentrations (mg/m^3) [2]	CalOSHA PEL TWA (mg/m^3) [3]
Chromium (VI)	0.000001	0.0000001	0.005
Copper	0.000009	0.000001	1
Lead	0.000045	0.000001	0.05
Manganese	0.000073	0.000001	0.2
Mercury	0.000001	0.0000004	0.025
Nickel	0.000005	0.000000	0.5
Selenium	0.000000	0.000000	0.2
Silicon	0.015520	0.000033	6
Sulfates	0.000409	0.000232	N/A [5]
Vanadium	0.000021	0.0000004	0.05

Notes:
1 All TACs for which PEL-TWAs are available are listed. PEL-TWAs are not available for diesel exhaust, propylene, and sulfates.
2 Maximum 1-hour concentrations at on-airport location converted to 8-hour averages by multiplying by a factor of 0.7.
3 California Occupational Safety and Health Administration. Permissible Exposure Limits for Chemical Contaminants, Table AC-1, 2008, http://www.dir.ca.gov/title8/5155table_ac1.html.
4 CalOSHA does not have a value; value is from American Conference of Governmental Industrial Hygienists (ACGIH), Documentation of the Threshold Limit Values and Biological Exposure Indices, 8th ed., Cincinnati, Ohio, 1998.
5 N/A = Not Available

Source: Ricondo & Associates, Inc., January 2014.

Cancer Risks and Chronic Non-Cancer Hazards

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

Air concentrations for TAC from construction sources were developed using emissions estimates and dispersion modeling as described above. Using these emission estimates, exposure parameters for potential receptors and current toxicity values, cancer risks and chronic non-cancer health hazards were calculated for adult residents, resident children ages 0 to 6 years, and for elementary-aged school children at fence-line locations. Off-site worker risks and hazards were estimated at the fence-line. Peak cancer risks and chronic non-cancer health hazards for MEI for construction and operations of the proposed MSC North Project are summarized in **Table 4.3-8**.

Table 4.3-8

Incremental Cancer Risks and Chronic Non-Cancer Human Health Hazards for Maximally Exposed Individuals from the MSC North Project

Receptor Type	Project Construction	Project Operations
Incremental Cancer Risks [1] (per million people)		
Child Resident	0.09	0.1
School Child	0.02	0.03
Adult Resident	1.0	1.6
Adult Worker	0.4	0.9
Incremental Non-Cancer Chronic Hazards [2]		
Child Resident	0.08	0.01
School Child	0.02	0.003
Adult Resident	0.08	0.01
Adult Worker	0.06	-0.002

Notes:
1 Values provided are changes in the number of cancer cases per million people exposed as compared to baseline conditions. All estimates are rounded to one significant figure.
2 Hazard indices are totals for all TACs that may affect the respiratory system. This incremental hazard index is essentially equal to the total for all TACs.

Source: Ricondo & Associates, Inc., January 2014.

The estimated peak incremental cancer risks for adult residents and child residents for construction of the proposed MSC North Project range from 0.09 in one million to 1.0 in one million. Incremental cancer risk for school children at the peak location was estimated to be 0.02 in one million. The peak adult (non-Project) worker cancer risk would be 0.4 in one million. These estimates indicate that Project-related cancer risks for adults and for young children would be below the threshold of significance of 10 in one million for MSC North Project construction. 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 MSC North Project construction would occur continuously over an entire lifetime. Concentrations of TAC associated with construction of the MSC North Project would be much less at current residential locations and construction of the proposed 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 C**.

Cancer risks for operational sources were also evaluated. When compared against the 2019 Future Without MSC North Project scenario, the estimated peak incremental cancer risks for adult residents and child residents for the proposed MSC North Project range from 0.1 in one million to 1.6 in one million. Incremental cancer risk for school children at the peak location was estimated to be 0.03 in one million. The peak adult (non-Project) worker cancer risk would be

0.9 in one million. These estimates indicate that Project-related cancer risks for adults and for young children would be below the threshold of significance of 10 in one million for the proposed MSC North Project.

Project-related chronic non-cancer hazard indices for construction impacts associated with the MSC North Project for adult residents and child residents living at the peak TAC concentration location were estimated to be 0.08. Project-related chronic non-cancer hazard index for chemicals affecting the same target (i.e., the respiratory system) for MEI school children is 0.02. The peak adult (non-Project) worker chronic hazard index was estimated to be 0.06. These estimates indicate that construction-related chronic non-cancer hazards would be less than the hazard index threshold of 1.

Chronic non-cancer hazard indices were also evaluated for operational impacts associated with the MSC North Project; for adult residents and child residents living at the peak TAC concentration location, these indices were estimated to be 0.01. Operations-related chronic non-cancer hazard index for MEI school children is 0.003. The peak adult worker chronic hazard index was estimated to be -0.002. These estimates indicate that operations-related chronic non-cancer hazards would be less than the hazard index threshold of 1.

Acute Non-Cancer Hazards Risk

As with cancer risks and chronic non-cancer health hazards, acute health hazards were analyzed at 332 grid point locations within the Airport area. Short-term concentrations of TAC for the proposed MSC North Project sources were estimated using AERMOD with the model option for 1-hour maximum concentrations selected. Acute health hazards were estimated at each grid point location by comparison of the modeled TAC concentration at each grid point location with the acute REL. All TAC identified in MSC North Project construction and operational emissions, and for which CalEPA has developed acute RELs, were evaluated for potential acute health hazards. All acute health hazard estimates are specific for airport emissions and are independent of county-wide estimates developed by USEPA.

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

Formaldehyde and manganese are the only TAC of concern in construction emissions from the proposed MSC North Project that might be present at concentrations approaching the thresholds for acute health hazards. Acute health hazards for other TAC are orders of magnitude below their respective acute RELs and thus would not contribute substantially to health hazards. The primary source of formaldehyde is from diesel-powered construction equipment; the primary source of manganese is fugitive dust. Maximum acute health hazards associated with exposure to these two chemicals from the proposed MSC North Project construction are summarized in **Table 4.3-9**. As shown in Table 4.3-9, construction-related maximum acute hazard quotients for formaldehyde and manganese during construction are all below the significance threshold of 1.

Table 4.3-9

Maximum Incremental Acute Non-Cancer Hazard Indices from Construction

Pollutant	Formaldehyde	Manganese
Residential		
Maximum HI[1]	0.14	0.13
Minimum HI	0.003	0.02
Average HI	0.007	0.07
School		
Maximum HI	0.01	0.08
Minimum HI	0.003	0.03
Average HI	0.006	0.06
Offsite Worker		
Maximum HI	0.01	0.01
Minimum HI	0.002	0.02
Average HI	0.004	0.04
Recreational		
Maximum HI	0.01	0.1
Minimum HI	0.003	0.02
Average HI	0.006	0.05
Overall Off-Airport		
Maximum HI	0.14	0.13
On-Site Occupational		
Maximum HI	0.11	0.62

Notes:
1 HI = Hazard Index

Source: Ricondo & Associates, Inc., 2013.

Incremental maximum acute health hazards associated with exposure to chemicals as a result of operations of the proposed MSC North Project as compared to the 2019 Future Without MSC North Project are shown in **Table 4.3-10**. As shown, operations-related incremental maximum acute hazard quotients for acrolein for operations of the proposed MSC North Project as compared to the 2019 Without Project scenario are estimated to be 1.9 for residents living at the peak hazard location, 0.5 for school children, 0.3 for recreational users, and 1.4 for off-Airport adult workers. However, 321 of 326 off-Airport grid point locations have incremental acute hazard quotients for acrolein of less than 1; 191 of these grid point locations show a negative hazard quotient (mostly along the western and southern boundaries of the airport), meaning the impacts actually improve with the proposed MSC North Project. Of the five grid point locations with incremental acute hazard quotients for acrolein greater than 1, none of the grid point locations are greater than 2. Additional grid point locations located at 50 meter increments to the south of the airport show acrolein concentrations falling below the threshold of significance at approximately 200 meters south of the fence-line. To the north, acrolein concentrations fall below the threshold of significance at approximately 300 meters north of the fence-line. Grid point locations with acute hazard index exceedances are shown in **Figure 4.3-2**.

The acute REL for acrolein has an uncertainty factor of 60.[16] This factor indicates a moderate uncertainty in the REL based on specific sources of variability not addressed in the toxicological studies, such as individual variation and interspecies differences. Although the maximum acute hazard quotients for acrolein during operations of the proposed MSC North Project is greater than 1, it should be noted that the acute REL is set at or below a level at which no adverse health impacts are expected for the majority of the population. Hence, it represents the tail-end of a distribution and not a specific "bright line" beyond which adverse effects are certain; instead any adverse acute non-cancer health effects (mucous membrane irritation) would be part of a complex probabilistic process. Although the maximum acute hazard quotient estimated as 1.9 is above the threshold of significance of 1, the value is still close to the threshold for acute effects, given the uncertainty in the toxicity factor, and may represent minimal actual acute non-cancer health hazards. Thus, an acute hazard quotient of 1.9 does not mean that adverse effects would definitely occur in the receptor population; rather, it indicates that such effects cannot be ruled out on the basis of current knowledge.

Operations-related maximum acute hazard quotients for formaldehyde are estimated to be 0.4 for residents living at the peak hazard location, 0.1 for school children, 0.1 for recreational users, and 0.3 for off-Airport adult workers.

Because the acute hazard quotients for acrolein for receptors representing residents and off-Airport adult workers are above the threshold of significance of 1, acute non-cancer health hazard impacts during operations of the proposed MSC North Project would be significant.

[16] California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Technical Support Document for the Derivation of Noncancer Reference Exposure Levels, December 2008.

Table 4.3-10

Maximum Incremental Acute Non-Cancer Hazard Indices from Operations

Pollutant	Acrolein	Formaldehyde
Residential		
Maximum HI[1]	**1.93**[2]	0.44
Minimum HI	-1.41	-0.32
Average HI	-0.07	-0.02
School		
Maximum HI	0.50	0.12
Minimum HI	-0.79	-0.18
Average HI	0.03	0.01
Offsite Worker		
Maximum HI	**1.36**	0.32
Minimum HI	-1.33	-0.31
Average HI	-0.06	-0.01
Recreational		
Maximum HI	0.33	0.07
Minimum HI	-1.25	-0.29
Average HI	-0.37	-0.09
Overall Off-Airport		
Maximum HI	**1.93**	0.44
On-Site Occupational		
Maximum HI	0.75	0.18

Notes:
1 HI = Hazard Index
2 **Bold** HIs are greater than the significance threshold of 1.

Source: Ricondo & Associates, Inc., January 2014.

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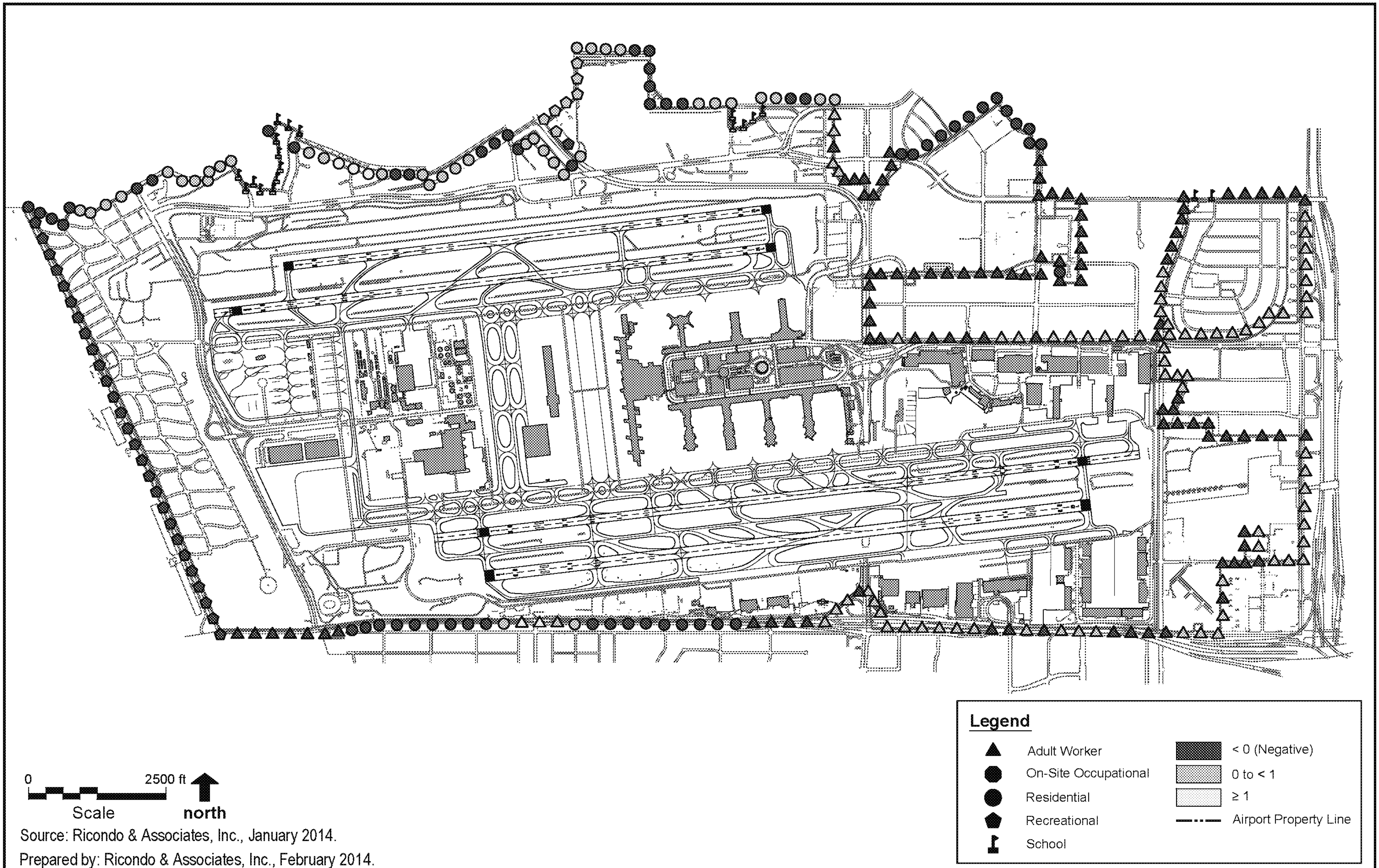

Source: Ricondo & Associates, Inc., January 2014.

Prepared by: Ricondo & Associates, Inc., February 2014.

LAX Midfield Satellite Concourse Draft EIR	Incremental Acute Non-Cancer Hazards from Acrolein by Receptor Type	Figure 4.3-2

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4.3.6.2 Future Phase(s) of the MSC Program

Health Risks to On-Airport Workers

The estimated maximum 8-hour average TAC concentrations for on-Airport locations for operational sources associated with the future phase(s) the MSC Program are expected to be similar to those of the MSC North Project. As the proposed MSC North Project TAC concentrations are several orders of magnitude below the PEL-TWA, and thus would not exceed those considered acceptable by CalOSHA standards, it is expected that the future phase(s) of the MSC Program would have less than significant impacts to on-Airport workers.

Cancer Risks and Chronic Non-Cancer Hazards

Cancer risks for operational sources for the MSC North Project as compared to the 2019 Without Project scenario were all below the threshold of significance of 10 in one million. Any future phase(s) of the MSC Program, when compared against the future Without Program scenario, is expected to have similar results.

Chronic non-cancer hazard indices were evaluated for operational impacts associated with the MSC North Project; estimates for all receptors indicate that operations-related chronic non-cancer hazards would be less than the hazard index threshold of 1. It is expected that the future phase(s) of the MSC Program would have similar results.

Acute Non-Cancer Hazards Risk

Similar to the MSC North Project, the future phase(s) of the MSC Program would reduce the use of the West Remote Gates/Pads, thereby increasing aircraft movements in the center of the airfield. This increase causes incremental exceedances of 1-hour acrolein acute hazard indices at receptors on the north and south fence-lines of LAX for the MSC North Project: similar results are expected for the future phase(s) of the MSC Program. Therefore, it is expected that the future phase(s) of the MSC Program would have significant impacts to acute non-cancer health hazard impacts.

4.3.7 Cumulative Impacts

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

When USEPA annual average estimates are converted to possible maximum 1-hour average concentrations, acrolein acute hazard indices are estimated to range from 0.03 to 1.5, with an average of 0.4; formaldehyde acute hazard indices are estimated to range from 0.1 to 2.2, with an average of 1; and manganese acute hazard indices are estimated to range from 0.03 to 0.5, with an average of 0.13 for locations within the HHRA study area. Predicted overall maximum incremental acute non-cancer health hazards for the proposed MSC North Project associated with acrolein ranged from 1.4 to 1.9; those associated with formaldehyde ranged from 0.3 to 0.4; and those associated with manganese ranged from 0.1 to 0.6. Results suggest that the proposed MSC North Project would add to total 1-hour maximum acrolein concentrations at some locations in the HHRA study area and, therefore, to cumulative acute non-cancer health hazards associated with exposure to acrolein. Similar results are expected for the future phase(s) of the MSC Program.

Although no defined thresholds for cumulative health risk impacts are available, it is the policy of the SCAQMD to use the same significance thresholds for cumulative impacts as for the project-specific impacts analyzed in the EIR. If cumulative health risks are evaluated following this SCAQMD policy, the project's contribution to the cumulative cancer risk would not be cumulatively considerable since the incremental cancer risk impacts of the proposed MSC North Project are all below the individual cancer risk significance thresholds of 10 in one million. It is expected that the contribution to the cumulative cancer risk from the future phase(s) of the MSC Program would also not be cumulatively considerable.

In contrast to cancer risk, the SCAQMD policy does have different significance thresholds for project-specific and cumulative impacts for hazard indices for TAC emissions. A project-specific significance threshold is one (1.0) while the cumulative threshold is 3.0. Based on this SCAQMD policy, chronic non-cancer hazard indices associated with airport emissions under the proposed MSC North Project, and the future phase(s) of the MSC Program, would be cumulatively significant.

4.3.8 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 air quality control measures set forth by LAWA for development projects at LAX take into account LAX Master Plan commitments and mitigation measures, Community Benefits Agreement and Stipulated Settlement measures, and measures identified in EIRs for other projects at LAX. In addition, the Los Angeles Green Building Code Tier 1 standards, which are applicable to all projects with a Los Angeles Department of Building and Safety permit-valuation over $200,000, require the proposed MSC North Project to implement a number of measures that would reduce criteria pollutant emissions.

The comprehensive mitigation program developed as part of the LAX Master Plan Final EIR provide the most comprehensive means of ensuring impacts will be reduced to the maximum extent feasible. LAWA has not identified any additional feasible measures available to address acute non-cancer health hazard impacts, which would remain significant.

4.3.9 Level of Significance after Mitigation

LAX Master Plan mitigation measures as described above, would reduce TAC emissions associated with the MSC North Project and future phase(s) of the MSC Program. However, even with implementation of these measures, acute non-cancer health hazards impacts at some fence-line receptors would exceed the threshold of significance under the proposed MSC North Project. It is expected that future phase(s) of the MSC Program would have similar impacts. As such, acute non-cancer health hazard impacts are considered to be significant and unavoidable.

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4.4 Noise

4.4.1 Introduction

Prior to the preparation of this EIR, an Initial Study was prepared using the California Environmental Quality Act (CEQA) Environmental Checklist Form to assess potential environmental impacts associated with noise. The IS found that for all six noise-related thresholds, the proposed MSC North Project would result in a "less than significant impact" and that no further analysis of that topic in an EIR was required. However, during the EIR Notice of Preparation (NOP) public comment period, LAWA received a request to analyze the potential impacts of aircraft noise from changes to taxi routes that would occur as a result of the proposed MSC North Project; therefore, this section analyzes potential taxi-noise impacts that would result from the development of the proposed MSC North Project. The analysis describes the existing noise environment within the MSC North Project area, estimates future noise levels at surrounding land uses resulting from operations of the proposed MSC North Project, and evaluates the potential for significant impacts. Noise calculation and data sheets for the proposed MSC North Project are included in **Appendix D** of this EIR.

Implementation of the future phase(s) of the MSC Program would also generate changes to taxi routes and thus taxiway noise. However, noise impacts from the MSC Program were analyzed in the LAX Master Plan EIR and it is expected that these impacts would not be substantively different from the MSC North Project. Thus, taxiway noise for the future phase(s) of the MSC Program is not analyzed in this EIR.

4.4.1.1 Noise Descriptors

Noise levels are measured using a variety of scientific metrics. As a result of extensive research into the characteristics of aircraft noise and human response to that noise, standard noise descriptors have been developed for aircraft noise exposure analyses. The descriptors used in this noise analysis are described below.

A-Weighted Sound Pressure Level (dBA): The decibel (dB) is a unit used to describe sound pressure level. When expressed in dBA, the sound has been filtered to reduce the effect of very low and very high frequency sounds, much as the human ear filters sound frequencies. Without this filtering, calculated and measured sound levels would include events that the human ear cannot hear (e.g., dog whistles and low frequency sounds, such as the groaning sounds emanating from large buildings with changes in temperature and wind). With A-weighting, calculations and sound monitoring equipment approximate the sensitivity of the human ear to sounds of different frequencies.

Some common sounds on the dBA scale are listed in **Table 4.4-1**. As shown, the relative perceived loudness of a sound doubles for each increase of 10 dBA, although a 10-dBA change in the sound level corresponds to a factor of 10 change in relative sound energy.

Table 4.4-1

Common Sounds On The A-Weighted Decibel Scale

Sound	Sound Level (dBA)	Relative Loudness (approximate)	Relative Sound Energy
Rock Music, with amplifier	120	64	1,000,000
Thunder, snowmobile (operator)	110	32	100,000
Boiler shop, power mower	100	16	10,000
Orchestral crescendo at 25 feet, noisy kitchen	90	8	1,000
Busy Street	80	4	100
Interior of department store	70	2	10
Ordinary conversation, 3 feet away	60	1	1
Quiet automobiles at low speed	50	½	0.1
Average office	40	1/4	0.01
City residence	30	1/8	0.001
Quite country residence	20	1/16	0.0001
Rustle of leaves	10	1/32	0.00001
Threshold of hearing	0	1/64	0.000001

Source: U.S. Department of Housing and Urban Development, Aircraft Noise Impact--Planning Guidelines for Local Agencies, 1972

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, when 70 dB ambient noise levels are combined with a 60 dB noise source the resulting noise level equals 70.4 dB.

Maximum Noise Level (L_{max}): L_{max} is the maximum or peak sound level during a noise event. The metric only accounts for the instantaneous peak intensity of the sound, and not for the duration of the event. As an aircraft passes by an observer, the sound level increases to a maximum level and then decreases. Some sound level meters measure and record the maximum or L_{max} level.

Sound Exposure Level (SEL): SEL, expressed in dBA, is a time integrated measure, expressed in decibels, of the sound energy of a single noise event at a reference duration of one second. The sound level is integrated over the period that the level exceeds a threshold. Therefore, SEL accounts for both the maximum sound level and the duration of the sound. The standardization of discrete noise events into a one-second duration allows calculation of the cumulative noise exposure of a series of noise events that occur over a period of time. Because of this compression of sound energy, the SEL of an aircraft noise event is typically 7 to 12 dBA greater than the L_{max} of the event. SELs for aircraft noise events depend on the location of the aircraft relative to the noise receptor, the type of operation (landing, takeoff, or overflight), and the type of aircraft.

Equivalent Continuous Noise Level (L_{eq}): L_{eq} is the sound level, expressed in dBA, of a steady sound which has the same A-weighted sound energy as the time-varying sound over the averaging period. Unlike SEL, L_{eq} is the average sound level for a specified time period (e.g., 24 hours, 8 hours, 1 hour, etc.). L_{eq} is calculated by integrating the sound energy from all noise events over a given time period and applying a factor for the number of events. L_{eq} can be expressed for any time interval, for example the L_{eq} representing an averaged level over an 8 hour period would be expressed as $L_{eq(8)}$.

Day-Night Average Sound Level (DNL): DNL, formerly referred to as L_{dn}, is expressed in dBA and represents the noise level over a 24-hour period. Because environmental noise fluctuates over time, DNL was devised to relate noise exposure over time to human response. DNL is a 24-hour average of the hourly L_{eq}, but with penalties to account for the increased sensitivity to noise events that occur during the more sensitive nighttime periods. Specifically, DNL penalizes noise 10 dB during the nighttime time period (10:00 p.m. to 7:00 a.m.). The U.S. Environmental Protection Agency (USEPA) introduced the metric in 1976 as a single number measurement of community noise exposure. The FAA adopted DNL as the noise metric for measuring cumulative aircraft noise under Federal Aviation Regulations (FAR) Part 150, Airport Noise Compatibility Planning. The Department of Housing and Urban Development, the Veterans Administration, the Department of Defense, the United States Coast Guard, and the Federal Transit Administration have also adopted DNL for measuring cumulative noise exposure. DNL is used to describe existing and predicted noise exposure in communities in airport environs based on the average daily operations over the year and the average annual operational conditions at an airport. Therefore, at a specific location near an airport, the noise exposure on a particular day is likely to be higher or lower than the annual average noise exposure, depending on the specific operations at an airport on that day. DNL is widely accepted as the best available method to describe aircraft noise exposure and is the noise descriptor required for aircraft noise exposure analyses and land use compatibility planning under FAR Part 150 and for environmental assessments for airport improvement projects (FAA Order 10501.E).

Community Noise Equivalent Level (CNEL): CNEL, expressed in dBA, is the standard metric used in California to represent cumulative noise exposure. The metric provides a single-number description of the sound energy to which a person or community is exposed over a period of 24 hours similar to DNL. CNEL includes penalties applied to noise events occurring after 7:00 p.m. and before 7:00 a.m., when noise is considered more intrusive. The penalized time period is further subdivided into evening (7:00 p.m. through 9:59 p.m.) and nighttime (10:00 p.m. to 6:59 a.m.). When a noise event occurs in the evening, a penalty of 4.77 dBA is added to the nominal sound level (equivalent to a three-fold increase in aircraft operations). A 10 dBA penalty is added to nighttime noise events (equivalent to a ten-fold increase in aircraft operations). The evening weighting is the only difference between CNEL and DNL. For purposes of aircraft noise analysis in the State of California, the FAA recognizes the use of CNEL.[1]

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1 See FAA Order 5050.4B, Page 8, Section 9, Paragraph "n" for FAA's acceptance of the CNEL metric as a suitable substitute for the Day-Night Average Sound Level (DNL).

4.4.2 Methodology

The proposed MSC North Project involves construction and operation of a new midfield satellite concourse at LAX in order to reduce reliance on the West Remote Gates/Pads, allow for the modernization of other outdated terminals, and for taxilane and apron pavement rehabilitation within the CTA at LAX. The MSC North Project will not increase passenger or gate capacity, nor flights and/or aircraft operations at LAX; the proposed MSC North Project would only change the location of aircraft gates. Therefore, the operational noise analysis associated with the proposed MSC North Project addresses potential impacts from aircraft taxi operations to and from the Project site.

As indicated above, implementation of the proposed MSC North Project would not increase the number of aircraft operations at LAX, but would result in a change to the normal taxi route that certain aircraft currently take (e.g., the proposed MSC North Project would reduce reliance on the West Remote Gates/Pads located on the far west side of the Airport; thus, these aircraft would travel to/from a new location at the center of the airfield and may travel a different taxi route than what they do today under baseline conditions). Additionally, as compared to the 2012 baseline and the 2019 Without Project scenario, the 2019 With Project scenario would include three additional taxiways/taxilanes: Taxiway C14, Taxilane C12, and the extension of Taxilane T. The addition of these taxiways/taxilanes would improve aircraft ground movements for aircraft traveling between the north and south airfields, as well as to and from the MSC North building. Detailed Project information regarding the new taxiways/taxilanes is outlined in Chapter 2, *Project Description*.

The FAA's Integrated Noise Model (INM) was used for the taxi noise analysis. Taxi paths delineating the routes of aircraft traveling to and from the Project site were defined based on conservative assumptions (i.e., long taxiing distances) regarding which runways those taxiing trips would begin or end. Modeled taxi paths (see Appendix D for taxi paths) are as follows:

- Runway 25L Arrivals, utilizing Taxiways U, C, and R traveling to the west gates of the MSC North building;
- Runway 25L Arrivals, utilizing Taxiways U and C, and Taxilane T traveling to the east gates of the MSC North building;
- Runway 24R Arrivals, utilizing Taxiways BB and E, and Taxilane C12 traveling to the west gates of the MSC North building;
- Runway 24R Arrivals, utilizing Taxiways BB and E, and Taxilane T traveling to the east gates of the MSC North building;
- Runway 25R Departures, utilizing Taxilane T and Taxiway B traveling from the east gates of the MSC North building;
- Runway 24L Departures, utilizing Taxilane T and Taxiways E and V, traveling from the east gates of the MSC North building; and
- Runway 25L Departures, utilizing Taxilane T and Taxiways C, U, A and F, traveling from the east gates of the MSC North building.

As the proposed MSC North Project would reduce reliance on the West Remote Gates/Pads (located on the far west side of the Airport), and allow for modernization of terminals, and for taxilane and apron pavement rehabilitation within the CTA, aircraft utilizing the MSC North Project gates would now be traveling to/from the center of the airfield and would travel a different taxi route than what they do today under existing conditions. The MSC North Project taxi routes would have both increased and decreased taxi distances depending on runway use; however, it is expected that these differences in taxi distances would generally even out between arrival and departure operations.

Based on the 2019 With Project design day flight schedule (DDFS), it is estimated that a maximum of 106 aircraft operations (53 arrivals and 53 departures) would use the MSC North Project site on a daily basis in 2019. Assumptions of daily aircraft arriving to and departing from the MSC North building based on time of day (day, evening, and night) are presented in **Table 4.4-2**.

Table 4.4-2

Daily Number of Operations Arriving/Departing at MSC North

Aircraft	Day [1]	Evening [2]	Night [3]	Total
B737-300	4	0	0	4
B737-700	4	2	2	8
B737-800	15	0	9	24
B747-400	8	4	1	13
B757-300	1	1	3	5
B757-RR	2	3	1	6
B767-300	1	2	1	4
B777-200	6	2	3	11
B777-300	6	0	0	6
A319	6	2	1	9
A320	0	2	0	2
A321	1	0	1	2
A340	2	0	0	2
A380	4	0	0	4
CRJ9-ER	2	2	0	4
EMB190	2	0	0	2
Total	**64**	**20**	**22**	**106**

Notes:
1 Daytime hours are between 7 a.m. and 6:59 p.m.
2 Evening hours are between 7 p.m. and 9:59 p.m.
3 Nighttime hours are between 10 p.m. and 6:59 a.m.

Source: Ricondo & Associates, Inc., November 2013.

Based on the above, sound exposure level (SEL) noise footprints were prepared for typical Airplane Design Group (ADG) III (Boeing 737-800), ADG IV (Boeing 767-300), ADG V (Boeing 777-300), and ADG VI (Airbus A380-841) aircraft. **Table 4.4-3** identifies the SEL footprints prepared for each ADG/runway combination. SEL noise footprints only consider the west flow runway operating configuration as aircraft operate in this configuration at LAX approximately 97.9 percent of the time on an annual basis.[2] Figures depicting the SEL footprints are included in Appendix D of this EIR.

SEL is a time integrated measure that accounts for both the maximum sound level and the duration of the sound. CNEL values were calculated based on the number and time of day operations were estimated to occur.

Taxi profiles were created in the INM to represent each taxi operation. Assumptions include:

- The altitude was assumed to be the average engine-installation height;
- A constant taxi speed of 15 knots; and
- Thrust setting assumed to be 10 percent of the maximum thrust value in the noise power distance (NPD) curves associated with the aircraft.

Table 4.4-3

Aircraft SEL Footprints

Airplane Design Group (ADG)	Representative Aircraft	Arrival Runway(s)	Departure Runway(s)
III	B737-800	25L, 24R	25R, 24L
IV	B767-300	25L, 24R	25R, 24L
V	B777-300	25L, 24R	25R, 24L
VI	A380-841	25L, 24R	25L

Source: Ricondo & Associates, Inc., November 2013.

4.4.3 Existing Conditions

4.4.3.1 Regulatory Context

Many government agencies have established noise standards and guidelines to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise and ground-borne vibration. The City of Los Angeles has adopted a number of policies, which are based in part on federal and State regulations and are directed at controlling or mitigating environmental noise effects. The government agency policies that are relevant to the MSC North Project operational noise levels are discussed below.

2 Based on analysis of radar data for aircraft operating at LAX.

Federal – Federal Aviation Administration

The FAA Order 1050.1E states that a significant noise impact would occur if an analysis shows that the proposed action will cause noise sensitive areas to experience an increase in DNL of 1.5 dB or more at or above DNL 65 dB noise exposure when compared to the no action alternative for the same timeframe.[3] DNL values are considered to be comparable to CNEL values.[4]

State

The State of California mandates the use of CNEL as the required noise metric, which is also accepted by the FAA for airport noise studies in California.[5] Accordingly, the Aeronautics Division of Caltrans establishes 65 dBA CNEL as a noise impact boundary within which no incompatible land uses should be implemented. Federal and state airport noise regulations, as well as local plans and ordinances, ensure that a buffer of compatible land uses is maintained in the vicinity of LAX.

Local

The City of Los Angeles Municipal Code (LAMC) (Section 41.40 and Chapter XI, Articles 1 through 6) establishes regulations regarding allowable increases in noise levels in terms of established noise criteria. Supplementing these LAMC regulations, the City has also established CNEL guidelines that are used for land use planning purposes. Those regulations and guidelines are described in more detail below.

City of Los Angeles Noise Regulation

Chapter XI of the Los Angeles Municipal Code (City of Los Angeles Noise Ordinance) establishes acceptable ambient sound levels to regulate intrusive noises (e.g., stationary mechanical equipment and vehicles other than those traveling on public streets, including, but not limited to, those used for construction activity, as further described below) within specific land use zones. In accordance with the City's Noise Ordinance, a noise level increase of 5 dBA over the existing average ambient noise level at an adjacent property line is considered a noise violation. For the purposes of determining whether or not a violation of the City of Los Angeles Noise Ordinance is occurring, the sound level measurements of an offending noise that has a duration of five minutes or less during a one-hour period is reduced by 5 dBA to account for people's increased tolerance for short-duration noise events. In cases in which the actual measured ambient noise level is not known, the presumed ambient noise level, as indicated in **Table 4.4-4** is used.

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3 Federal Aviation Administration Order 1050.1E, Change 1, Environmental Impacts: Policies and Procedures, March 20, 2006.

4 CNEL is used by the State of California and is similar to DNL except that an additional penalty is associated with noise events occurring during evening hours (7:00 p.m. – 10:00 p.m.). Noise events occurring during this period are weighted by 4.77 dBA. FAA Order 5050.4B, accepts the use of CNEL for airport noise studies in California.

5 Federal Aviation Administration, Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects, CH.1(9)(n), June 8, 2004.

Table 4.4-4

City of Los Angeles Presumed Ambient Noise Levels

Zone	Daytime Hours [1] dBA (L_{eq})	Nighttime Hours [2] dBA (L_{eq})
Residential	50	40
Commercial	60	55
Manufacturing (M1, MR1, MR2)	60	55
Heavy Manufacturing (M2, M3)	65	65

Notes:
1 Daytime hours are between 7 a.m. and 10 p.m.
2 Nighttime hours are between 10 p.m. and 7 a.m.
Source: Los Angeles Municipal Code, Chapter XI, Article I, Section 111.03.

City of Los Angeles General Plan Noise Element

The City of Los Angeles has developed a Noise Element of the General Plan to guide in the development of noise regulations.[6] The Noise Element of the City of Los Angeles General Plan addresses noise mitigation regulations, strategies, and programs and delineates federal, state, and City jurisdiction relative to rail, automotive, aircraft, and nuisance noise. The City of Los Angeles has adopted local guidelines based, in part, on the community noise compatibility guidelines established by the State Department of Health Services (CDHS) for use in assessing the compatibility of various land use types with a range of noise levels. CNEL guidelines for specific land uses are classified into four categories: (1) "normally acceptable," (2) "conditionally acceptable," (3) "normally unacceptable," and (4) "clearly unacceptable." As shown in **Table 4.4-5**, a CNEL value of 65 dBA is the upper limit of what is considered a "normally acceptable" noise environment for multi-family residential uses, although a CNEL as high as 70 dBA is considered "conditionally acceptable." The upper limit of what is considered "normally unacceptable" for residential uses is set at 75 dBA CNEL.

City of El Segundo Noise Ordinance

The City of El Segundo has enacted a noise ordinance[7] that prohibits the creation of noise levels greater than 5 dB higher than ambient noise levels on residential land uses, or greater than 8 dBA higher than ambient noise levels on commercial and industrial property. However, the ordinance also states that activities that are preempted by State or Federal law (such as aircraft) are exempted from the ordinance.

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6 City of Los Angeles, Noise Element of the Los Angeles City General Plan, February 3, 1999.

7 City of El Segundo Municipal Code, Title 7, Chapter 2, "Noise and Vibration."

Table 4.4-5

City of Los Angeles Land Use Compatibility for Community Noise

Land Use	Community Noise Exposure CNEL, dBA Normally Acceptable [1]	Conditionally Acceptable [2]	Normally Unacceptable [3]	Clearly Unacceptable [4]
Single-Family, Duplex, Mobile Homes	50 to 60	55 to 70	70 to 75	Above 70 [a]
Multi-Family Homes	50 to 65	60 to 70	70 to 75	Above 70 [a]
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 to 70	60 to 70	70 to 80	Above 80
Transient Lodging—Motels, Hotels	50 to 65	60 to 70	70 to 80	Above 80
Auditoriums, Concert Halls, Amphitheaters	—	50 to 70	—	Above 65
Sports Arena, Outdoor Spectator Sports	—	50 to 75	—	Above 70
Playgrounds, Neighborhood Parks	50 to 70	—	67 to 75	Above 72
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 to 75	—	70 to 80	Above 80
Office Buildings, Business and Professional Commercial	50 to 70	67 to 77	Above 75	—
Industrial, Manufacturing, Utilities, Agriculture	50 to 75	70 to 80	Above 75	—

Notes:

1 Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

2 Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

3 Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

4 Clearly Unacceptable: New construction or development should generally not be undertaken.

a This 70 dB figure is quoted directly from the City of Los Angeles L.A. CEQA Thresholds Guide. However, other sources quote this number as 75 dB (i.e., State of California General Plan Guidelines, Preliminary Draft, Governor's Office of Planning and Research, October 2002, p. 258, and Noise Element of the City of Los Angeles General Plan, Department of City Planning Los Angeles, California, February 1999, p. I-1). This may be a typographical error in the L.A. CEQA Thresholds Guide. Note that this potential error does not affect the determination of significant impacts for this report.

Source: California Department of Health Services, Guidelines for the Preparation and Content of the Noise Element of the General Plan, 1999.

4.4.3.2 Environmental Setting

The existing noise environment at and around the MSC North Project site consists of noise from Airport-related activities including aircraft departing, landing, and taxiing on runways and connecting taxiways; and noise from vehicular traffic movements on local roadways. Some land uses are considered more sensitive to intrusive noise than others due to the amount of noise exposure and the types of activities typically involved at the receptor location. The *L.A. CEQA Thresholds Guide* states that residences, schools, motels and hotels, libraries, religious institutions, hospitals, nursing homes, and parks are generally more sensitive to noise than commercial and industrial land uses.

Potential noise sensitive locations that may be affected by the proposed MSC North Project were identified based on the closest areas to the change in taxi paths. Since the proposed MSC North Project site is located in the center of the Airport, the identification of representative noise-sensitive receptors focused on areas in El Segundo west of Sepulveda Boulevard and areas in Playa del Rey and Westchester west of Lincoln Boulevard. These receptors, as well as additional modeled receptors, are depicted on **Figure 4.4-1**.

4.4.3.3 Existing Ambient Noise

Information regarding existing CNEL values was obtained from LAWA's California State Airport Noise Standards Quarterly Report, Fourth Quarter 2012.[8] As discussed above, noise sensitive areas include areas in El Segundo west of Sepulveda Boulevard and areas in Playa del Rey and Westchester west of Lincoln Boulevard.

Existing ambient noise levels in the southern portion of Westchester, nearest to LAX, range between approximately 63 to 64 dBA during the daytime and 59 to 60 dBA during the nighttime. As also indicated on that page, existing ambient noise levels in El Segundo adjacent to the airport are estimated to be approximately 65 dBA or greater during the daytime and 60 dBA or greater during the nighttime.

4.4.4 Thresholds of Significance

The following CEQA thresholds of significance are included in the City of Los Angeles CEQA Thresholds Guide[9] for the assessment of community noise exposure and are applicable to the proposed MSC North Project noise impacts analysis. A significant noise impact from airport operations would occur if:

- Noise levels at a noise sensitive use attributable to airport operations exceed 65 dB CNEL and the project increases ambient noise levels by 1.5 dB CNEL or greater.

4.4.5 Applicable LAX Master Plan Commitments and Mitigation Measures

LAX Master Plan commitments and mitigation measures are described in the LAX Master Plan's Mitigation Monitoring and Reporting Program (MMRP). Of the commitments and mitigation measures that were designed to address noise impacts, none of the four mitigation measures or three LAX Master Plan Commitments consider taxiway noise, and therefore are not applicable, and not considered, in the noise analysis for the proposed MSC North Project.

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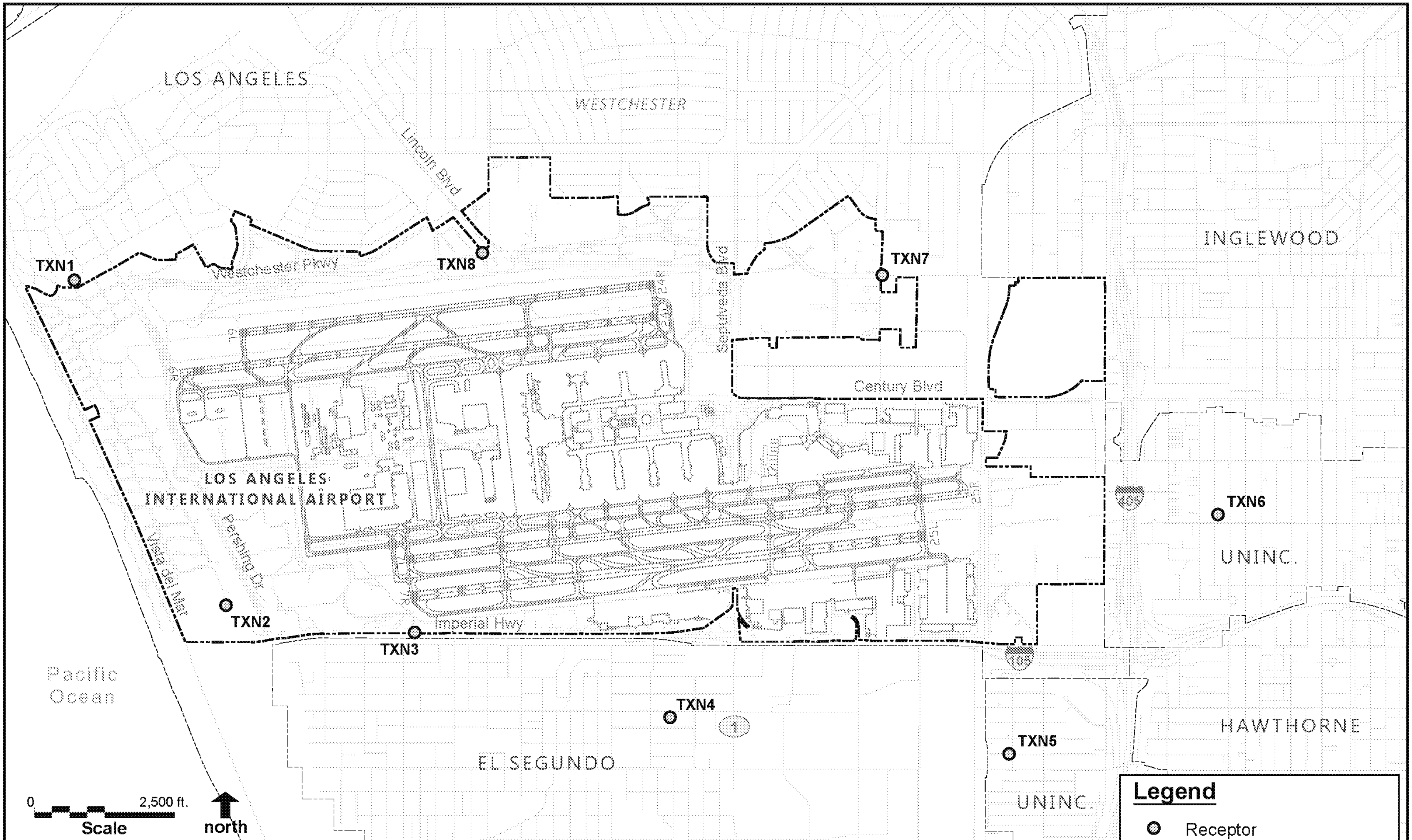
8 City of Los Angeles, Los Angeles World Airports, "California State Airport Noise Standards Quarterly Report," Fourth Quarter 2012, Available: http://lawa.org/uploadedFiles/LAX/pdf/4Q12 Quarterly Report map.pdf, accessed January 9, 2014.

9 City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006.



Source: Los Angeles County, 2010, 2011 (city boundary, streets); LAX Airport Layout Plan, Ricondo & Associates, Inc., 2010.
Prepared by: Ricondo & Associates, Inc., January 2014.

LAX Midfield Satellite Concourse Draft EIR	Modeled Noise Receptor Locations	Figure 4.4-1

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4.4.6 Impact Analysis

As described earlier, implementation of the proposed MSC North Project would not increase the number of aircraft operations at LAX, but would result in a change to the normal taxi routes that certain aircraft currently take to and from aircraft gates. The evaluation of potential noise impacts associated with that change focuses on the taxi routes aircraft would take going to and from the proposed MSC North Project site that would be different from the routes currently used. Given that the vast majority of existing aircraft taxiing operations at LAX would be unaffected by the proposed MSC North Project, the evaluation of Project-related impacts focuses specifically on the number, type, and route of aircraft taxiing to and from the Project site, as opposed to modeling the entirety of taxiing operations at LAX with and without the MSC North Project. Assumptions associated with aircraft movement to and from the proposed MSC North Project site are discussed in Section 4.4.2, *Methodology*.

With the taxiing operations identified in Section 4.4.2, CNEL values were calculated based on the number and time of day operations were estimated to occur and added to the existing ambient CNELs in residential areas to the north and south of the airport, to determine whether the Project-related aircraft taxiing noise would result in a 1.5 dB CNEL or greater increase at a noise sensitive use.

The total average daytime noise level associated with the MSC North Project taxi operations, defined as occurring between 7:00 a.m. and 7:00 p.m., and the total average evening and nighttime noise level associated with proposed MSC North Project taxi operations, defined as occurring between 7:00 p.m. and 7:00 a.m., were calculated based on the data in Section 4.4.2. Those noise levels were compared to the existing daytime ambient noise level and existing nighttime ambient noise levels that occur in residential areas to the north and south of the airport, being the community of Westchester and the City of El Segundo, respectively.

4.4.6.1 Average Hourly Ambient Daytime and Nighttime Noise Levels

The average hourly noise levels associated with Project-related taxiing operations in the daytime and taxiing operations at nighttime were estimated assuming 106 daily aircraft (53 arrivals and 53 departures) along each taxi route between the MSC North Project site and respective runway end. The resultant Project-related taxiing noise levels at the southern edge of Westchester directly north of the nearest taxi route were estimated to be approximately 47.3 dBA in the daytime and 42.7 dBA at night. As indicated in Section 4.4.3, Existing Conditions, existing ambient noise levels in the southern portion of Westchester are approximately 63-64 dBA in the day and 59-60 dBA at night. The MSC North Project-related aircraft taxiing noise would be substantially less than existing ambient noise levels, and when added to existing ambient noise levels, would increase the existing ambient noise levels by approximately 0.09 dB in the daytime and 0.08 dB at night.[10]

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[10] Sound levels are expressed in decibels and are based on a logarithmic scale. Sound levels cannot be added directly (i.e., 60 dB + 60 dB does not equal 120 dB; instead it equates to 63 dB). The addition of noise decibels can be computed by the following equation: (10 Log10 (10^(P1/10) + 10^(P2/10))).

At the northern edge of El Segundo directly south of the nearest taxi route, the Project-related taxiing noise levels are estimated to be approximately 52.8 dBA in the daytime and 38.6 dBA at night. Existing ambient noise levels in the northern portion of El Segundo near LAX are approximately 65 dBA or greater in the day and 60 dBA or greater at night. The Project-related aircraft taxiing noise would be substantially less than existing ambient noise levels, and when added to existing ambient noise levels, would increase the existing ambient noise levels by approximately 0.25 dB in the daytime and 0.03 dB at night.

4.4.6.2 CNEL

Based on the number of taxiing operations and the day/night split described above in the discussion of ambient noise levels, the CNEL value associated with Project-related taxiing was estimated. The resultant CNEL values, as shown in **Table 4.4-6**, would range between 39.9 and 50.6 dBA at the noise sensitive uses north of the nearest taxi route (Westchester), and between 35.4 and 51.8 dBA at the noise sensitive uses south of the nearest taxi route in the City of El Segundo. When added to the existing CNELs at each respective receptor location, these Project-related CNEL values would increase the existing CNEL by between 0.00 and 0.10 dB. As shown in **Table 4.4-7**, the increase would be substantially less than the threshold of significance of a 1.5 dB increase; hence, the increased Project-related taxiing noise impact would be less than significant.

Table 4.4-6

Taxiway Noise CNELs

Receptor ID #	Project (dBA)	Background (dBA)	Total (dBA)	Incremental Difference
TXN1	40.3	68.0	68.01	0.01
TXN2	42.1	80.0	80.00	0.00
TXN3	51.8	75.0	75.02	0.02
TXN4	41.9	61.0	61.05	0.05
TXN5	35.4	55.0	55.05	0.05
TXN6	32.2	75.0	75.00	0.00
TXN7	39.9	75.0	75.00	0.00
TXN8	50.6	67.0	67.10	0.10

Source: Ricondo & Associates, Inc., 2013.

Table 4.4-7

Taxiway Noise CNELs, Incremental Difference

Receptor ID #	Incremental Difference	Threshold (dBA)	Significant?
TXN1	0.01	1.5	No
TXN2	0.00	1.5	No
TXN3	0.02	1.5	No
TXN4	0.05	1.5	No
TXN5	0.05	1.5	No
TXN6	0.00	1.5	No
TXN7	0.00	1.5	No
TXN8	0.10	1.5	No

Source: Ricondo & Associates, Inc., 2013.

4.4.7 Cumulative Impacts

The geographic context for the analysis of cumulative noise impacts depends on the impact being analyzed. Noise is by definition a localized phenomenon, which substantially reduces in magnitude as the distance from the source increases. As such, only projects and growth due to occur in the immediate MSC North Project area, including LAX Master Plan projects as well as other capital improvement projects undertaken by LAWA and other local agencies, would be likely to contribute to cumulative noise impacts. The following cumulative impacts analysis is based on the "list approach" taking into account the projects identified in Section 3.3, *Development Setting*.

As indicated in the impacts analysis above, operations-related increases in existing CNEL levels, estimated at nearby noise-sensitive receptors, resulting from implementation of the proposed Project would include a maximum 0.10 dBA increase associated with aircraft taxiing. This increase would be substantially less than the threshold of significance (i.e., 1.5 dBA CNEL increase). Of the related projects identified in Section 3.3, the two projects with the most potential to result in operations related changes to existing CNEL levels at the nearest sensitive noise-receptors also affected by the proposed MSC North Project would be the Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project and the West Aircraft Maintenance Area Project. Other related projects that may result in changes in operational noise are located much farther away from the nearest noise-sensitive receptors affected by the proposed MSC North Project and are not expected to have a notable contribution to cumulative operational noise impacts. As indicated in Figure 4.6-7 of the Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project Draft EIR, it is anticipated that CNEL levels in the northwest portion of El Segundo for 2015 With Project Conditions would increase by approximately 0.3 dB compared to 2011 Baseline Conditions.[11] As indicated in Section 4.5.6 of

[11] City of Los Angeles, Los Angeles World Airports, Draft Environmental Impact Report for Los Angeles International Airport (LAX) Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project, September 2013.

the West Aircraft Maintenance Area Project Draft EIR[12], it is anticipated that Project-related CNEL levels in the northwest portion of El Segundo would increase by approximately 0.07 dB. These increases in combination with the increases described above for the proposed MSC North Project would not result in a 1.5 dB increase in the existing ambient noise level (i.e., CNEL) for the affected area; hence, cumulative impacts associated with operational noise would be less than significant.

4.4.8 Mitigation Measures

As no significant noise impacts would occur as a result of the operation of the proposed MSC North Project, no mitigation measures specific to the proposed Project are required.

4.4.9 Level of Significance After Mitigation

Impacts are less than significant, as indicated above; therefore, no mitigation measures are required.

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12 City of Los Angeles, Los Angeles World Airports, Draft Environmental Impact Report for Los Angeles International Airport (LAX) West Aircraft Maintenance Area Project, October 2013.

4.5 Public Services – Fire Protection Services

4.5.1 Introduction

The analysis presented in this section addresses the impacts to fire protection services specific to the proposed MSC North Project as well as the impacts to fire protection services related to the implementation of the future phase(s) of the MSC Program. The fire protection services analysis incorporates relevant analysis and assumptions from the Los Angeles International Airport (LAX or the Airport) Master Plan EIR[1] and the Bradley West Project EIR.[2] The fire protection services in this area of LAX have been addressed in the Bradley West Project EIR and the analysis procedures and data already known from this other project were applied and updated as appropriate for the proposed MSC North Project and future phase(s) of the MSC Program.

Prior to the preparation of this EIR, an Initial Study (see Appendix A) was prepared using the CEQA Environmental Checklist Form to assess potential environmental impacts associated with public services. For several issues related to public services the Initial Study found that the proposed MSC North Project and future phase(s) of the MSC Program would result in either "less than significant impact" or "no impact" and no further analysis of these topics in an EIR was required. The thresholds not addressed further include:

- Potential impacts to police protection services were evaluated and determined to have a "less than significant impact" in the Initial Study as the increase in square footage associated with the MSC North Project and the future phase(s) of the MSC Program would not result in the need for new or physically altered police facilities in order to maintain acceptable service ratios, response times, or other performance objectives. The need to potentially add personnel to patrol the new building is considered to be a less than significant impact, which was evaluated in the LAX Master Plan EIR;
- Potential impacts to schools were evaluated and determined to have a "less than significant impact" in the Initial Study as any indirect growth associated with the potential increase in long-term employment would not result in significant enrollment increases that would adversely affect schools. Employment growth at LAX was assessed as part of the LAX Master Plan EIR;
- Potential impacts to parks were evaluated and determined to have a "less than significant impact" in the Initial Study as any indirect growth associated with the potential increase in long-term employment would not result in significant demand for parks. Employment growth at LAX was assessed as part of the LAX Master Plan EIR; and

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

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

- Potential impacts to other public facilities were evaluated and determined to have "no impact" in the Initial Study.

4.5.2 Methodology

As noted above, this analysis focuses on impacts of the proposed MSC North Project and future phase(s) of the MSC Program on fire protection services. The analysis methodology for this EIR is based largely on the approach and data used for the Bradley West Project EIR. The analysis procedures and data from this previous project are applicable to the proposed MSC North Project and future phase(s) of the MSC Program because both projects would result in the construction and operation of passenger terminal facilities at LAX. In addition, the MSC North Project and future phase(s) of the MSC Program include provisions for conveyance systems from the proposed MSC to the Central Terminal Area (CTA) and eventually the proposed Central Terminal Processor (CTP).

4.5.3 Existing Conditions

4.5.3.1 Regulatory Context

Federal Regulations

Federal regulations that apply to fire protection and emergency services include Federal Aviation Regulations (FARs). Federal agencies that have jurisdiction over activities at LAX that relate to fire protection and emergency services, such as the FAA and the U.S. Coast Guard, have regulations which are consistent with the National Fire Protection Association (NFPA) Code, which establishes fire safety provisions. **Table 4.5-1** includes a partial list of applicable federal regulations, a summary of their provisions, and a list of responsible federal agencies.

Table 4.5-1

Federal Regulations

Regulation	Summary of Provisions	Regulation Agency
Federal Aviation Regulations (FAR) 139.315 through 139.319	Aircraft Rescue and Fire Fighting (ARFF)	FAA
FAR 139.321	Hazardous substances that require safety training	FAA
FAR 139.325(f)	Requires Airport Emergency Plans to provide for Air/Sea Disaster Response	FAA/U.S. Coast Guard
FAR 139.325(4)	Airport response to natural disasters	FAA
U.S. Department of Labor 29 CFR 1910.38	Emergency action plans	FAA

Source: RS&H, October 2013.

Federal Aviation Regulations

Federal Aviation Regulations (FARs) serve as the basis for the LAWA Rules and Regulations Manual and the LAX Air/Sea Disaster Preparedness Plan discussed below. The fire and fire-related safety provisions found in these documents are also in accordance with applicable sections of the Uniform Fire Code (UFC) and/or the NFPA Codes and Standards. FAR mandates many aspects of emergency response services at LAX, including equipment types, personnel training, vehicle response times, and readiness.

Aircraft Rescue and Fire Fighting

Aircraft Rescue and Fire Fighting (ARFF) is regulated under FAR Sections 139.315 through 139.319. Handling and storage of hazardous substances and materials which require fire safety training in fuel farm and storage areas, and required compliance with locally-adopted fire codes, are provided for under FAR 139.321. Under FAR 139.325, airport safety plans require coordination with fire fighting services and provision of rescue vehicles large enough to handle the maximum persons carried aboard the largest aircraft that operate at an airport. ARFF protocol requires apparatus to respond in three minutes or less from the position of the equipment to all areas within aircraft operating areas. Should equipment become inoperable for a period exceeding 48 hours, the FAA requires that airport operations be limited to the response capability of equipment in operative condition unless waived by the FAA. LAFD Station 80, located at LAX, is an ARFF-compliant facility.

The FAA-operated Airport Traffic Control Tower (ATCT) at LAX activates the emergency telephone system which notifies airlines when they are involved in safety-related operations. In addition, the ATCT coordinates runway assignments with LAX Airfield Operations personnel and is authorized when warranted to stop aircraft traffic on runways and taxiways adjacent to the scene of an emergency response.

Air/Sea Disaster Response

Due to its unique nature, an accident involving an aircraft over water requires a two-part command and control system. FAR 139.325(f) requires that airport emergency plans also provide a plan "for the rescue of aircraft accident victims from significant bodies of water or marsh lands adjacent to the airport ..." The U.S. Coast Guard is responsible for coordinating the search and rescue operations, including shoreside coordination and support with the assistance of representatives from the Los Angeles County Sheriff's Department (LACSD), Los Angeles County Lifeguards, Los Angeles County Fire Department (LACFD), LAWA, the Los Angeles Police Department (LAPD), Los Angeles Airport Police Department (LAXPD), and airline representatives.

Natural Disaster

Natural disasters are emergency situations declared by the President of the United States in response to, and in agreement with, a request from the Governor of the affected state. Emergency action plans are addressed in general by 29 CFR 1910.38, Employee Emergency Plans, and Fire Prevention Plans.

The requirement for preparation for airport response to a natural disaster is regulated by FAR 139.325(4). In the event of a natural disaster, it is the responsibility of the ATCT to issue a

Notice to Airmen (NOTAM) if it is determined that this is necessary. In the event that the condition of the airport or any part of the airport is determined to be unsafe for landings or takeoffs, a NOTAM is issued closing the airport or any of its parts. In addition, the ATCT verifies that the navigational aid systems are operating.

The National Fire Protection Association Code

The NFPA advocates consensus of codes and standards for fire and related safety issues and has developed the NFPA Code, which establishes safety provisions for fire prevention and fire fighting regulatory structures. As these codes are adopted on a voluntary basis by individual communities into their own fire protection and emergency services operations, there are no legislative enforcement mechanisms. **Table 4.5-2** presents relevant sections of the NFPA Code that would apply to the MSC North Project and/or future phase(s) of the MSC Program.

Table 4.5-2

Sections of National Fire Protection Association Code Relevant to MSC

NFPA Section	Relevant Items
Fire Protection Systems	
NFPA 130: Standard for fixed guideway transit and passenger rail systems:	
	5.7.2.3 Emergency alarm reporting devices shall be located on passenger platforms and throughout the stations such that the travel distance from any point in the public area shall not exceed 100 m (325 ft) unless otherwise approved.
	5.7.4.3 Where underground stations include more than one platform level (such as crossover subway lines), there shall be a cross-connection pipe of a minimum size of 100mm (4 in) in diameter between each standpipe system, so that supplying water through any fire department connection will furnish water throughout the entire system.
	5.10 Rubbish Containers. Rubbish containers shall be manufactured of non-combustible materials.
	6.5.3.1 Standpipe Installations in Tunnels under Construction. A standpipe system shall be installed before the enclosed tramway has exceeded a length of 61 m (200 ft) beyond any access shaft or portal and shall be extended as work progresses to within 61 m (200 ft) of the most remote portion of the enclosed tramway.
Emergency Ventilation Systems	
NFPA 130: Standard For Fixed Guideway Transit And Passenger Rail Systems	
	7.1.2.2 A mechanical emergency ventilation system shall be provided in the following locations: 1. In an enclosed system station 2. In a system underground or enclosed tramway that is greater in length than 305m (l000ft)
Emergency Exit Details	
NFPA 130: Standard For Fixed Guideway Transit And Passenger Rail Systems	
	6.2.2.2.2 For exit stairs serving underground or enclosed trainways, the width of exit stairs shall not be required to exceed 1120mm (44 in.).
	6.2.12.1 Access to the trainway shall be from stations or by mobile ladder equipment from roadways adjacent to the trackway. If no adjacent or crossing roadways exist, access roads at a maximum of 762 m (2500 ft) intervals shall be required.
	6.2.8.2 Signs indicating station or portal directions shall be installed at maximum 25 m (82 ft) intervals on either side of the underground or enclosed tramways.

Table 4.5-2

Sections of National Fire Protection Association Code Relevant to MSC

NFPA Section	Relevant Items
Egress for Passengers	
NFPA 130: Standard for fixed guideway transit and passenger rail systems:	
	6.2.1.9 The means of egress within the tramway shall be provided with an unobstructed clear width graduating from the following: 1. 610 mm (24 in.) at the walking surface to 2. 760 mm (30 in.) at 1420 mm (56 in.) above the walking surface and to 3. 610 mm (24 in.) at 2025 mm (80 in.) above the walking surface
	6.2.1.10.1 Raised walkways that are more than 760 mm (30 in.) above the floor or grade below shall be provided with a continuous guard to prevent falls over the open side.
	6.2.2.2 Number and Location of means of egress routes. Within underground or enclosed tramways, the maximum distance between exits shall not exceed 762 m (2500 ft).
	5.5.6.1.1 The maximum travel distance on the platform to a point at which a means of egress route leaves the platform shall not exceed 100 m (325 ft).
	5.5.6.3.1.1 A minimum clear width of 1120mm (44 in.) shall be provided along all platforms, corridors, and ramps serving as means of egress.
	5.5.1.3 At least two means of egress remote from each other shall be provided from each station platform.
	5.5.1.4 A common path of travel from the platform ends shall not exceed 25 m (82 ft) or one car length, whichever is greater.
	5.5.6.1 Platform Evacuation Time. There shall be sufficient egress capacity to evacuate the platform occupant load from the station platform in 4 minutes or less.
	5.5.6.1.1 The maximum travel distance on the platform to a point at which a means of egress route leaves the platform shall not exceed 100 m (325 ft).
	5.5.6.3.2.1 Stairs in the means of egress shall be a minimum of 1120 mm (44 in.) wide.
	5.5.6.3.4.1 Doors and gates in the means of egress shall have a minimum clear width of 910 mm (36 in.).
	5.5.6.3.4.4 Gate-type exits shall be provided for at least 50 percent of the required emergency exit capacity unless fare collection equipment provides unobstructed exiting under all conditions.
	5.6.2.1 Emergency lighting for stairs and escalators shall be designed to emphasize illumination on the top and bottom steps and landings.
Traction Power	
NFPA 130: Standard for fixed guideway transit and passenger rail systems:	
	6.4.2.4 Coverboards where used, shall be capable of supporting a vertical load of 1125 N (250 lb) at any point with no visible permanent deflection.
	6.4.3 Traction Power Overhead Contact System Protection.
	6.4.3.2 Power conductor(s) (DC or AC which supply power to the vehicle for propulsion and other loads) shall be secured to insulating supports, bonded at joints, and protected to prevent contact with personnel.
	6.5 Protection (Automatic Fire Detection)
	6.5.1.1 Heat and smoke detectors shall be installed at traction power substations and signal bungalows and shall be connected to the operations control center.
	6.5.1.2 Signals received from such devices shall be identifiable as to origin of signals.

Table 4.5-2

Sections of National Fire Protection Association Code Relevant to MSC

NFPA Section	Relevant Items
	6.2.7.1 Blue light stations shall be provided at the following locations: • at the ends of station platforms; • at cross-passage ways; • at emergency access points; • at traction power substations; and • in underground tramways as approved. **6.2.7.2** Adjacent to each blue light station, information shall be provided that identifies the location of that station and the distance to an exit in each direction.

Source: National Fire Protection Association Code., 2013.

State Regulations

State of California Uniform Fire Code

The State of California Uniform Fire Code (UFC) sets the framework for fire protection and safety within California. The UFC contains several sections which provide authority and standards that pertain to operations at airport facilities.

Fire Fighting Authority

Article 2 provides standards for the organization, authority, duties, and procedures for fire fighting. Division I (Organization and Authority), Section 2.105 provides for the exercise of police powers by fire fighters. Division II (Duties and Procedures), Section 2.201 provides for fire inspection and characterizes what can be declared an unsafe building.

Fire Access

Article 10 (Fire Protection Systems and Equipment), Division II (General Provisions), Section 10.207 specifies access roadway requirements for fire apparatus. Article 12 (Maintenance of Means and Egress and Emergency Escapes), Section 12.109, provides standards for stair, ramp, and escalator enclosures.

Air Service Operations

Article 24 provides standards for airports, heliports, and helistops in Division I (General), Sections 12.013 (Dispensing Flammables or Combustible Liquids), 12.104 (Transferring Fuel), 24.105 (Application of Flammable or Combustible Liquid), and 24.111-24.116, which provide aircraft service and repair standards. Provisions for safety standards of fuel system maintenance and use is provided in Article 24, Division II (Refueler Units), Sections 24.202 (Operation Maintenance and Use of Aircraft Refueler), 24.203 (Fueling and Defueling); and Article 79 (Flammable and Combustible Liquids), Division I (General), Section 79.114 (Fire Protection); Division II (Container and Portable Tank Storage Inside Buildings), Section 79.205 (Fire Protection); and Division VI (Tank Storage Underground, Outside or Under Buildings), Section 79.511 (Fire Protection).

Materials Handling

Article 80 (Hazardous Materials), Section 80.103 (General Requirements) and Section 80.110 (Designation of Cargo) provide for the identification and handling of hazardous materials sent as air cargo.

Fuel Farm and Fuel Dispensing Systems

Portions of the fuel hydrant system are within the jurisdiction of the State Fire Marshal. In addition, fuel farm siting, design, construction, and equipment are regulated under the UFC, Article 79 (Flammable and Combustible Liquids), Division V (Stationary Tank Storage, Above Ground, Outside of Buildings), with fire protection specifically addressed by Section 79.511.

Office of Emergency Services Mutual Aid Plan

The California Fire Service and Rescue Emergency Mutual Aid System is managed by the Governor's Office of Emergency Services (OES). The OES Mutual Aid Plan outlines procedures for establishing mutual aid agreements at the local, operational, regional, and state levels, and divides the state into six mutual aid regions to facilitate the coordination of mutual aid. LAFD is located in Region I. Through the Emergency Mutual Aid system, the OES is informed of conditions in each geographic and organizational area of the state, and the occurrence or imminent threat of disaster. All OES Mutual Aid participants monitor a dedicated radio frequency for fire events that are beyond the capabilities of the responding fire department and provide aid in accordance with the management direction of the OES.

California Building Code

The California Building Code contains provisions for fire protection systems for commercial buildings. Relevant sections of the California Building Code are provided in **Table 4.5-3**.

Table 4.5-3

Sections of California Building Code Relevant to MSC

Fire Protection Systems

Section 903.2.17.1: Automatic sprinkler system. An automatic sprinkler system shall be installed in all stations of fixed guideway transit systems.

Section 905.3.10: Standpipe systems. Underground stations shall be provided with a class III standpipe system designed to comply with the following:

- Automatically supply 65 pounds per square inch (psi) for each outlet.
- Supply a 250 gpm (946 L/m) flow to each of the two most remote 21/2 inch (64 mm) outlets when pressurized through the fire department connection(s).

Section 907.2.26: Fixed guideway transits systems fire alarm and communication systems. Every fixed guideway transit station shall be provided with an approved emergency voice/alarm communication system in accordance with NFPA 72. The emergency voice/alarm communication system shall be designed and installed so that damage to any one speaker will not render any paging zone of the system inoperative.

Table 4.5-3

Sections of California Building Code Relevant to MSC

Section 907.2.26.2: System components. Each station fire alarm system shall consist of:

- Fire alarm control unit at a location as permitted by the enforcing agency.
- An alarm annunciator(s). The annunciator(s) shall be located at a point acceptable to the enforcing agency. The annunciator(s) shall indicate the type of device and general location of alarm. All alarm, supervisory and trouble signals shall be transmitted to the local annunciator(s) and the operations control center.
- Manual fire alarm boxes shall be provided throughout passenger platforms and stations.
- Automatic smoke detectors in all ancillary spaces.

Section 907.2.26.3: Emergency voice/alarm communication system. Each station shall be provided with an emergency voice/alarm communication system capable of transmitting voice, recorded or electronically generated textual messages to all areas of the station. The system(s) shall be configured such that the messages can be initiated from either the Emergency Management Panel (EMP) or the Operations Control Center (OCC).

Section 907.2.26.4: Emergency telephones. A dedicated two-way emergency communication phone system designed and installed in accordance with NFPA 72 shall be provided in all underground stations to facilitate direct communications for emergency response between remote locations and the EMP.

- **907.2.26.4.1** Remote emergency phones shall be located at ends of station platforms, each hose outlet connection and station valve rooms.
- **907.2.26.4.2** Provisions shall be made in the design of this two-way emergency communication phone system for extensions of the system to the next passenger station or guideway portal.

Section 910.3.4: Heat Vent locations. Smoke and heat vents shall be located 20 feet (6.1 m) or more from adjacent lot lines and fire walls and 10 feet (3.0 m) or more from fire barriers. Vents shall be uniformly located within the roof in the areas of the building where the vents are required to be installed by Section 910.2 with consideration given to roof pitch, draft curtain location, sprinkler location and structural members.

Section 910.4.1: Mechanical smoke exhausts location. Exhaust fans shall be uniformly spaced and the maximum distance between fans shall not be greater than 100 feet (30.5 m).

Section 906.9 Extinguisher installation: The installation of portable fire extinguishers shall be in accordance with Sections 906.9.1 through 906.9.3.

- **906.9.1** Extinguishers weighing 40 pounds or less. Portable fire extinguishers having a gross weight not exceeding 40 pounds (18 kg) shall be installed so that their tops are not more than 5 feet (1.5 m) above the floor.
- **906.9.2** Extinguishers weighing more than 40 pounds. Hand-held portable fire extinguishers having a gross weight exceeding 40 pounds (18 kg) shall be installed so that their tops are not more than 3.5 feet (1.1 m) above the floor.
- **906.9.3** Floor clearance. The clearance between the floor and the bottom of installed hand-held portable fire extinguishers shall not be less than 4 inches (102 mm).

Section 912.2: Fire Department Connections Location. With respect to hydrants, driveways, buildings and landscaping, fire department connections shall be so located that fire apparatus and hose connected to supply the system will not obstruct access to the buildings for other fire apparatus. The location of fire department connections shall be approved by the fire chief.

Section 912.3.2: Clear space around connections. A working space of not less than 36 inches (762 mm) in width, 36 inches (914 mm) in depth and 78 inches (1981 mm) in height shall be provided and maintained in front of and to the sides of wall-mounted fire department connections and around the circumference of free-standing fire department connections, except as otherwise required or approved by the fire chief.

Emergency Ventilation Systems

Table 4.5-3

Sections of California Building Code Relevant to MSC

Section 433.4.5.1: Emergency ventilation shall be provided for enclosed and underground stations for the protection of passengers, employees and emergency personnel.

Section 433.4.5.3: Ventilation shaft terminals at-grade shall be located to prevent recirculation as follows:

- Openings for blast relief shafts, and under platform and smoke exhaust shafts at-grade shall be separated by a minimum horizontal distance of 40 feet (12.2 m) from any station entrance, elevator hoistway enclosure, surface emergency stair doorway, unprotected outside air intake or other opening, or from each other. Exhaust outlets that are not used for intakes may be adjacent to each other.
- Where this distance is not practical, the horizontal distance may be reduced to 15 feet (4.6 m) if the closest blast relief or under platform and smoke exhaust shaft terminal is raised a minimum of 10 feet (3.00 m) above the station entrance, emergency stair doorway and unprotected outside air intake or other opening, or the under platform and smoke exhaust shaft terminal is raised a minimum of 10 feet (3.0 m) above the blast relief shaft terminal.
- Ventilation of stations shall not terminate at grade on any vehicle roadway.

Section 433.4.5.5: Emergency ventilation control. Local controls shall override remote control. Local control shall be capable of operating the fans in all modes in the event the remote controls become inoperative.

Section 433.4.5.6: Ventilation systems and ancillary areas. Ancillary area ventilation systems shall be arranged so that air is not exhausted into station public occupancy areas.

Emergency Exit Details

Section 433.3.2: Exits required. Stations shall have at least two exits placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the station.

- Enclosed station platforms shall have a minimum of one exit within 20 feet (6.1 m) from each end.
- Underground station platforms shall have a minimum of one enclosed exit within 20 feet (6.1 m) from each end.

Minimum number of exits for Occupant Load

Occupant Load (persons per story)	Minimum Number of Exits (per story)
1-500	2
501-1,000	3
More than 1,000	4

Section 433.3.2.2.2: There shall be sufficient means of exit to evacuate the station occupant load from the station platforms in four minutes or less.

Section 433.3.2.2.3: The station shall also be designed to permit evacuation from the most remote point on the platform to a point of safety in six minutes or less.

Section 433.3.5: Distance to exits. No point of the station platform(s) or mezzanine(s) shall be more than 300 feet (91.4 m) from a point of safety.

Section 433.3.6: Other exits required/guideway access. Access/egress between guideway and platforms shall be provided as follows:

- Stairs or ramps, 2 feet 10 inches (0.9 m) in width minimum, or other arrangement having equivalent capacity, shall be provided at each end of the platform, arranged to provide access/egress to guideway level.
- Except in underground stations, the access points between the guideway and the platform, and the exit from the platform may be integrated.

Table 4.5-3

Sections of California Building Code Relevant to MSC

	Section 1011.1: Exit Signs. Exit sign placement shall be such that no point in an exit access corridor or exit passageway is more than 100 feet (30.5 m) or the listed viewing distance for the sign, whichever is less, from the nearest visible exit sign.
	Section 1011.3 Tactile exit signs. Tactile exit signs shall be required at the following locations: • Each grade-level exterior exit door shall be identified by a tactile exit sign with the word, "EXIT." • Each exit door that leads directly to a grade-level exterior exit by means of a stairway or ramp shall be identified by a tactile exit sign. • Each exit door that leads directly to a grade-level exterior exit by means of an exit enclosure that does not utilize a stair or ramp, or an exit passageway shall be identified by a tactile exit sign. • Each exit access door from an interior room or area shall be identified by a tactile exit sign. • Each exit door through a horizontal exit shall be identified by a tactile exit sign.
	Section 1013.1: Guards shall be located along open-sided walking surfaces, including mezzanines, equipment platforms, stairs, ramps and landings that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side.
	Section 1015.1.1: The exit doors or exit access doorways shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exit doors or exit access doorways. Interlocking or scissor stairs shall be counted as one exit stairway.
	Section 1027.3: Exit discharge location. Exterior balconies, stairways and ramps shall be located at least 10 feet (3.0 m) from adjacent lot lines and from other buildings on the same lot unless the adjacent building exterior walls and openings are protected in accordance with Section 705 based on fire separation distance.
Egress for Passengers	
	Section 1003.2: Ceiling height. The means of egress shall have a ceiling height of not less than 7 feet 6 inches (2.3 m).
	Section 1003.4: Floor surface. Walking surfaces of the means of egress shall have a slip-resistant surface and be securely attached.
	Section 1006.2: Illumination level. The means of egress illumination level shall not be less than 1 foot-candle (11 lux) at the walking surface.
	Section 1007.10: Directional signage. Directional signage indicating the location of the other means of egress and which accessible means of egress are available shall be provided at the following: • At exits serving a required accessible space but not providing an approved accessible means of egress. • At elevator landings. • Within areas of refuge.

Source: 2010 California Building Code, Title 24, Part 2 (First Printing) , Includes Errata/Supplement through July 1, 2012.

County Regulations

The Mutual Aid Operations Plan

The Disaster Preparedness Section of the LACSD, Emergency Operations Bureau, conducts active disaster/emergency planning with other public and private organizations, including all incorporated cities within the County, the American Red Cross, and various public and private civil defense/disaster planning entities. The County of Los Angeles is also required to organize a formal mutual aid agreement between all fire departments within its jurisdiction. Additional informal agreements may be made directly between the fire departments involved. The Mutual Aid Operations Plan is a reciprocal agreement between signatory agencies to provide personnel and resources to assist other member agencies during emergency and/or conditions of extreme peril. The Mutual Aid Operations Plan provides a structure of response should an emergency at LAX arise which requires immediate response by more fire protection personnel than would be available to LAFD using all other available resources.

City Regulations

The City of Los Angeles establishes fire protection and emergency services regulations for both on- and off-airport property. On-airport areas are subject to provisions included in the LAWA Rules and Regulations Manual, LAX Airport Emergency Plan (AEP), the LAX Air/Sea Disaster Preparedness Plan, the General Plan Safety Element, and the LAFC.

LAWA Rules and Regulations

The Rules and Regulations Manual for LAWA is published under authority contained in Sections 632(b) and 633(a) and (b) of the Los Angeles City Charter, which empowers LAWA to make rules and regulations governing the use and control of City airports, subject to the powers of the United States respecting commerce. The Rules and Regulations Manual complies with FAA and the Transportation Security Administration (TSA) FAR Part 139 and Transportation Security Regulation (TSR) Parts 1540 and 1542, which requires airport management to establish operational and safety procedures and measures to meet FAA and TSA requirements for airport certification.[3]

The Fire and Safety Section, Section 6 of the LAWA Rules and Regulations Manual, specifically applies to fire safety at LAX. As discussed under Section 6, the Airport Fire Inspector is required to inspect all buildings, structures, and premises periodically, as well as enforce all applicable laws, rules, and regulations regarding fire protection, including the UFC, NFPA Codes and Standards, and the LAFC.[4]

LAX Airport Emergency Plan

In accordance with FAA guidance provided in Advisory Circular 150/5200-31C, the Airport Emergency Plan (AEP) addresses essential emergency-related and deliberate actions to ensure

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[3] City of Los Angeles, Los Angeles World Airports, Airport Police Division, Rules and Regulations Manual, Available: http://www.lawa.org, accessed June 27, 2013.

[4] City of Los Angeles, Los Angeles World Airports, Airport Police Division, Rules and Regulations Manual, Available: http://www.lawa.org, accessed June 27, 2013.

safety and the provision of adequate emergency services for LAX and surrounding communities.[5] The AEP details the roles and responsibilities that first responders, airport managers, commercial carriers, and airport tenants are to undertake in an emergency.[6]

LAX Air/Sea Disaster Preparedness Plan

The LAX Air/Sea Disaster Preparedness Plan was approved by the FAA on November 26, 1991, with sections approved on August 19, 1991. The LAX Air/Sea Disaster Preparedness Plan was "established to provide a course of action to be followed in the event an accident involving an air carrier occurs in the immediate vicinity of Los Angeles International Airport (LAX) over water." LAFD provides personnel, aircraft, and nautical equipment as needed to assist with any aircraft incidents over water (accidents at sea) or elsewhere.

City of Los Angeles General Plan Safety Element

The General Plan Safety Element, adopted on November 26, 1996, contains policies related to the City's response to hazards and natural disasters. Policy 2.1.6 requires LAFD to maintain, enforce, and upgrade requirements, procedures, and standards to facilitate effective fire suppression including peak load water flow and building and fire code regulations. In addition, LAFD is required to revise regulations or procedures to include the establishment of minimum standards for the location and expansion of fire facilities, based on flow, intensity, and type of land use, life hazards, occupancy, and degree of hazards, in order to ensure adequate fire and emergency medical service response.

Los Angeles Fire Code and Charter

The provisions of the LAFC are detailed in Section 57.09.01-11, Article 7 (Fire Protection and Prevention) of Chapter V (Public Safety and Protection) of the Los Angeles Municipal Code (LAMC). As stated therein, the LAFD Bureau of Fire Prevention and Public Safety is required to administer and enforce basic building regulations set by the State Fire Marshal. The LAFC also provides regulations for the safeguarding of life and property from fire, explosion, panic, or other hazardous conditions which may arise in the use or occupancy of buildings, structures, or premises. Division 101 of the LAFC regulates fire and life safety for all airports, heliports, aircraft factories, aircraft hangars, and aircraft repair hangars. Further, this Division regulates the ground fuel servicing of all types of aircraft with petroleum fuels.

Section 520 of the Los Angeles City Charter requires LAFD to control and extinguish injurious or dangerous fires and remove that which is liable to cause those fires; enforce all ordinances and laws relating to the prevention or spread of fires, fire control, and fire hazards within the City; conduct fire investigations; and protect lives and property in case of disaster or public calamity.

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5 U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5200-31C, Airport Emergency Plan, June 19, 2009.

6 City of Los Angeles Mayor's Blue Ribbon Panel, Report of the Mayor's Blue Ribbon Panel on Airport Security. A Report to Los Angeles Mayor Antonio R. Villaraigosa Concerning Public Safety at Los Angeles International Airport, June 2011.

4.5.3.2 Existing Conditions

The City of Los Angeles Fire Department provides fire protection services throughout LAX, including the proposed MSC site. Four fire stations (Fire Station Nos. 80, 51, 5, and 95) are located on LAX property and have a direct responsibility for fire protection and emergency services within the airport boundaries. In addition to serving LAX, Fire Stations 5 and 95 also serve areas of the adjacent communities; Fire Station 51 also serves Dockweiler State Beach. Data pertaining to each station is shown in **Table 4.5-4**; the location of each station is shown in **Figure 4.5-1**.

Table 4.5-4

City of Los Angeles Fire Department Stations Located at LAX

Station #	Address	Floor Area (sf)	Service Area (square miles)	Personnel[1]	Equipment
51	10435 Sepulveda Blvd	8,600	4.6	6/18	1 Fire Engine 1 Paramedic Rescue Ambulance 1 Rescue Apparatus
80	7250 World Way West	27,500	LAX	14/42	4 Specialized Fire Trucks 1 Reserve Truck 1 Stair Truck 1 Pick-Up
95	10010 International Road	9,500	2.34	12/36	1 Truck with 100' ladder 1 Fire Engine Pumper 1 Paramedic Rescue Ambulance 1 Rescue Air Cushion HazMat Unit
5	8900 Emerson Avenue	24,700	4.3	14/42	1 USAR Vehicle 2 Fire Engines 1 Fire Truck 1 Paramedic Rescue Ambulance 1 Battalion Chief Vehicle
Totals		70,300		46/138	

Note:

1 Per shift/total

Souces: Los Angeles Fire Department,www.lafd.org, January 2014 and Los Angeles World Airports, Los Angeles International Airport Specific Plan Amendment Study, Final Environmental Impact Report, January 2013.

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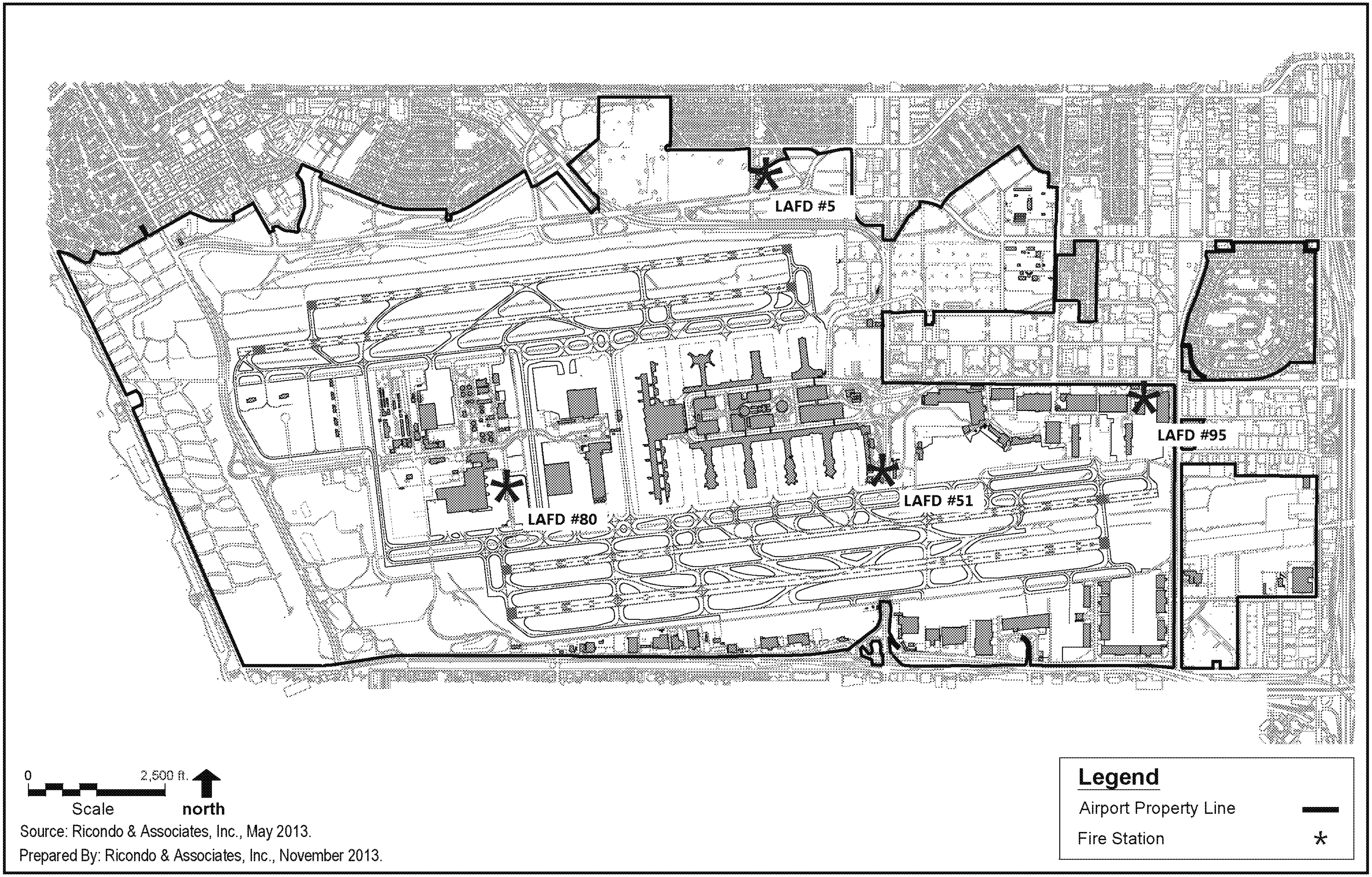

LAX Midfield Satellite Concourse Draft EIR

Los Angeles International Airport Fire Stations

Figure
4.5-1

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4.5.4 Thresholds of Significance

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 North MSC Project or future phase(s) of the MSC Program would:

- Restrict emergency access, increase response times, or extend station response distances beyond the standards maintained by the agencies serving LAX and the surrounding communities.
- Require the need 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 LAFC (LAMC, Section 57.09.01-11).[7] This threshold also complies with the FAR requirements for ARFF stations. The second threshold is derived from the L.A. CEQA Thresholds Guide.

4.5.5 Applicable LAX Master Plan Commitments

As part of the LAX Master Plan, LAWA adopted 12 commitments pertaining to fire protection and emergency services in the Alternative D Mitigation Monitoring and Reporting Program (MMRP). The following commitments are applicable to the North MSC Project and future phase(s) of the MSC Program and were considered in the fire protection analysis herein.

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:

1. 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.
2. 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.

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7 According to LAFD and LAMC, Section 57.09.1-11, an engine company should be located within 1.0 mile and a truck company should be located within 1.5 miles of an emergency location while meeting fire flow requirements.

3. Fire Hydrants. Adequate off-site public and on-site private fire hydrants may be required, based on a determination by the LAFD upon review of proposed plot plans.
4. 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.
5. Road Turns. Standard cut-corners will be used on all proposed road turns.
6. 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.
7. 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.
8. 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.
9. 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.
10. Building Heights. New buildings exceeding 28 feet in height may be required to provide additional LAFD access.
11. Construction/Demolition Access. During demolition and construction activities, emergency access will remain unobstructed.
12. 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).

PS-1. Fire and Police Facility Relocation Plan.

Prior to any demolition, construction, or circulation changes that would affect LAFD Fire Stations 5, 51, 80, and 95, or on-airport police facilities, a Relocation Plan will be developed by LAWA through a cooperative process involving LAFD, LAWA Police Division (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.[8]

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,

[8] Subsequent to approval of the LAX Master Plan, the new, relocated LAFD ARFF Fire Station 80 at LAX was constructed and opened in November 2010.

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.

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:

1. Inform motorists about detours and congestion by use of static signs, changeable message signs, media announcements, airport website, etc.;
2. Work with airport police and the Los Angeles Police Department to enforce delivery times and routes;
3. Establish staging areas;
4. Coordinate with police and fire personnel regarding maintenance of emergency access and response times;
5. Coordinate roadway projects of Caltrans, City of Los Angeles, and other jurisdictions with those of the airport construction projects;
6. Monitor and coordinate deliveries;
7. Establish detour routes;
8. Work with residential and commercial neighbors to address their concerns regarding construction activity; and
9. Analyze traffic conditions to determine the need for additional traffic controls, lane restriping, signal modifications, etc.[9]

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.

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9 Subsequent to approval of the LAX Master Plan, LAWA established a Ground Transportation/Construction Coordination Office in accordance with the provisions of LAX Master Plan Commitment C-1 above.

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-19. Closure Restrictions of Existing Roadways.

Other than short time periods during nighttime construction, existing roadways will remain open until they are no longer needed for regular traffic or construction traffic, unless a temporary detour route is available to serve the same function. This will recognize that there are three functions taking place concurrently: (1) airport traffic, (2) construction haul routes, and (3) construction of new facilities.

ST-21. Construction Employee Parking Locations.

During construction of the eastern airport facilities, employee parking locations will be selected that are as close to I-405 and I-105 as possible and can be accessed by employee vehicles with minimal disruption to adjacent streets. Shuttle buses will transport employees to construction sites. In addition, remote parking locations (of not less than 1 mile away from project construction activities) will be established for construction employees with shuttle service to the airport. An emergency return system will be established for employees that must leave unexpectedly.

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.

4.5.6 Impact Analysis

4.5.6.1 MSC North Project

Construction

Traffic congestion associated with the construction of the MSC North Project would have the potential to hamper or delay emergency response. However, these impacts would be reduced or avoided through LAX Master Plan Commitment C-1, Establishment of a Ground Transportation/Construction Coordination Office. The Ground Transportation/Construction Coordination Office, which is now in place, would ensure, among other things, proper coordination and planning with fire protection agencies to reduce effects from construction on traffic, emergency access, and response times. In addition, LAX Master Plan Commitments ST-9, ST-12, ST-14, ST-17, ST-18, ST-19, ST-21, and ST-22 would serve to further reduce potential traffic impacts during construction. In the event construction activities were to result in deterioration of traffic conditions, use of emergency sirens, alternate response routes, and multiple station responses when necessary would help facilitate emergency access and response as occurs under current congested conditions. No new or expanded fire stations would be required during construction of the MSC North Project. Therefore, impacts to emergency response times related to construction of the proposed improvements would be less than significant.

Airfield Improvements

Airfield improvements associated with the MSC North Project include new Taxilane C12, which would be constructed to provide access to the gates on the west side of the MSC North building and provide connections to existing Taxilane D and Taxiway E. Taxilane T, on the east side of the proposed MSC North building is currently under construction would provide access between the gates on the east side of the MSC North building and the airfield. Taxiway C14, a new crossfield taxiway located west of existing Taxiway R would be constructed to provide connections to existing Taxiway B, Taxilane C, and Taxiway E. Also included under airfield improvements is the construction of the associated aircraft apron for the MSC North building. Airfield improvements under the MSC North Project would provide taxiway facilities that would meet FAA Airport Design Standards for ADG VI aircraft, particularly as related to separation requirements, thereby reducing the need for special operations restrictions, modifications of standards, and waivers from FAA. These improvements to the airfield would enhance safety and efficiency compared to baseline conditions, thereby decreasing demand on fire protection services and personnel associated with airfield accidents. In addition, LAX Master Plan Commitments FP-1, LAFD Design Recommendations, and PS-2, Fire and Police Facility Space and Siting Requirements, as well as enforcement of FAR and fire code requirements, would ensure maintenance of adequate response times, staffing, equipment, facilities, and emergency access in association with airfield improvements. The implementation of these improvements would not affect the ability of Fire Station 80 to respond to emergencies at LAX and would not affect response times to other locations at LAX. Additionally, the MSC North Project would not require any new or expanded fire stations. Therefore, impacts to fire protection services related to airfield improvements under the MSC North Project would be less than significant.

Building Improvements

Building improvements under the MSC North Project would include the construction of the MSC North building and a tunnel for passenger conveyance, baggage, and/or utilities from the MSC North building to the CTA. The MSC North building would include facilities for passenger holdrooms, concessions, restrooms, airline space, utility rooms, circulation, airline operations, baggage handling, concourse circulation, airline lounges, office space, building support spaces, bus station(s), and space for a future automated people mover system. Terminal improvements would also include the construction of a ramp or supplemental airport traffic control tower. LAX Master Plan Commitments FP-1, LAFD Design Recommendations, and PS-2, Fire and Police Facility Space and Siting Requirements, as well as enforcement of FAR and fire code requirements, would ensure maintenance of adequate response times, staffing, equipment, facilities, and emergency access. Implementation of relevant sections of the NAFP Code and California Building Code related to the construction and operation of the tunnel would address fire, emergency access, and passenger safety issues. The implementation of these improvements would not affect the ability of Fire Station 80 to respond to emergencies at LAX and would not affect response times to other locations at LAX. Additionally, the MSC North Project would not require any new or expanded fire stations. Therefore, impacts to fire protection services associated with building improvements would result in a less than significant impact.

Ground Access Improvements and Parking

The MSC North Project would result in minor changes to ground access or parking for American Airlines personnel working at the American Airlines High Bay Hangar. Employees currently utilizing those spaces would park at the existing American Airlines parking lot located west of the Project site along World Way West. The MSC North Project would also require the reconfiguration of World Way West and some airfield vehicle service roads to the west of the MSC North building. However, the reconfiguration of World Way West and these service roads would not affect emergency response times or emergency vehicle access. Additionally, the MSC North Project would not require any new or expanded fire stations. Therefore, impacts to ground access and parking would be less than significant.

Removal / Relocation of Existing Facilities

Under the MSC North Project the following buildings and facilities would be either relocated or demolished:

- American Airlines maintenance (non-power) shop;
- American Airlines leasehold parking;
- US Airways maintenance facility;
- Electric vault #2;
- U.S. Coast Guard facility;
- Water deluge tank and pump station;
- Five RON aircraft parking spaces;

- FAA navigational aids (beacon and antenna array) and electrical substation;
- Two electrical industrial stations (#66 and #1548);
- Natural gas regulator;
- American Airlines Private Post; and
- Existing utility lines.

All of these facilities are in close proximity to Fire Station 80. The removal and/or relocation of these facilities listed would not affect the ability of Fire Station 80 to respond to emergencies at LAX and would not affect response times to other locations at LAX. Therefore, the removal and/or relocation of these facilities would be a less than significant impact.

4.5.6.2 Future Phase(s) of the MSC Program

Construction

Traffic congestion associated with construction of the future phase(s) of the MSC Program would have the potential to hamper or delay emergency response. However, these impacts would be reduced or avoided through LAX Master Plan Commitment C-1, Establishment of a Ground Transportation/Construction Coordination Office. The Ground Transportation/ Construction Coordination Office, which is now in place, would ensure, among other things, proper coordination and planning with fire protection agencies to reduce effects from construction on traffic, emergency access, and response times. In addition, LAX Master Plan Commitments ST-9, ST-12, ST-14, ST-17, ST-18, ST-19, ST-21, and ST-22 would serve to further reduce potential traffic impacts during construction. In the event construction activities were to result in deterioration of traffic conditions, use of emergency sirens, alternate response routes, and multiple station responses when necessary would help facilitate emergency access and response as occurs under current congested conditions. No new or expanded fire stations would be required during construction of the future phase(s) of the MSC Program. Therefore, impacts to emergency response times related to construction of the proposed improvements would be less than significant.

Airfield Improvements

Airfield improvements associated with the future phase(s) of the MSC Program would include the extension of Taxilane C12 south to connect with Taxilane C and the extension of the aircraft apron associated with the southerly extension of the MSC building. Airfield improvements under the MSC Program would provide taxilane facilities that would meet FAA Airport Design Standards for ADG V aircraft, particularly as related to separation requirements, thereby reducing the need for special operations restrictions, modifications of standards, and waivers from FAA. These improvements to the airfield would enhance safety and efficiency compared to baseline conditions, thereby decreasing demand on fire protection services and personnel associated with airfield accidents. In addition, LAX Master Plan Commitments FP-1, LAFD Design Recommendations, and PS-2, Fire and Police Facility Space and Siting Requirements, as well as enforcement of FAR and fire code requirements, would ensure maintenance of adequate response times, staffing, equipment, facilities, and emergency access in association with airfield improvements. The implementation of these improvements would not affect the ability of Fire Station 80 to respond to emergencies at LAX and would not affect response times to other locations at LAX. Additionally, the future phase(s) of the MSC Program would not require any new or expanded fire stations. Therefore, impacts to fire protection services related to airfield improvements under the MSC Program would be less than significant.

Building Improvements

Building improvements associated with the future phase(s) of the MSC Program include expanding the MSC North building in one or more phases by extending the building to the south, and construction of a new dual-level central terminal processor (CTP) in the area east of parking structures P3 and P4. The future phase(s) of the MSC Program include providing utilities to accommodate the additional gates, CTP, and APM. LAX Master Plan Commitments FP-1, LAFD Design Recommendations, and PS-2, Fire and Police Facility Space and Siting Requirements, as well as enforcement of FAR and fire code requirements, would ensure maintenance of adequate response times, staffing, equipment, facilities, and emergency access. The implementation of these improvements would not affect the ability of Fire Station 80 to respond to emergencies at LAX and would not affect response times to other locations at LAX. Additionally, the future phase(s) of the MSC Program would not require any new or expanded fire stations. Therefore, impacts to fire protection services associated with the future phase(s) of the MSC Program would be less than significant.

Ground Access Improvements and Parking

Ground access improvements under the future phase(s) of the MSC Program include construction of a new dual-level central terminal processor (CTP) in the area east of parking structures P3 and P4. This would require roadway modifications along World Way and the associated terminal roadway network. Construction of the ground access improvements under the future phase(s) of the MSC Program would reduce traffic congestion and curb-front demands, which would reduce the potential for automobile collisions, automobile/pedestrian conflicts, and emergency response incidents at the airport compared to existing conditions. Improved traffic flow associated with new ground access facilities also is expected to improve response times for fire protection services. LAX Master Plan Commitments FP-1, LAFD Design Recommendations, and PS-2, Fire and Police Facility Space and Siting Requirements, as well as enforcement of fire code requirements, would ensure maintenance of adequate response times, staffing, equipment, facilities, and emergency access. Additionally, the future phase(s) of the MSC Program would not require any new or expanded fire stations. Thus, impacts to fire protection services associated with ground access improvements of the future phase(s) of the MSC Program would be less than significant.

Removal / Relocation of Existing Facilities

Under the future phase(s) of the MSC Program the following buildings and facilities may be either removed and/or relocated: American Airlines High Bay Hangar, American Airlines maintenance shed, and parking garages P2B and P5. The removal and/or relocation of these facilities would not affect the ability of Fire Stations 5, 51, 80, and 95 to respond to emergencies at LAX and would not affect response times to other locations at LAX. Additionally, the future phase(s) of the MSC Program would not require any new or expanded fire stations. Therefore, the removal and/or relocation of these facilities would be a less than significant impact.

4.5.7 Cumulative Impacts

The following projects would cumulatively contribute to fire protection service demands at the Airport:

- Within the central terminal area, the Bradley West Project, North Terminal Improvements, CUP Replacement Project, and South Terminal Improvements; and
- Within the airfield area, the West Aircraft Maintenance Area Project, Runway 7L-25R Runway Safety Area Project, and the North Airfield Runway Safety Area Project.

When cumulatively examined with future proposed projects at the Airport, the MSC North Project and future phase(s) of the MSC Program would contribute to cumulative increases in fire-related public service demands. However, the LAX Master Plan Commitments would be sufficient to offset the associated increases in fire protection service demands. The implementation of these improvements would not cause emergency vehicles to change their existing emergency access routes, impact existing fire stations, or require new fire stations at LAX. Thus, these improvements would not affect the ability of the LAX Fire Stations to respond to emergencies at LAX and would not affect response times to other locations at LAX. Therefore, cumulative public service demands associated with the MSC North Project and future phase(s) of the MSC Program would result in a less than significant impact with mitigation.

4.5.8 Mitigation Measures

Implementation of LAX Master Plan Commitments FP-1, PS-1, PS-2, C-1, ST-9, ST-12, ST-14, ST-17, ST-18, ST-19, ST-21, and ST-22 would ensure that fire protection and emergency response services impacts related to the MSC North Project and future phase(s) of the MSC Program would be less than significant. Therefore, no mitigation measures unique to the MSC North Project or future phase(s) of the MSC Program would be necessary.

4.5.9 Level of Significance After Mitigation

With implementation of LAX Master Plan Commitments and compliance with FAR and fire code requirements, the MSC North Project and future phase(s) of the MSC Program would result in a less than significant impact to fire protection services.

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4.7 Construction Surface Transportation

4.7.1 Introduction

The traffic analysis presented in this section addresses the construction traffic impacts specific to the proposed MSC North Project. The construction traffic impacts were determined for both the peak construction period for the proposed MSC North Project (December 2018) and the peak cumulative condition (December 2018). The peak construction month for the proposed MSC North Project corresponds to the peak cumulative condition, which includes traffic from the construction of other known projects anticipated to be under construction during the approximate 60-month construction schedule.

Implementation of the future phase(s) of the MSC Program would also generate vehicle traffic associated with workers traveling to and from the construction employee parking areas, associated shuttle trips between the parking areas and the construction site, haul/delivery trips, and miscellaneous construction-related travel. These trips could result in traffic impacts on the local roadway system during the construction period. However, these construction trips were analyzed in the LAX Master Plan EIR at a program level and would not be substantively different. Thus, construction traffic for the future phase(s) of the MSC Program is not analyzed in this EIR, as identified in the Initial Study (see **Appendix A**).

This proposed MSC North Project construction traffic analysis incorporates relevant analysis and assumptions from the Los Angeles International Airport (LAX or the Airport) Master Plan EIR,[1] the South Airfield Improvement Project (SAIP) EIR,[2] the Crossfield Taxiway Project (CFTP) EIR,[3] Bradley West Project EIR,[4] Central Utility Plant Replacement Project (CUP-RP) EIR,[5] Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project Draft EIR,[6] and the West Aircraft Maintenance Area (WAMA) Project Draft EIR.[7] The traffic conditions resulting from the construction of the CFTP, Bradley West Project, CUP-RP, Runway 7L/25R RSA Project, WAMA Project, and the proposed MSC North Project are similar in terms of regional approach/departure patterns and construction peaking characteristics. Therefore, the

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

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

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

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

5 City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Central Utility Plant Project, Los Angeles International Airport (LAX), October 2009.

6 City of Los Angeles, Los Angeles World Airports, Draft Environmental Impact Report for Los Angeles International Airport Runway 7L/25R Runway Safety Area (RSA) and Associated Improvements Project, September 2013.

7 City of Los Angeles, Los Angeles World Airports, Draft Environmental Impact Report for West Aircraft Maintenance Area (WAMA) Project, October 2013.

analysis procedures and data already known from these other projects were applied and updated as appropriate for the proposed MSC North Project.

Construction employee parking and material staging for deliveries associated with the construction of the proposed MSC North Project would be split between two lots located on the west side of the Airport. One lot is at the eastern end of World Way West used for all construction employee parking and some material staging and one lot is bounded by Westchester Parkway on the north and Pershing Drive on the west, which will be used for material staging only. This analysis assesses anticipated construction-related traffic impacts at off-airport intersections associated with the construction of the proposed MSC North Project, including the traffic impacts of construction employee vehicles, construction equipment, material delivery trucks, and truck trips associated with the MSC North Project.

This analysis addresses, in particular, the impacts from construction-related traffic that would occur during the peak construction period for the proposed MSC North Project. The construction traffic analysis combines peak Project-related traffic volumes (which do not correspond with commuter peak hours) with roadway traffic volumes occurring adjacent to the AM and PM commuter peak hours. The analysis provides an estimate of the construction-related traffic impacts within the off-Airport public roadway system serving construction-related vehicles generated by the proposed MSC North Project.

Prior to the preparation of this EIR, an Initial Study (see Appendix A) was prepared using the CEQA Environmental Checklist Form to assess potential environmental impacts associated with transportation/circulation. For several issues related to transportation/circulation the Initial Study found that the proposed MSC North Project and future phase(s) of the MSC Program would result in “no impact” and thus, no further analysis of these topics in an EIR was required. The thresholds not addressed further include:

- Potential impacts from a change in air traffic patterns, including either an increase in traffic levels or a change in location, that would result in substantial safety risks were evaluated and determined to have "No Impact" in the Initial Study as the proposed MSC North Project and future phase(s) of the MSC Program would not change air traffic patterns or increase air traffic levels.
- Potential impacts related to substantially increased hazards due to a design feature (e.g., sharp curves) or incompatible uses (e.g., farm equipment); potential impacts that would result in inadequate emergency access; or potential impacts that would result in a conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities, were evaluated and determined to have "No Impact" in the Initial Study. As the proposed MSC North Project and future phase(s) of the MSC Program would not change existing road alignments or geometrics, would not include new public streets, and would not remove existing public streets further analysis of these topics in an EIR was not required. Furthermore, the proposed MSC North Project would not change existing bicycle or pedestrian facilities, and would not create new demand for bicycle, pedestrian, or transit facilities and services. Changes in demand for bicycle, pedestrian, or transit facilities and services associated with the future phase(s) of the MSC Program were adequately addressed in the Master Plan EIR.
- Potential operational impacts related to conflicts with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation

system and potential conflicts with an applicable Congestion Management Program (CMP), including, but not limited to level of service standards (LOS) and travel demand measures were determined to be less than significant. As the future operation of the proposed MSC North Project would not result in operational changes to traffic activity and traffic flows within the Airport study area, the proposed MSC North Project would not increase the number of employees or airline passengers traveling to/through LAX. Therefore, an operational analysis of future traffic activity associated with proposed MSC North Project operations is not necessary. However, because the future phase(s) of the MSC Program assumes that passenger vehicles will continue to access the CTA, which is different than what was assumed in the LAX Master Plan EIR, a program-level operational traffic analysis was performed for the future phase(s) of the MSC Program (see Section 4.6 of this EIR).

4.7.2 Methodology

4.7.2.1 Overview

As noted above, this analysis focuses on construction impacts of the proposed MSC North Project. The analysis methodology for this EIR is based largely on the approach and data used for the Bradley West Project EIR, CUP-RP EIR, RSA South EIR, and WAMA EIR. The analyses procedures and data from these previous projects are applicable to the proposed MSC North Project because the construction of the projects overlap and share many of the same characteristics related to vehicle peaking patterns and travel paths.

The traffic study area includes intersections and roadways anticipated to be directly or indirectly affected by the construction of the proposed MSC North Project. Construction employee parking and material staging for the MSC North Project are proposed at two locations in the vicinity of the Airport, as further described below. The traffic study area for this analysis includes those roads and intersections that would most likely be used by employee and truck traffic associated with construction of the proposed MSC North Project. The procedures are also consistent with the information and requirements defined in City of Los Angeles Department of Transportation (LADOT) *Traffic Study Policies and Procedures*, notwithstanding that a construction traffic analysis is not typically required by LADOT.

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

- The traffic study area was defined according to the travel paths that would be used by construction traffic to access the MSC North Project site, equipment, materials staging, and parking areas. Construction delivery vehicle travel paths would be regulated according to the construction traffic management plan required through the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP).[8] The construction of the proposed MSC North Project would occur at the eastern end of World Way West, with primary access for construction employee vehicles provided by Pershing Drive and World Way West. A second lot used for staging is located along Westchester Parkway near the intersection of Pershing Drive, with access provided via Westchester Parkway.

8 LAX Master Plan commitments that are applicable to construction traffic are applied to this Project to mitigate potential construction-related impacts.

- Intersection turning movement traffic volume data were collected at the key traffic study area intersections on Tuesday, April 30, 2013, and on Wednesday, May 15, 2013, from 6:00 AM to 10:00 AM and from 3:00 PM to 6:00 PM. These extended traffic count periods were established to obtain traffic count data during the (a) AM peak inbound hour for construction employees and deliveries and (b) the PM peak outbound hour for construction employees and deliveries. Pursuant to the mitigation requirements set forth in the LAX Master Plan EIR, construction truck delivery and construction employee traffic activity would not be scheduled during the morning or afternoon commute peak periods which were also counted during the data collection survey. The estimated peak hours for construction-related traffic were determined by reviewing the estimated hourly construction-related trip activity for the proposed MSC North Project developed for this study.[9] The AM peak construction hour was determined to be 6:00 AM to 7:00 AM and the PM peak construction hour was determined to be 3:30 PM to 4:30 PM, both of which occur outside of the normal peak commuter periods.
- Key off-Airport intersections, including intersections with freeway ramps in the proposed traffic study area, were analyzed. Impacts to roadway segments and freeway links were not analyzed because construction-related traffic activity is anticipated to occur outside of peak commute periods.

The following describes the methodology and assumptions underlying the various traffic conditions considered in this traffic analysis, and how the proposed MSC North Project's direct and indirect (cumulative) impacts were identified relative to those conditions.

4.7.2.2 Determination of Existing Traffic Conditions

Baseline conditions used in the analysis of Project-related construction traffic impacts are defined as the existing conditions within the traffic study area at the time the Notice of Preparation (NOP) was published (February 2013). Intersection turning movement volumes were collected in April and May 2013. These volumes were used as a basis for preparing the traffic analysis and assessing potential Project-related traffic impacts. The following steps were taken to develop baseline traffic conditions information.

Prepare Model of Study Area Roadways and Intersections--A model of traffic study area roadways and intersections was developed to assist with intersection capacity analysis (i.e., geometric configuration, quantitative delineation of capacity, and operational characteristics of intersections likely to be affected by the proposed MSC North Project's traffic). The model was developed using TRAFFIX,[10] a traffic analysis software program designed for developing traffic forecasts and analyzing intersection and roadway capacities. The model uses widely accepted traffic engineering methodologies and procedures, including the Transportation Research Board Critical Movement Analysis (CMA) Circular 212 Planning Method,[11] which is the required intersection analysis methodology for traffic impact studies conducted within the City of Los Angeles.

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9 CONNICO, Incorporated, LAX MSC North Vehicle Schedule REV2 2013.08.09.pdf, August 2013 (employee trip volumes, truck trips, vehicle schedule times).

10 Dowling Associates, TRAFFIX Version 7.7.

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

Calculate Baseline Levels of Service--Intersection levels of service were calculated using the 2013 intersection traffic volumes coinciding with the AM construction peak hour (6:00 AM to 7:00 AM) and the PM construction peak hour (3:30 PM to 4:30 PM). These levels of service defined existing baseline conditions which served as a basis of comparison for assessing potential impacts generated by construction of the proposed MSC North Project.

4.7.2.3 Determination of Baseline Plus Peak Proposed Project Traffic Conditions

This traffic analysis was designed to assess the direct impacts associated with the construction of the proposed MSC North Project, as well as the effects of future cumulative conditions. For purposes of determining direct Project-related impacts, a traffic scenario was developed consisting of baseline traffic described above plus the additional traffic that would be generated by the proposed MSC North Project construction activity during the peak construction period. The following steps were conducted to determine the Baseline Plus Peak proposed MSC North Project traffic volumes.

Analyze Peak Proposed Project Construction Activity--Vehicle trips associated with construction of the proposed MSC North Project during the peak month of construction activity were estimated and distributed throughout the traffic study area network. The trips were estimated based on a review of the proposed MSC North Project construction schedules and associated workforce levels and equipment, including trucks and other construction vehicles. Project-related construction trips were summarized to delineate peak month inbound and outbound construction employee trips and truck trips by hour of the day. The estimate of proposed MSC North Project construction trips was based on construction employee workload schedules prepared for the proposed MSC North Project.[12] The construction employee trip distribution patterns were based on regional patterns developed for the proposed MSC North Project and previous LAWA construction traffic studies using the modeling results prepared for the LAX Master Plan EIR, specific haul route information, airline passenger survey information, and regional population distributions.

Estimate Baseline Plus Peak Proposed Project Traffic Volumes--The estimated Baseline Plus Peak proposed MSC North Project (referred to hereinafter as Baseline Plus) traffic volumes were estimated by adding the MSC North Project volumes during the peak proposed Project activity period (anticipated to occur in December 2018) to the baseline volumes.

4.7.2.4 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 proposed MSC North Project construction program when the cumulative traffic associated with other LAX development programs would be greatest. This peak cumulative period was estimated to occur during December 2018.

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12 CONNICO, Incorporated, LAX MSC North Vehicle Schedule REV2 2013.08.09.pdf, August 2013.

In accordance with *CEQA Guidelines* Section 15130(b), there are essentially two options for delineating cumulative development for evaluating potential impacts:

a. List past, present, and reasonably foreseeable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or

b. Summarize projections contained in an adopted general plan or related planning document, or in a prior adopted or certified environmental document, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

For purposes of the proposed MSC North Project, the first of the two options, commonly referred to as "the list approach," was used to delineate cumulative projects - see Section 4.7.5 below for a description of cumulative projects and specific project listings and descriptions regarding how and when the traffic generation related to those projects would overlap with that of the proposed MSC North 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 conditions were determined using a process that requires the development of the two sets of future cumulative traffic volume conditions, as described below.

Cumulative Traffic (December 2018) Without Project

This scenario combines baseline traffic volumes with growth from all sources other than the MSC North Project to determine the overall peak cumulative traffic conditions during the construction period for the proposed MSC North Project. The following steps were taken to develop the traffic volumes for this scenario.

Develop December 2018 Focused Traffic Study Area Roadway Network--The TRAFFIX model was updated, as necessary, to reflect any committed and funded traffic study area transportation improvements that would be in place by December 2018.

Estimate December 2018 Cumulative Traffic Volumes--Cumulative (December 2018) traffic volumes were estimated using the following process:

- Baseline 2013 traffic volumes were multiplied by a growth factor of two percent per year to account for local background traffic growth through 2018. This annual growth rate assumption is consistent with previous direction first provided by LADOT for use in the SAIP[13] and subsequently used for construction traffic studies prepared for the CFTP EIR, Bradley West Project EIR, CUP-RP EIR, Runway 7L/25R RSA Project Draft EIR, and the WAMA Project Draft EIR.
- Construction trips for development projects on Airport property that are expected to commence during the period of proposed MSC North Project construction were directly estimated and included in the analysis. Construction trips associated with the peak period of cumulative construction (December 2018) were estimated based on the estimated labor component of total construction cost and the timeline for each concurrent project. The related projects that were considered as part of this analysis

[13] City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for South Airfield Improvement Project, Los Angeles International Airport (LAX), October 2005.

and the estimated trips associated with these related projects are described in more detail below.

Future Cumulative Traffic (December 2018) With Project

The Project-related construction traffic volumes occurring during the peak cumulative period were added to the Cumulative Traffic (December 2018) "Without Project" traffic volumes described in the previous section. This is a realistic traffic scenario that is intended to represent the estimated total peak hour traffic volumes (consisting of background traffic, traffic related to ambient growth, traffic related to other projects, and proposed MSC North Project construction traffic) that would use the traffic study area intersections during the overall cumulative peak in December 2018.

4.7.2.5 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 traffic study area intersections and roadways were analyzed using TRAFFIX. Intersection LOS was estimated using the CMA planning level methodology, as defined in Transportation Research Board Circular 212,[14] in accordance with LADOT *Traffic Studies Policies and Procedures* guidelines,[15] and the *L.A. CEQA Thresholds Guide*.[16] Intersection LOS was analyzed for the following conditions:

- Existing;
- Existing Plus Peak Project Traffic;
- Future Cumulative Traffic (December 2018) Without Project; and
- Future Cumulative Traffic (December 2018) With Project.

Identify Project Impacts--Project-related impacts associated with construction of the proposed MSC North Project were identified. Intersections that were anticipated to be significantly affected by Project-related construction were identified according to the criteria established in the LADOT Traffic Studies Policies and Procedures guidelines. Impacts were determined by comparing the LOS results for the following:

- **Baseline Plus Peak Proposed Project Compared with Baseline:** This comparison is utilized to isolate the potential impacts of the proposed MSC North Project.
- **Cumulative Impacts:** Cumulative impacts were determined using a two-step process. Initially, the Cumulative Traffic (December 2018) With Project condition was compared to the baseline condition to determine if a cumulative impact would occur relative to baseline. An impact was deemed significant if it would exceed the allowable threshold of significance defined in the *LADOT Guidelines*. If a cumulative impact were determined,

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

15 Los Angeles Department of Transportation, Traffic Study Policies and Procedures, December 2010.

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

then a second comparison of the With Project vs. the Without Project LOS conditions was made to determine if the project's contribution of the cumulative impact is determined to be "cumulatively considerable" in accordance with the impact thresholds defined in Section 4.7.6 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 LAX Master Plan commitments intended to address construction-related impacts.

4.7.3 Existing Conditions

4.7.3.1 Regulatory Context

The *Guide for the Preparation of Traffic Impact Studies* (California Department of Transportation [Caltrans] 2002) identifies circumstances under which Caltrans believes that a Traffic Impact Study would be required, information that Caltrans believes should be included in the study, analysis scenarios, and guidance on acceptable analysis methodologies. However, a Caltrans Traffic Impact Study was not required for the proposed MSC North Project given that the proposed MSC North Project would not contribute vehicle trips to use the study area roadways and freeways during the commuter peak hour periods.

The LADOT *Traffic Study Policies and Procedures* manual requires that a Traffic Study be prepared if the following criteria are met:

- A project is likely to add 500 or more daily trips
- A project is likely to add 43 or more AM or PM peak hour trips

Based on LADOT criteria, a Traffic Study would not be required as neither condition mentioned above would be met.

In addition, the LADOT *Traffic Study Policies and Procedures* manual provides Congestion Management Program (CMP) Guidelines to assist local agencies in evaluating impacts of land use projects on the CMP system through the preparation of a regional transportation impact analysis (TIA). A CMP TIA is necessary for all projects that include, at a minimum, the following:

- 50 or more trips added to intersections during either the weekday AM or PM peak hours
- 150 or more trips added to the freeway during either the weekday AM or PM peak hours

Because the proposed MSC North Project is not anticipated to generate traffic during the AM or PM peak commute periods, it is not expected that the MSC North Project would meet or exceed the criteria set forth by Caltrans or LADOT. Therefore, a Traffic Impact Study is not required for the proposed MSC North Project. Additionally, because the proposed MSC North 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. Furthermore, during the scoping of the SAIP traffic study, LADOT indicated that no Traffic Impact Study was required because there was “no requirement to assess the temporary impacts of a project resulting from construction activities." Thus, the proposal to prepare a Traffic Impact Study is voluntary.[17] LAWA determined at that time and continues to believe that the preparation of a Traffic Impact Study is useful in order to provide a full assessment and documentation of the potential impacts that may be generated by the construction of the proposed MSC North Project.

4.7.3.2 Baseline Conditions

As indicated above, baseline conditions relate to the facilities and general conditions that existed during a typical weekday in 2013 for the hours that would coincide with peak construction-related traffic activity, i.e., 6:00 AM to 7:00 AM and 3:30 PM to 4:30 PM.

4.7.3.3 Traffic Study Area

The construction traffic study area is depicted in **Figure 4.7-1**. The scope of the traffic study area was determined by identifying the intersections most likely to be used by construction-related vehicles accessing (1) the proposed MSC North Project construction site, construction employee parking area, and delivery staging areas and (2) the construction employee parking and staging areas for other concurrent construction projects in the vicinity of LAX. The traffic study area is generally bounded by I-405 to the east, I-105 and Imperial Highway to the south, Pershing Drive to the west, and Westchester Parkway, Sepulveda Boulevard, and Howard Hughes Parkway to the north. Figure 4.7-1 depicts the proposed MSC North Project construction site, which is located at the eastern end of World Way West. The construction employee parking and materials staging area are split between the MSC North Project construction site, which contains all the construction employee parking and some material staging, and a lot located south of Westchester Parkway, which will only be used for the staging of materials.

4.7.3.4 Traffic Study Area Roadways

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

- **I-405 (San Diego Freeway)** - This north-south freeway generally forms the eastern boundary of the construction traffic analysis traffic study area and provides regional access to the Airport and the surrounding area. Access to the traffic study area is provided via ramps at Howard Hughes Parkway, Century Boulevard, I-105, Imperial Highway, and three locations along La Cienega Boulevard.
- **I-105 (Glenn M. Anderson or Century Freeway)** - Along with Imperial Highway (described below), this east-west freeway forms the southern boundary of the construction traffic study area, and extends from the San Gabriel Freeway (I-605) on the east to Sepulveda Boulevard on the west. Access to the traffic study area is provided via ramps at Sepulveda Boulevard and along Imperial Highway. The westbound off-ramp from the I-105 Freeway to northbound Sepulveda Boulevard was widened to three lanes in March 2010.

17 Email from LADOT to LAWA on July 29, 2004.

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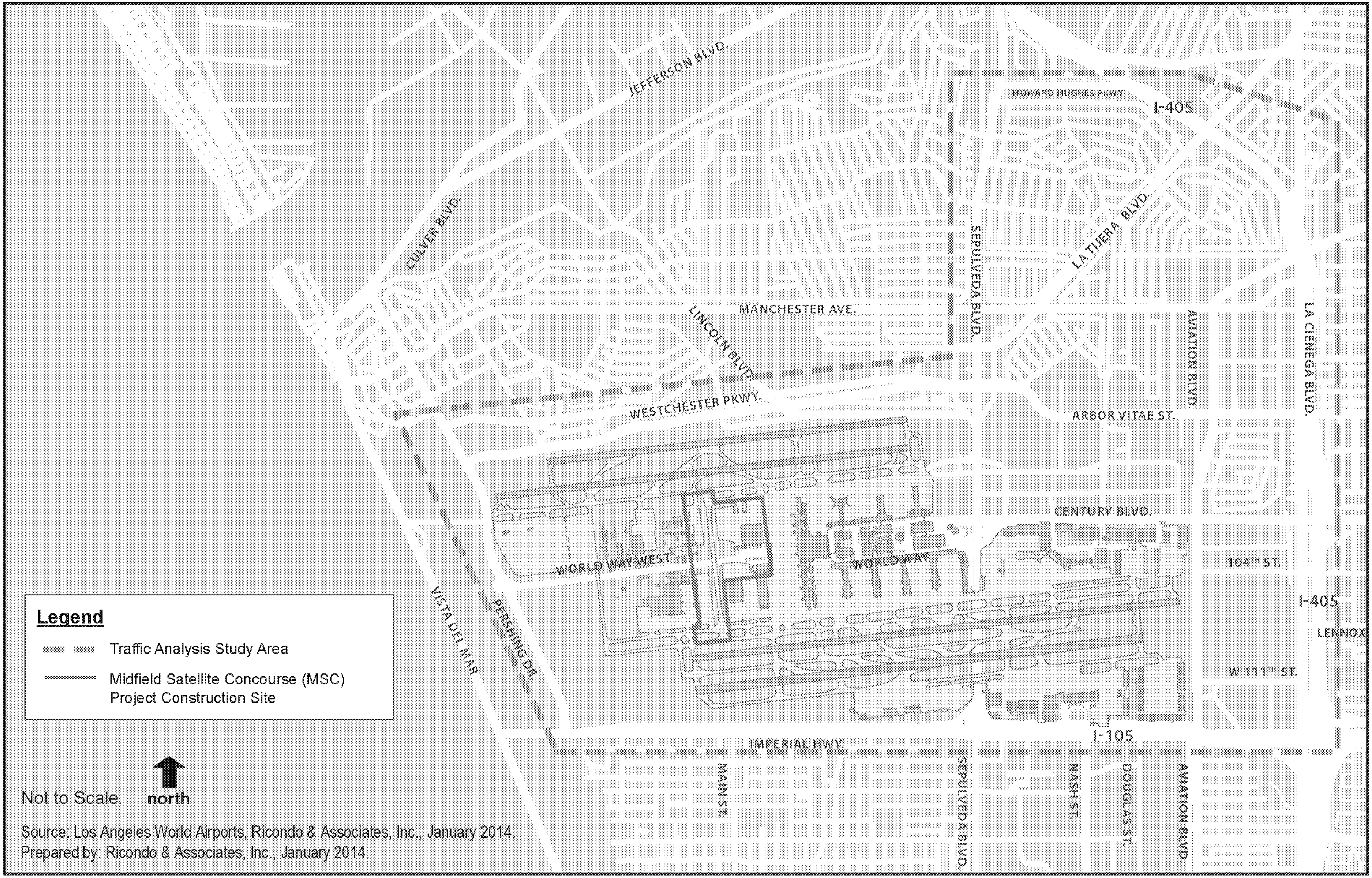

LAX Midfield Satellite Concourse Draft EIR

Construction Traffic Analysis Study Area

Figure 4.7-1

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- **Aviation Boulevard** - This north-south four-lane roadway bisects the traffic study area.
- **Century Boulevard** - This eight-lane divided roadway serves as the primary entry to the LAX CTA. This roadway also provides access to off-airport businesses and hotels and on-airport aviation-related facilities (e.g., air cargo facilities) located between the CTA and I-405.
- **Imperial Highway** - This east-west roadway is located at-grade and beneath much of the elevated I-105 freeway. The number of lanes on this roadway varies from six-lanes east of the merge with I-105 to four-lanes west of the merge with I-105.
- **La Cienega Boulevard** - This north-south roadway parallels I-405 at the east boundary of the traffic study area. The roadway varies from four to six lanes.
- **Pershing Drive** - This north-south four-lane divided roadway forms the western boundary of the construction traffic study area.
- **Westchester Parkway** - This east-west four-lane divided arterial roadway forms a portion of the northern boundary of the traffic study area.
- **Sepulveda Boulevard (State Route 1 south of Lincoln Boulevard)** - This major north-south six-lane arterial roadway provides direct access to the Airport via I-405 and Westchester Parkway on the north and via I-105 on the south. Sepulveda Boulevard between I-105 and Century Boulevard is located in a tunnel section beneath the south airfield runways.
- **111th Street** - This east-west roadway has one lane in each direction separated by a continuous two-way left turn lane.

4.7.3.5 Existing Traffic Conditions

Traffic conditions at the traffic study area intersections and existing traffic activity (peak month, hourly, and annual) are discussed below.

Traffic Study Area Intersections

Intersection locations and intersection control and geometry are discussed below.

Intersection Locations

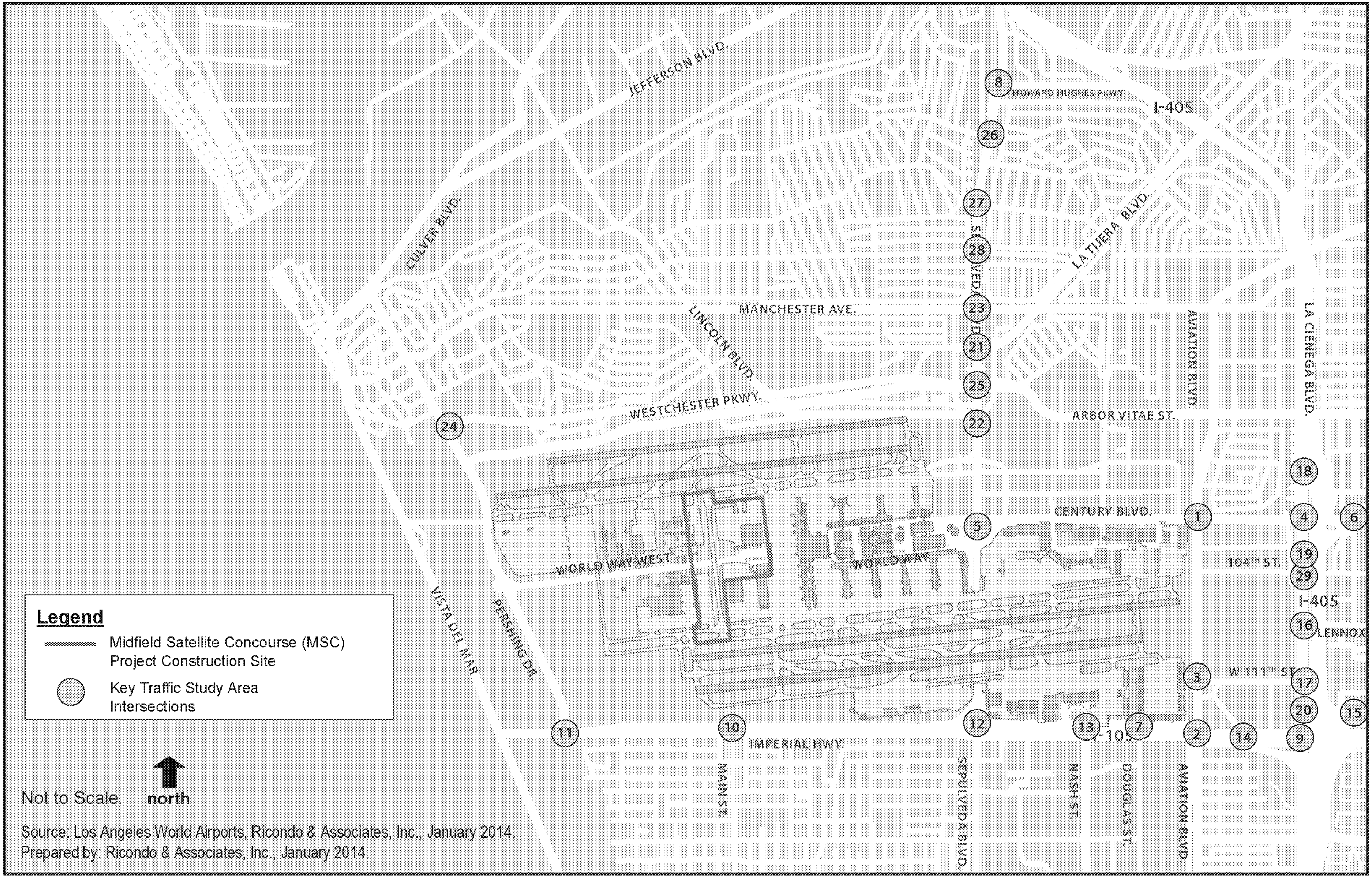
The anticipated routes utilized by construction-related vehicles were reviewed to identify the intersections likely to be used by vehicles accessing the construction employee parking/staging site associated with the proposed MSC North Project or the other concurrent construction project sites in the vicinity of LAX. Based on this review, the key intersections to be analyzed are listed below in **Table 4.7-1** and depicted in **Figure 4.7-2**.

Table 4.7-1

Study Area Intersections

Intersection Number	Intersection Location
1.	Aviation Boulevard and Century Boulevard
2.	Imperial Highway and Aviation Boulevard
3.	Aviation Boulevard and 111th Street
4.	La Cienega Boulevard and Century Boulevard
5.	Sepulveda Boulevard and Century Boulevard
6.	Century Boulevard and I-405 Northbound Ramps East of La Cienega Boulevard
7.	Imperial Highway and Douglas Street
8.	Sepulveda Boulevard and Howard Hughes Parkway
9.	Imperial Highway and La Cienega Boulevard
10.	Imperial Highway and Main Street
11.	Imperial Highway and Pershing Drive
12.	Imperial Highway and Sepulveda Boulevard
13.	Imperial Highway and Nash Street
14.	Imperial Highway and I-105 Ramp
15.	Imperial Highway and I-405 Northbound Ramp
16.	La Cienega Boulevard and Lennox Boulevard
17.	La Cienega Boulevard and 111th Street
18.	La Cienega Boulevard and I-405 Southbound Ramps North of Century Boulevard
19.	La Cienega Boulevard and I-405 Southbound Ramps South of Century Boulevard
20.	La Cienega Boulevard and I-405 Southbound Ramps North of Imperial Highway
21.	Sepulveda Boulevard and La Tijera Boulevard
22.	Sepulveda Boulevard and Lincoln Boulevard
23.	Sepulveda Boulevard and Manchester Avenue
24.	Westchester Parkway and Pershing Drive
25.	Sepulveda Boulevard and Westchester Parkway
26.	Sepulveda Boulevard and 76th/77th Street
27.	Sepulveda Boulevard and 79th/80th Street
28.	Sepulveda Boulevard and 83rd Street
29.	La Cienega Boulevard and 104th Street

Source: Los Angeles World Airports, Ricondo & Associates, Inc. September 2013.



LAX Midfield Satellite Concourse Draft EIR	**Construction Traffic Study Area Intersections**	Figure **4.7-2**

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Intersection Control and Geometry

All of the traffic study area intersections listed above and depicted in Figure 4.7-2 are signalized. In addition, all of the intersections are included in LADOT's Automated Traffic Surveillance and Control (ATSAC) system, except Imperial Highway and the I-405 northbound ramps east of La Cienega Boulevard (Intersection #15) and Century Boulevard and the I-405 northbound ramps east of La Cienega Boulevard (Intersection #6). The ATSAC system provides for monitoring of intersection traffic conditions and the flexibility to adjust traffic signal timing in response to current conditions.

Project-Related Peak Hours

Certain project commitments identified in the LAX Master Plan EIR are required to be implemented in conjunction with LAX Master Plan development projects and are also being required for LAX projects independent of the LAX Master Plan. Many of these commitments would have a direct effect on the traffic generated by the construction associated with the proposed MSC North Project. Specifically, LAX Master Plan Commitments ST-12 (Designated Truck Delivery Hours) and ST-14 (Construction Employee Shift Hours) are designed to control truck deliveries and construction employee trip activity to avoid the AM (7:00 AM to 9:00 AM) and PM (4:30 PM to 6:30 PM) peak commute periods, and would apply to the proposed MSC North Project. These commitments, along with other transportation-related commitments relevant to the proposed MSC North Project, are listed in Section 4.7.7 below.

The anticipated Project-related traffic peak hours were identified by reviewing estimates of the construction-related traffic associated with the proposed MSC North Project. Using these data, the peak hours analyzed for the proposed MSC North Project were determined to be the following:

- **Project Construction AM Peak Hour (6:00 AM to 7:00 AM)** - The proposed MSC North Project construction AM peak hour represents the peak period for construction employees arriving at the construction employee parking lot during the morning. Based on review of the draft construction resource schedule of hourly construction trips, employees are anticipated to arrive between 6:00 AM and 7:00 AM.[18]
- **Project Construction PM Peak Hour (3:30 PM to 4:30 PM)** - The proposed MSC North Project construction PM peak hour represents the peak period for construction employees leaving the construction employee parking lot during the evening. Based on review of the draft construction resource schedule of hourly construction trips, employees are anticipated to depart between 3:00 PM and 4:00 PM.[19] Although this construction-related traffic activity is estimated to end 30 minutes before the start of the PM peak commute period (4:30 PM to 6:30 PM), it was determined that combining these exiting construction volumes with the background traffic volume anticipated to occur between 3:30 PM and 4:30 PM, the period directly adjacent to the PM commuter peak hour, would produce a more conservative estimate of activity in the event that the future

[18] CONNICO, Incorporated, LAX MSC North Vehicle Schedule REV2 2013.08.09.pdf, August 2013 (employee trip volumes, truck trips, vehicle schedule times).

[19] CONNICO, Incorporated, LAX MSC North Vehicle Schedule REV2 2013.08.09.pdf, August 2013 (employee trip volumes, truck trips, vehicle schedule times).

construction employees need to exit prior to the desired "cut-off" time of 4:30 PM, just prior to the start of the evening peak commute period.

4.7.3.6 Baseline Intersection Volumes

Baseline traffic volumes consist of the traffic volumes that represent traffic activity at the time the NOP for the EIR was published (February 2013). Baseline volumes are based on actual 2013 data collected during the AM and PM construction-related peak hours. Baseline intersection traffic volumes are provided in **Appendix F, Attachment F.2**.

4.7.3.7 Baseline Intersection Analyses

Intersection LOS was analyzed using the CMA methodology to assess the estimated operating conditions during baseline conditions for the AM and PM construction peak hours. LOS is a qualitative measure that describes traffic operating conditions (e.g., delay, queue lengths, congestion). Intersection level of service ranges from A (i.e., excellent conditions with little or no vehicle delay) to F (i.e., excessive vehicle delays and queue lengths). LOS definitions for the CMA methodology are presented in **Table 4.7-2**.

In accordance with LADOT analysis procedures, the volume/capacity (v/c) ratio calculated using the CMA methodology is further reduced by 0.07 for those intersections included within the ATSAC system to account for the improved operation and increased efficiency from the ATSAC system that is not captured as part of the CMA methodology. Application of the ATSAC reduction is described in Attachment D of the LADOT *Traffic Study Policies and Procedures*.[20]

Table 4.7-2

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.

[20] Los Angeles Department of Transportation, Traffic Study Policies and Procedures, December 2010.

The estimated intersection LOS for baseline conditions is provided in **Table 4.7-3**. As shown in **Table 4.7-3**, most of the intersections operated at LOS C or better during the baseline construction AM and PM peak periods analyzed for the proposed MSC North Project. The one exception occurred at the intersection of Imperial Highway and Sepulveda Boulevard (Intersection #12), which was estimated to operate at LOS F during the construction PM peak hour.

The level of service results from the TRAFFIX program, including the volume, geometry and other inputs used to produce these results are provided in **Appendix F, Attachment F.3**.

Table 4.7-3

Baseline Intersection Analysis Results

Intersection	Peak Hour[1]	V/C[2]	LOS[3]
1. Aviation Blvd. & Century Blvd.	Construction AM	0.467	A
	Construction PM	0.594	A
2. Imperial Hwy. & Aviation Blvd.	Construction AM	0.500	A
	Construction PM	0.512	A
3. Aviation Blvd. & 111th St.	Construction AM	0.295	A
	Construction PM	0.404	A
4. La Cienega Blvd. & Century Blvd.	Construction AM	0.626	B
	Construction PM	0.762	C
5. Sepulveda Blvd. and Century Blvd.	Construction AM	0.424	A
	Construction PM	0.590	A
6. Century Blvd. & I-405 N/B Ramp	Construction AM	0.634	B
	Construction PM	0.459	A
7. Imperial Hwy. & Douglas St.	Construction AM	0.199	A
	Construction PM	0.375	A
8. Sepulveda Blvd. & H. Hughes Pkwy.	Construction AM	0.219	A
	Construction PM	0.419	A
9. Imperial Hwy. & La Cienega Blvd.	Construction AM	0.191	A
	Construction PM	0.453	A
10. Imperial Hwy. & Main St.	Construction AM	0.499	A
	Construction PM	0.439	A
11. Imperial Hwy. & Pershing Dr.	Construction AM	0.184	A
	Construction PM	0.316	A
12. Imperial Hwy. & Sepulveda Blvd.	Construction AM	0.496	A
	Construction PM	1.004	F
13. Imperial Hwy. & Nash St.	Construction AM	0.362	A
	Construction PM	0.239	A
14. Imperial Hwy. & I-105 Ramp	Construction AM	0.513	A
	Construction PM	0.471	A
15. Imperial Hwy. & I-405 NB Ramp	Construction AM	0.211	A
	Construction PM	0.480	A

Table 4.7-3

Baseline Intersection Analysis Results

Intersection	Peak Hour[1]	V/C[2]	LOS[3]
16. La Cienega Blvd. & Lennox Blvd.	Construction AM	0.164	A
	Construction PM	0.306	A
17. La Cienega Blvd. & 111th St.	Construction AM	0.128	A
	Construction PM	0.311	A
18. La Cienega Blvd. & I-405 Southbound Ramps North of Century	Construction AM	0.387	A
	Construction PM	0.410	A
19. La Cienega Blvd. & I-405 Southbound Ramps South of Century	Construction AM	0.135	A
	Construction PM	0.284	A
20. La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	Construction AM	0.136	A
	Construction PM	0.218	A
21. Sepulveda Blvd. & La Tijera Blvd.	Construction AM	0.337	A
	Construction PM	0.613	B
22. Sepulveda Blvd. & Lincoln Blvd.	Construction AM	0.457	A
	Construction PM	0.750	C
23. Sepulveda Blvd. & Manchester Ave.	Construction AM	0.395	A
	Construction PM	0.711	C
24. Westchester Pkwy. & Pershing Dr.	Construction AM	0.151	A
	Construction PM	0.213	A
25. Sepulveda Blvd. & Westchester Pkwy.	Construction AM	0.309	A
	Construction PM	0.649	B
26. Sepulveda Blvd. & 76th/77th St.	Construction AM	0.337	A
	Construction PM	0.440	A
27. Sepulveda Blvd. & 79th/80th St.	Construction AM	0.253	A
	Construction PM	0.513	A
28. Sepulveda Blvd. & 83rd St.	Construction AM	0.211	A
	Construction PM	0.458	A
29. La Cienega Blvd. & 104th St.	Construction AM	0.111	A
	Construction PM	0.276	A

Notes:
1 The hours of analysis include the construction AM peak (6:00 AM - 7:00 AM) and the construction PM peak (3:30 PM - 4:30 PM).
2 Volume to capacity ratio.
3 LOS range: A (excellent) to F (failure).

Source: Ricondo & Associates, Inc., using TRAFFIX, August 2013.

4.7.3.8 LAWA's Coordination and Logistic Management Team

Subsequent to the approval of the LAX Master Plan, LAWA established the Coordination and Logistic Management (CALM) team. Working in cooperation with LAWA staff including Terminal Operations, Airport Police, Capital Programming & Planning Group, and Commercial

Development Group, the CALM team monitors construction traffic, coordinates lane and roadway closures, and analyzes traffic conditions to determine the need for additional traffic controls, lane restriping, and traffic signal modifications. An approval process for proposed construction work has been established in which contractors submit request forms describing the work, when the work is proposed to take place, duration, coordination efforts with other projects, etc. If pedestrian or vehicular traffic will be impacted, the submittal form will include proposed traffic control plans. These requests are reviewed by staff from the CALM team and various LAWA divisions, and any concerns are addressed prior to approval. The CALM team also develops an informational campaign for construction activities, including wayfinding signage for pedestrians to locate ground transportation facilities and parking during construction, information for commercial shuttle drivers regarding lane closures and detours, and traffic alerts on LAWA's website for the public and airport employees. A real-time traffic conditions map for the LAX CTA was recently added to the LAWA website. Regular meetings occur to discuss minimizing the construction impacts of current and future projects. Coordination with outside agencies is conducted as the individual projects necessitate.

4.7.4 Project-Generated Traffic

Traffic that would be generated by the proposed MSC North Project is defined below for the anticipated peak period of traffic generation.

4.7.4.1 Project Construction Traffic During Project Peak (December 2018)

The peak construction period for the proposed MSC North Project is anticipated to occur during December 2018. Construction employee and truck trips were estimated on an hourly basis over the typical busy day (with the exception of the peak AM and PM commute periods) during the peak construction period. Based on the resource loaded schedule developed for the proposed MSC North Project, which assumes a double-shift work schedule during the Project peak, it is estimated that 663 construction employees (536 in the AM and 127 in the PM) would access the MSC North Project construction site on a daily basis during the peak period of construction.[21] 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.[22] 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 576 construction employee vehicles per day during the proposed MSC North Project construction peak period would access and egress the traffic study area in support of proposed MSC North Project construction.

For purposes of the intersection analyses, all vehicle trips were converted to "passenger car equivalents" (PCEs) to account for the additional impact that large vehicles, such as trucks,

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21 CONNICO, Incorporated, LAX MSC North Vehicle Schedule REV2 2013.08.09.pdf, August 2013.

22 Southern California Association of Governments, Regional High-Occupancy Vehicle Lane System Performance Study, November 4, 2004.

would have on roadway traffic operations. As such, the number of construction-related vehicle trips was multiplied by the following PCE factors, consistent with the assumptions in the LAX Master Plan EIR:

Vehicle Type	PCE Factor
Construction employees[23]	1.0
Construction delivery trucks	2.5

The employees working on the proposed MSC North Project are assumed to park onsite or in the surface lots with direct access to the on-airport service road system; therefore, it is assumed that any required shuttle trips would be accommodated within the airport boundary and, consequently, would not access the public roadway system and intersections analyzed for this traffic study.

Delivery trucks carrying construction equipment and material would enter and exit the materials staging areas. It is estimated that approximately 39 construction-related truck delivery round trips would access the site during the construction AM and PM peak hours. 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 98 PCEs enter and exit the study area during the construction AM and PM peak periods.

The estimated Project-related construction trips (in PCEs) during the proposed MSC North Project construction peak in December 2018 are summarized by hour in **Table 4.7-4**. The table includes construction employee vehicle trips and construction delivery truck trips used to haul soil from the site and to transfer goods to the construction staging area(s). As shown, during the morning peak construction period, employees were assumed to enter the site between 6:00 AM and 7:00 AM. During the afternoon peak construction period, employees were assumed to exit between 3:00 PM and 4:00 PM. Using a similar conservative approach, it was assumed these trips would occur during the PM period 3:30 PM to 4:30 PM directly adjacent to the start of the PM peak commuter period. The proposed MSC North Project construction volumes used for the AM and PM construction peak hour analysis are summarized at the bottom of Table 4.7-4.

23 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 4.7-4

Project Peak (December 2018) – Proposed Project-Related Construction Traffic PCEs

Hour		Employee [1]		Truck [2]		Total Construction
		Trips In	Trips Out	Trips In	Trips Out	PCEs
0:00	1:00					
1:00	2:00					
2:00	3:00		110			110
3:00	4:00					
4:00	5:00					
5:00	6:00					
6:00	**7:00**	**466**		**98**	**98**	**662**
7:00	8:00					
8:00	9:00					
9:00	10:00			98	98	196
10:00	11:00			98	98	196
11:00	12:00			98	98	196
12:00	13:00			98	98	196
13:00	14:00			98	98	196
14:00	15:00			98	98	196
15:00	**16:00**	**110**	**466**	**98**	**98**	**772**
16:00	17:00					
17:00	18:00					
18:00	19:00					
19:00	20:00			25	25	50
20:00	21:00			13	13	26
21:00	22:00			13	13	26
22:00	23:00			13	13	26
23:00	0:00					
Total		**576**	**576**	**848**	**848**	**2,848**
Summary of Modeled Traffic PCEs						
Construction AM Peak (6:00 AM– 7:00 AM)		**466**		**98**	**98**	**662**
Construction PM Peak (3:30 PM – 4:30 PM)		**110**	**466**	**98**	**98**	**772**

Notes:

1 Estimate is based on 663 peak day construction employees. An occupancy factor of 1.15 employees per vehicle is included in the employee trip calculations.

2 Truck trips (i.e., delivery and transfer) were converted at a rate of 2.5 PCEs per vehicle.

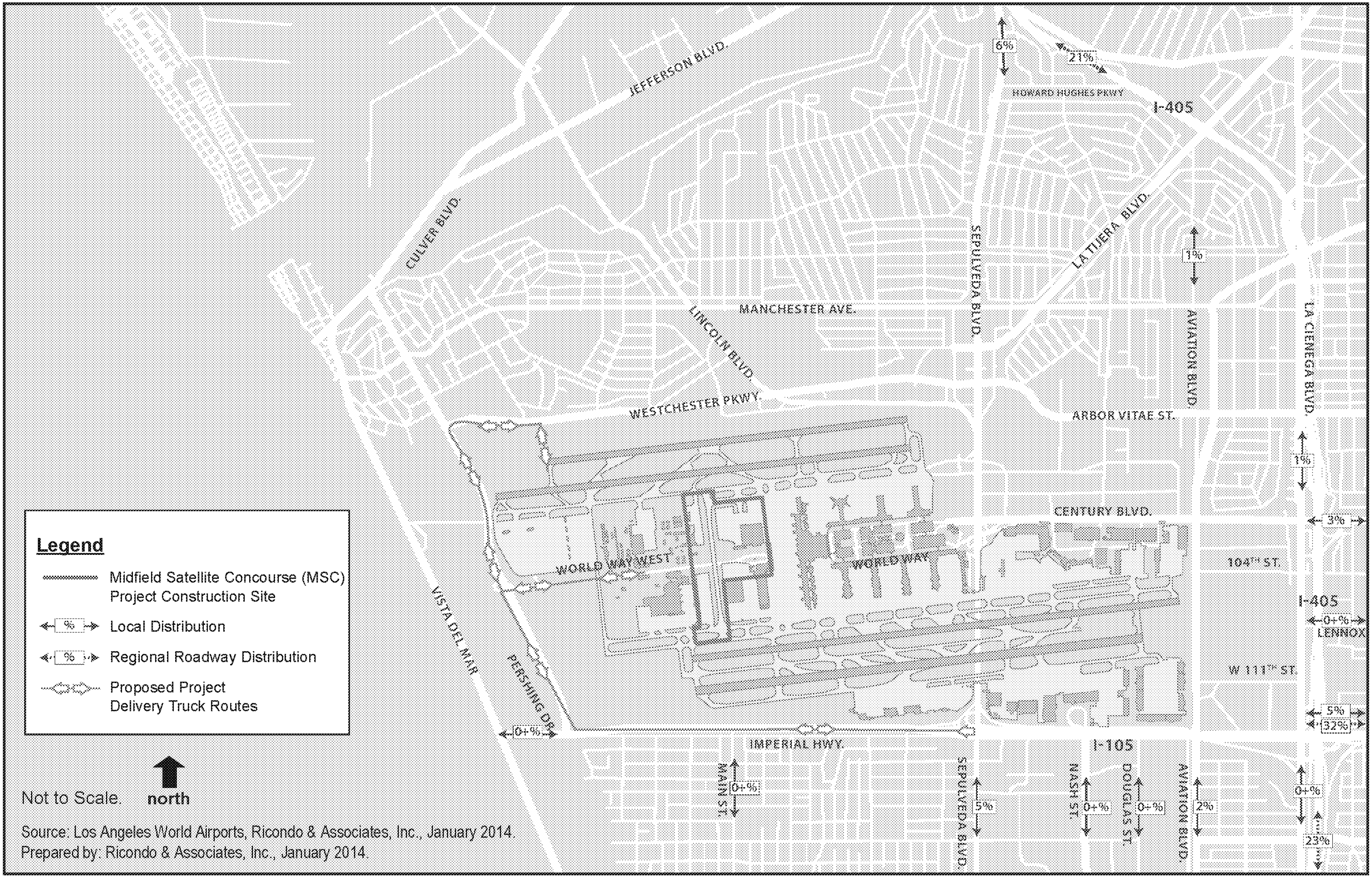
Source: CONNICO, Incorporated, LAX MSC North Vehicle Schedule REV2 2013.08.09.pdf, August 2013 (employee trip volumes, truck trips, vehicle schedule times).

4.7.4.2 Proposed Project Construction Trip Distribution

As shown in **Figure 4.7-3**, trucks are anticipated to use the regional freeway system (I-405 and I-105), Imperial Highway, and Pershing Drive to access the materials and equipment staging area. The regional and local traffic flow distributions are also provided in Figure 4.7-3.

For purposes of distributing traffic on the traffic study area roadway network, it was assumed that construction employee and delivery vehicle trips would originate from geographic locations in proportion to the distribution of regional population and specific street routing assumptions obtained from the LAX Master Plan EIR and the LAX Air Passenger Survey. As shown in Figure 4.7-3, it was estimated that approximately 21 percent of the construction-related traffic would access the Airport from I-405 north, 23 percent from I-405 south, 32 percent from I-105 east, and 24 percent from local roadways. These route characteristics represent the roadways that a construction-related vehicle would use to access the traffic study area.

In assigning traffic to the traffic study area roadways, it was assumed that construction vehicles, consisting of trucks and construction employee automobiles, would approach the traffic study area in proportion to the regional population distributions described above. Truck traffic, however, is limited to accessing the MSC North Project site during construction via Imperial Highway and Pershing Drive in accordance with LAX Master Plan Commitment ST-22 (Designated Truck Routes) which stipulates that deliveries for dirt, aggregate, and other materials will use designated freeways and non-residential streets. The freeway ramps, roadways, and intersections representing the travel paths for construction-related vehicles within the traffic study area were determined by reviewing the potential paths that would be used by vehicles traveling to the employee parking lots and to the construction staging areas, and assigning those trips to the most logical routes. The analysis is not particularly sensitive to the regional approach assumptions, given that a large proportion of the construction-related trips would access the traffic study area via a limited number of freeway access points that may accommodate traffic originating from several regional directions. The assumed traffic study area circulation routes for construction employees and trucks are described in **Appendix F, Attachment F.4**.



LAX Midfield Satellite Concourse Draft EIR

Proposed Project Construction Vehicle Routes & Trip Distribution

Figure 4.7-3

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4.7.5 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. Known development projects in the Airport vicinity that may contribute traffic to the traffic study area roadway system during the peak construction period for the proposed MSC North Project were also considered. These trips would result from either the construction or the operation of those development projects. The list of related projects is constantly changing as projects rotate off the list and new projects are approved and added to the list. Given that approval, construction, and operation of local area development projects is a continuous process, the traffic associated with the construction and operation of many past and current local area developments are represented in the traffic volume data used as a basis for the traffic study. The development schedule and traffic characteristics of larger projects in close proximity to the traffic study area were reviewed and their effects were incorporated into the cumulative analysis.

4.7.5.1 Cumulative Projects

Development projects considered in the cumulative impacts analysis include LAX Master Plan projects as well as other capital improvement projects undertaken by LAWA and other local agencies. Based on information available at the time the construction traffic analysis for the proposed MSC North Project was prepared, the development projects anticipated to be under construction concurrent with the proposed MSC North Project construction and of a nature that would contribute to cumulative traffic impacts were identified.

Table 4.7-5 summarizes the estimated construction costs, and the assumed start and end dates of construction for the proposed MSC North Project and each of the cumulative projects that are anticipated to be under construction concurrent with the proposed MSC North Project. The estimated labor component of the total construction cost is a key element associated with estimating construction employee hours and resulting employee vehicle trips.

The activity characteristics of the resource loaded schedule and associated construction-related vehicle trip activity developed for the Bradley West Project were used to estimate the construction activity associated with the other concurrent projects for which detailed construction-related trip data were not available. Specifically, the ratio of total construction employee hours to total labor cost was calculated for the Bradley West Project. This ratio was applied to the estimated labor costs associated with the other cumulative projects to provide an estimate of total employee hours required over the course of each of these other projects. In addition, the general distribution of employee hours over the course of the Bradley West Project construction program was used to allocate total employee hours over the course of the individual projects on a monthly basis. This methodology was considered appropriate for this analysis as the Bradley West Project provided detailed information related to construction activity, costs, and associated vehicle trip activity, and provided detailed information related to the primary variables involved with determining labor schedules (i.e. project costs and timeline). Although it is likely that the other cumulative projects may experience different peaking patterns, the profile of the monthly distribution of employee hours over the course of the Bradley West Project provides a model profile calculated based on a comprehensive resource loaded schedule, which is anticipated to provide a realistic surrogate for use in estimating activity from other cumulative projects for which detailed construction data are not available.

Table 4.7-5

Construction Projects Concurrent with the Proposed Project Construction Period

Project No.	Concurrent Construction Project	Estimated Total Construction Cost (millions)	Start Date	End Date	Estimated Employee Hours During Projects (Total)
N/A[1]	Midfield Satellite Concourse - North	$666.5	Jul-14	Jul-19	5,593,000
1	RSA Improvements – South Airfield	$106.3	Feb-14	Feb-15	238,000
2	RSA Improvements – North Airfield	$139.1	Jun-14	Jun-19	312,000
3	Bradley West Project – Remaining Work	$603.7	Nov-13	Dec-17	1,353,000
4	Terminal 3 Connector	$175	Jul-19	Jan-22	---[2]
5	North Terminals Improvements	$380	Aug-13	Aug-17	852,000
6	South Terminals Improvements	$665	Nov-11	Feb-18	1,491,000
7	Central Utility Plant Replacement Project – Remaining Work	$120.6	Sep-13	Dec-14	216,000
8	Miscellaneous Projects/Improvements	$945.5	Jan-14	Jul-20	605,000
9	West Aircraft Maintenance Area Project	$175	Jan-14	Dec-18	425,000
10	LAX Northside Development	N/A[1]	Jan-15	Dec-22	N/A[1]
11	LAX Master Plan Alt. D/SPAS Development[3]	$16,391	Jun-15	Jun-25	15,907,000
12	Metro Crenshaw / LAX Transit Corridor and Station[4]	$404	Dec-15	Apr-19	453,000

Notes:
1 N/A = Not Applicable
2 Project is not anticipated to result in overlapping employee hours during the estimated combined peak day.
3 LAWA evaluated nine development alternatives for the LAX Specific Plan Amendment Study and in February 2013 the Board of Airport Commissioners (BOAC) selected one alternative; however, all the approvals necessary to implement that alternative have not yet occurred. For the purposes of the cumulative construction impacts analysis, an assumption is made that the LAX Master Plan improvements, as previously approved, and as reflected in the LAX Specific Plan Amendment Study's Alternative 3, are implemented, which provides a more conservative analysis than if one were to assume the BOAC-selected alternative (i.e., more development would occur under the LAX Master Plan scenario than under the BOAC-selected alternative).
4 Estimated budget and schedule based on information obtained from Crenshaw/LAX Transit Corridor Project FEIR and project website.

Sources: CDM Smith (list and characteristics of proposed Project and concurrent projects); Email from CDM Smith (Anthony Skidmore) on September 24, 2013 (project schedules and cost for projects 1 - 8, & 10); Crenshaw/LAX Transit Corridor Project FEIR (Metro Crenshaw/LAX Transit Corridor cost), August 2011; www.metro.net/projects/crenshaw_corridor.com (Metro Crenshaw/LAX Transit Corridor schedule), accessed November 12, 2012; Ricondo & Associates, Inc. (estimated employee hours for all other projects), August 2013.

This approach was used to estimate construction employee hours and vehicle trips associated with all concurrent projects with the exception of the LAX Northside Area Development project, for which construction trip information and monthly construction employee hour data were obtained from the traffic consultants involved in preparation of the traffic study for the LAX Northside Area Development EIR.

Figure 4.7-4 provides estimated employee hours by month for the proposed MSC North Project and the cumulative construction projects that are anticipated to be under construction concurrent with the proposed MSC North Project construction period. The figure includes all anticipated construction projects that are expected to occur over the course of the construction period for the proposed MSC North Project. As shown in the figure, the peak period for proposed MSC North Project construction is estimated to occur in December 2018, while the overall cumulative peak during construction of the proposed MSC North Project is also estimated to occur in December 2018.

The assumed conservative two percent annual growth in background traffic is anticipated to produce a conservative traffic volume scenario that would account for additional construction-related traffic in the event that additional construction projects are initiated during the timeframe evaluated for this study.

Estimated AM and PM construction peak hour vehicle trips associated with the proposed MSC North Project and the six concurrent construction projects during December 2018 (cumulative peak period) are provided in **Table 4.7-6**. Traffic volumes associated with the proposed MSC North Project during the peak period for cumulative traffic are equivalent to the traffic volumes during the MSC North Project peak, as both peaks occur in December 2018. Traffic volumes associated with each concurrent construction project were estimated by calculating the ratio of vehicle trips to employee hours for the Bradley West Project and multiplying this ratio by the estimated total number of employee hours for each project during the cumulative peak month in December 2018, except for those projects where vehicle trips were estimated specifically for those projects (i.e., the LAX Northside Area Development and trips from previous LAWA traffic studies related to the West Aircraft Maintenance Area and Bradley West Project, which were calculated based on their respective project information). The percentage of vehicle trips arriving at and departing the traffic study area by hour of the day, for each of the cumulative projects, were assumed to coincide with the peak construction periods for the proposed MSC North Project. Furthermore, it is assumed that all construction projects would use a single work shift with the exception of the LAX SPAS Development Project[24] which has a total construction cost of over $16 billion. This project was assumed to utilize a double-shift work schedule with the same shift split characteristics as the MSC North Project.

24 LAWA evaluated nine development alternatives for the LAX Specific Plan Amendment Study and in February 2013 the Board of Airport Commissioners (BOAC) selected one alternative; however, all the approvals necessary to implement that alternative have not yet occurred. For the purposes of the cumulative construction impacts analysis, an assumption is made that the LAX Master Plan improvements, as previously approved, and as reflected in the LAX Specific Plan Amendment Study's Alternative 3, are implemented, which provides a more conservative analysis than if one were to assume the BOAC-selected alternative (i.e., more development would occur under the LAX Master Plan scenario than under the BOAC-selected alternative).

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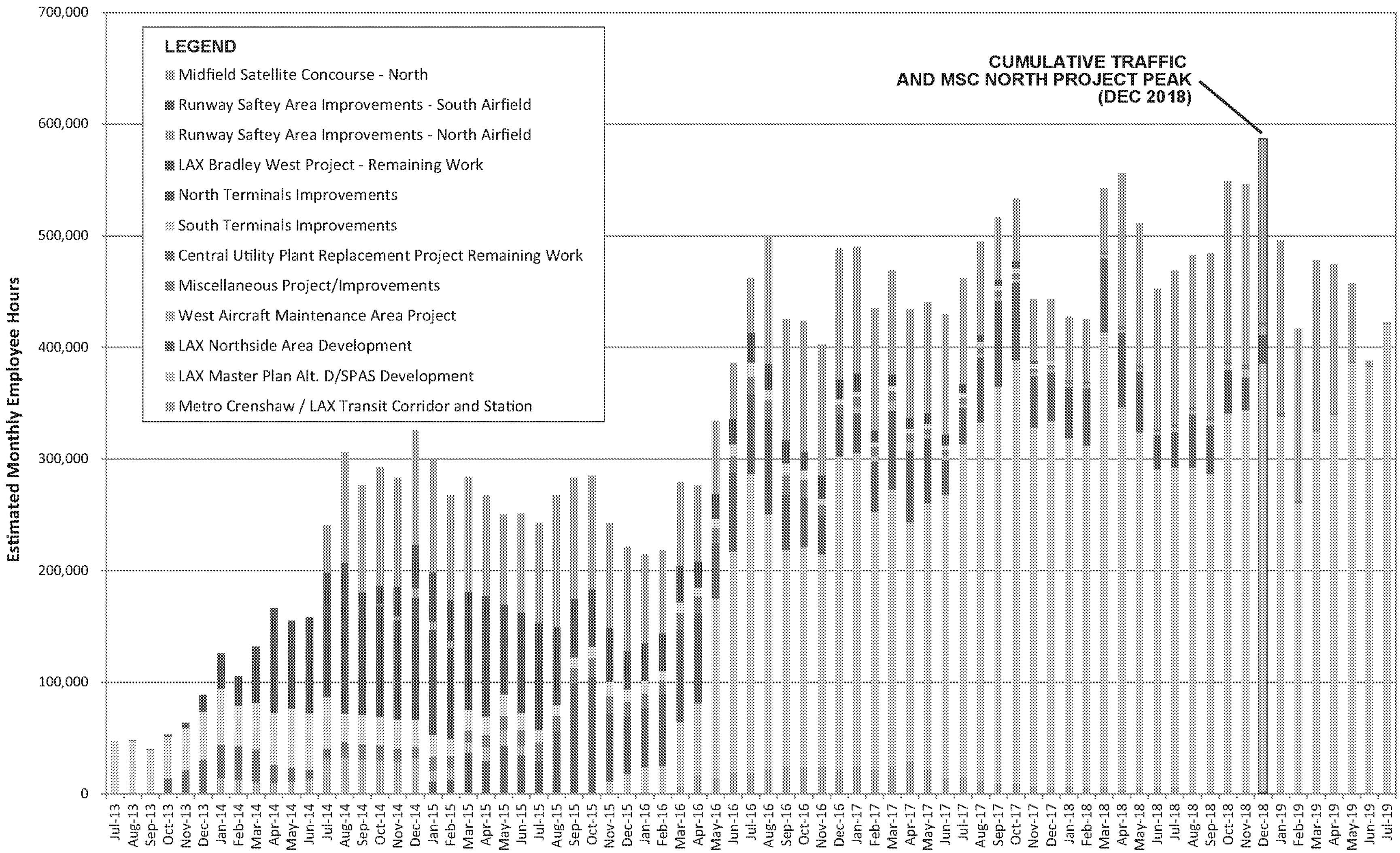

Sources: CDM Smith (construction cost and schedule), Gibson Transportation Consulting, Inc. (LAX Northside Area Development), Ricondo & Associates, Inc., (estimated employee hours for all other projects) October 2013.
Prepared by: Ricondo & Associates, Inc., October 2013.

Estimated Employee Hours for Proposed Project and Other Concurrent Construction Projects

Figure 4.7-4

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Table 4.7-6

AM and PM Construction Peak Hour Traffic PCEs at Overall Cumulative Peak by Project

	Construction Trips in Passenger Car Equivalents (PCEs)							
	Construction AM Peak Hour (6:00 AM - 7:00 AM)				Construction PM Peak Hour (3:30 PM - 4:30 PM)			
	Employees[1]		Trucks		Employees[1]		Trucks	
Project	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
Proposed Project (December 2018)[1]	466	0	98	98	110	466	87	87
Other Concurrent Projects in December 2018 [2]								
2. RSA Improvements – North Airfield	4	0	1	1	0	4	1	1
8. Miscellaneous Projects/Improvements	12	0	3	3	0	12	3	3
9. West Aircraft Maintenance Area Project	39	0	18	18	0	39	18	18
10. LAX Northside Area Development[3]	320	0	0	0	0	320	0	0
11. LAX Master Plan Alt. D/SPAS Development[4]	1,094	0	226	226	257	1,094	226	226
12. Metro Crenshaw / LAX Corridor and Station	9	0	2	2	0	9	2	2
Total for Other Concurrent Projects in December 2018	1,478	0	250	250	257	1,478	250	250

Notes:
1 The proposed MSC North Project trips shown here are based on 536 peak day construction employees generating 466 daily employee vehicles.
2 The ratio of peak hour trips over total monthly employee construction hours for other concurrent projects was assumed to be equal to that calculated for the proposed MSC North Project, unless other project-specific data were available.
3 Peak hour trips provided by Gibson Transportation Consulting.
4 Assumed to operate with a double-shift work schedule similar to the MSC North Project.

Sources: Gibson Transportation Consulting, Inc., pages from Detailed ResourcesV1.pdf (LAX Northside Area Development trips); Ricondo & Associates, Inc., August 2013.

For purposes of distributing traffic within the traffic study area, it was necessary to identify the employee parking and staging locations for the concurrent projects. The location of the construction employee parking and material staging area as well as general access and circulation patterns of construction-related vehicle activity for the proposed MSC North Project are depicted in **Figure 4.7-5**. The anticipated contractor employee parking and staging areas for the six concurrent construction projects are also depicted in Figure 4.7-5, as well as other available staging locations in the area. The exhibit depicts parking and staging areas associated with the projects that were anticipated to be under construction concurrent with the peak cumulative period analyzed for this study. The regional and local area distribution patterns are anticipated to be generally the same as for the proposed MSC North Project, with adjustments as necessary for access to the individual sites.

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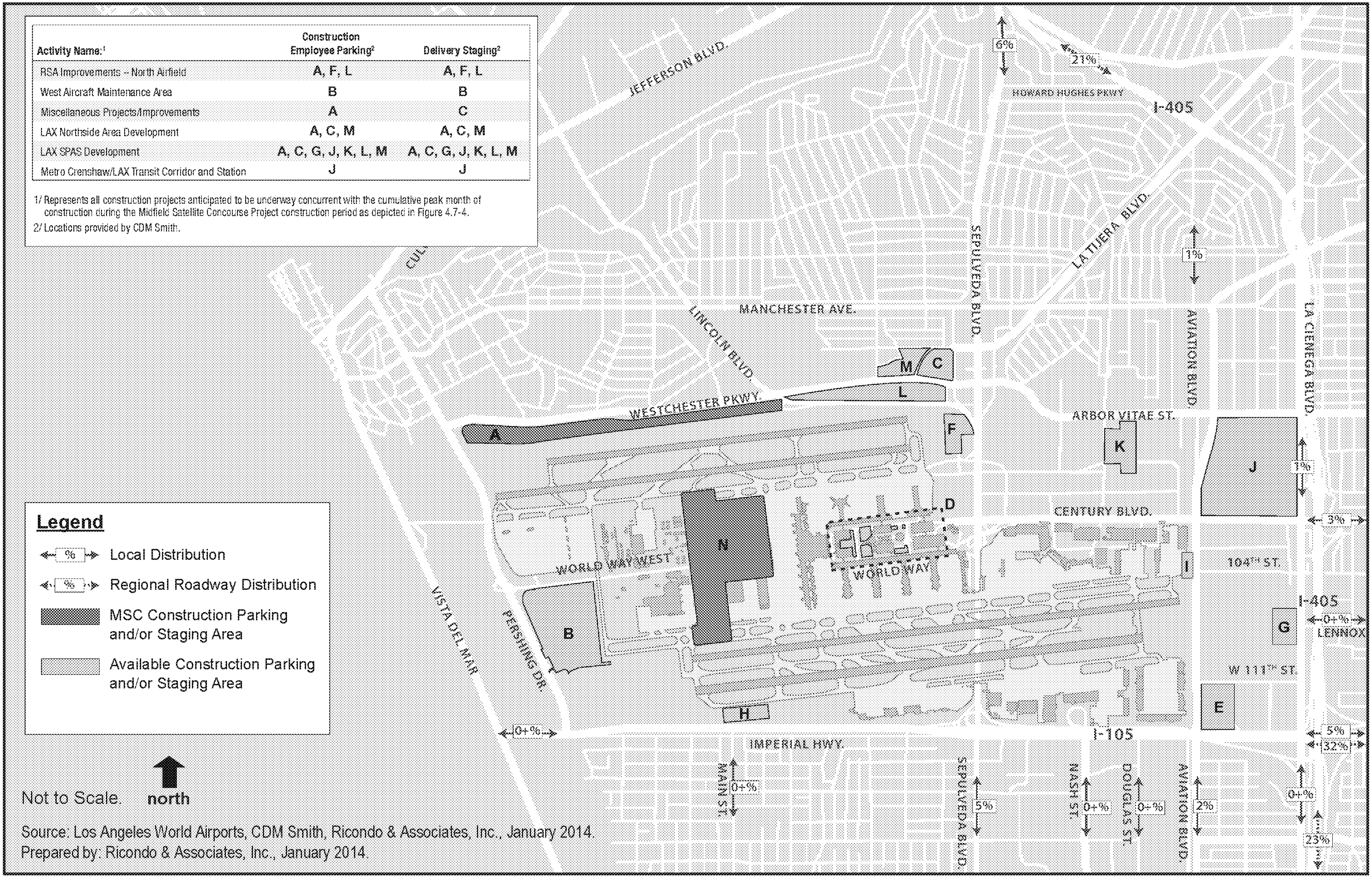

Activity Name:[1]	Construction Employee Parking[2]	Delivery Staging[2]
RSA Improvements – North Airfield	A, F, L	A, F, L
West Aircraft Maintenance Area	B	B
Miscellaneous Projects/Improvements	A	C
LAX Northside Area Development	A, C, M	A, C, M
LAX SPAS Development	A, C, G, J, K, L, M	A, C, G, J, K, L, M
Metro Crenshaw/LAX Transit Corridor and Station	J	J

1/ Represents all construction projects anticipated to be underway concurrent with the cumulative peak month of construction during the Midfield Satellite Concourse Project construction period as depicted in Figure 4.7-4.
2/ Locations provided by CDM Smith.

LAX Midfield Satellite Concourse Draft EIR

Employee Parking and Staging Locations for Proposed Project and Other Projects at Construction Peak

Figure 4.7-5

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4.7.5.2 Planned Transportation Network Improvements

The Bradley West Project EIR identifies several intersection improvements throughout the study area to mitigate potential future impacts[25]. The following study area intersections that were anticipated to be significantly impacted by the Bradley West Project would be improved when traffic activity levels reach certain activity thresholds at which an impact would be triggered.

- Imperial Highway and Sepulveda Boulevard (Intersection #12)
- La Cienega Boulevard and I-405 Ramps N/O Century Boulevard (Intersection #18)
- La Tijera Boulevard and Sepulveda Boulevard (Intersection #21)
- Sepulveda Boulevard and 76th/77th Street (Intersection #26)

Though it is possible improvements would be in place prior to the peak cumulative traffic period (December 2018), for purposes of this study it has been conservatively assumed that these improvements would not be in place. Therefore, it is not anticipated that any transportation improvements would be implemented during the timeframe analyzed for this study that would alter traffic patterns or modify the intersection capacity assumptions in such a way that would affect the assessment of potential traffic impacts associated with the proposed MSC North Project.

4.7.6 Thresholds of Significance

The traffic study area intersections either fall entirely within the City of Los Angeles or share a boundary with the City of El Segundo and the City of Inglewood. The intersections which fall entirely within the City of Los Angeles were evaluated for potential traffic impacts using the LADOT significant traffic impact criteria. Intersections lying on the boundary of multiple jurisdictions were evaluated using the more conservative threshold of significance criteria; in all of these cases the LADOT criteria had the most conservative thresholds.

4.7.6.1 City of El Segundo Impact Criteria

In the City of El Segundo, an impact is considered significant if one of the following thresholds is exceeded:[26]

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

4.7.6.2 City of Inglewood Impact Criteria

In the City of Inglewood, an impact is considered significant if one of the following thresholds is exceeded:[27]

- 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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[25] City of Los Angeles, Los Angeles World Airports, Final Environmental Impact Report for Bradley West Project, *Los Angeles International Airport (LAX)*, September 2009, Section 4.2.9

[26] Samaras, Paul, Principal Planner, City of El Segundo, Personal Communication, April 21, 2009.

[27] Mai, Alan, Associate Traffic Engineer, City of Inglewood, Personal Communication, January 6, 2009.

4.7.6.3 City of Los Angeles Impact Criteria

In accordance with LADOT criteria defined in its *Traffic Study Policy and Procedures*,[28] 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, and other related projects, but without proposed intersection traffic mitigation as potentially required by the project.

The "project-related increase" is defined as the change in the unmitigated LOS condition between the (a) future V/C "with" the project, baseline, ambient background growth (for the cumulative analysis), and other related project growth, and (b) the future V/C without the project, but with baseline, ambient background growth, and other related project growth.

For purposes of this analysis and in accordance with CEQA, proposed MSC North Project impacts were determined by comparing the level of service results for the following conditions:

- **Project Impacts**--The direct impacts of the proposed MSC North Project are determined by calculating the difference in LOS for the Baseline Plus Peak Project LOS and the Baseline LOS. This comparison is required to isolate the direct impacts of the proposed MSC North Project. The difference in LOS is compared to the thresholds identified earlier in this section to determine if the proposed MSC North Project would result in a significant impact.
- **Cumulative Impacts**--The cumulative impacts analysis is intended to provide a comparison of future traffic conditions, consisting of traffic generated by all anticipated sources described previously in this document. Cumulative impacts were analyzed using a two-step process. Initially, the cumulative With Project LOS condition was compared with the baseline condition to determine if a cumulative impact would occur relative to the baseline. A cumulative impact was deemed significant if it exceeded the allowable threshold of significance defined earlier in this section. If a cumulative impact was determined, then a second comparison was conducted by calculating the difference in V/C for the With Project and Without Project levels of service to determine the proposed MSC North Project's contribution. If the calculated differences in V/C exceed the threshold guidelines defined in this section, then it was determined that the proposed MSC North Project component would represent a cumulatively considerable contribution (significant impact).

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28 Los Angeles Department of Transportation, Traffic Study Policies and Procedures, Revised December 2010.

4.7.7 Applicable LAX Master Plan Commitments

LAWA is requiring that applicable commitments identified in the LAX Master Plan MMRP be implemented as part of the proposed MSC North Project. The following transportation-related commitments identified in the LAX Master Plan MMRP would be applied to the proposed MSC North Project and thus are included as part of the proposed MSC North 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 would periodically analyze traffic conditions on designated routes during construction to see whether there is a need to improve conditions through signage and other means.

  This office may undertake a variety of duties, including but not limited to:

  - Inform motorists about detours and congestion by use of static signs, changeable message signs, media announcements, airport website, etc.;
  - Work with airport police and the Los Angeles Police Department to enforce delivery times and routes;
  - Establish staging areas;
  - Coordinate with police and fire personnel regarding maintenance of emergency access and response times;
  - Coordinate roadway projects of Caltrans, City of Los Angeles, and other jurisdictions with those of the Airport construction projects;
  - Monitor and coordinate deliveries;
  - Establish detour routes;
  - Work with residential and commercial neighbors to address their concerns regarding construction activity; and
  - Analyze traffic conditions to determine the need for additional traffic controls, lane restriping, signal modifications, etc.

  Note: Subsequent to the approval of the LAX Master Plan, LAWA established a "Ground Transportation/Construction Coordination Office" in the form of the CALM team. The CALM team coordinates and monitors construction traffic, coordinates with agencies as necessary, and reviews traffic control plans to address any concerns prior to approval. The CALM team, discussed in detail in Subsection 4.7.3.8, (under Regulatory Context), above, provides implementation of the LAX Master Plan Commitment C-1.

C-2. Construction Personnel Airport Orientation.

- All construction personnel will be required to attend an airport project-specific orientation (pre-construction meeting) that includes where to park, where staging areas are located, construction policies, etc.

ST-9. Construction Deliveries.

- Construction deliveries requiring lane closures shall receive prior approval from the Construction Coordination Office. Notification of deliveries shall be made with sufficient time to allow for any modifications to approved traffic detour plans.

ST-12. Designated Truck Delivery Hours.

- Truck deliveries shall be encouraged to use night-time hours and shall avoid the peak periods of 7:00 AM to 9:00 AM and 4:30 PM to 6:30 PM.

ST-14. Construction Employee Shift Hours.

- Shift hours that do not coincide with the heaviest commuter traffic periods (7:00 AM to 9:00 AM, 4:30 PM to 6:30 PM) would be established. Work periods will be extended to include weekends and multiple work shifts, to the extent possible and necessary.

ST-16. Designated Haul Routes.

- Every effort will be made to ensure that haul routes are located away from sensitive noise receptors.

ST-17. Maintenance of Haul Routes.

- Haul routes on off-airport roadways will be maintained periodically and will comply with City of Los Angeles or other appropriate jurisdictional requirements for maintenance. Minor striping, lane configurations, and signal phasing modifications would be provided as needed.

ST-18. Construction Traffic Management Plan.

- A complete construction traffic plan will be developed to designate detour and/or haul routes, variable message and other sign locations, communication methods with airport passengers, construction deliveries, construction employee shift hours, construction employee parking locations and other relevant factors.

ST-22. Designated Truck Routes.

- For dirt and aggregate and all other materials and equipment, truck deliveries will be on designated routes only (freeways and non-residential streets). Every effort will be made for routes to avoid residential frontages. The designated routes on City of Los Angeles streets are subject to approval by LADOT's Bureau of Traffic Management and may include, but will not necessarily be limited to: Pershing Drive (Westchester Parkway to Imperial Highway); Florence Avenue (Aviation Boulevard to I-405); Manchester Boulevard (Aviation Boulevard to I-405); Aviation Boulevard (Manchester Avenue to Imperial Highway); Westchester Parkway/Arbor Vitae Street (Pershing Drive to I-405); Century Boulevard (Sepulveda Boulevard to I-405); Imperial Highway (Pershing Drive to I-405); La Cienega Boulevard (north of Imperial Highway); Airport Boulevard (Arbor Vitae Street to Century Boulevard); Sepulveda Boulevard (Westchester Parkway to Imperial Highway); I-405; and I-105.

4.7.8 Impact Analysis

4.7.8.1 Impact Comparison 1: Peak Project Traffic Plus Baseline Traffic Measured Against Baseline

This comparison provides the basis for determining Project-related impacts. The comparison is based on Project-specific traffic generation during the peak construction period (December 2018) added to baseline traffic volumes (during peak times adjusted to overlap with commuter hours for a conservative analysis). The resulting levels of service were compared to the levels of service associated with the baseline condition. A significant impact would be realized if/when the thresholds of significance are met or exceeded. Impact comparisons between the proposed MSC North Project's peak traffic added to the baseline compared to the baseline is depicted in **Table 4.7-7**. As shown in Table 4.7-7, no significant impacts would occur during December 2018 under the proposed MSC North Project.

4.7.8.2 Impact Comparison 2: Cumulative Traffic (December 2018) Measured against Baseline

This comparison was conducted in two steps, which is consistent with CEQA Guidelines Section 15130. An initial comparison was conducted by comparing the level of service associated with peak cumulative traffic volumes with the baseline levels of service. This initial comparison was conducted to determine if there would be a significant cumulative impact. If a significant cumulative impact was determined, then an additional comparison was conducted to determine if the proposed MSC North Project would produce a cumulatively considerable contribution to the significant cumulative impact. This second comparison was conducted by comparing cumulative conditions both with and without the proposed MSC North Project. Cumulatively considerable contributions are realized when the thresholds of significance defined above are met or exceeded.

The impact comparison for this condition is depicted in **Table 4.7-8**. As shown in the table, it is anticipated that the following intersections would experience cumulative impacts where the project-component would be cumulatively considerable:

- Imperial Highway and Main Street (Intersection #10).
- Sepulveda Boulevard and Manchester Avenue (Intersection #23).
- Sepulveda Boulevard and Westchester Parkway (Intersection #25).

Table 4.7-7

Proposed Project - Level of Service Analysis Results - Impact Comparison 1: Baseline Compared to Project Plus Baseline

	Intersection	Peak Hour[1]	Baseline V/C[2]	Baseline LOS[3]	Project Plus Baseline V/C[2]	Project Plus Baseline LOS[3]	Change in V/C	Significant Impact[4]
1.	Aviation Boulevard and Century Boulevard	Construction AM	0.467	A	0.471	A	0.004	--
		Construction PM	0.594	A	0.597	A	0.003	--
2.	Imperial Highway and Aviation Boulevard	Construction AM	0.500	A	0.500	A	0.000	--
		Construction PM	0.512	A	0.520	A	0.008	--
3.	Aviation Boulevard and 111th Street	Construction AM	0.295	A	0.295	A	0.000	--
		Construction PM	0.404	A	0.405	A	0.001	--
4.	La Cienega Boulevard and Century Boulevard	Construction AM	0.626	B	0.629	B	0.003	--
		Construction PM	0.762	C	0.762	C	0.000	--
5.	Sepulveda Boulevard and Century Boulevard	Construction AM	0.424	A	0.429	A	0.005	--
		Construction PM	0.590	A	0.592	A	0.002	--
6.	Century Boulevard and I-405 Northbound Ramp	Construction AM	0.634	B	0.637	B	0.003	--
		Construction PM	0.459	A	0.461	A	0.002	--
7.	Imperial Highway and Douglas Street	Construction AM	0.199	A	0.199	A	0.000	--
		Construction PM	0.375	A	0.384	A	0.009	--
8.	Sepulveda Boulevard and Howard Hughes Parkway	Construction AM	0.219	A	0.243	A	0.024	--
		Construction PM	0.419	A	0.429	A	0.010	--
9.	Imperial Highway and La Cienega Boulevard	Construction AM	0.191	A	0.193	A	0.002	--
		Construction PM	0.453	A	0.458	A	0.005	--
10.	Imperial Highway and Main Street	Construction AM	0.499	A	0.686	B	0.187	--
		Construction PM	0.439	A	0.583	A	0.144	--
11.	Imperial Highway and Pershing Drive	Construction AM	0.184	A	0.432	A	0.248	--
		Construction PM	0.316	A	0.474	A	0.158	--
12.	Imperial Highway and Sepulveda Boulevard	Construction AM	0.496	A	0.496	A	0.000	--
		Construction PM	1.004	F	1.009	F	0.005	--
13.	Imperial Highway and Nash Street	Construction AM	0.362	A	0.363	A	0.001	--
		Construction PM	0.239	A	0.249	A	0.010	--
14.	Imperial Highway and I-105 Ramp	Construction AM	0.513	A	0.523	A	0.010	--
		Construction PM	0.471	A	0.475	A	0.004	--

Table 4.7-7

Proposed Project - Level of Service Analysis Results - Impact Comparison 1: Baseline Compared to Project Plus Baseline

	Intersection	Peak Hour[1]	Baseline V/C[2]	Baseline LOS[3]	Project Plus Baseline V/C[2]	Project Plus Baseline LOS[3]	Change in V/C	Significant Impact[4]
15.	Imperial Highway and I-405 Northbound Ramp	Construction AM	0.211	A	0.216	A	0.005	--
		Construction PM	0.480	A	0.485	A	0.005	--
16.	La Cienega Boulevard and Lennox Boulevard	Construction AM	0.164	A	0.164	A	0.000	--
		Construction PM	0.306	A	0.306	A	0.000	--
17.	La Cienega Boulevard and 111th Street	Construction AM	0.128	A	0.128	A	0.000	--
		Construction PM	0.311	A	0.312	A	0.001	--
18.	La Cienega Blvd. & I-405 Southbound Ramps North of Century	Construction AM	0.387	A	0.387	A	0.000	--
		Construction PM	0.410	A	0.411	A	0.001	--
19.	La Cienega Blvd. & I-405 Southbound Ramps South of Century	Construction AM	0.135	A	0.135	A	0.000	--
		Construction PM	0.284	A	0.284	A	0.000	--
20.	La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	Construction AM	0.136	A	0.136	A	0.000	--
		Construction PM	0.218	A	0.218	A	0.000	--
21.	Sepulveda Boulevard and La Tijera Boulevard	Construction AM	0.337	A	0.337	A	0.000	--
		Construction PM	0.613	B	0.622	B	0.009	--
22.	Sepulveda Boulevard and Lincoln Boulevard	Construction AM	0.457	A	0.457	A	0.000	--
		Construction PM	0.750	C	0.755	C	0.005	--
23.	Sepulveda Boulevard and Manchester Avenue	Construction AM	0.395	A	0.395	A	0.000	--
		Construction PM	0.711	C	0.742	C	0.031	--
24.	Westchester Parkway and Pershing Drive	Construction AM	0.151	A	0.252	A	0.101	--
		Construction PM	0.213	A	0.386	A	0.173	--
25.	Sepulveda Boulevard and Westchester Parkway	Construction AM	0.309	A	0.309	A	0.000	--
		Construction PM	0.649	B	0.677	B	0.028	--
26.	Sepulveda Boulevard and 76th/77th Street	Construction AM	0.337	A	0.337	A	0.000	--
		Construction PM	0.440	A	0.451	A	0.011	--
27.	Sepulveda Boulevard and 79th/80th Street	Construction AM	0.253	A	0.253	A	0.000	--
		Construction PM	0.513	A	0.519	A	0.006	--
28.	Sepulveda Boulevard and 83rd Street	Construction AM	0.211	A	0.211	A	0.000	--
		Construction PM	0.458	A	0.464	A	0.006	--
29.	La Cienega Boulevard and 104th Street	Construction AM	0.111	A	0.112	A	0.001	--

Table 4.7-7

Proposed Project - Level of Service Analysis Results - Impact Comparison 1: Baseline Compared to Project Plus Baseline

Intersection	Peak Hour[1]	Baseline V/C[2]	Baseline LOS[3]	Project Plus Baseline V/C[2]	Project Plus Baseline LOS[3]	Change in V/C	Significant Impact[4]
	Construction PM	0.276	A	0.277	A	0.001	--

Notes:
1 The hours of analysis include the construction AM peak (6:00 AM - 7:00 AM), and the construction PM peak (3:30 PM - 4:30 PM.).
2 Volume to capacity ratio. Includes an LADOT ATSAC benefit applied at each intersection with the exception of intersections #6 and #15, which are not a part of the LADOT system.
3 Level of Service range: A (excellent) to F (failure).
4 -- Indicates "No Impact"

Source: Ricondo & Associates, Inc., using TRAFFIX, September 2013.

Table 4.7-8

Proposed Project - Level of Service Analysis Results - Impact Comparison 2: Cumulative Traffic (December 2018)

		Baseline [A]		Cumulative Peak (December 2018) Without Project [B]		Cumulative Peak (December 2018) 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?
1. Aviation Boulevard and Century Boulevard	Construction AM	0.467	A	0.584	A	0.588	A	0.121	--	0.004	--
	Construction PM	0.594	A	0.755	C	0.758	C	0.164	Yes	0.003	--
2. Imperial Highway and Aviation Boulevard	Construction AM	0.500	A	0.623	B	0.623	B	0.123	--	0.000	--
	Construction PM	0.512	A	0.643	B	0.651	B	0.139	--	0.008	--
3. Aviation Boulevard and 111th Street	Construction AM	0.295	A	0.371	A	0.371	A	0.076	--	0.000	--
	Construction PM	0.404	A	0.486	A	0.487	A	0.083	--	0.001	--
4. La Cienega Boulevard and Century Boulevard	Construction AM	0.626	B	0.754	C	0.756	C	0.130	Yes	0.002	--
	Construction PM	0.762	C	1.045	F	1.045	F	0.283	Yes	0.000	--
5. Sepulveda Blvd. and Century Blvd.	Construction AM	0.424	A	0.581	A	0.576	A	0.152	--	-0.005	--
	Construction PM	0.590	A	0.697	B	0.702	C	0.112	Yes	0.005	--
6. Century Boulevard and I-405 Northbound Ramp	Construction AM	0.634	B	0.751	C	0.754	C	0.120	Yes	0.003	--
	Construction PM	0.459	A	0.543	A	0.545	A	0.086	--	0.002	--
7. Imperial Highway and Douglas Street	Construction AM	0.199	A	0.227	A	0.228	A	0.029	--	0.001	--
	Construction PM	0.375	A	0.463	A	0.472	A	0.097	--	0.009	--
8. Sepulveda Boulevard and Howard Hughes Parkway	Construction AM	0.219	A	0.314	A	0.338	A	0.119	--	0.024	--
	Construction PM	0.419	A	0.495	A	0.506	A	0.087	--	0.011	--
9. Imperial Highway and La Cienega Boulevard	Construction AM	0.191	A	0.215	A	0.232	A	0.041	--	0.017	--
	Construction PM	0.453	A	0.526	A	0.531	A	0.078	--	0.005	--
10. Imperial Highway and Main Street	Construction AM	0.499	A	0.589	A	0.764	C	0.265	Yes	0.175	Yes

Table 4.7-8

Proposed Project - Level of Service Analysis Results - Impact Comparison 2: Cumulative Traffic (December 2018)

		Baseline [A]		Cumulative Peak (December 2018) Without Project [B]		Cumulative Peak (December 2018) 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?**
	Construction PM	0.439	A	0.555	A	0.693	B	0.254	--	0.138	--
11. Imperial Highway and Pershing Drive	Construction AM	0.184	A	0.427	A	0.589	A	0.405	--	0.162	--
	Construction PM	0.316	A	0.485	A	0.636	B	0.320	--	0.151	--
12. Imperial Highway and Sepulveda Boulevard	Construction AM	0.496	A	0.631	B	0.631	B	0.135	--	0.000	--
	Construction PM	1.004	F	1.186	F	1.191	F	0.187	Yes	0.005	--
13. Imperial Highway and Nash Street	Construction AM	0.362	A	0.513	A	0.524	A	0.162	--	0.011	--
	Construction PM	0.239	A	0.312	A	0.321	A	0.082	--	0.009	--
14. Imperial Highway and I-105 Ramp	Construction AM	0.513	A	0.644	B	0.654	B	0.141	--	0.010	--
	Construction PM	0.471	A	0.581	A	0.585	A	0.114	--	0.004	--
15. Imperial Highway and I-405 Northbound Ramp	Construction AM	0.211	A	0.250	A	0.256	A	0.045	--	0.006	--
	Construction PM	0.480	A	0.547	A	0.552	A	0.072	--	0.005	--
16. La Cienega Boulevard and Lennox Boulevard	Construction AM	0.164	A	0.199	A	0.199	A	0.035	--	0.000	--
	Construction PM	0.306	A	0.348	A	0.348	A	0.042	--	0.000	--
17. La Cienega Boulevard and 111th Street	Construction AM	0.128	A	0.146	A	0.148	A	0.020	--	0.002	--
	Construction PM	0.311	A	0.365	A	0.365	A	0.054	--	0.000	--
18. La Cienega Blvd. & I-405 Southbound Ramps North of Century	Construction AM	0.387	A	0.438	A	0.438	A	0.051	--	0.000	--
	Construction PM	0.410	A	0.464	A	0.464	A	0.054	--	0.000	--
19. La Cienega Blvd. & I-405 Southbound Ramps South of Century	Construction AM	0.135	A	0.179	A	0.179	A	0.044	--	0.000	--
	Construction PM	0.284	A	0.409	A	0.409	A	0.125	--	0.000	--

Table 4.7-8

Proposed Project - Level of Service Analysis Results - Impact Comparison 2: Cumulative Traffic (December 2018)

		Baseline [A]		Cumulative Peak (December 2018) Without Project [B]		Cumulative Peak (December 2018) 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?
20. La Cienega Blvd. & I-405 Southbound Ramps North of Imperial	Construction AM	0.136	A	0.168	A	0.168	A	0.032	--	0.000	--
	Construction PM	0.218	A	0.286	A	0.286	A	0.068	--	0.000	--
21. Sepulveda Boulevard and La Tijera Boulevard	Construction AM	0.337	A	0.441	A	0.471	A	0.134	--	0.030	--
	Construction PM	0.613	B	1.008	F	1.015	F	0.402	Yes	0.007	--
22. Sepulveda Boulevard and Lincoln Boulevard	Construction AM	0.457	A	0.561	A	0.561	A	0.104	--	0.000	--
	Construction PM	0.750	C	0.963	E	0.968	E	0.218	Yes	0.005	--
23. Sepulveda Boulevard and Manchester Avenue	Construction AM	0.395	A	0.481	A	0.511	A	0.116	--	0.030	--
	Construction PM	0.711	C	0.867	D	0.897	D	0.186	Yes	0.030	Yes
24. Westchester Parkway and Pershing Drive	Construction AM	0.151	A	0.395	A	0.486	A	0.335	--	0.091	--
	Construction PM	0.213	A	0.413	A	0.575	A	0.362	--	0.162	--
25. Sepulveda Boulevard and Westchester Parkway	Construction AM	0.309	A	0.857	D	0.949	E	0.640	Yes	0.092	Yes
	Construction PM	0.649	B	1.072	F	1.113	F	0.464	Yes	0.041	Yes
26. Sepulveda Boulevard and 76th/77th Street	Construction AM	0.337	A	0.385	A	0.385	A	0.048	--	0.000	--
	Construction PM	0.440	A	0.568	A	0.596	A	0.156	--	0.028	--
27. Sepulveda Boulevard and 79th/80th Street	Construction AM	0.253	A	0.292	A	0.320	A	0.067	--	0.028	--
	Construction PM	0.513	A	0.586	A	0.592	A	0.079	--	0.006	--
28. Sepulveda Boulevard and 83rd Street	Construction AM	0.211	A	0.253	A	0.281	A	0.070	--	0.028	--
	Construction PM	0.458	A	0.526	A	0.532	A	0.074	--	0.006	--
29. La Cienega Boulevard and 104th Street	Construction AM	0.111	A	0.130	A	0.131	A	0.020	--	0.001	--

Table 4.7-8

Proposed Project - Level of Service Analysis Results - Impact Comparison 2: Cumulative Traffic (December 2018)

		Baseline [A]		Cumulative Peak (December 2018) Without Project [B]		Cumulative Peak (December 2018) 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?
	Construction PM	0.276	A	0.326	A	0.326	A	0.050	--	0.000	--

Notes:
1 The hours of analysis include the construction AM peak (6:00 AM - 7:00 AM) and the construction PM peak (3:30 PM - 4:30 PM).
2 Volume to capacity ratio. Includes an LADOT ATSAC benefit applied at each intersection with the exception of intersections #6 and #15, which are not a part of the LADOT system
3 Level of Service range: A (excellent) to F (failure).
4 -- Indicates "No Impact"

Source: Ricondo & Associates, Inc., using TRAFFIX, September 2013.

4.7.9 Mitigation Measures

As described above in Section 4.7.8, the MSC North Project would result in significant construction-related traffic impacts. In some cases, it was determined that 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.

4.7.9.1 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 MSC North 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.

- Imperial Highway and Main Street (Intersection #10)

  To mitigate the anticipated impacts, the westbound direction of Imperial Highway would need to be widened to provide one additional through lane. The resulting westbound lane configuration would consist of two left-turn lanes, two through lanes, and one through/right-turn lane. Implementation of this potential mitigation is determined infeasible due to right-of-way constraints along Imperial Highway and given that the short-term nature of the construction-related impact would not justify the widening of the intersection.

- Sepulveda Boulevard and Westchester Parkway (Intersection #25)

  To mitigate the anticipated impacts, the northbound direction of Sepulveda Boulevard would need to be widened to provide two left-turn lanes. The resulting northbound lane configuration would consist of two left-turn lanes, three through lanes, and a right-turn lane. Implementation of this potential mitigation is determined to be infeasible due to right-of-way constraints along Sepulveda Boulevard and given that the short-term nature of the construction-related impact would not justify the widening of the intersection.

4.7.9.2 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 MSC North Project, and were determined to be feasible to implement.

- Sepulveda Boulevard and Manchester Avenue (Intersection #23)

  To mitigate construction-related impacts at this intersection, the westbound approach of Manchester Avenue would be widened to provide a right-turn lane and left-turn lane. The resulting westbound lane configuration would be comprised of two left-turn lanes, two through lanes, and one right-turn lane. Implementation of this mitigation measure would reduce the impact to a less-than-significant level for all scenarios and all impact comparisons.

4.7.10 Level of Significance After Mitigation

Table 4.7-9 summarizes the final LOS with all feasible intersection improvements identified in Section 4.7.9. Given the physical constraints adjacent to two impacted intersections, Imperial Highway and Main Street (Intersection #10) and Sepulveda Boulevard and Westchester Parkway (Intersection #25), and the temporary nature of the construction-related impacts, these improvements are infeasible and will not be implemented. As a result, impacts to these intersections would be significant and unavoidable.

Table 4.7-9

Level of Service With Feasible Intersection Improvements

			Cumulative Peak (December 2018)						
			Without Project (Without Improvements) [A]		With Project (Without Improvements) [B]		With Project (With Improvements)[1] [C]		
	Intersection	Peak Hour[1]	V/C[2]	LOS[3]	V/C[2]	LOS[3]	V/C[2]	LOS[3]	Significant Impact with Improvements?
23.	Sepulveda Boulevard and Manchester Avenue	Construction PM	0.867	D	0.897	D	0.847	D	No

Notes:
1 The hours of analysis include the construction AM peak (6:00 AM - 7:00 AM) and the construction PM peak (3:30 PM - 4:30 PM).
2 Volume to capacity ratio. Includes an LADOT ATSAC benefit applied at the intersection.
3 Level of Service range: A (excellent) to F (failure).

Source: Ricondo & Associates, Inc., using TRAFFIX, September 2013.

5.0 ALTERNATIVES

5.1 Introduction

The *California Environmental Quality Act (CEQA) Guidelines* require that an Environmental Impact Report (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 proposed Project, and evaluate the comparative merits of the alternatives" (CEQA Guidelines Section 15126.6). Within that context, this Chapter discusses alternatives to the proposed 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 this 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 proposed 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)).

5.2 Significant Impacts of the MSC North Project and Future Phase(s) of the MSC Program

The alternatives in this Chapter have been selected to evaluate means for avoiding or substantially reducing the significant impacts of the proposed MSC North Project and future phase(s) of the MSC Program identified in Chapter 4 of this EIR. As summarized in Table 1-1 in Chapter 1, *Introduction and Executive Summary*, impacts related to air quality (operational impacts), noise, public services, and on-airport surface transportation were determined to be less than significant with incorporation of Los Angeles International Airport (LAX) Master Plan Mitigation Measures and Commitments. As described in Chapter 4.1, *Air Quality*, the proposed MSC North Project would result in a net increase in temporary emissions of criteria air pollutants associated with construction-related activities, which would be a significant and unavoidable impact even after implementation of LAX Master Plan Mitigation Measures and Commitments with respect to regional emissions of carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$). As described in Chapter 4.2, *Greenhouse Gas Emissions*, the proposed MSC North Project would result in a significant and unavoidable impact to greenhouse gas emissions even after implementation of LAX Master Plan Mitigation Measures and Commitments. Chapter 4.3, *Human Health Risk Assessment*, identified a significant and unavoidable impact to the acute non-cancer hazard index for acrolein. Chapter 4.7, *Construction Surface Transportation*, identified two intersections (Imperial Highway and Main Street, and Sepulveda Boulevard and Westchester Parkway) that would experience significant cumulative construction traffic impacts even after implementation of mitigation measures.

For purposes of this alternatives analysis, although specific information related to construction of the future phase(s) of the MSC Program is not known, it was assumed that the future phase(s) of the MSC Program would have construction-related impacts similar to the MSC North Project. A project-level environmental review for future phase(s) of the MSC Program will be initiated at such time as LAWA determines the timing of future phase(s).

5.3 Project Objectives

As identified in the CEQA Guidelines, the achievement of project objectives was considered in determining potentially feasible alternatives that would avoid or substantially lessen any significant effects of the proposed MSC North Project and/or the future phase(s) of the MSC Program. The objectives of the proposed MSC North Project and future phase(s) of the MSC Program include:

- Provide LAWA with the flexibility to accommodate existing demand for aircraft gates while modernizing other terminals and critical infrastructure at LAX and reducing reliance on the West Remote gates.
- Allow LAWA to close gates for renovation and rehabilitation without reducing the number of existing gates.
- Improve terminal operations, concessions facilities, and overall passenger experience at LAX.
- Facilitate the systematic implementation of the LAX Master Plan.

5.4 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 MSC, 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 proposed MSC was also included in the *Specific Plan Amendment Study* (SPAS) and was evaluated with the various airfield alternatives examined in that study. The following provides additional evaluation of alternatives to the proposed MSC North Project and future phase(s) of the MSC Program 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 MSC North Project pertain to both construction activities and airport operations. 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 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.

5.4.1 Potential Alternatives Screened-Out from Further Consideration

5.4.1.1 Redevelop Existing Terminal(s) to Add New Gates

As an alternative to construction of the MSC, LAWA considered whether the existing terminals within the CTA could be redeveloped to add new gates. A number of different terminal configurations were examined as part of the LAX Master Plan and as part of SPAS, some of which would add gates within the CTA.[1] However, redevelopment of any of the existing terminals would close gates for an extended period of time. There are no spare gates at LAX to accommodate the passenger airline operations that would be displaced to allow redevelopment of an existing terminal; all gates are currently utilized. During peak periods, the West Remote Gates/Pads are also near capacity. Thus, LAWA cannot undertake redevelopment of a terminal to add new gates without displacing current tenants and their passenger operations. Because objectives of the MSC North Project include giving LAWA the flexibility to redevelop existing terminals without negatively affecting passenger operations and the ability to close gates for renovation without reducing the number of existing gates, this alternative was determined infeasible and was not carried forward for full evaluation.

5.4.1.2 Alternate Site – West Remote Gates/Pads Site Alternative

This alternative focused on development of the proposed Project on the West Remote Gates/Pads site. This site is located west of the proposed Project Site and is bounded to the south by World Way West, to the north by Taxiway E, to the west by Pershing Drive, and to the east by Taxiway AA (see **Figure 5-1**). The approximately 71-acre West Remote Gates/Pads site is currently utilized as an apron/gate area for on-loading and off-loading of international and domestic flights that cannot be handled in the CTA. Passengers are ferried to and from the site by buses. The apron area is also utilized for RON and RAD parking of aircraft when the gates are not in use.

The West Remote Gates/Pads site can accommodate 11 aircraft at apron gates having jet loading bridges and another 7 hardstand (pads) without loading bridges, for a total of 18 positions. Additional aircraft are double- and sometimes triple-parked at some of these positions during overnight and early morning hours. In April, May, and June of 2013 the West Remote Gates/Pads were utilized to park 1,592 aircraft, with 634 using contact gates and an additional 958 operations parked on “hardstand” or RON positions. An August 2012 peak month survey of West Remote Gates/Pads usage found that peak use of the area was in the early morning, and included 16 aircraft parked simultaneously. On that same day, a total of 34 aircraft were positioned on the West Remote Gates/Pads site during various times of the day.

A large maneuvering area is located in the southwest quadrant of this alternative site. This maneuvering area also serves as an operational readiness area for “super-jumbo” aircraft such as the Antonov AN-124 cargo carrier, which has called on LAX in the past. Additionally, this space is utilized for RON/RAD for highly secure visits by public and government officials that at times require staging of military cargo and other large aircraft.

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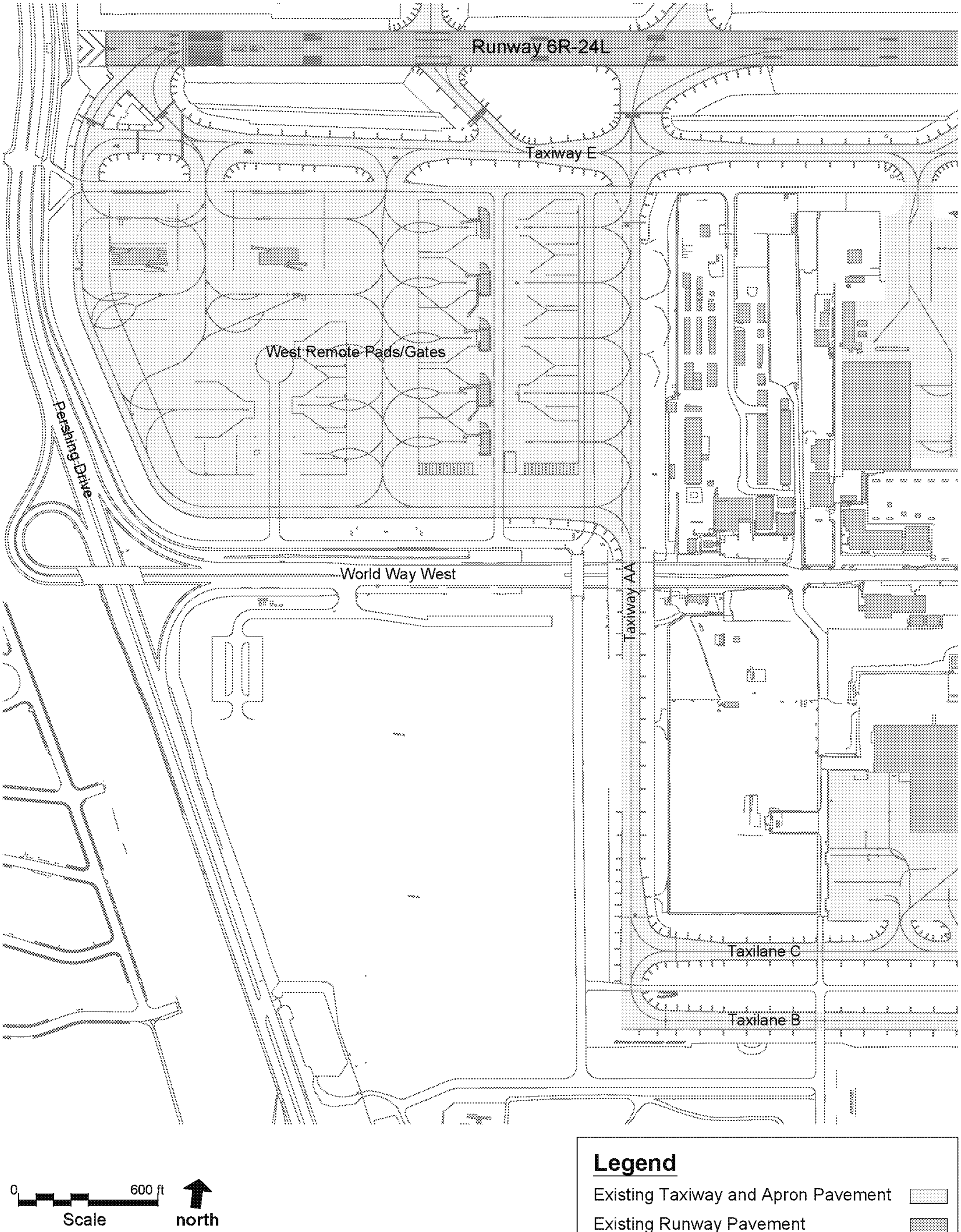
[1] City of Los Angeles, Los Angeles World Airports, LAX Master Plan, April 2004.



Source: HNTB, Corp., Los Angeles International Draft ALP, July 2012; Ricondo & Associates, Inc., December 2013.
Prepared by: Ricondo & Associates, Inc., December 2013.

Legend

Existing Taxiway and Apron Pavement

Existing Runway Pavement

Existing Airfield Building

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West Remote Gates/Pads Site Alternative

Figure **5-1**

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Although the West Remote Gates/Pads site was investigated in whole and in part as an alternative location for the proposed Project, it was not carried forward for further analysis because the site is already highly utilized for passenger gate facilities and for aircraft parking (i.e., RON/RAD), including special-purpose use (i.e., super-jumbo aircraft parking and high-security areas) and would not be able to accommodate additional apron gates or hardstand positions. The West Remote Gates/Pads have no concessions for passengers and are inefficient due to their distance from the CTA, providing a poor level of passenger service. Because objectives of the MSC North Project include giving LAWA the flexibility to redevelop existing terminals without negatively affecting passenger operations; the ability to close gates for renovation without reducing the number of existing gates; and to improve terminal operations, concessions facilities, and overall passenger experience at LAX, this alternative was determined infeasible and was not carried forward for full evaluation.

5.4.1.3 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, air quality, and greenhouse gas emission impacts identified in Chapter 4. It should be noted that the construction approach currently proposed for the MSC North Project already includes a number of features that reduce potential impacts in those areas. These features 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 MSC North Project would be to extend the overall construction period to reduce the amount of daily activity. With respect to air quality impacts, **Table 5-1** 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.

As indicated in Table 5-1, the largest reduction required to avoid a significant impact would be needed with respect to NOx emissions. Daily activities would need to be reduced by approximately 91 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 NOx emissions to remain less than significant. Based on such limitations, however, it would conceivably take approximately 100 years to complete project construction. 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. Therefore, this alternative was determined to be infeasible and was not carried forward for full evaluation.

Table 5-1

Alternative Construction Approach (Reduce Daily Activity Duration)
Air Pollutant Emissions

Pollutant	SCAQMD Threshold (lbs/day)	MSC North Project Peak Daily Emissions (lbs/day)[1]	Amount (%) of Reduction Required to Avoid Significant Impact
Carbon monoxide, CO	550	**1,290**	57%
Volatile organic compounds, VOC	75	**135**	44%
Nitrogen oxides, NO_X	100	**1,156**	91%
Sulfur dioxide, SO_2	150	4	N/A
Respirable particulate matter, PM_{10}	150	**669**	76%
Fine particulate Matter, $PM_{2.5}$	55	**172**	68%

Note:
1 Values shown in bold indicate significant impacts.

Source: Ricondo & Associates, Inc., 2013.

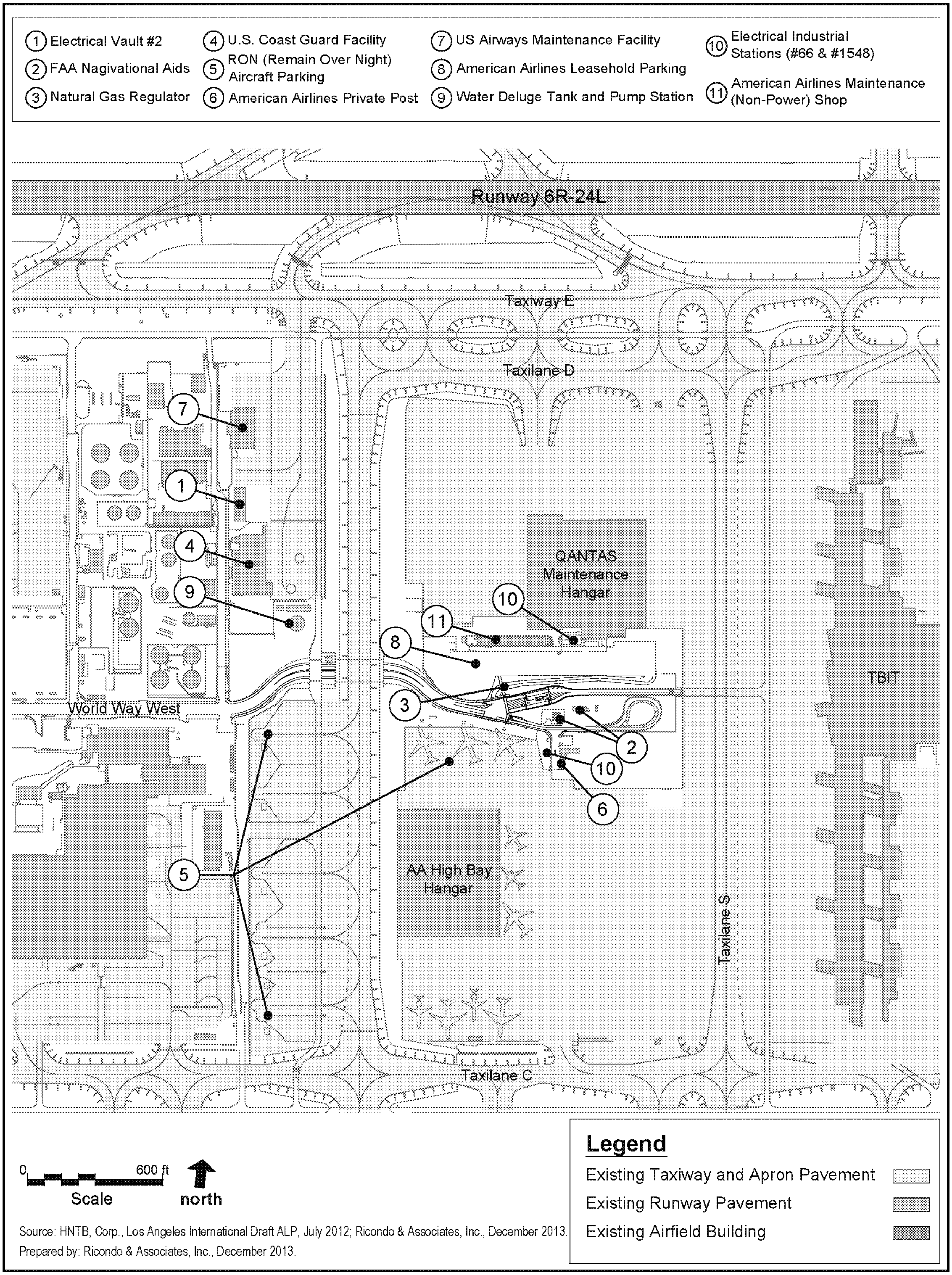
5.4.2 Alternatives Carried Forward for Further Consideration

5.4.2.1 MSC North Project

Alternatives to the proposed MSC North Project were formulated to avoid or substantially lessen the significant impacts of the Project, with emphasis on the significant and unavoidable impacts that would occur during construction including construction traffic at two intersections; regional emissions of carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_X), respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$); and greenhouse gas emissions. In addition, the alternatives were formulated to avoid or substantially lessen the significant impact of Project operations on greenhouse gas emissions and human health risk associated with emissions of acrolein. As required by CEQA, a "no project" alternative is addressed in this section.

Alternative 1: No Project

Under the "No Project" alternative, none of the improvements and activities proposed for the MSC North Project would occur. The proposed Project site would continue to be used for aircraft maintenance, RON/RAD aircraft parking, the U.S. Coast Guard facility, electrical substations, and the various other existing uses at the site, as shown on **Figure 5-2**. LAWA would forego the opportunity to develop new gates that would allow them the flexibility to renovate and redevelop the existing terminals without negatively affecting existing airline passenger operations. LAWA would continue to rely on the West Remote Gates/Pads to provide remote contact gates and/or parking positions when contact gates at the terminals within the CTA are unavailable.



Source: HNTB, Corp., Los Angeles International Draft ALP, July 2012; Ricondo & Associates, Inc., December 2013.
Prepared by: Ricondo & Associates, Inc., December 2013.

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No Project Alternative

Figure
5-2

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Alternative 2: Reduced Project

A reduced project alternative was identified that would involve the construction of 7-8 gates rather than the 11 gates proposed as part of the MSC North Project. The footprint of this facility was assumed to be approximately 100,000 square feet. The concourse would stop just north of World Way West and would avoid impacting the FAA navigational aids, one of the electrical industrial stations, 3 RON parking spaces, the natural gas regulator, and the American Airlines Private Post. In addition to a reduced concourse facility, this alternative would also eliminate the tunnel for a future conveyance system, as well as Taxiway C14 and associated enabling projects, including: demolition of the U.S. Coast Guard facility; demolition of the U.S. Airways Maintenance facility; relocation of Electrical Vault #2; the removal of 5 RON aircraft parking spaces; and the relocation of the water deluge tank and pump station. All other project components would be included. **Figure 5-3** illustrates the Reduced Project Alternative.

Alternative 3: MSC South

Alternative 3 would involve construction of the southern portion of the MSC rather than the northern portion as proposed. This alternative, shown on **Figure 5-4**, would impact the American Airlines High Bay Hangar, but would stop just south of World Way West. This alternative would avoid impacting the FAA navigational aids, one of the electrical industrial stations, the American Airlines Maintenance (Non-Power) shop, the American Airlines leasehold parking, and the natural gas regulator. This alternative would also result in a reduced project alternative with 2 fewer aircraft gates than the proposed MSC North Project.

Alternative 4: Alternate Site – Terminal/Concourse 0

Alternative 4 would involve the construction of “Terminal/Concourse 0” north of World Way and east of Terminal 1 (see **Figure 5-5**). Terminal/Concourse 0 could be constructed with up to 7 gates in the western portion of the area currently occupied by Park One. This alternative would require the relocation of Sky Way (upper and lower roadways) eastward to allow development of the terminal and would also provide additional roadway and curbfront in the CTA. This alternative would eliminate the impacts to the existing facilities at the Project site (aside from the Taxiway C14 enabling projects), which would remain as they exist today, and would also eliminate the need for an underground conveyance system from MSC to connect to the CTA.

5.4.2.2 Future Phase(s) of the MSC North Program

The alternatives to the proposed future phase(s) of the MSC North Program were formulated to avoid or substantially lessen the significant impacts of the future phase(s) of the MSC Program. The analysis of alternatives to the future phase(s) of the MSC Program assumes that the MSC North Project is constructed and operational as proposed.

Alternative 1: No Future Phase(s) of the MSC Program

As required by CEQA, a “no project” alternative was considered for the future phase(s) of the MSC Program. In this case, the “no project” alternative would mean that after the MSC North Project is constructed, no additional development of the MSC Program would occur. The MSC would remain an 11-gate facility with the Project components identified; no other proposed components would be implemented.

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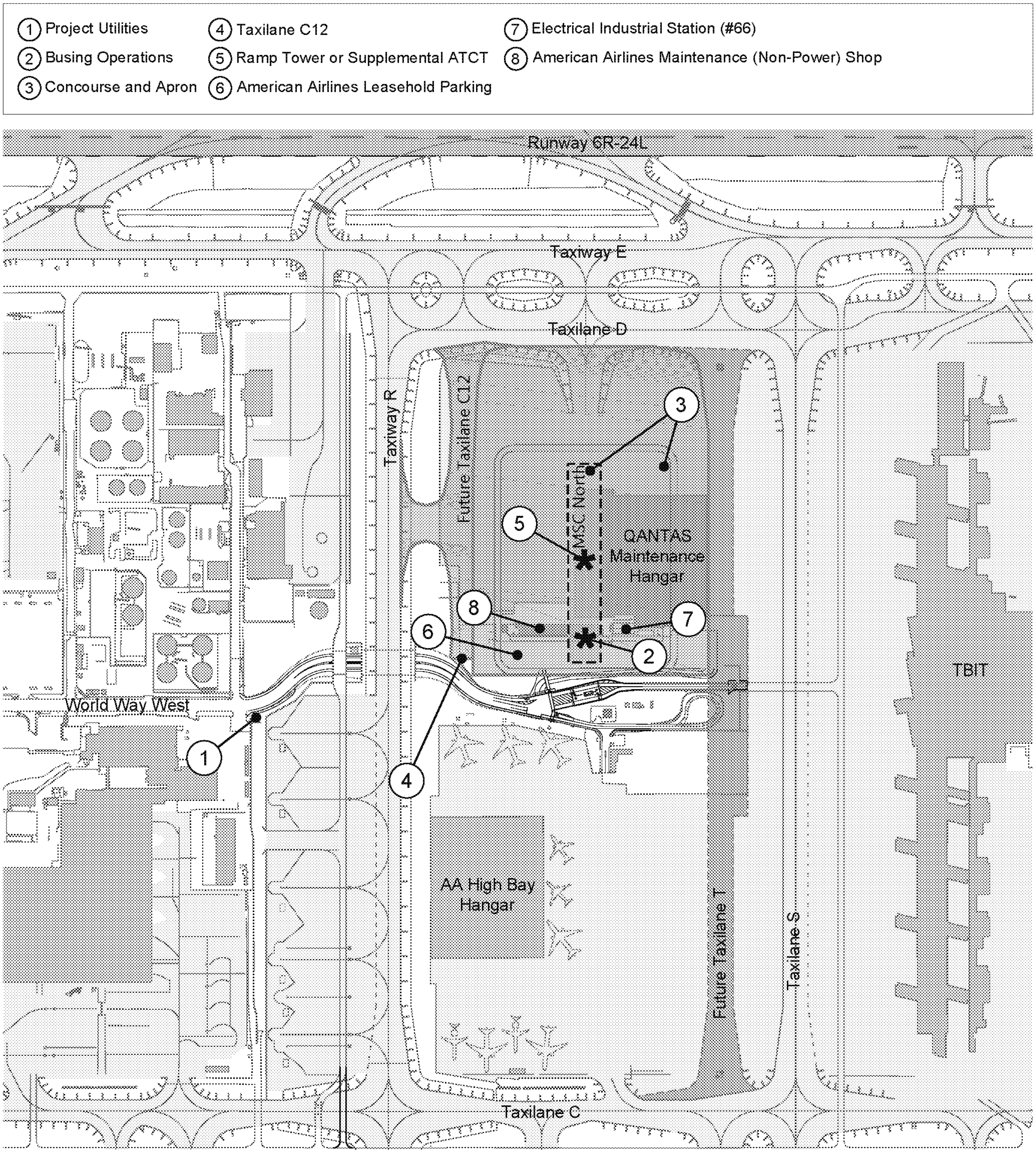

Note:
Component numbers represent approximate locations of project components.

Legend

- Existing Taxiway and Apron Pavement
- Existing Runway Pavement
- Existing Airfield Building
- Taxilane T Project Area
- Project Components

Source: HNTB, Corp., Los Angeles International Draft ALP, July 2012; Ricondo & Associates, Inc., January 2014.
Prepared by: Ricondo & Associates, Inc., January 2014.

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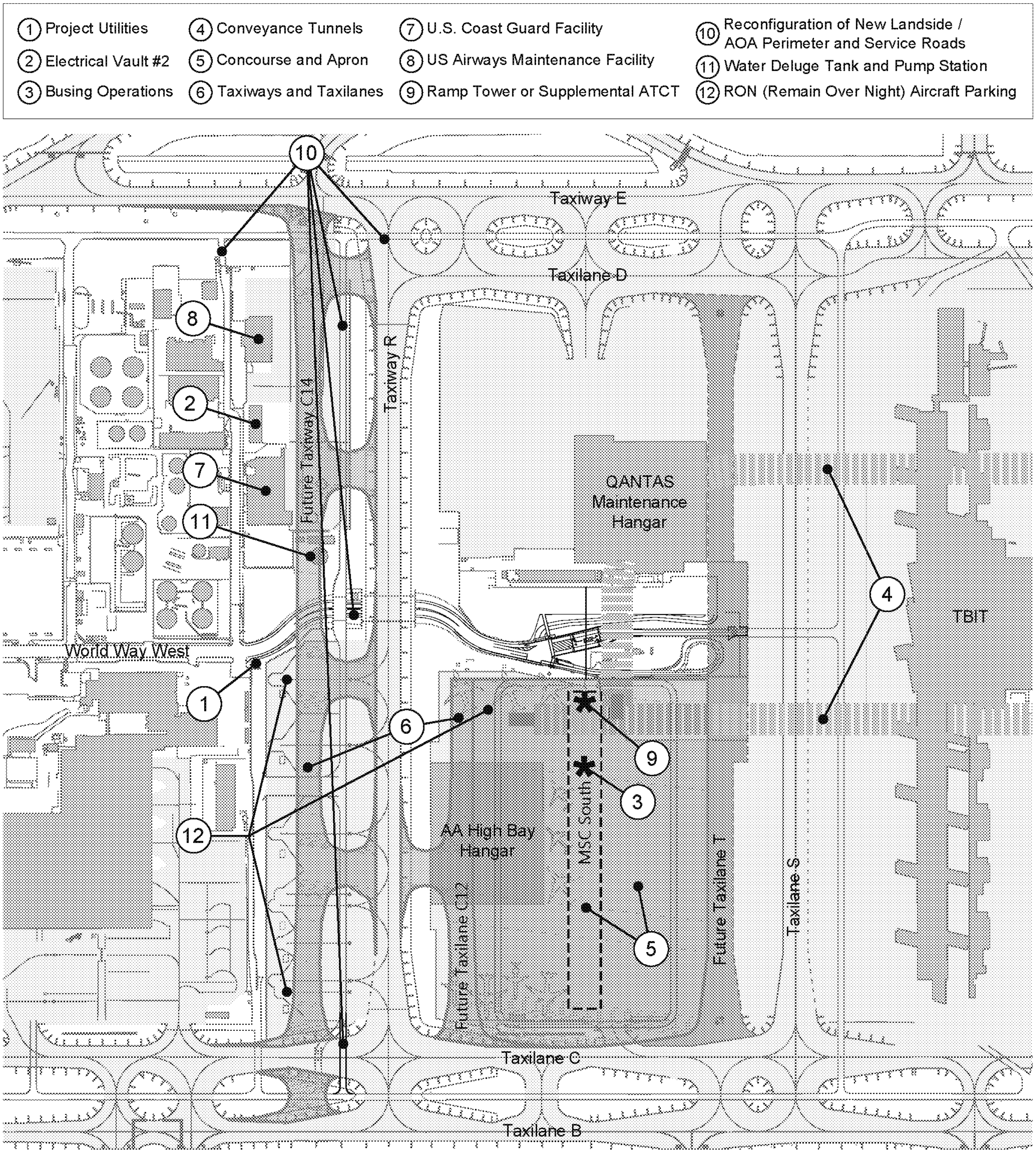

Note:
Component numbers represent approximate locations of project components.

0 600 ft
Scale
north

Source: HNTB, Corp., Los Angeles International Draft ALP, July 2012; Ricondo & Associates, Inc., December 2013.
Prepared by: Ricondo & Associates, Inc., December 2013.

Legend
- Existing Taxiway and Apron Pavement
- Existing Runway Pavement
- Existing Airfield Building
- Taxilane T Project Area
- Project Components

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MSC North Project South Alternative

Figure **5-4**

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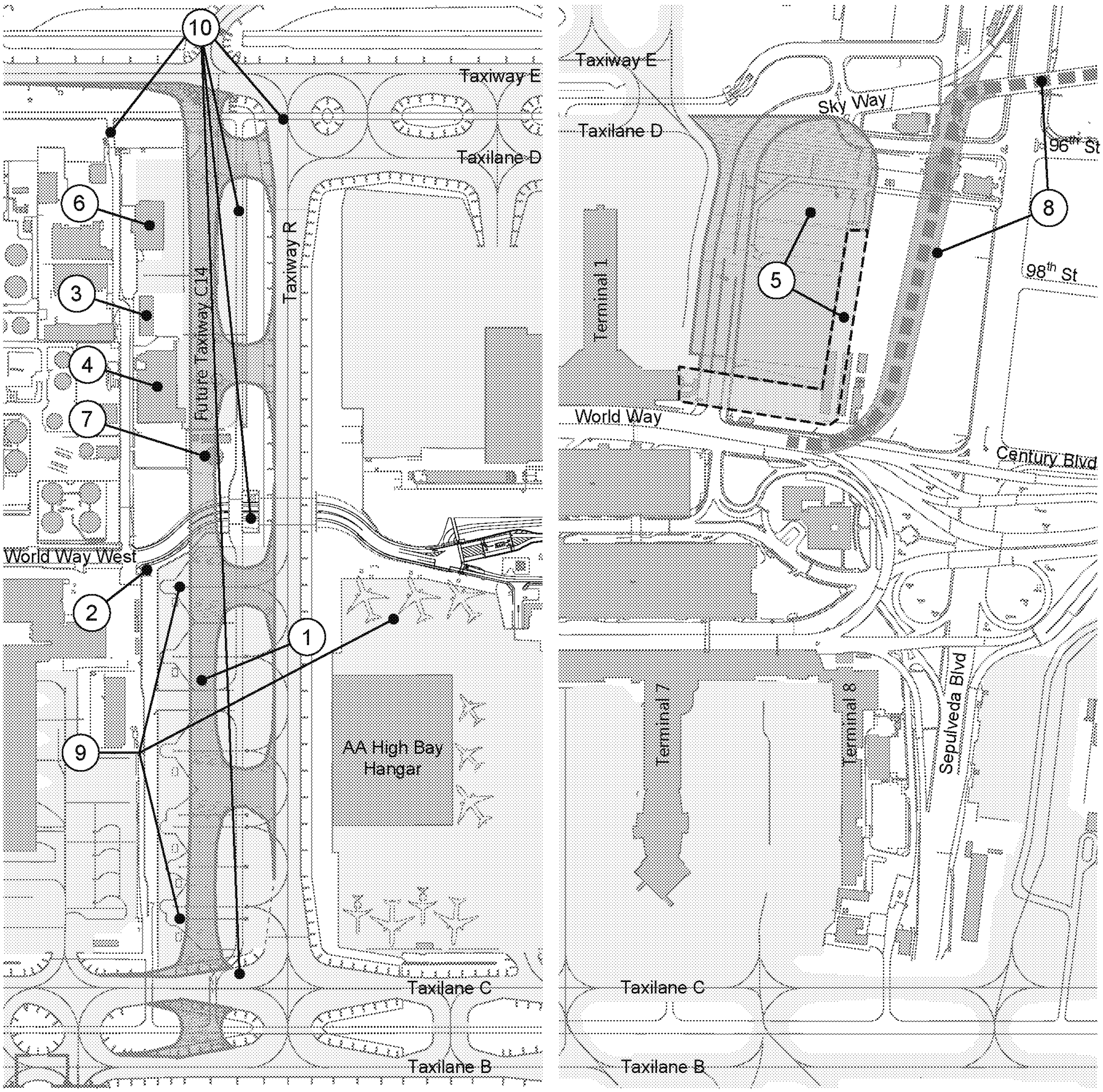
(1) Taxiway C14
(2) Project Utilities
(3) Electrical Vault #2
(4) U.S. Coast Guard Facility
(5) Proposed Terminal 0 and Apron
(6) US Airways Maintenance Facility
(7) Water Deluge Tank and Pump Station
(8) Redesigned Entry Roadways (96th Street)
(9) RON (Remain Over Night) Aircraft Parking
(10) Reconfiguration of New Landside / AOA Perimeter and Service Roads



Note:
Component numbers represent approximate locations of project components.

0 600 ft
Scale
north

Legend
Existing Taxiway and Apron Pavement
Existing Runway Pavement
Existing Airfield Building
Redesigned Roadways
Project Components

Source: HNTB, Corp., Los Angeles International Draft ALP, July 2012; Ricondo & Associates, Inc., December 2013.
Prepared by: Ricondo & Associates, Inc., December 2013.

MSC North Project Alternate Site Alternative - Terminal/Concourse 0

Figure 5-5

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Alternative 2: Reduced Program - Fewer Gates

The future phase(s) of the MSC Program includes up to an additional 18 gates, which when added to the gates proposed for the MSC North Project would provide a concourse with up to 29 gates. An alternative to the future phase(s) of the MSC Program would be a smaller concourse with fewer gates. For purposes of identifying alternatives that may avoid or substantially lessen the significant impacts of the future phase(s) of the MSC Program, a reduced Program alternative of a concourse with a total of 20 gates was considered.

Alternative 3: No Central Terminal Processor/APM to Existing Terminal

Another alternative considered to the future phase(s) of the MSC Program was an alternative that eliminates the Central Terminal Processor (CTP). Instead of the APM going to an CTP, the APM would instead go to one of the existing terminals within the CTA. For purposes of this analysis, it was assumed that the APM would run between Terminal 3 and the MSC.

Alternative 4: No Central Terminal Processor/No APM

The final alternative considered for the future phase(s) of the MSC Program was an alternative that included no CTP or APM; passengers would check-in, check their luggage, and undergo security screening within one of the existing terminals in the CTA, and then be bused to the MSC, as is assumed to occur for the MSC North Project.

5.5 Evaluation of Alternatives

The following describes the environmental impacts associated with each of the alternatives described above compared to the proposed MSC North Project or the future phase(s) of the MSC Program.

5.5.1 MSC North Project

5.5.1.1 Alternative 1: No Project

Air Quality

Under the No Project Alternative, the Project site would continue to be used for aircraft maintenance, RON/RAD aircraft parking, the U.S. Coast Guard facility, electrical substations, and the various other existing uses at the site. Under the No Project Alternative, the provision of new aircraft gates in the midfield area at LAX would not occur.

As discussed in Chapter 4.1, *Air Quality*, the proposed Project would result in a net increase in short-term and temporary emissions of criteria air pollutants associated with construction-related activities with a significant and unavoidable impact with respect to regional emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X. The No Project Alternative would not involve construction, therefore it would have no net increase in short-term and temporary emissions of criteria air pollutants.

The No Project Alternative would result in emissions consistent with current levels and with future aircraft activity projections, which would be about the same as the emissions under the proposed Project on a long-term basis. As discussed in Chapter 4.1, *Air Quality*, operation of the proposed Project is not expected to generate new emissions associated with aircraft operations because the proposed Project will not increase or change the type of aircraft operations at LAX. Taxiing distances of some aircraft would decrease under the proposed Project when compared to the No Project condition, as fewer operations would occur at the West Remote Gates/Pads. However, additional bus trips and ground support equipment (GSE) trips would occur under the proposed Project to transport passengers and their luggage between the MSC North and terminals within the CTA. Thus, the operational emissions under the No Project Alternative would have similar emissions related to aircraft operations, slightly lower emissions related to on-airport bus and GSE trips, but slightly greater emissions from aircraft taxiing.

Nonetheless, as the No Project Alternative would not involve any construction, it would not have the significant unavoidable impact that would occur under the proposed Project with respect to construction-related regional CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X emissions. With respect to regional operational emissions, the No Project Alternative would be similar to the proposed Project; impacts would be less than significant.

Greenhouse Gases

Under the No Project Alternative, the Project site would continue to be used for aircraft maintenance, RON/RAD aircraft parking, the U.S. Coast Guard facility, electrical substations, and the various other existing uses at the site. Under the No Project Alternative, the provision of new aircraft gates in the midfield area at LAX would not occur.

As discussed in Chapter 4.2, *Greenhouse Gas Emissions*, the proposed Project would result in a net increase in short-term and temporary GHG emissions associated with construction-related activities. This Alternative would result in no net increase in short-term and temporary emissions of GHGs since construction would not occur. On a long-term basis, the existing site facilities would continue to be used and would not be relocated. The proposed Project would be required to comply with the CALGreen and LAGBC Tier 1 standards for nonresidential buildings, which would reduce energy consumption, waste generation, and GHG emissions compared to similar buildings that do not meet the standards. Maintenance and other activities would continue to occur at the existing facilities located on the Project site, which were built prior to LAX's adoption of the Los Angeles Green Building Code Tier 1 standards and thus were not designed to meet the current energy efficiency standards. However, the MSC North Project would generate more greenhouse gas emissions than the existing facilities due to its size and function and the greater electrical, heating, and cooling requirements. Thus, the operational emissions under the No Project Alternative would be less than the proposed Project, and would be less than significant.

Human Health Risk

The No Project Alternative would have no health risk impact associated with construction since no construction would occur. Operational health impacts of this Alternative would be less than significant as there would be no change in operations at the airport compared to existing conditions. Therefore, there would be no change in localized emissions at the Project site, impacts would be less than significant, and this alternative would avoid the significant and unavoidable impact of the proposed Project in regards to the acute non-cancer hazard index for acrolein.

Noise

Under the proposed Project, operational noise sources would include aircraft taxiing to the MSC North site, which would have less than significant noise impacts. The No Project Alternative would not introduce any new sources of noise on the Project site or within the surrounding vicinity; ambient noise levels at the site would remain as they are under existing conditions, consistent with typical noise levels from aircraft taxiing in the midfield area of the airport. Under the No Project alternative, more aircraft would taxi to and utilize the West Remote Gates/Pads than under the proposed Project. However, noise impacts from aircraft operations would be similar under both alternatives and would remain less than significant.

Public Services – Fire Protection Services

Under the No Project Alternative, the Project site would continue to be used for aircraft maintenance, RON/RAD aircraft parking, the U.S. Coast Guard facility, electrical substations, and the various other existing uses at the site. Under the No Project Alternative, the provision of new aircraft gates in the midfield area and a tunnel connecting the MSC North building to the CTA under the proposed Project would not occur. As discussed in Chapter 4.5, *Public Services – Fire Protection Services*, the proposed Project would have a less than significant impact. However, as the No Project Alternative entirely avoids the proposed Project's fire protection services impacts, it would have less impact than the proposed Project on existing fire protection services in the area.

Construction Surface Transportation

The No Project Alternative would not involve any of the construction activities associated with the development of the proposed Project. Construction traffic associated with demolition, construction of new facilities, delivery of materials and hauling, and employee trips that would be required for the construction of the proposed Project would not occur. As discussed in Chapter 4.7, *Construction Surface Transportation*, the proposed Project would have a significant and unavoidable impact on two intersections during the Project's construction phase. As the No Project Alternative entirely avoids the proposed Project's construction traffic impacts, it would have less impact than the proposed Project on existing traffic conditions in the area.

5.5.1.2 Alternative 2: Reduced Project

Air Quality

Under Alternative 2: Reduced Project (Reduced Project Alternative), the MSC North building would be smaller than the proposed Project with 3-4 fewer aircraft gates. As the concourse would extend to just north of World Way West, the Reduced Project Alternative would avoid impacting World Way West, the FAA navigational aids, an electrical industrial station, 3 RON parking spaces, the natural gas regulator, and the American Airlines Private Post. In addition to a reduced concourse facility, this alternative would also eliminate the tunnel for a future conveyance system, as well as Taxiway C14 and associated enabling projects, including: demolition of the U.S. Coast Guard facility; demolition of the U.S. Airways Maintenance facility; relocation of Electrical Vault #2; the removal of 5 RON aircraft parking spaces; and the relocation of the water deluge tank and pump station.

The Reduced Project Alternative would result in construction emissions, but due to the reduced size of the project would be less than the proposed Project. As discussed in Chapter 4.1, *Air Quality*, the proposed Project would result in a net increase in short-term and temporary emissions of criteria air pollutants associated with construction-related activities with a significant and unavoidable impact with respect to regional emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X. As shown in **Table 5-2**, the Reduced Project Alternative would have less construction impacts than the proposed Project Alternative. Implementation of the Reduced Project Alternative would avoid significant impacts related to short-term and temporary emissions of VOC, PM_{10}, and $PM_{2.5}$, that would otherwise occur under the proposed Project. However, while impacts to construction-related regional CO and NO_X emissions would be reduced, impacts would still be significant and unavoidable.

Table 5-2

Reduced Project Alternative Air Pollutant Emissions

Pollutant	SCAQMD Threshold (lbs/day)	MSC North Project Peak Daily Emissions (lbs/day)[1]	Alternative 1: Reduced Project (lbs/day)
Carbon monoxide, CO	550	**1,290**	**575**
Volatile organic compounds, VOC	75	**135**	56
Nitrogen oxides, NO_X	100	**1,156**	**327**
Sulfur dioxide, SO_2	150	4	2
Respirable particulate matter, PM_{10}	150	**669**	130
Fine particulate Matter, $PM_{2.5}$	55	**172**	29

Note:
1 Values shown in bold indicate significant impacts.

Source: Ricondo & Associates, Inc., 2013.

The Reduced Project Alternative would result in emissions consistent with current levels and with future aircraft activity projections, which would be about the same as the emissions under the proposed Project on a long-term basis. As discussed in Chapter 4.1, *Air Quality*, operation of the proposed Project is not expected to generate new emissions associated with aircraft operations because the proposed Project will not increase or change the type of aircraft operations at LAX. Taxiing distances of some aircraft would decrease under the proposed Project when compared to the Reduced Project Alternative, as fewer operations would occur at the West Remote Gates/Pads. However, additional bus trips and ground support equipment (GSE) trips would occur under the proposed Project to transport passengers and their luggage between the MSC North and terminals within the CTA. Thus, the operational emissions under the Reduced Project Alternative would have similar emissions related to aircraft operations, slightly lower emissions related to on-airport bus and GSE trips, but slightly greater emissions from aircraft taxiing.

In summary, the Reduced Project Alternative would avoid the significant impact that would occur under the proposed Project with respect to construction-related regional PM_{10}, $PM_{2.5}$, and VOC emissions. While impacts for construction-related regional CO and NO_X emissions would be reduced, impacts would still be significant and unavoidable for these air pollutants. With respect to regional operational emissions, the Reduced Project Alternative would be similar to the proposed Project; impacts would be less than significant.

Greenhouse Gases

Under the Reduced Project Alternative, the MSC North building would be smaller than the proposed Project with 3-4 fewer aircraft gates. As the concourse would extend to just north of World Way West, the Reduced Project Alternative would avoid impacting World Way West, the FAA navigational aids, an electrical industrial station, 3 RON parking spaces, the natural gas regulator, and the American Airlines Private Post. In addition to a reduced concourse facility, this alternative would also eliminate the tunnel for a future conveyance system, as well as Taxiway C14 and associated enabling projects, including: demolition of the U.S. Coast Guard facility; demolition of the U.S. Airways Maintenance facility; relocation of Electrical Vault #2; the removal of 5 RON aircraft parking spaces; and the relocation of the water deluge tank and pump station.

As discussed in Chapter 4.2, *Greenhouse Gas Emissions*, the proposed Project would result in a net increase in GHG emissions. The Reduced Project Alternative would also result in a net increase in emissions of GHGs, but total emissions would be less due to the reduced size of the project, as shown in **Table 5-3**. The Reduced Project Alternative would be required to comply with the CALGreen and LAGBC Tier 1 standards for nonresidential buildings, which would reduce energy consumption, waste generation, and GHG emissions compared to similar buildings that do not meet the standards. The Reduced Project Alternative would result in operational greenhouse gas emissions associated with the MSC North building; however, total emissions would be less than the proposed Project due to the reduced size of the building. Additionally, GHG emissions from current uses of the MSC North Project site that would remain under the Reduced Project Alternative are quantified as well. The Reduced Project Alternative would result in fewer total greenhouse gas emissions, when compared to the proposed Project Alternative; it is anticipated that the Reduced Project Alternative would avoid the significant impact that would occur under the proposed Project with respect to greenhouse gas emissions.

Table 5-3

Comparison of Reduced Project Alternative Greenhouse Gas Emissions to Proposed Project

Emission Source	2019 Future Without MSC North Project CO_2e (Metric Tons)	2019 Future With MSC North Project CO_2e (Metric Tons)	Alternative 2: Reduced Project CO_2e (Metric Tons)	Proposed Project Incremental Difference CO_2e (Metric Tons)	Alternative 2 Incremental Difference CO_2e (Metric Tons)
Aircraft [1]	772,056	770,528	772,056	-1,528	0
Ground Support Equipment [1]	34,269	34,188	34,269	-81	0
Busing Operations [1]	572	760	760	188	188
On-Airport Stationary [2]	9	347	212	338	203
Building Electricity [2]	191	5,525	3,570	5,334	3,379
Solid Waste Disposal [2]	17	92	115	75	98
Indoor Water Usage [2]	80	1,191	925	1,111	845
Construction (Amortized) [2]	-	5,015	3,656	5,015	3,656
Total Net	**807,194**	**817,646**	**815,563**	**10,452**	**8,369**
SCAQMD GHG Threshold for Industrial Projects				10,000	10,000
Above the Threshold?				**Yes**	**No**

Notes:
1 Total emissions for LAX.
2 Emissions for MSC North Project site only.

Source: Ricondo & Associates, Inc., 2013.

Human Health Risk

The Reduced Project Alternative would result in changes to aircraft taxi patterns similar to the proposed Project, although with fewer gates, fewer aircraft operations would occur at the MSC North building. Although this Alternative does not include the construction of Taxiway C14, it is still anticipated that the acute non-cancer hazard index for acrolein would be similar to that anticipated under the proposed Project due to the shift of aircraft taxi operations from the CTA to the midfield area. Thus, operational health impacts of this Alternative would be similar to the proposed Project. Implementation of the Reduced Project Alternative would not avoid or substantially reduce the significant unavoidable impact that would occur under the proposed Project with respect to the acute non-cancer hazard index for acrolein.

Noise

Under the proposed Project, operational noise sources would include aircraft taxiing to the MSC North site, which would have less than significant noise impacts. The Reduced Project Alternative would include the same changes to aircraft taxi paths (with the exception of Taxiway C14), although with fewer gates at the MSC North, there would be fewer aircraft operations in this area of the airfield. As with the proposed Project, no significant noise impacts from aircraft operations at LAX is expected to occur under the Reduced Project Alternative.

Public Services – Fire Protection Services

Under the Reduced Project Alternative, the MSC North building would be smaller than the proposed Project with 3-4 fewer aircraft gates. Additionally, the Reduced Project Alternative would avoid impacting World Way West, the FAA navigational aids, an electrical industrial station, 3 RON parking spaces, the natural gas regulator, and the American Airlines Private Post. In addition to a reduced concourse facility, this alternative would also eliminate the tunnel for a future conveyance system, as well as Taxiway C14 and associated enabling projects, including: demolition of the U.S. Coast Guard facility; demolition of the U.S. Airways Maintenance facility; relocation of Electrical Vault #2; the removal of 5 RON aircraft parking spaces; and the relocation of the water deluge tank and pump station. With elimination of the tunnels and the reduction in size of the MSC North building, this alternative would have reduced impacts to fire protection services when compared to the proposed Project. As with the proposed Project, no significant impacts to fire protection services at LAX is expected to occur under the Reduced Project Alternative.

Construction Surface Transportation

Under the Reduced Project Alternative, the MSC North building would be smaller than the proposed Project with 3-4 fewer aircraft gates. Additionally, the Reduced Project Alternative would avoid impacting World Way West, the FAA navigational aids, an electrical industrial station, 3 RON parking spaces, the natural gas regulator, and the American Airlines Private Post. In addition to a reduced concourse facility, this alternative would also eliminate the tunnel for a future conveyance system, as well as Taxiway C14 and associated enabling projects, including: demolition of the U.S. Coast Guard facility; demolition of the U.S. Airways Maintenance facility; relocation of Electrical Vault #2; the removal of 5 RON aircraft parking spaces; and the relocation of the water deluge tank and pump station. Thus, this Alternative would have reduced impacts to surface transportation from construction activities when compared to the proposed Project. As discussed in Chapter 4.7, *Construction Surface Transportation*, the proposed Project would have a significant and unavoidable impact on two intersections during the peak period of the Project's construction phase. Because the peak period of the construction phase is primarily related to construction of the MSC North building, it is anticipated that implementation of the Reduced Project Alternative would still result in significant and unavoidable impacts with respect to construction surface transportation. However, the impact would be reduced when compared to the proposed Project.

5.5.1.3 Alternative 3: MSC South

Air Quality

Under Alternative 3: MSC South (MSC South Alternative), the southern portion of the MSC building would be constructed, which would have 2 fewer aircraft gates than the Proposed Project. Additionally, the MSC South Alternative would avoid impacting World Way West, the FAA navigational aids, an electrical industrial station, the natural gas regulator, the American Airlines Maintenance (Non-Power) shop, and the American Airlines leasehold parking.

The MSC South Alternative would result in construction emissions, but due to the reduced size of the project would be less than the proposed Project, as shown in **Table 5-4**. As discussed in Chapter 4.1, *Air Quality*, the proposed Project would result in a net increase in short-term and temporary emissions of criteria air pollutants associated with construction-related activities with a significant and unavoidable impact with respect to regional emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X. Although the MSC South Alternative would have less construction impacts than the proposed Project Alternative, the main elements contributing to the exceedance of regional emissions would still occur; including construction of the MSC South building and apron, Taxiway C14, and passenger and conveyance tunnels. As shown in Table 5-4, implementation of the MSC South Alternative would not avoid or substantially reduce significant impacts related to short-term and temporary emissions of criteria air pollutants that would otherwise occur under the proposed Project.

Table 5-4

MSC South Alternative Regional Construction Emissions

Pollutant	SCAQMD Threshold (lbs/day)	MSC North Project Peak Daily Emissions (lbs/day)[1]	Alternative 3: MSC South (lbs/day)
Carbon monoxide, CO	550	**1,290**	**964**
Volatile organic compounds, VOC	75	**135**	**102**
Nitrogen oxides, NO_X	100	**1,156**	**765**
Sulfur dioxide, SO_2	150	4	3
Respirable particulate matter, PM_{10}	150	**669**	**275**
Fine particulate Matter, $PM_{2.5}$	55	**172**	**65**

Note:
1 Values shown in bold indicate significant impacts.

Source: Ricondo & Associates, Inc., 2013.

The MSC South Alternative would result in emissions consistent with current levels and with future aircraft activity projections, which would be about the same as the emissions under the proposed Project on a long-term basis. As discussed in Chapter 4.1, *Air Quality*, operation of the proposed Project is not expected to generate new emissions associated with aircraft operations because the proposed Project will not increase or change the type of aircraft operations at LAX. Taxiing distances of some aircraft would decrease under the proposed Project when compared to the MSC South Alternative, as fewer operations would occur at the West Remote Gates/Pads. However, additional bus trips and ground support equipment (GSE) trips would occur under the proposed Project to transport passengers and their luggage between the MSC North and terminals within the CTA. Thus, the operational emissions under the MSC South Alternative would have similar emissions related to aircraft operations, slightly lower emissions related to on-airport bus and GSE trips, but slightly greater emissions from aircraft taxiing.

In summary, the MSC South Alternative would not avoid or substantially reduce the significant unavoidable impact that would occur under the proposed Project with respect to construction-related regional CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X emissions. With respect to regional operational emissions, the MSC South Alternative would be similar to the proposed Project; impacts would be less than significant.

Greenhouse Gases

Under the MSC South Alternative, the MSC building would be smaller than the proposed Project with 2 fewer aircraft gates. Additionally, the MSC South Alternative would avoid impacting World Way West, the FAA navigational aids, an electrical industrial station, the natural gas regulator, the American Airlines Maintenance (Non-Power) shop, and the American Airlines leasehold parking.

As discussed in Chapter 4.2, *Greenhouse Gas Emissions*, the proposed Project would result in a net increase in GHG emissions. The MSC South Alternative would also result in a net increase in emissions of GHGs, but total emissions would be slightly less due to the reduced size of the project, as shown in **Table 5-5**. The MSC South Alternative would be required to comply with the CALGreen and LAGBC Tier 1 standards for nonresidential buildings, which would reduce energy consumption, waste generation, and GHG emissions compared to similar buildings that do not meet the standards. The MSC South Alternative would result in operational greenhouse gas emissions associated with the MSC building; total emissions would be slightly less than the proposed Project due to the reduced size of the building but would not be substantially different since the electrical, heating, and cooling requirements of the MSC South building would still be substantial. While the MSC South Alternative would result in fewer total greenhouse gas emissions, when compared to the proposed Project, it is not anticipated that the MSC South Alternative would avoid or substantially reduce the significant unavoidable impact that would occur under the proposed Project with respect to greenhouse gas emissions.

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Table 5-5

Comparison of MSC South Alternative Greenhouse Gas Emissions to Proposed Project

Emission Source	2019 Future Without MSC North Project CO_2e (Metric Tons)	2019 Future With MSC North Project CO_2e (Metric Tons)	Alternative 3: MSC South CO_2e (Metric Tons)	Proposed Project Incremental Difference CO_2e (Metric Tons)	Alternative 3 Incremental Difference CO_2e (Metric Tons)
Aircraft [1]	772,056	770,528	772,056	-1,528	0
Ground Support Equipment [1]	34,269	34,188	34,269	-81	0
Busing Operations [1]	572	760	760	188	188
On-Airport Stationary [2]	9	347	291	338	282
Building Electricity [2]	191	5,525	4,688	5,334	4,497
Solid Waste Disposal [2]	17	92	92	75	75
Indoor Water Usage [2]	80	1,191	1,050	1,111	970
Construction (Amortized) [2]	-	5,015	4,160	5,015	4.160
Total Net	**807,194**	**817,646**	**817,366**	**10,452**	**10,172**
SCAQMD GHG Threshold for Industrial Projects				10,000	10,000
Above the Threshold?				**Yes**	**Yes**

Notes:
1 Total emissions for LAX.
2 Emissions for MSC North Project site only.

Source: Ricondo & Associates, Inc., 2013.

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Human Health Risk

The MSC South Alternative would result in changes to aircraft taxi patterns similar to the proposed Project; although with fewer gates, fewer aircraft operations would occur at the MSC South. However, because this Alternative also includes the construction of Taxiway C14, it is anticipated that the acute non-cancer hazard index for acrolein would be similar to that anticipated under the proposed Project. The provision of Taxiway C14 and Taxilane C12 would cause more crossfield taxi operations to occur, which would reduce acrolein concentrations around most of the airport, but would increase peak concentrations at some receptor locations to the north and south (see Figure 4.3-2 in Chapter 4.3, *Human Health Risk Assessment*). Thus, operational health impacts of this Alternative would be similar to the proposed Project. Implementation of the MSC South Alternative would not avoid or substantially reduce the significant unavoidable impact that would occur under the proposed Project with respect to the acute non-cancer hazard index for acrolein.

Noise

Under the proposed Project, operational noise sources would include aircraft taxiing to the MSC North site, which would have less than significant noise impacts. The MSC South Alternative would include similar changes to aircraft taxi paths, although with fewer gates and at a location south of the proposed MSC North building. Thus, there would be slightly fewer aircraft operations in this area of the airfield. However, as with the proposed Project, no significant noise impacts from aircraft operations at LAX is expected to occur under the MSC South Alternative.

Public Services – Fire Protection Services

Under the MSC South Alternative, the MSC South building would be smaller than the proposed Project with 2 fewer aircraft gates. Additionally, the MSC South Alternative would avoid impacting World Way West, the FAA navigational aids, an electrical industrial station, the natural gas regulator, the American Airlines Maintenance (Non-Power) shop, and the American Airlines leasehold parking. However, the MSC South Alternative would include new aircraft gates in the midfield area, tunnel(s) connecting the MSC South building to the CTA, and Taxiway C14. Thus, this Alternative would have similar impacts to fire protection services when compared to the proposed Project. As with the proposed Project, no significant impacts to fire protection services at LAX is expected to occur under the MSC South Alternative.

Construction Surface Transportation

Under the MSC South Alternative, the MSC South building would be smaller than the proposed Project with 2 fewer aircraft gates. Additionally, the MSC South Alternative would avoid impacting World Way West, the FAA navigational aids, an electrical industrial station, the natural gas regulator, the American Airlines Maintenance (Non-Power) shop, and the American Airlines leasehold parking. However, the MSC South Alternative would include new aircraft gates in the midfield area, tunnel(s) connecting the MSC South building to the CTA, and Taxiway C14. Thus, this Alternative would have similar impacts to construction surface transportation when compared to the Proposed Project. As discussed in Chapter 4.7, *Construction Surface Transportation*, the proposed Project would have a significant and unavoidable impact on two intersections during the Project's construction phase. Thus, it is anticipated that implementation of the MSC South Alternative would not avoid or substantially reduce the significant unavoidable impact that would occur under the proposed Project with respect to construction surface transportation.

5.5.1.4 Alternative 4: Terminal/Concourse 0

Air Quality

Under Alternative 4: Terminal/Concourse 0 (Terminal/Concourse 0 Alternative), the Project site would continue to be used for the American Airlines Maintenance (Non-Power) shop, the American Airlines leasehold parking American Airlines, RON/RAD aircraft parking north of the American Airlines High Bay Hangar, World Way West, FAA navigational aids, and electrical industrial stations. Under the Terminal/Concourse 0 Alternative, the provision of new aircraft gates in the midfield area at LAX that would be constructed under the proposed Project would not occur. Rather, Terminal/Concourse 0 would be constructed with up to 7 gates in the western portion of the area currently occupied by Park One, east of Terminal 1. This alternative would require the relocation of Sky Way (upper and lower roadways) eastward to allow development of the terminal and would also provide additional roadway and curbfront in the CTA. This alternative would also include the construction of Taxiway C14 and associated enabling projects, including: relocation of the U.S. Coast Guard facility; relocation of the U.S. Airways Maintenance facility; relocation of Electrical Vault #2; the relocation of 5 RON aircraft parking spaces; and the relocation of the water deluge tank and pump station.

The Terminal/Concourse 0 Alternative would result in construction emissions, but due to the reduced size of the project would be less than the proposed Project for all pollutants except for NO_X, as shown in **Table 5-6**. As discussed in Chapter 4.1, *Air Quality*, the proposed Project would result in a net increase in short-term and temporary emissions of criteria air pollutants associated with construction-related activities with a significant and unavoidable impact with respect to regional emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X. Although the Terminal/Concourse 0 Alternative would have less construction impacts than the proposed Project Alternative (for all criteria pollutants except NO_X), major construction elements contributing to the exceedance of regional emissions would still occur. This includes construction of the Terminal/Concourse 0 building and apron, Taxiway C14, and relocation of Sky Way. As shown in Table 5-6, implementation of the Terminal/Concourse 0 Alternative would not avoid or substantially reduce significant impacts related to short-term and temporary emissions of criteria air pollutants that would otherwise occur under the proposed Project.

Table 5-6

Terminal/Concourse 0 Regional Construction Emissions

Pollutant	SCAQMD Threshold (lbs/day)	MSC North Project Peak Daily Emissions (lbs/day)[1]	Alternative 4: Terminal/Concourse 0 (lbs/day)
Carbon monoxide, CO	550	**1,290**	**1,207**
Volatile organic compounds, VOC	75	**135**	**110**
Nitrogen oxides, NO_X	100	**1,156**	**1,224**
Sulfur dioxide, SO_2	150	4	3
Respirable particulate matter, PM_{10}	150	**669**	**334**
Fine particulate Matter, $PM_{2.5}$	55	**172**	**123**

Note:
1 Values shown in bold indicate significant impacts.

Source: Ricondo & Associates, Inc., 2014.

The Terminal/Concourse 0 Alternative would result in emissions consistent with current levels and with future aircraft activity projections, which would be about the same as the emissions under the proposed Project on a long-term basis. As discussed in Chapter 4.1, *Air Quality*, operation of the proposed Project is not expected to generate new emissions associated with aircraft operations because the proposed Project will not increase or change the type of aircraft operations at LAX. Taxiing distances of some aircraft would decrease under the proposed Project when compared to the Terminal/Concourse 0 Alternative, as fewer operations would occur at the West Remote Gates/Pads and aircraft would taxi to the midfield area, not the northeast corner of LAX. However, additional bus trips and ground support equipment (GSE) trips would occur under the proposed Project to transport passengers and their luggage between the MSC North and terminals within the CTA, which would not occur under the Terminal/Concourse 0 Alternative. Thus, the operational emissions under the Terminal/Concourse 0 Alternative would have similar emissions related to aircraft operations, lower emissions related to on-airport bus and GSE trips, but greater emissions from aircraft taxiing.

In summary, the Terminal/Concourse 0 Alternative would not avoid or substantially reduce the significant unavoidable impact that would occur under the proposed Project with respect to construction-related regional CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X emissions. With respect to regional operational emissions, the Terminal/Concourse 0 Alternative would be similar to the proposed Project; impacts would be less than significant.

Greenhouse Gases

Under the Terminal/Concourse 0 Alternative, the Project site would continue to be used for aircraft maintenance, RON/RAD aircraft parking, the U.S. Coast Guard facility, electrical substations, and the various other existing uses at the site. Under the Terminal/Concourse 0 Alternative, the provision of new aircraft gates in the midfield area at LAX would not occur. Rather, Terminal/Concourse 0 would be constructed with up to 7 gates in the western portion of the area currently occupied by Park One, east of Terminal 1. This alternative would require the relocation of Sky Way (upper and lower roadways) eastward to allow development of the terminal and would also provide additional roadway and curbfront in the CTA.

As discussed in Chapter 4.2, *Greenhouse Gas Emissions*, the proposed Project would result in a net increase in short-term and temporary GHG emissions associated with construction-related activities. The Terminal/Concourse 0 Alternative would also result in a net increase in short-term and temporary emissions of GHGs, but total emissions would be slightly less due to the reduced size of the project, as shown in **Table 5-7**. The Terminal/Concourse 0 Alternative would be required to comply with the CALGreen and LAGBC Tier 1 standards for nonresidential buildings, which would reduce energy consumption, waste generation, and GHG emissions compared to similar buildings that do not meet the standards. The Terminal/Concourse 0 Alternative would result in operational greenhouse gas emissions associated with the terminal building; however, total emissions would be less than the proposed Project due to the reduced size of the building, but would not be substantially different since the electrical, heating, and cooling requirements of the terminal building would still be substantial. The Terminal/Concourse 0 Alternative would result in fewer total greenhouse gas emissions, when compared to the proposed Project Alternative; it is anticipated that the Terminal/Concourse 0 Alternative would avoid the significant impact that would occur under the proposed Project with respect to greenhouse gas emissions.

Human Health Risk

The Terminal/Concourse 0 Alternative would result in changes to aircraft taxi patterns with more aircraft traveling to the northeast corner of LAX than they do today. However, because this Alternative also includes the construction of Taxiway C14, it is anticipated that the acute non-cancer hazard index for acrolein impacts to receptors north of the airport would be similar to that anticipated under the proposed Project, and would probably impact receptors located just east of the CTA due to the proximity of the airport property line to the Terminal/Concourse 0 site. Thus, operational health impacts of this Alternative would be similar to the proposed Project. Implementation of the Terminal/Concourse 0 Alternative would not avoid or substantially reduce the significant unavoidable impact that would occur under the proposed Project with respect to the acute non-cancer hazard index for acrolein.

Noise

Under the proposed Project, operational noise sources would include aircraft taxiing to the MSC North site, which would have less than significant noise impacts. The Terminal/Concourse 0 Alternative would include similar changes to aircraft taxi paths due to construction of Taxiway C14, but would also include introduction of aircraft taxi noise further east in the CTA adjacent to the Terminal/Concourse 0 site. However, as with the proposed Project, no significant noise impacts from aircraft operations at LAX is expected to occur under the Terminal/Concourse 0 Alternative.

Table 5-7

Comparison of Terminal/Concourse 0 Alternative Greenhouse Gas Emissions to Proposed Project

Emission Source	2019 Future Without MSC North Project CO_2e (Metric Tons)	2019 Future With MSC North Project CO_2e (Metric Tons)	Alternative 4: Terminal/Concourse 0 CO_2e (Metric Tons)	Proposed Project Incremental Difference CO_2e (Metric Tons)	Alternative 4 Incremental Difference CO_2e (Metric Tons)
Aircraft [1]	772,056	770,528	772,056	-1,528	0
Ground Support Equipment [1]	34,269	34,188	34,269	-81	0
Busing Operations [1]	572	760	572	188	0
On-Airport Stationary [2]	9	347	221	338	212
Building Electricity [2]	191	5,525	3,566	5,334	3.375
Solid Waste Disposal [2]	17	92	73	75	56
Indoor Water Usage [2]	80	1,191	808	1,111	728
Construction (Amortized) [2]	-	5,015	3,190	5,015	3,190
Total Net	**807,194**	**817,646**	**814,755**	**10,452**	**7,561**
SCAQMD GHG Threshold for Industrial Projects				10,000	10,000
Above the Threshold?				**Yes**	**No**

Notes:
1 Total emissions for LAX.
2 Emissions for MSC North Project site only.

Source: Ricondo & Associates, Inc., 2013.

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Public Services – Fire Protection Services

Under the Terminal/Concourse 0 Alternative, the proposed terminal building would be smaller than the proposed Project with 4 fewer aircraft gates. Additionally, the Project site would continue to be used for aircraft maintenance, RON/RAD aircraft parking, the U.S. Coast Guard facility, electrical substations, and the various other existing uses at the site. Under the Terminal/Concourse 0 Alternative, the provision of new aircraft gates in the midfield area at LAX that would be constructed under the proposed Project would not occur. Rather, Terminal/Concourse 0 would be constructed with up to 7 gates in the western portion of the area currently occupied by Park One, east of Terminal 1. This alternative would require the relocation of Sky Way (upper and lower roadways) eastward to allow development of the terminal and would also provide additional roadway and curbfront in the CTA. This Alternative may also eliminate the need for airside passenger conveyance tunnels. Thus, this Alternative is anticipated to have less impact to fire protection services than the proposed Project. As with the proposed Project, no significant impacts to fire protection services at LAX is expected to occur under the Terminal/Concourse 0 Alternative.

Construction Surface Transportation

Under the Terminal/Concourse 0 Alternative, the proposed terminal building would be smaller than the proposed Project with 4 fewer aircraft gates. Additionally, the Project site would continue to be used for aircraft maintenance, RON/RAD aircraft parking, the U.S. Coast Guard facility, electrical substations, and the various other existing uses at the site. Under the Terminal/Concourse 0 Alternative, the provision of new aircraft gates in the midfield area at LAX that would be constructed under the proposed Project would not occur. Rather, Terminal/Concourse 0 would be constructed with up to 7 gates in the western portion of the area currently occupied by Park One, east of Terminal 1. This alternative would require the relocation of Sky Way (upper and lower roadways) eastward to allow development of the terminal and would also provide additional roadway and curbfront in the CTA. Because there is limited open space available in this part of the airport, construction staging would have to occur in other areas of the airport, most likely north of the runway complex or in the Continental City area in the southeast corner of the airport.

As discussed in Chapter 4.7, *Construction Surface Transportation*, the proposed Project would have a significant and unavoidable impact on two intersections during the Project's construction phase (Imperial Highway and Main Street, and Sepulveda Boulevard and Westchester Parkway). The Sepulveda Boulevard and Westchester Parkway intersection would be impacted if construction staging occurred north of the runway complex; however, the Imperial Highway and Main Street intersection would most likely not be impacted under the Terminal/Concourse 0 Alternative. Thus, the Terminal/Concourse 0 Alternative would lessen but not avoid the significant unavoidable impact that would occur under the proposed Project with respect to construction surface transportation.

Hazards and Hazardous Materials

The Park One site was previously used for various manufacturing operations by Garrett AiResearch, which was subsequently purchased by AlliedSignal (now known as Honeywell). AlliedSignal sold the property in 1991, at which time it was converted into an asphalt-covered commercial parking lot that is currently operated under the name of Park One, also known as

"Park 'N Fly." Several investigation and remediation programs have been implemented at this site since 1989. The principal chemicals of concern (COCs) in soil and groundwater at the site include 1,1-dichloroethene (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), and 1,4-dioxane. VOCs and 1,4-dioxane have been detected in soil, soil gas, perched groundwater, and groundwater at the site. Soil vapor extraction at the site is estimated to have removed more than 100,000 pounds of VOCs between 1990 and 2011. Soil closure has been obtained for all portions of the site except the northwest quadrant.[2]

Ongoing remediation at this site consists of soil vapor extraction to remove VOCs using a granular activated carbon system and monitoring wells. Due to the extent of the VOC contamination associated with the Park One site, it is possible that remediation would still be underway when construction of Terminal/Concourse 0 would be initiated. Due to the extent of excavation needed for the Terminal/Concourse 0 improvements, it is likely that part, or all, of the remediation system would have to be removed during construction, if it was still operational. This would entail destruction of the extraction wells and removal of underground piping and aboveground vessels. Removing the active remediation system at Park One for an extended period would interfere with existing cleanup efforts. However, temporary cessation of remediation would not have any impacts on human health as groundwater beneath the site is not used for municipal purposes and contaminated soils lie beneath asphalt and would not be exposed.

The Terminal/Concourse 0 Alternative would have a greater impact on hazards and hazardous materials than the proposed Project, but with a commitment to continue remediation of the site, impacts to ongoing remediation efforts would be less than significant.

5.5.2 Future Phase(s) of the MSC Program

The alternatives discussed below were developed to identify alternatives that would avoid or substantially reduce the significant impacts of the future phase(s) of the MSC Program. All alternatives assume that the proposed MSC North Project is implemented.

5.5.2.1 Alternative 1: No Future Phase(s) of the MSC Program

Air Quality

Under Alternative 1: No Future Phase(s) of the MSC Program (No Future Phase(s) of the MSC Program Alternative), the MSC North building would not be expanded and the uses on the southern portion of the MSC site would continue for aircraft maintenance, RON/RAD aircraft parking, and the various other existing uses at the site. Additionally, CTA parking garages P2B and P5 would not be impacted. No additional short-term and temporary emissions of criteria air pollutants associated with construction-related activities would occur.

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2 Technical Memorandum from AMEC (David J. DeVries, Z. Xiong, and S. Warner) to Steve Rowe, California Water Quality Control Board, Los Angeles Region, "Pre-Feasibility Study Technical Memorandum for "Hot Spot" Soil and Groundwater Remediation, Former Honeywell Sepulveda Site, 9851 Sepulveda Boulevard, Los Angeles, California, SLIC Site No. 0346", August 31, 2012.

The No Future Phase(s) of the MSC Program Alternative would result in emissions consistent with current levels and with future aircraft activity projections, which would be about the same as the emissions under the proposed future phase(s) of the MSC Program on a long-term basis. As discussed in Chapter 4.1, *Air Quality*, operation of the future phase(s) of the MSC Program is not expected to generate new emissions associated with aircraft operations because the future phase(s) of the MSC Program would not increase or change the type of aircraft operations at LAX. Taxiing distances of some aircraft would decrease under the future phase(s) of the MSC Program when compared to the No Future Phase(s) of the MSC Program Alternative, as the West Remote Gates/Pads would be closed. The future phase(s) of the MSC Program would also include operation of an APM, eliminating busing of passengers between the MSC and the CTA. Thus, the operational emissions under the No Future Phase(s) of the MSC Program Alternative would have similar emissions related to aircraft operations, but greater emissions related to aircraft taxiing and on-airport bus and GSE trips.

Nonetheless, as the No Future Phase(s) of the MSC Program Alternative would not involve any construction, it would not have the likely significant unavoidable impact that would occur under the future phase(s) of the MSC Program with respect to construction-related regional CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X emissions. With respect to regional operational emissions, the No Future Phase(s) of the MSC Program Alternative would have higher emissions than the future phase(s) of the MSC Program, but impacts would likely be less than significant.

Greenhouse Gases

Under the No Future Phase(s) of the MSC Program Alternative, the MSC North building would not be expanded and the uses on the southern portion of the MSC site would continue for aircraft maintenance, RON/RAD aircraft parking, and the various other existing uses at the site. This Alternative would result in no net increase in short-term and temporary emissions of GHGs since additional construction would not occur.

On a long-term basis, the existing site facilities would continue to be used and would not be relocated. Maintenance and other activities would continue to occur at the existing facilities located on the southern portion of the MSC site, which were built prior to LAX's adoption of the Los Angeles Green Building Code Tier 1 standards and thus were not designed to meet the current energy efficiency standards. However, under the No Future Phase(s) of the MSC Program Alternative, the MSC North building would generate more greenhouse gas emissions than the existing facilities due to its size and function (see Section 4.2.6). While the operational emissions under No Future Phase(s) of the MSC Program Alternative would be less than the future phase(s) of the MSC Program, the operational emissions associated with the No Future Phase(s) of the MSC Program Alternative would still be significant.

Human Health Risk

The No Future Phase(s) of the MSC Program Alternative would have no health risk impact associated with construction since no additional construction would occur. Therefore, impacts would be less than the future phase(s) of the MSC Program. Health hazards during operation of the MSC North building (under the No Future Phase(s) of the MSC Program Alternative) would be the same as described in Section 4.3.6. This alternative would have less health impacts when compared to the future phase(s) of the MSC Program in regards to the acute non-cancer hazard index for acrolein, but would have impacts similar to the MSC North Project.

Noise

Under the No Future Phase(s) of the MSC Program Alternative, operational noise sources would include aircraft taxiing to the MSC North site, which would have less than significant noise impacts. The No Future Phase(s) of the MSC Program Alternative would not introduce any new sources of noise on the southern portion of the MSC site or within the surrounding vicinity; ambient noise levels at the site would remain similar to noise levels under the MSC North Project, consistent with typical noise levels from aircraft taxiing in the midfield area of the airport. Under the No Future Phase(s) of the MSC Program Alternative, more aircraft would taxi to and utilize the West Remote Gates/Pads than under the future phase(s) of the MSC Program. However, noise impacts from aircraft operations would be similar under both alternatives and would remain less than significant.

Public Services – Fire Protection Services

Under the No Future Phase(s) of the MSC Program Alternative, the future phase(s) of the MSC Program site would continue to be used for aircraft maintenance, RON/RAD aircraft parking, and the various other existing uses at the site. Under the No Future Phase(s) of the MSC Program Alternative, the provision of additional aircraft gates in the midfield area and a CTP in the CTA would not occur. As discussed in Chapter 4.5, *Public Services – Fire Protection Services*, the future phase(s) of the MSC Program would have a less than significant impact. As the No Future Phase(s) of the MSC Program Alternative would be the same as the MSC North Project, it would have similar impacts on existing fire protection services in the area; therefore, no significant impacts to fire protection services at LAX are expected to occur under the No Future Phase(s) of the MSC Program.

5.5.2.2 Alternative 2: Reduced Program – Fewer Gates

Air Quality

Under Alternative 2: Reduced Program – Fewer Gates (Reduced Program Alternative), the future phase(s) of the MSC Program would be reduced from a concourse with up to 29 gates to a concourse of up to 20 gates. However, any expansion of the MSC building would impact the American Airlines High Bay Hangar and would most likely necessitate installation and operation of an APM to the CTP.

The Reduced Program Alternative would result in construction emissions, but due to the reduced size of the project could be less than the future phase(s) of the MSC Program. As discussed in Chapter 4.1, *Air Quality*, the proposed MSC North Project would result in a net increase in short-term and temporary emissions of criteria air pollutants associated with construction-related activities with a significant and unavoidable impact with respect to regional emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X. It is assumed for purposes of this analysis that the future phase(s) of the MSC Program would have similar construction-related impacts as would the Reduced Program Alternative, albeit less than the future phase(s) of the MSC Program.

The Reduced Program Alternative would result in emissions consistent with current levels and with future aircraft activity projections, which would be about the same as the emissions under the future phase(s) of the MSC Program on a long-term basis. As discussed in Chapter 4.1, *Air*

Quality, operation of the future phase(s) of the MSC Program is not expected to generate new emissions associated with aircraft operations because the future phase(s) of the MSC Program will not increase or change the type of aircraft operations at LAX. Taxiing distances of some aircraft would decrease under the future phase(s) of the MSC Program when compared to the Reduced Program Alternative, as no operations would occur at the West Remote Gates/Pads. The future phase(s) of the MSC Program would also eliminate bus trips to transport passengers and some GSE trips to transport their luggage between the MSC and terminals within the CTA; however, the Reduced Program Alternative may continue usage of the West Remote Gates/Pads, which would necessitate continued busing of passengers and luggage between the West Remote Gates/Pads and the CTA. Thus, the operational emissions under the Reduced Program Alternative would have similar emissions related to aircraft operations, but slightly greater emissions related to on-airport bus and GSE trips, and aircraft taxiing.

In summary, the Reduced Program Alternative would not avoid or substantially reduce the likely significant unavoidable impact that would occur under the proposed Project with respect to construction-related regional CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X emissions. With respect to regional operational emissions, the Reduced Program Alternative would have similar but slightly higher impacts than the future phase(s) of the MSC Program.

Greenhouse Gases

Under the Reduced Program Alternative, the MSC building would be smaller than the proposed future phase(s) of the MSC Program by at least 9 fewer aircraft gates. The Reduced Program Alternative would result in a net increase in short-term and temporary emissions of GHGs due to construction activities, but total emissions would be slightly less than the future phase(s) of the MSC Program due to the reduced size of the program. The Reduced Program Alternative would be required to comply with the CALGreen and LAGBC Tier 1 standards for nonresidential buildings, which would reduce energy consumption, waste generation, and GHG emissions compared to similar buildings that do not meet the standards. The Reduced Program Alternative could result in operational greenhouse gas emissions associated with the MSC building; total emissions would be slightly less than the future phase(s) of the MSC Program due to the reduced size of the building but would not be substantially different since the electrical, heating, and cooling requirements of the MSC building would still be substantial. While the Reduced Program Alternative would result in fewer total greenhouse gas emissions, when compared to the future phase(s) of the MSC Program, it is not anticipated that the Reduced Program Alternative would avoid or substantially reduce the significant unavoidable impact that would occur under the future phase(s) of the MSC Program with respect to greenhouse gas emissions.

Human Health Risk

The Reduced Program Alternative would result in changes to aircraft taxi patterns similar to the future phase(s) of the MSC Program, although with fewer gates, fewer aircraft operations would occur at the MSC and operations may continue to occur at the West Remote Gates/Pads. Similar to the future phase(s) of the MSC Program, it is anticipated that the acute non-cancer hazard index for acrolein would exceed the significance threshold at some receptors. Thus, operational health impacts of this Alternative would be similar to the future phase(s) of the MSC Program. Implementation of the Reduced Program Alternative would not avoid or substantially reduce the significant unavoidable impact that would occur under the future phase(s) of the MSC Program with respect to the acute non-cancer hazard index for acrolein.

Noise

Under the future phase(s) of the MSC Program, operational noise sources would include aircraft taxiing to the MSC site, which would have less than significant noise impacts. The Reduced Program Alternative would include the same changes to aircraft taxi paths, although with fewer gates at the MSC, there would be fewer aircraft operations in this area of the airfield but continued aircraft operations at the West Remote Gates/Pads. As with the future phase(s) of the MSC Program, no significant noise impacts from aircraft operations at LAX is expected to occur under the Reduced Program Alternative.

Public Services – Fire Protection Services

Under the Reduced Program Alternative, the MSC building would be smaller than the future phase(s) of the MSC Program with at least 9 fewer aircraft gates. However, the Reduced Program Alternative would include additional aircraft gates in the midfield area, operation of the APM connecting the MSC building to the CTA, and the CTP. Thus, this Alternative would have similar impacts to fire protection services when compared to the future phase(s) of the MSC Program. As with the future phase(s) of the MSC Program, no significant impacts to fire protection services at LAX are expected to occur under the Reduced Program Alternative.

5.5.2.3 Alternative 3: No Central Terminal Processor/APM to Existing Terminal

Air Quality

Under Alternative 3: No Central Terminal Processor/APM to Existing Terminal (No CTP/APM to Existing Terminal Alternative), the future phase(s) of the MSC Program would include expansion of the MSC to up to 29 gates. However, under this Alternative, the CTP would not be constructed, but the underground APM system would be installed between the MSC and an existing terminal within the CTA.

The No CTP/APM to Existing Terminal Alternative would result in construction emissions, but due to the reduced size of the project would be less than the future phase(s) of the MSC Program. As discussed in Chapter 4.1, *Air Quality*, the proposed MSC North Project would result in a net increase in short-term and temporary emissions of criteria air pollutants associated with construction-related activities with a significant and unavoidable impact with respect to regional emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X. It is assumed for purposes of this analysis that the future phase(s) of the MSC Program would have similar construction-related impacts, as would the No CTP/APM to Existing Terminal Alternative since this alternative still includes the main components of the MSC Program (concourse, apron, and APM). However, construction-related impacts are expected to be less than the future phase(s) of the MSC Program.

The No CTP/APM to Existing Terminal Alternative would result in emissions consistent with current levels and with future aircraft activity projections, which would be about the same as the emissions under the future phase(s) of the MSC Program on a long-term basis. As discussed in

Chapter 4.1, *Air Quality*, operation of the future phase(s) of the MSC Program is not expected to generate new emissions associated with aircraft operations because the future phase(s) of the MSC Program would not increase or change the type of aircraft operations at LAX. Taxiing distances of aircraft under the future phase(s) of the MSC Program when compared to the No CTP/APM to Existing Terminal Alternative would be the same, as no operations would occur at the West Remote Gates/Pads. The No CTP/APM to Existing Terminal Alternative would eliminate bus trips to transport passengers and some GSE trips to transport luggage between the MSC and the CTA. Additionally, because this Alternative would not include construction of the CTP, it would result in fewer operational emissions (no emissions related to heating and cooling of the CTP). Thus, the operational emissions under the No CTP/APM to Existing Terminal Alternative would have similar emissions related to aircraft operations, and aircraft taxiing, but fewer emissions related to heating and cooling.

In summary, the No CTP/APM to Existing Terminal Alternative would not avoid or substantially reduce the likely significant unavoidable impact that would occur under the future phase(s) of the MSC Program with respect to construction-related regional CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X emissions. With respect to regional operational emissions, the No CTP/APM to Existing Terminal Alternative would have similar but less impacts than the future phase(s) of the MSC Program.

Greenhouse Gases

Under the No CTP/APM to Existing Terminal Alternative, the future phase(s) of the MSC Program would include expansion of the MSC to up to 29 gates. However, under this Alternative, the CTP would not be constructed but the underground APM system would be installed between the MSC and an existing terminal within the CTA. The No CTP/APM to Existing Terminal Alternative would result in a net increase in short-term and temporary emissions of GHGs due to construction activities, but total emissions would be less than the future phase(s) of the MSC Program due to the reduced size of the program. The No CTP/APM to Existing Terminal Alternative would be required to comply with the CALGreen and LAGBC Tier 1 standards for nonresidential buildings, which would reduce energy consumption, waste generation, and GHG emissions compared to similar buildings that do not meet the standards. The No CTP/APM to Existing Terminal Alternative would result in operational greenhouse gas emissions associated with the MSC building and APM, but would have no greenhouse gas emissions associated with the CTP. While the No CTP/APM to Existing Terminal Alternative would result in fewer total greenhouse gas emissions related to the elimination of the CTP, when compared to the future phase(s) of the MSC Program, it is not anticipated that the No CTP/APM to Existing Terminal Alternative would avoid or substantially reduce the significant unavoidable impact that would occur under the future phase(s) of the MSC Program with respect to greenhouse gas emissions.

Human Health Risk

The No CTP/APM to Existing Terminal Alternative would result in changes to aircraft taxi patterns similar to the future phase(s) of the MSC Program. Thus, similar to the future phase(s) of the MSC Program, it is anticipated that the acute non-cancer hazard index for acrolein would exceed the significance threshold at some receptors. Thus, operational health impacts of this Alternative would be similar to the future phase(s) of the MSC Program.

Noise

Under the future phase(s) of the MSC Program, operational noise sources would include aircraft taxiing to the MSC site, which would have less than significant noise impacts. The No CTP/APM to Existing Terminal Alternative would include the same changes to aircraft taxi paths. As with the future phase(s) of the MSC Program, no significant noise impacts from aircraft operations at LAX is expected to occur under the No CTP/APM to Existing Terminal Alternative.

Public Services – Fire Protection Services

Under the No CTP/APM to Existing Terminal Alternative, the future phase(s) of the MSC Program would include expansion of the MSC to up to 29 gates. However, under this Alternative, the CTP would not be constructed, but the underground APM system would be installed between the MSC and an existing terminal within the CTA. Thus, this Alternative would have similar impacts to fire protection services when compared to the future phase(s) of the MSC Program. As with the future phase(s) of the MSC Program, no significant impacts to fire protection services at LAX are expected to occur under the No CTP/APM to Existing Terminal Alternative

5.5.2.4 Alternative 4: No Central Terminal Processor/No APM

Air Quality

Under Alternative 4: No Central Terminal Processor/No APM (No CTP/No APM Alternative), the future phase(s) of the MSC Program would include expansion of the MSC to up to 29 gates. However, under this Alternative, the underground APM system between the MSC and the CTP or CTA would not be installed and the CTP would not be constructed.

The No CTP/No APM Alternative would result in construction emissions, but due to the reduced size of the project would be less than the future phase(s) of the MSC Program. As discussed in Chapter 4.1, *Air Quality*, the proposed MSC North Project would result in a net increase in short-term and temporary emissions of criteria air pollutants associated with construction-related activities with a significant and unavoidable impact with respect to regional emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X. It is assumed for purposes of this analysis that the future phase(s) of the MSC Program would have similar construction-related impacts associated with construction of the southern portion of the MSC, as would the No CTP/No APM Alternative, albeit less than the future phase(s) of the MSC Program.

The No CTP/No APM Alternative would result in emissions consistent with current levels and with future aircraft activity projects, which would be about the same as the emissions under the future phase(s) of the MSC Program on a long-term basis. As discussed in Chapter 4.1, *Air Quality*, operation of the future phase(s) of the MSC Program is not expected to generate new emissions associated with aircraft operations because the future phase(s) of the MSC Program will not increase or change the type of aircraft operations at LAX. Taxiing distances of aircraft under the future phase(s) of the MSC Program when compared to the No CTP/No APM Alternative would be the same, as no operations would occur at the West Remote Gates/Pads. The future phase(s) of the MSC Program would also eliminate bus trips to transport passengers and some GSE trips to transport luggage between the MSC and terminals within the CTA;

however, the No CTP/No APM Alternative would necessitate continued busing of passengers and luggage between the MSC and the CTA. Thus, the operational emissions under the No CTP/No APM Alternative would have similar emissions related to aircraft operations and aircraft taxiing, but much greater emissions related to on-airport bus and GSE trips. In fact, simulations of ground movements prepared for the MSC Program indicate that the number of bus trips and GSE trips required to support a 29-gate MSC would result in lengthy queues, congestion on the vehicle service roads, and potential delay to airfield operations due to the number of vehicles and trips required to transport passengers and luggage.

In summary, the No CTP/No APM Alternative would not avoid or substantially reduce the likely significant unavoidable impact that would occur under the future phase(s) of the MSC Program with respect to construction-related regional CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X emissions. With respect to regional operational emissions, the No CTP/No APM Alternative would have similar but higher impacts than the future phase(s) of the MSC Program due to increased busing and number of GSE trips.

Greenhouse Gases

Under the No CTP/No APM Alternative, the future phase(s) of the MSC Program would include expansion of the MSC to up to 29 gates. However, under this Alternative, the underground APM system between the MSC and the CTP or CTA would not be installed and the CTP would not be constructed. The No CTP/No APM Alternative would result in a net increase in short-term and temporary emissions of GHGs due to construction activities, but total emissions would be less than the future phase(s) of the MSC Program due to the reduced size of the program. The No CTP/No APM Alternative would be required to comply with the CALGreen and LAGBC Tier 1 standards for nonresidential buildings, which would reduce energy consumption, waste generation, and GHG emissions compared to similar buildings that do not meet the standards. The No CTP/No APM Alternative would result in operational greenhouse gas emissions associated with the MSC building; but would have no greenhouse gas emissions associated with the APM or CTP. However, the No CTP/No APM Alternative would necessitate continued busing of passengers and luggage between the MSC and the CTA resulting in greater greenhouse emissions. While the No CTP/No APM Alternative would result in fewer total greenhouse gas emissions related to the elimination of the APM and CTP, when compared to the future phase(s) of the MSC Program, it is not anticipated that the No CTP/No APM Alternative would avoid or substantially reduce the significant unavoidable impact that would occur under the future phase(s) of the MSC Program with respect to greenhouse gas emissions.

Human Health Risk

The No CTP/No APM Alternative would result in changes to aircraft taxi patterns similar to the future phase(s) of the MSC Program. Because the No CTP/No APM Alternative would result in continued (and increased) busing of passengers and transport of luggage via GSE, increased emissions associated with these trips would occur. Simulations of ground movements prepared for the MSC Program indicate that the number of bus trips and GSE trips required to support a 29-gate MSC would result in lengthy queues, congestion on the vehicle service roads, and potential delay to airfield operations due to the number of vehicles and trips required, which would also increase emissions and potential human health risks. Thus, similar to the future phase(s) of the MSC Program, it is anticipated that the acute non-cancer hazard index for acrolein would exceed the significance threshold at some receptors. Thus, operational health impacts of this Alternative would be similar to the future phase(s) of the MSC Program.

Noise

Under the future phase(s) of the MSC Program, operational noise sources would include aircraft taxiing to the MSC site, which would have less than significant noise impacts. The No CTP/No APM Alternative would include the same changes to aircraft taxi paths. As with the future phase(s) of the MSC Program, no significant noise impacts from aircraft operations at LAX is expected to occur under the No CTP/No APM Alternative.

Public Services – Fire Protection Services

Under the No CTP/No APM Alternative, the future phase(s) of the MSC Program would include expansion of the MSC to up to 29 gates. However, under this Alternative, the underground APM system between the MSC and the CTP would not be installed and the CTP would not be constructed. Because this Alternative would not include an operational underground APM, impacts to fire protection services would be less than those associated with the future phase(s) of the MSC Program. As with the future phase(s) of the MSC Program, no significant impacts to fire protection services at LAX are expected to occur under the this Alternative.

5.6 Environmentally Superior Alternative

5.6.1 MSC North Project

Section 15126.6(e)(2) of the CEQA Guidelines indicates that an analysis of alternatives to a proposed project shall identify an environmentally superior alternative among the alternatives evaluated in an EIR. The Guidelines also state that should it be determined that the No Project Alternative is the environmentally superior alternative, the EIR shall identify another environmentally superior alternative among the remaining alternatives. With respect to identifying an environmentally superior alternative among those analyzed in this Draft EIR, the range of feasible alternatives includes the No Project Alternative; the Reduced Project Alternative; the MSC South Alternative, and the Terminal/Concourse 0 Alternative. Impacts related to these alternatives are shown in **Table 5-8**.

Table 5-8

Significant Impacts of MSC North Project Alternatives

Resource Category	Proposed Project	Alternative 1: No Project	Alternative 2: Reduced Project	Alternative 3: MSC South	Alternative 4: Terminal/Concourse 0
AIR QUALITY					
Construction	Significant and Unavoidable (CO, VOC, NO_x, PM_{10}, $PM_{2.5}$)	**Less than significant**	Significant and Unavoidable (CO, NO_x)	Significant and Unavoidable (CO, VOC, NO_x, PM_{10}, $PM_{2.5}$)	Significant and Unavoidable (CO, VOC, NO_x, PM_{10}, $PM_{2.5}$)
Operations	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
GREENHOUSE GAS EMISSIONS					
Construction and Operations	Significant and Unavoidable	**Less than significant**	**Less than significant**	Significant and Unavoidable	**Less than significant**
HUMAN HEALTH RISK ASSESSMENT					
Construction	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Operations: Acute non-chronic hazard index for acrolein	Significant and Unavoidable	**Less than significant**	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
NOISE – Aircraft Taxi Noise					
Operations	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
PUBLIC SERVICES – Fire Protection Services					
Construction	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Operations	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
CONSTRUCTION SURFACE TRANSPORTATION					
Construction	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Cumulative	Significant and Unavoidable	**Less than significant**	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable

Source: Ricondo & Associates, Inc., 2013.

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The No Project Alternative is considered to be the overall environmentally superior alternative as it would avoid all construction and operational impacts of the proposed Project and is the only Alternative that would not have a significant unavoidable impact with respect to construction-related regional emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X, greenhouse gas emissions, construction traffic impacts, and the acute non-cancer hazard index for acrolein. However, this Alternative would not meet any of the objectives established for the proposed Project.

In accordance with the CEQA Guidelines requirement to identify an environmentally superior alternative other than the No Project Alternative, a comparative evaluation of the remaining alternatives indicates that the Reduced Project Alternative would be the environmentally superior alternative relative to the other Alternatives. Due to the reduced project size, compared to the proposed Project, the Reduced Project Alternative would result in less construction-related impacts to air quality, health risks, greenhouse gases, and construction surface transportation, and less greenhouse gas emissions related to operations. However, it would most likely have similar impacts related to the acute non-hazard index for acrolein.

It is important to note, while the Reduced Project Alternative is considered the environmentally superior alternative, it would not avoid the significant unavoidable impacts that would occur under the proposed Project with respect to construction-related regional emissions of CO and NO_X, construction traffic impacts and the acute non-cancer hazard index for acrolein. However, the environmentally superior Reduced Project Alternative would eliminate the significant and unavoidable impacts of construction-related regional emissions of VOC, PM_{10}, and $PM_{2.5}$, as well as greenhouse gas emissions, and would serve to incrementally reduce significant impacts of the proposed Project related to construction-related emissions of CO and NO_X, construction traffic impacts, and the acute non-cancer hazard index for acrolein.

The MSC South Alternative would result in similar environmental impacts compared to the proposed Project, but would have reduced emissions in comparison. Compared to the Reduced Project Alternative, it would have greater construction-related emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X, greenhouse gas emissions, construction traffic impacts, and the acute non-cancer hazard quotient for acrolein.

The Terminal/Concourse 0 Alternative would result in similar environmental impacts compared to the proposed Project, but would eliminate the significant and unavoidable impacts related to greenhouse gas emissions. Compared to the Reduced Project Alternative, it would have greater construction-related emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X, (yet less than the proposed Project); similar construction traffic impacts; and due to the proximity of Terminal/Concourse 0 to the airport property line and increased taxi operations in the northeast corner of the CTA, would have greater impacts related to the acute non-cancer hazard quotient for acrolein.

While the Reduced Project Alternative is considered the environmentally superior alternative, it would not fully support the proposed Project's objectives. The Reduced Project Alternative would provide reduced flexibility to accommodate existing demand for aircraft gates while modernizing other terminals at LAX, would limit the number of gates LAWA could close for renovation (by 3-4), and would reduce the number of passengers that would experience improved terminal operations, concessions, and passenger experience as more operations would continue to use the West Remote Gates/Pads. The Reduced Project Alternative would result in a longer period of time for the systematic implementation of the LAX Master Plan, resulting in longer overall construction periods and increased passenger inconvenience.

Therefore, although the Reduced Project Alternative is the environmentally superior alternative, it would have similar significant unavoidable impacts related to construction-related emissions of CO and NO_X, construction traffic impacts, and the acute non-cancer hazard index for acrolein. Furthermore, the Reduced Project Alternative would not fully support the objectives of the proposed Project.

5.6.2 Future Phase(s) of the MSC Program

With respect to identifying an environmentally superior alternative for the future phase(s) of the MSC Program among those analyzed in this Draft EIR, the range of feasible alternatives includes the No Future Phase(s) of the MSC Program Alternative; the Reduced Program Alternative; the No CTP/APM to Existing Terminal Alternative, and the No CTP/No APM Alternative. Impacts related to these alternatives are shown in **Table 5-9**.

The No Future Phase(s) of the MSC Program Alternative is considered to be the overall environmentally superior alternative as it would avoid all construction and operational impacts of the proposed Project and is the only Alternative that would not have a significant unavoidable impact with respect to construction-related regional emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X, greenhouse gas emissions, construction traffic impacts, and the acute non-cancer hazard index for acrolein. However, this Alternative would not meet any of the objectives established for the proposed future phase(s) of the MSC Program.

In accordance with the CEQA Guidelines requirement to identify an environmentally superior alternative other than the No Project Alternative, a comparative evaluation of the remaining alternatives indicates that the Reduced Program Alternative would be the environmentally superior alternative relative to the other Alternatives. Due to the reduced program size, compared to the proposed future phase(s) of the MSC Program, the Reduced Program Alternative would result in less construction-related impacts to air quality, health risks, greenhouse gases, and construction surface transportation, and less greenhouse gas emissions related to operations. However, it would most likely have similar impacts related to the acute non-hazard index for acrolein.

It is important to note, while the Reduced Program Alternative is considered the environmentally superior alternative, it would not avoid the significant unavoidable impacts that would occur under the proposed future phase(s) of the MSC Program with respect to construction-related regional emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X, greenhouse gas emissions, construction traffic impacts, and the acute non-cancer hazard index for acrolein. Environmental impacts would not be materially different between the proposed future phase(s) of the MSC Program and the Reduced Program Alternative. Accordingly, the environmentally superior Reduced Program Alternative would not eliminate any significant and unavoidable impacts, but would serve to incrementally reduce some of the significant impacts of the proposed future phase(s) of the MSC Program related to construction-related emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X, greenhouse gas emissions, construction traffic impacts, and the acute non-cancer hazard index for acrolein.

Table 5-9

Significant Impacts of Future Phase(s) of MSC Program Alternatives

Resource Category	Proposed Program	Alternative 1: No Future Phase(s)	Alternative 2: Reduced Program	Alternative 3: No CTP/APM to CTA	Alternative 4: No CTP/No APM
AIR QUALITY					
Construction	Significant and Unavoidable (CO, VOC, NO_x, PM_{10}, $PM_{2.5}$)	**Less than significant**	Significant and Unavoidable (CO, VOC, NO_x, PM_{10}, $PM_{2.5}$)	Significant and Unavoidable (CO, VOC, NO_x, PM_{10}, $PM_{2.5}$)	Significant and Unavoidable (CO, VOC, NO_x, PM_{10}, $PM_{2.5}$)
Operations	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
GREENHOUSE GAS EMISSIONS					
Construction and Operations	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
HUMAN HEALTH RISK ASSESSMENT					
Construction	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Operations: Acute non-chronic hazard index for acrolein	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable	Significant and Unavoidable
NOISE – Aircraft Taxi Noise					
Operations	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
PUBLIC SERVICES – Fire Protection Services					
Construction	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant
Operations	Less than significant	Less than significant	Less than significant	Less than significant	Less than significant

Source: Ricondo & Associates, Inc., 2014.

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The No CTP/APM to Existing Terminal Alternative would result in similar environmental impacts compared to the Reduced Program Alternative, and would not eliminate any significant and unavoidable impacts. Compared to the Reduced Program Alternative, it would have slightly greater construction-related emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X, greenhouse gas emissions, construction traffic impacts, and the acute non-cancer hazard index for acrolein.

The No CTP/No APM Alternative would result in similar environmental impacts compared to the Reduced Program Alternative, and would not eliminate any significant and unavoidable impacts. Compared to the Reduced Program Alternative, it would have similar construction-related emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X and greenhouse gas emissions; and reduced construction traffic impacts; but would have greater impacts related to operational air quality and greenhouse gas emissions due to the increased busing of passengers and GSE trips.

While the Reduced Program Alternative is considered the environmentally superior alternative, it would not fully support the proposed future phase(s) of the MSC Program objectives. The Reduced Program Alternative would provide reduced flexibility to accommodate existing demand for aircraft gates while modernizing other terminals at LAX, would limit the number of gates LAWA could close for renovation, and would reduce the number of passengers that would experience improved terminal operations, concessions, and passenger experience. It may also not provide sufficient gates to allow LAWA to close the West Remote Gates/Pads. The Reduced Program Alternative would result in a longer period of time for the systematic implementation of the LAX Master Plan, resulting in longer overall construction periods and increased passenger inconvenience.

Therefore, although the Reduced Program Alternative is the environmentally superior alternative, it would have similar significant unavoidable impacts related to construction-related emissions of CO, PM_{10}, $PM_{2.5}$, VOC, and NO_X, greenhouse gas emissions, construction traffic impacts, and the acute non-cancer hazard index for acrolein. Furthermore, the Reduced Program Alternative would not fully support the objectives of the proposed future phase(s) of the MSC Program.

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6.0 OTHER ENVIRONMENTAL CONSIDERATIONS

6.1 Significant Unavoidable Impacts

Section 15126.2(b) of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR) describe significant environmental impacts that cannot be avoided, including impacts that can be mitigated but not reduced to a less than significant level. Chapter 4 of this EIR provides detailed analyses of the environmental topics identified in the Initial Study, prepared in February 2013, as having the potential to result in significant impacts with implementation of the proposed MSC North Project and future phase(s) of the MSC Program. The following identifies the impacts that cannot be mitigated to a level that is less than significant.

Air Quality

- MSC North Project construction-related regional emissions of carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_X), respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).
- Cumulatively considerable contribution to significant cumulative construction-related air quality impacts, based on significant construction-related MSC North Project impacts.

Greenhouse Gases

- GHG emissions associated with construction and operation of the MSC North Project and the future phase(s) of the MSC Program.
- Cumulatively considerable contribution to significant cumulative GHG emissions for the MSC North Project and the future phase(s) of the MSC Program.

Human Health Risk Assessment

- Increased incremental acute non-cancer health hazards for acrolein to people living at or near the fence-line from operations of the MSC North Project and the future phase(s) of the MSC Program.
- Cumulatively considerable contribution to acute non-cancer hazards for acrolein for the MSC North Project and the future phase(s) of the MSC Program.

Construction Surface Transportation

- Cumulatively considerable contribution to MSC North Project construction-related impacts to two intersections.

In addition to identifying the significant unavoidable impacts of the proposed Project, Section 15126.2(b) of the CEQA Guidelines also requires a description of the reasons why the Project is being proposed, notwithstanding the significant unavoidable impacts associated with the Project. As discussed in Chapter 2, *Project Description*, the proposed MSC North Project would provide LAWA with the flexibility to accommodate existing demand for aircraft gates while modernizing other terminals at LAX and reducing reliance on the West Remote Gates/Pads. The MSC North Project would allow LAWA to modernize their existing facilities more effectively by providing gate flexibility to offset the operational impacts of other improvement and maintenance projects in the CTA. The new concourse facility would be designed to serve both domestic and international traffic and to accommodate all sizes of aircraft and would allow LAWA to close gates for renovation without reducing the number of existing gates.

The MSC North Project would provide hold room and concession facilities for passengers and improve the overall passenger experience at LAX, since it would reduce reliance on the West Remote Gates/Pads which have no passenger amenities. The MSC North Project is an element of the approved LAX Master Plan, and would facilitate the systematic implementation of the LAX Master Plan by providing terminal facilities that can be utilized while other terminal facilities are modernized in accordance with the approved Master Plan.

6.2 Irreversible Environmental Changes

According to the CEQA Guidelines, an EIR is required to evaluate significant irreversible environmental changes that would be caused by implementation of the proposed MSC North Project or future phase(s) of the MSC Program. Specifically, as stated in CEQA Guidelines Section 15126.2(c):

> "Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified."

The land proposed to be used for the MSC North Project and future phase(s) of the MSC Program is already dedicated to airport uses. However, construction of the proposed MSC North Project and any future phase(s) of the MSC Program would involve consumption of renewable and non-renewable resources for building materials, including: raw materials in steel; metals such as copper and lead; aggregate materials such as sand and stone used in concrete and asphalt; petrochemical construction materials such as plastics; and water.

Construction and operation of the MSC North Project and future phase(s) of the MSC Program would require energy resources such as electricity, natural gas, and various transportation-related fuels (fuel for construction equipment and machinery, and transportation fuel for construction workers and vendor deliveries). This would represent a loss of non-renewable resources, which are generally not retrievable.

The proposed MSC North Project and future phase(s) of the MSC Program would comply with the City of Los Angeles Green Building Code (LAGBC) Tier 1 requirements. Certain measures of note that would reduce the use of non-renewable resources include: compliance with enhanced construction waste reduction goals; exceeding the California Energy Code requirements by 15 percent; use of plumbing fixtures and fixture fittings to reduce the overall use of potable water within the building by 20 percent; and providing readily accessible areas for the depositing, storage, and collection of non-hazardous materials for recycling. The proposed Project would also comply with the Los Angeles World Airports (LAWA) policies and programs related to sustainability, which would reduce the use of non-renewable resources and are implemented on a project-specific and on an airport-wide basis. In addition, the LAGBC Tier 1 standards, which are applicable to all projects with a Los Angeles Department of Building and

Safety permit-valuation over $200,000, require the proposed MSC North Project and the future phase(s) of the MSC Program to implement a number of measures that would reduce criteria pollutant and greenhouse gas emissions. These include measures such as: further reduce vehicle and equipment idling times; comply with Tier 4 emission standards for non-road diesel equipment; retrofit existing diesel equipment with particulate filters and oxidation catalysts; replace aging equipment with new low-emission models; and consider the use of alternative fuels for construction equipment. LAWA will include in bid documents for the MSC North Project language specifying that contractors should use equipment on the MSC North Project that meets the most stringent emission requirements.

Operational activities associated with the proposed MSC North Project and future phase(s) of the MSC Program are not expected to increase the number or type of flights and/or aircraft operations at LAX. Furthermore, the proposed MSC North Project and future phase(s) of the MSC Program would also implement energy and water conservation measures, recycling of non-hazardous materials, and other sustainable strategies to the extent feasible. Therefore, the use of non-renewable resources would not result in significant irreversible changes to the environment.

6.3 Growth Inducing Impacts

Section 15126.2(d) of the CEQA Guidelines requires an EIR to discuss the ways the proposed Project could foster economic or population growth or the construction of additional housing, directly or indirectly, in the surrounding environment. Growth-inducing impacts include the removal of obstacles to population growth, and the development and construction of new service facilities that could significantly affect the environment individually or cumulatively. In addition, growth must not be assumed as beneficial, detrimental, or of little significance to the environment.

6.3.1 Project Characteristics

The proposed MSC North Project would provide LAWA with the flexibility to accommodate existing demand for aircraft gates while implementing maintenance and/or enhancement/modernization activities at other terminals at LAX and reducing reliance on the West Remote Gates/Pads. The proposed MSC North Project would not change the number or type of flights and/or aircraft operations at LAX.

6.3.2 Economic Growth

Implementation of the MSC North Project and the future phase(s) of the MSC Program may directly or indirectly foster economic growth. As the international gateway to the western United States, LAX has long been a major supporter of the Southern California economy through employment and generation of taxes and other revenue, and by facilitating the efficient movement of people, goods, and services. As the MSC North building and the facilities associated with the future phase(s) of the MSC Program would increase the building square footage within LAX, it may provide a modest increase in long-term employment opportunities for airline personnel, maintenance and janitorial staff, concessionaires, and bus operators, as well as security screening, and baggage claim or ticketing/check-in agents.

Construction activity associated with the MSC North Project and the future phase(s) of the MSC Program would also directly and indirectly foster economic growth over the multi-year construction period in terms of temporary construction workers, spending by workers, and the provision of goods and services in support of construction.

6.3.3 Removal of an Impediment to Growth

The proposed MSC North Project and the future phase(s) of the MSC Program would not increase the number or type of flights and/or aircraft operations, and would not cause LAX to grow beyond what has been evaluated and approved under the LAX Master Plan. In addition, the proposed MSC North Project and future phase(s) of the MSC Program would not provide new access to an area that is undeveloped since the site is located within an area of the airport that is in active use, including use as a staging area for airport construction projects. Furthermore, the Project is located within the originally designated areas for the "West Satellite Concourse" pursuant to the LAX Master Plan.

6.3.4 Development or Encroachment into an Isolated Open Space

Development can be considered growth inducing when it is not contiguous to existing urban development and introduces development into open space areas. The proposed MSC North Project site is situated within the western portion of LAX immediately west of the Tom Bradley International Terminal (TBIT). The future phase(s) of the MSC Program is located on the same project site, and within the Central Terminal Area (CTA). The Project and Program sites are within the LAX airport boundary and currently used exclusively for airport uses. Therefore, development of the proposed MSC North Project and future phase(s) of the MSC Program would occur in an existing developed area and would not introduce new development into an undeveloped or open space area.

6.3.5 Precedent Setting Action

The proposed MSC North Project would relocate where existing passengers board/deboard at LAX. The proposed MSC North Project would not encourage or facilitate new activities that do not already occur at the airport, or that have not been anticipated and accounted for under the LAX Master Plan. The proposed MSC North Project would not cause population growth or construction of new housing. Therefore, it would not establish a precedent for unanticipated growth.

6.4 Less Than Significant Effects

This EIR concludes that construction-related air quality impacts associated with localized emissions, odors, and operational air quality impacts would be less than significant. In addition, construction and operational impacts on noise, public services – fire protection services, and on-airport surface transportation would be less than significant, as documented in Chapter 4, *Environmental Impact Analysis*.

In addition, an Initial Study (IS) was prepared for the proposed MSC North Project and future phase(s) of the MSC Program. Based on the analysis contained in the IS, LAWA determined that the proposed MSC North Project and future phase(s) of the MSC Program would result in "not significant" or "less than significant" environmental impacts in the following subject areas:

- Aesthetics;
- Agricultural Resources;
- Biological Resources;
- Cultural Resources;
- Geology and Soils;
- Hazards and Hazardous Materials;
- Hydrology and Water Quality;
- Land Use and Planning;
- Mineral Resources;
- Population and Housing;
- Recreation;
- Public Services – police protection, schools, parks, and other public facilities ; and
- Utilities.

Since the impacts of the proposed MSC North Project and the future phase(s) of the MSC Program with respect to these subject areas were determined to be either "not significant" or "less than significant," these environmental topics were not evaluated further in this Draft EIR. This methodology is consistent with CEQA Guidelines Section 15063(c)(3). Pursuant to *CEQA Guidelines* Section 15128, the various possible Project and Program effects found not to be significant are discussed in the Initial Study, attached to this EIR as Appendix A. During the NOP public comment period, LAWA received a request to analyze the potential impacts of aircraft noise from changes to taxi routes that would occur as a result of the proposed MSC North Project; thus, taxiway noise is also evaluated in this Draft EIR. No additional potentially significant impacts were identified during the circulation of the Notice of Preparation (NOP) for public and agency comments.

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Chapter 7 contains the following information:

- List of Preparers
- List of Parties to Whom Sent
- List of References
- NOP Comments
- List of Acronyms

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7.4 NOP Comments

A Notice of Preparation (NOP) for the Midfield Satellite Concourse North Project Draft EIR was published on February 8, 2013. The public comment period concluded on March 11, 2013. Comment letters received from public are listed below. Copies of the February 8, 2013 NOP and the comment letters received are included in Appendix A.

Agency/Contact	**Date**
South Coast Air Quality Management District / Ian MacMillan	February 22, 2013
Shute, Mihaly and Weinberger, LLP (City of El Segundo) / Joseph Petta	March 11, 2013
Alliance for a Regional Solution to Airport Congestion (ARSAC) / Robert Acherman	March 11, 2013
Alliance for a Regional Solution to Airport Congestion (ARSAC) / Denny Schneider	March 11, 2013
Drollinger Properties / Andy Loos	March 11, 2013

7.5 List of Acronyms

§	Section/Paragraph
°C	Degrees Celsius
°F	Degrees Fahrenheit
A/C	Advisory Circular
AAM	annual arithmetic mean
AB	Assembly Bill
ADD	average daily dose
ADG	Airplane Design Group
AEP	Association of Environmental Professionals
AEP	Airport Emergency Plan
AERMOD	AMS/EPA Regulatory Model
AERMET	Meteorological data preprocessor for AERMOD
Airport	Los Angeles International Airport
ALP	Airport Layout Plan
AOA	Air Operations Area
APM	Automated People Mover
APU	Auxiliary Power Units
AQMPs	Air Quality Management Plans
ARFF	Aircraft Rescue and Fire Fighting
ASDE	Airport Surface Detection Equipment
ATCM	Air Toxics Control Measture
ATCS	Expand ITS and Adaptive Traffic Control Systems
ATCT	Airport Traffic Control Tower
AvGas	Aviation Gasoline
BMP	Best Management Practice
BOAC	Board of Airport Commissioners
BOD	Basis of Design
BWP	Bradley West Project
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards

CalEEMod	California Emissions Estimator Model
CalEPA	State of California Environmental Protection Agency
CALM	Coordination and Logistic Management
CalOSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBA	Community Benefits Agreement
CCA	California Coastal Act
CCAR	California Climate Action Registry
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDHS	California Department of Health Services
CEC	California Energy Commission
CEIDARS	California Emission Inventory and Reporting System
CEQA	California Environmental Quality Act
CFC	chlorofluorocarbon
cfs	cubic feet per second
CFR	Code of Federal Regulations
CFTP	Crossfield Taxiway Project
CH_4	methane
CMA	Critical Movement Analysis
CMP	Congestion Management Program
CNEL	Community Noise Equivalent Level
CNG	Compressed natural gas
CNRA	California Natural Resources Agency
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
COC	Chemicals of Concern
COS	Central Outfall Sewer
CTA	Central Terminal Area
CTP	Central Terminal Processor

CUP	Central Utility Plant
CUP-RP	Central Utility Plant – Replacement Project
dB	decibels
dBA	A-weighted decibel
DDFS	design day flight schedules
DNL	Day Night Average Sound Level
DPF	diesel particulate filter
DPM	diesel particulate matter
EA	Environmental Assessment
EDMS	Emissions and Dispersion Modeling System
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMP	Emergency Management Panel
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
GAO	General Accounting Office
GCC	Global Climate Change
GHG	greenhouse gas
GRI	Global Reporting Initiative
GRP	Global Reporting Protocol
GSE	Ground Support Equipment
GTC	Ground Transportation Center
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
HHRA	Human Health Risk Assessment
HI	Hazard Index
hp	horsepower
HVAC	Heating, ventilation, and air conditioning
Hz	hertz
ICLEI	International Council for Local Environmental Initiatives
INM	Integrated Noise Model

IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
LACDWP	Los Angeles County Department of Public Works
LACFD	Los Angeles County Fire Department
LACMTA	Los Angeles County Metropolitan Transportation Authority
LACSD	Los Angeles County Sheriff's Department
LADBS	Los Angeles Department of Building and Safety
LADD	Lifetime Average Daily Dose
LADOT	City of Los Angeles Department of Transportation
LADWP	Los Angeles Department of Water and Power
LAFD	Los Angeles Fire Department
LAGBC	Los Angeles Green Building Code
LAMC	Los Angeles Municipal Code
LAPD	Los Angeles Police Department
LAX	Los Angeles International Airport
LAXFUEL	Los Angeles International Airport Fuel Facility
LAX MP-MPAQ	Los Angeles International Airport Master Plan – Mitigation Plan for Air Quality
LAXPD	Los Angeles International Airport Police Department
LAWA	Los Angeles World Airports
LAWAPD	LAWA Police Division
LCFS	Low Carbon Fuel Standard
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design
L_{eq}	Equivalent Sound Level
LGOP	Local Government Operations Protocol
L_{max}	Maximum Noise Level
LID	Low Impact Development
LOS	Level of Service
LSAG	LAWA Sustainable Airport Planning, Design and Construction Guidelines for Implementation on All Airport Projects
LST	localized significance threshold

LTO	landing-takeoff
MAP	million annual passenger
MATES	Multiple Air Toxics Exposure Study
MEI	maximally exposed individual
mg/m^3	milligram per cubic meter
MM	mitigation measure
MMRP	Mitigation Monitoring and Reporting Program
Mph	miles per hour
MPO	Metropolitan Planning Organization
MSC	Midfield Satellite Concourse
MT	metric tons
NAAQS	National Ambient Air Quality Standards
NAVAIDS	Navigation Aids
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NHTSA	National Highway Traffic Safety Administration
NLA	New Large Aircraft
NO	nitric oxide
NO_2	nitrogen dioxide
N_2O	nitrous oxide
NOP	Notice of Preparation
NOTAM	Notice to Airmen
NOx	oxides of nitrogen
O_3	ozone
O&D	origin and destination
OCC	Operations Control Center
OEHHA	California Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OLM	Ozone Limiting Method
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Act

Pb	Lead
PCE	passenger car equivalents
PEL-TWAs	time-weighted average permissible exposure levels
PFCs	perfluorocarbons
PM	particulate matter
PM_{10}	particulate matter equal to less than 10 microns in diameter
$PM_{2.5}$	particulate matter equal to less than 2.5 microns in diameter
PMAD	peak month average day
POV	privately-owned vehicles
ppb	parts per billion
ppm	parts per million
PVMRM	Plume Volume Molar Ratio Method
RCB	reinforced concrete box
RCV	recycled content value
RELs	reference exposure levels
RMST	Root Mean Square Test
ROG	reactive organic gases
RON	Remain overnight
RPS	Renewable (Energy) Portfolio Standard
RSA	Runway Safety Area
RTAC	Regional Targets Advisory Committee
RTP/SCS	Regional Transportation Plan / Sustainability Communities Strategy
RTR	Remote Transmitter / Receiver
RWQCB	Regional Water Quality Control Board
SAIP	South Airfield Improvement Project
SAR	search and rescue
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SEL	Sound Exposure Level
SF_6	sulfur hexafluoride

SIMMOD	Airport simulation models
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_X	oxides of sulfur
SRA	Source Receptor Area
SPAS	Specific Plan Amendment Study
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TBIT	Tom Bradley International Terminal
TSA	Transportation Security Administration
TSR	Transportation Security Regulation
TWA	Trans World Airlines
$\mu g/m^3$	micrograms per cubic meter
UFC	Uniform Fire Code
UNFCC	United Nations Framework Convention on Climate Change
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
V/C	volume/capacity
VMT	vehicle miles travels
VOC	Volatile Organic Compound
WAMA	West Aircraft Maintenance Area
WQBELs	Water Quality- Based Effluent Limitations
ZEV	zero emission vehicles