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***DRAFT ENVIRONMENTAL ASSESSMENT AND  
DRAFT GENERAL CONFORMITY  
DETERMINATION***

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***VOLUME 2: APPENDICES A-G***

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LOS ANGELES INTERNATIONAL AIRPORT (LAX)  
LANDSIDE ACCESS MODERNIZATION PROGRAM

Los Angeles International Airport  
Los Angeles, Los Angeles County, California

*Prepared for:*

**LOS ANGELES WORLD AIRPORTS**

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

As lead Federal Agency pursuant to the National Environmental Policy Act of 1969

*Prepared by:*

Ricondo and Associates, Inc.

**August 2017**

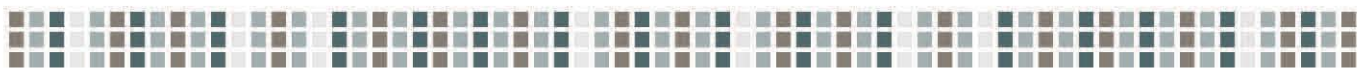






## **Appendix A**

### Project Design Features and Enabling Projects









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# Appendix A Project Design Features and Enabling Projects

Project elements identified in this appendix include project design features (elements incorporated as part of the project to minimize environmental effects of the Proposed Action) and enabling projects (those facilities affected by the Proposed Action).

## A.1 Project Design Features

**Table A-1** identifies proposed intersection improvements roadway corridor improvements, and Intelligent Transportation System (ITS) improvements; these proposed improvements are shown in **Figures A-1, A-2, and A-3**, respectively.

Intelligent Transportation Systems (ITS) have been tested and implemented along major travel corridors in numerous major metropolitan areas including the City of Los Angeles, County of Los Angeles, and others. This enhanced traffic control system includes a computer-based traffic signal control program that provides fully responsive traffic signal control based on real-time traffic conditions. It automatically adjusts and optimizes traffic signal timing in response to current traffic demands on the entire signal network such that the number of stops and the amount of delay is minimized along with improved traffic signal coordination throughout the network.

An ITS is a fully responsive, real-time system. In order for that to be achieved, it must be provided with sufficient data to be effective and to make appropriate decisions regarding signal timing. Therefore, ITS requires additional vehicle sensors; computer hardware and networking; an upgrade in the communication system; and ideally, vehicle sensors on all approaches to all intersections in the sub-system. With the pertinent traffic data (number of vehicles) obtained from these sensors placed in advance of the intersections, the signal timing is adjusted to accommodate the prevailing conditions. Studies have shown that the benefit to traffic flow resulting from implementation of such a system is an improvement in the capacity of intersections in the corridor by 10 percent.



**Table A-1 (1 of 2): Project Design Features**

ROADWAY SEGMENT/INTERSECTION	DESCRIPTION
<b>Intersection Improvements</b>	
Airport Boulevard and Century Boulevard	A signal modification to include a southbound right-turn overlap arrow, allowing right-turning vehicles to proceed at the same time the eastbound left-turn turn arrow is green.
Arbor Vitae Street and Concourse Way-Isis Avenue	Align the extension of Concourse Way to be directly across from Isis Avenue (north of Arbor Vitae Street) and install a traffic signal of the intersection of Isis Avenue/Concourse Way and Arbor Vitae Street. The provision of a traffic signal at this location will allow left-turn movement in and out of Concourse Way.
La Cienega Boulevard and Arbor Vitae Street	Provide a second eastbound left-turn lane and contribute to design and implementation of signal system improvement. The eastbound approach will be restriped to have one left-turn lane, a shared left-through lane, one through lane and a separate right-turn lane.
La Cienega Boulevard and Century Boulevard	Restripe this intersection to provide northbound and southbound dual left-turn lanes and provide a separate westbound right-turn lane. The northbound approach will be restriped within existing right-of-way to provide dual left-turn lanes, two through lanes and two right-turn lanes. The southbound approach will be restriped from one left-turn lane, two through lanes and two right-turn lanes to dual-left-turn lanes, two through lanes and one right-turn lane. The existing westbound shared through-right turn lane will be restriped to a right-turn lane only. The westbound approach will have a left-turn lane, three through lanes and a separate right-turn lane.
La Cienega Boulevard and Florence Avenue	Contribute to design and implementation of signal system improvement.
Inglewood Avenue and Century Boulevard	Contribute to design and implementation of signal system improvement.
Intersection of I-105 Freeway Ramps (east of Aviation Boulevard) and Imperial Highway	Modify the design for the new 'C' Street being proposed between 111th Street and Imperial Highway to provide a separate right-turn lane on the southbound approach to Imperial Highway.
La Cienega Boulevard and Manchester Boulevard	LAWA will contribute to design and implementation of signal system improvement.
Sepulveda Boulevard and Century Boulevard	Restripe the westbound right-turn lane into a third left-turn. The westbound approach will have three left-turn lanes and one right-turn lane.
La Brea Avenue/Hawthorne Boulevard and Century Boulevard	Widen Century Boulevard to accommodate a second left-turn lane on the eastbound and westbound approaches.



**Table A-1 (2 of 2): Project Design Features**

ROADWAY SEGMENT/INTERSECTION	DESCRIPTION
<b>Roadway Corridor Improvements</b>	
I-405 Northbound Auxiliary Lane	LAWA will work with Caltrans to fund an added auxiliary lane along northbound I-405 between El Segundo Boulevard on-ramp and the Imperial Highway off-ramp. This improvement would require widening the I-405 northbound roadway between the limits noted above including potentially widening the bridge over 120th Street.
Imperial Highway off-ramp	LAWA will work with Caltrans to fund the widening of the off-ramp to two lanes at the exit from the I-405 northbound lanes and carrying the widening to the ramp junction at Imperial Highway to provide two left-turn lanes and a separate right-turn lane.
La Cienega Boulevard Additional Lane	LAWA shall work with the affected jurisdiction(s) to reconstruct the median along certain stretches of La Cienega Boulevard to allow for a third northbound travel lane between Imperial Highway and Century Boulevard during the peak periods, by restricting parking on the east side of the street.
<b>Intelligent Transportation Signal System Improvements</b>	
City of Inglewood: <ul style="list-style-type: none"> <li>• La Cienega Boulevard and Florence Avenue</li> <li>• La Cienega Boulevard and Manchester Boulevard</li> <li>• La Cienega Boulevard and Arbor Vitae Street</li> <li>• La Cienega Boulevard and Century Boulevard</li> <li>• Century Boulevard and I-405 Northbound on- and off-ramps</li> <li>• Century Boulevard and Inglewood Avenue</li> <li>• Century Boulevard and La Brea Avenue/Hawthorne Boulevard</li> </ul>	LAWA shall implement intersection improvements consisting of signal system and phasing enhancements, including a monetary contribution to design and implementation of an Intelligent Transportation System (ITS) improvement along various key travel corridors within the City of Inglewood.
City of Los Angeles: <ul style="list-style-type: none"> <li>• Sepulveda Boulevard and Manchester Avenue</li> <li>• Sepulveda Boulevard and La Tijera Boulevard</li> <li>• Sepulveda Boulevard and Westchester Parkway</li> <li>• Sepulveda Boulevard and Lincoln Boulevard</li> <li>• Sepulveda Boulevard and Century Boulevard</li> <li>• Sepulveda Boulevard and I-105 Freeway Ramps</li> <li>• Sepulveda Boulevard and Imperial Highway</li> </ul>	Closed Circuit TV (CCTV) Cameras.
Key access corridors to LAX, including Sepulveda Boulevard, La Cienega Boulevard, and Century Boulevard.	Changeable Message Signs (CMS) to help reduce traffic congestion by providing real-time traffic information and predictive time information.

SOURCE: Los Angeles World Airports, *LAX Landside Access Modernization Program, Draft Environmental Impact Report*, September 2016; Los Angeles World Airports, *LAX Landside Access Modernization Program, Final Environmental Impact Report*, February 2017.

PREPARED BY: Ricondo & Associates, Inc., November 2016.

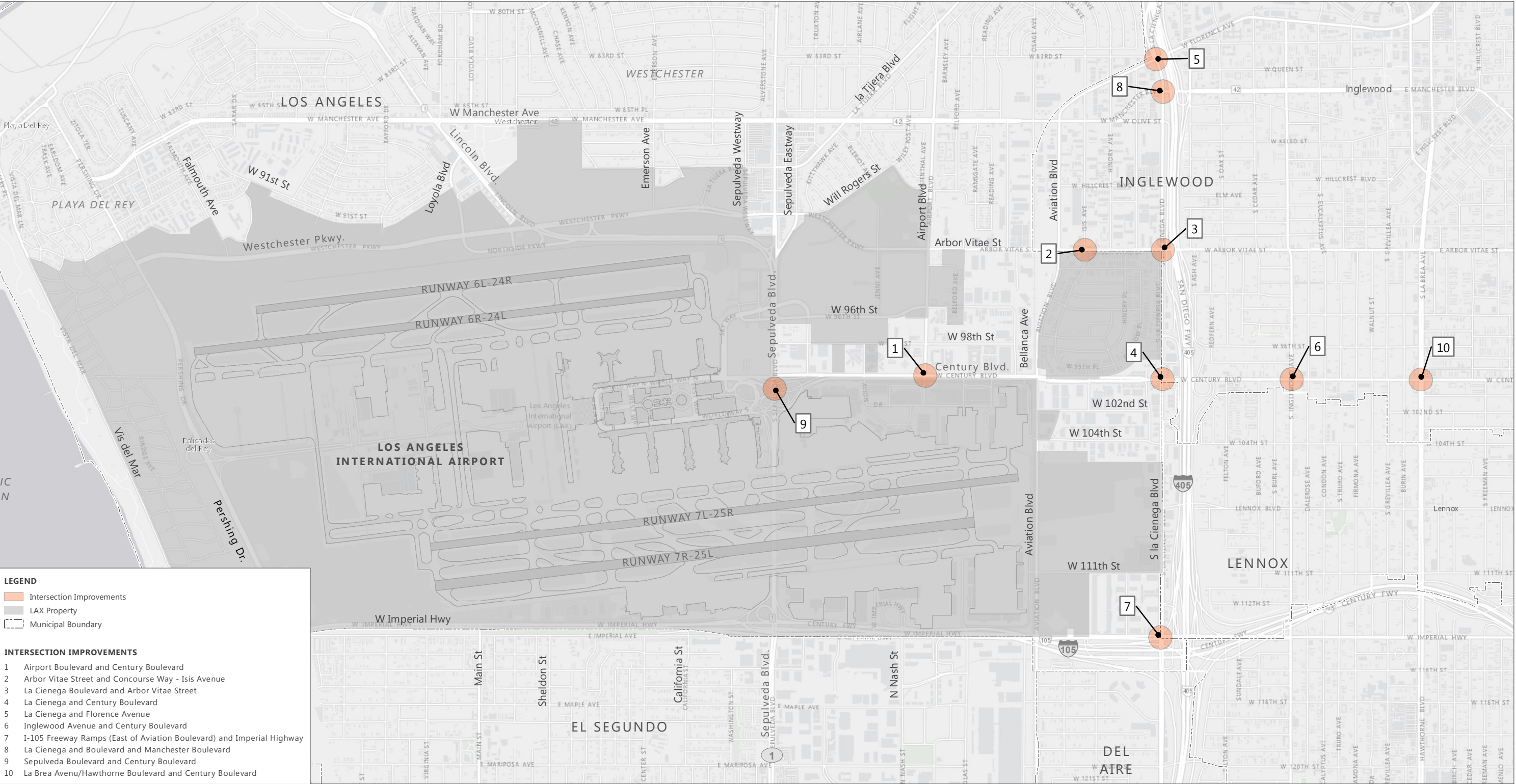


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[Preliminary Draft for Discussion Purposes Only]



SOURCE: City of Los Angeles, Los Angeles World Airports, Los Angeles International Airport Landside Access Modernization Program Draft Environmental Impact Report, September 15, 2016.  
PREPARED BY: Ricondo & Associates, Inc., May 2017.

FIGURE A-1



Intersection Improvements



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[Preliminary Draft for Discussion Purposes Only]



SOURCE: City of Los Angeles, Los Angeles World Airports, Los Angeles International Airport Landside Access Modernization Program Draft Environmental Impact Report, September 15, 2016.  
PREPARED BY: Ricondo & Associates, Inc., May 2017.

FIGURE A-2

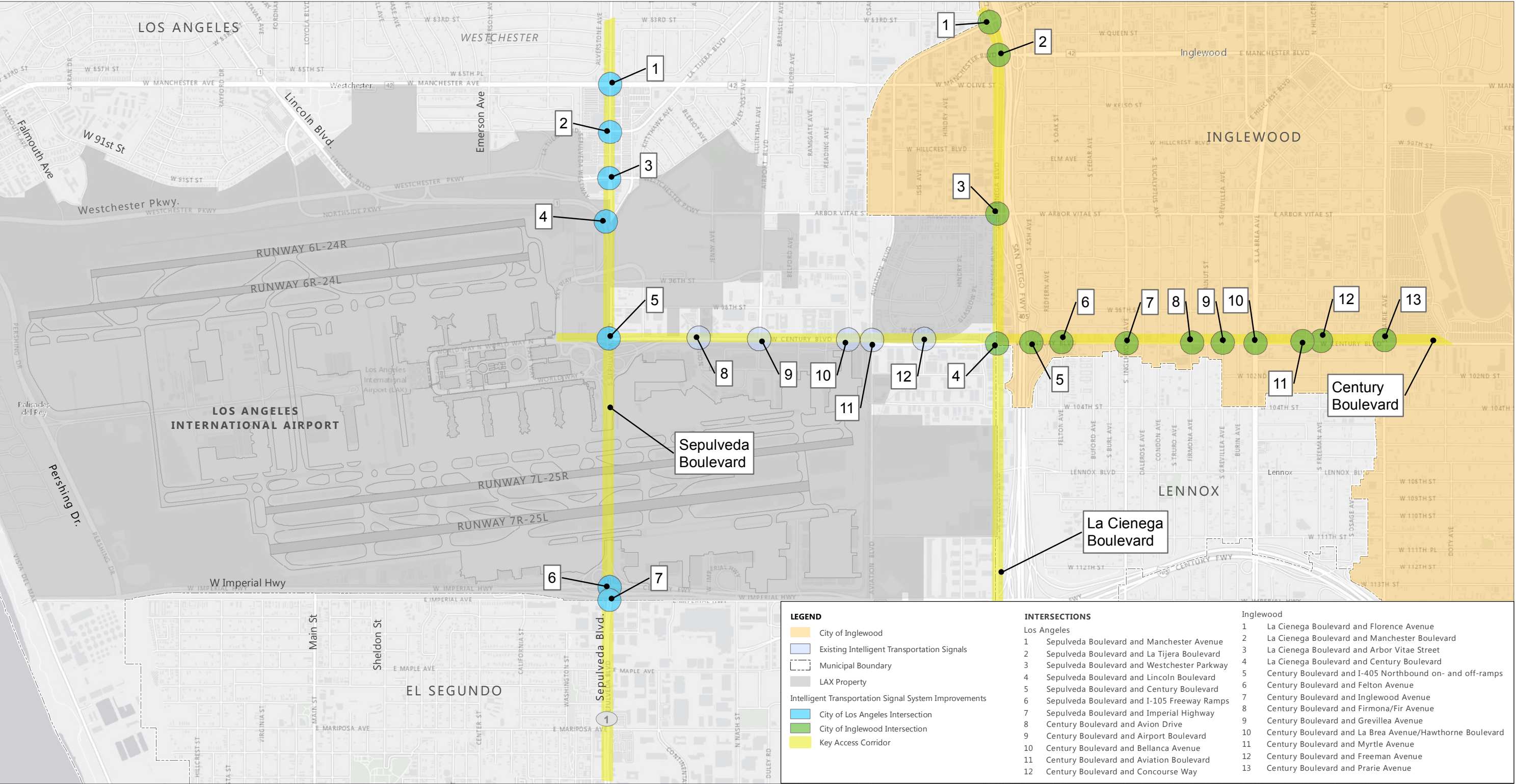
Roadway Corridor Improvements



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SOURCE: City of Los Angeles, Los Angeles World Airports, Los Angeles International Airport Landside Access Modernization Program Draft Environmental Impact Report, September 15, 2016.  
PREPARED BY: Ricondo & Associates, Inc., May 2017.

FIGURE A-3



Intelligent Transportation Signal System Improvements



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An integral part of the real-time operation of the traffic signal timings is the strategic placement of closed circuit TV (CCTV) cameras at key intersections. This provides the local transportation agency with the ability to monitor traffic operations and respond instantly to incidents that delay vehicles and transit service. The City of Los Angeles has determined that the upgrade of the signal controllers and installation of the CCTV cameras would increase intersection capacity by 1 percent (a 0.01 improvement in V/C ratio). Additionally, Changeable Message Signs (CMS) would help reduce traffic congestion by providing real-time traffic information and predictive time information to users along key access corridors.

LAWA would also implement a Traffic Demand Management (TDM) program for LAX-site employees to provide a variety of additional transportation access choices in order to promote non-auto travel. The TDM Program would be established through the following steps:

- Prepare and circulate a general travel demand survey to a statistically viable number of LAX-based employees to ascertain mode of travel to/from work, a representative percentage of drive-alone and park employees versus those who utilize public transit or existing LAWA-managed rideshare programs (i.e., vanpool, carpool, FlyAway, etc.).
- Based on the results of above, LAWA shall prepare a LAX TDM Program that includes, but is not limited to the following:
  - The formation of a Los Angeles International Airport Area Transportation Management Organization (TMO) to organize and offer alternative transportation programs and benefits to LAX-area employees
  - The following transportation amenities/opportunities for LAX-area employees, as determined by Origin/Destination-based data:
    - Enhanced vanpool program opportunities
    - Enhanced carpool opportunities
    - Transit passes
    - New car-share program opportunities
    - Pilot-program shuttle service for employees living in SB 535 designated disadvantaged communities
- Within nine months of the launch of the LAX TDM Program, LAWA will conduct a follow-up survey to ascertain the pros and cons of various programs, make adjustments as needed, and re-tool program efforts.
- Achieve a 5 percent trip reduction performance objective. Performance metrics for the 5 percent TDM Program shall be as follows:
  - Elimination of 200 peak hour trips (am or pm) identified as “drive alone” employee trips
  - Elimination of 800 average daily one-way trips identified as “drive alone” employee trips



## A.2 Enabling Projects

**Table A-2** provides an overview of the enabling projects, including the name, size and disposition of each facility. **Figure A-4** delineates the existing and potential future locations of the affected facilities, while **Figure A-5** depicts locations of replacement facilities associated with the demolition of the Delta Hangar Complex.

In order to facilitate construction of the Proposed Action Alternative, acquisition of several properties located along the proposed APM and roadway alignments would be required (see item 18 on Figure A-4). Specifically, acquisition of parcels (in whole or in part) would be required where the APM or roadway improvements are proposed including, but not limited to: 1) 6141 W. Century Boulevard owned by Metro and leased by an off-airport parking operator; 2) 9600 S. Sepulveda Boulevard owned by the Los Angeles Community College District and leased by an off-airport parking operator; 3) 5651 W. 96th Street owned by China Airlines Cargo; 4) 9606/9610 Bellanca Avenue occupied by Secom International; and 5) 9600 S. Sepulveda Boulevard owned by WallyPark. Also, several billboards are located on properties to be acquired or altered by components of the Proposed Action Alternative. Approximately 26 billboards would be acquired and/or displaced as part of the Proposed Action Alternative.

Additionally, LAWA has an existing relocation program underway to mitigate aircraft noise impacts on area residences, as part of LAWA's Aircraft Noise Mitigation Program (ANMP). A total of over 2,500 houses and apartments in Manchester Square, the future location of the ITF East and the CONRAC facility, and the Belford residential area, the future location of the APM Maintenance and Storage Facility (MSF), have been or are planned to be acquired and the residents relocated under the existing ANMP. Over 92 percent of the homes in these areas have successfully been acquired through voluntary acquisition. The Belford and Manchester Square residential areas are located within areas exposed to significant levels of aircraft noise, as defined by the FAA. In 1997, residents of these areas approached LAWA and requested acquisition of their homes and families relocated rather than have their homes soundproofed. LAWA agreed and after conducting an environmental review<sup>1</sup>, began acquiring homes in the Belford and Manchester Square residential areas in the early 2000s. In addition, the LAX Master Plan (and its associated EIR/EIS) contemplated the continued relocation of uses that are incompatible with Airport activities, including through eminent domain as needed.<sup>2</sup> As of August 2016, the Belford area contains one multi-family residential structure at the corner of Belford Avenue and W. 96th Street; the Manchester Square area contains 6 single-family residential structures and 31 multi-family residential units (see item 19 on Figure A-4).

<sup>1</sup> City of Los Angeles, Los Angeles World Airports, Final Initial Study/Mitigated Negative Declaration, *Manchester Square and Airport/Belford Area Voluntary Acquisition Project*, June 2000.

<sup>2</sup> City of Los Angeles, Los Angeles World Airports, *Final Environmental Impact Report for Los Angeles International Airport (LAX) Proposed Master Plan Improvements, Section 4.4.2, Relocation of Residences or Businesses*, April 2004.



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**Table A-2 (1 of 2): Summary of Enabling Projects**

MAP ID #	FACILITY	APPROXIMATE FOOTPRINT AREA	CURRENT USE	DISPOSITION OF FACILITY/USE
1	Parking Garage P2A	77,600 sq. ft.	Parking Structure	Existing parking garage would be demolished and a replacement garage would be constructed in the CTA.
1	Parking Garage P2B	64,500 sq. ft.	Parking Structure	Existing parking garage would be demolished and a replacement garage would be constructed in the CTA.
1	Parking Garage P5	69,200 sq. ft.	Parking Structure	Existing parking garage would be demolished and a replacement garage would be constructed in the CTA.
2	Clifton Moore Administration Building (1 World Way)	34,200 sq. ft.	LAWA Administrative Offices	Building would be demolished and LAWA administrative offices would be relocated to the existing LAWA-owned Skyview Center located at 6033 and 6053 W. Century Boulevard.
3	Bob Hope Hollywood USO	4,000 sq. ft.	Provides services to military personnel	Building would be demolished. Existing uses would be accommodated in the ground floor of the Theme Building.
4	Restaurant Building	5,100 sq. ft.	Fast food facility	Building would be demolished.
5	LAX City Bus Center	84,300 sq. ft.	Regional bus transportation center	Transportation center would be demolished and relocated either to the proposed Metro AMC 96th Street Transit Station to be constructed adjacent to the ITF East or adjacent to the Aviation/Century Boulevard station of the Metro Crenshaw/LAX Line currently under construction.
6	Delta Hangar Complex	182,500 sq. ft.	Light maintenance of aircraft	Buildings would be demolished. Replacement facilities would be constructed on-Airport property.
7	Reliant Medical Center	30,600 sq. ft.	Provides urgent medical care to the public	Building would be demolished. Existing uses could be accommodated either on-Airport property or elsewhere.
8	Jenny Avenue	100,000 sq. ft.	Roadway providing a connection between Westchester Parkway and W. 96th Street and parking areas in between	The existing roadway would be closed and demolished as indicated in Table 1-2.
9	W. 96th Street	215,000 sq. ft.	Roadway providing a connection between Vicksburg Avenue and Airport Boulevard and adjacent facilities	The existing roadway would be closed and demolished as indicated in Table 1-2.
10	Belford Area Secondary Roadways	104,000 sq. ft.	Roadways providing access to residential areas within the Belford Area	The existing secondary roadways would be closed and demolished as indicated in Table 1-2.
11	Manchester Square Secondary Roadways	1,300,000 sq. ft.	Roadways providing access to residential areas within Manchester Square	The existing secondary roadways would be closed and demolished as indicated in Table 1-2.
12	Drug Enforcement Administration Building/Trailer	5,000 sq. ft.	Offices for Drug Enforcement Administration personnel	Building/trailer would be removed. Existing uses would be accommodated elsewhere on-Airport property.



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Table A-2 (2 of 2): Summary of Enabling Projects

MAP ID #	FACILITY	APPROXIMATE FOOTPRINT AREA	CURRENT USE	DISPOSITION OF FACILITY/USE
13	Operations Trailers	2,800 sq. ft.	Offices for Airport Operations	Trailers would be removed. Operations would be consolidated to existing facilities on-Airport property.
14	Airport Century Inn (Travelodge)	65,900 sq. ft.	Hotel	If current lease is not renewed (expires in April 2018), LAWA would demolish the hotel for use as construction staging. Would be impacted by Aviation Boulevard improvements that would most likely occur after 2020.
15	Sky Way/W. 96th Street Bridge	281,800 sq. ft.	Provides access to the CTA	The existing bridge would be demolished and removed.
16	Center Way	110,000 sq. ft.	Provides access within the CTA	Improvements to the existing Center Way roadway to allow for other Project-related improvements within the CTA as indicated in Table 1-2.
17	West Way	40,900 sq. ft.	Roadway providing a connection between the north and south branches of World Way	The existing roadway would be demolished and relocated 200 feet to the west as indicated in Table 1-2.
18	Various Properties and Billboards within the Project Area	12.6 acres <sup>1/</sup>	Varies by location	Varies by location. Existing facilities would be acquired and demolished.
19	Remaining Properties in Manchester Square and Belford Area	12.2 acres <sup>2/</sup>	Single- and multi-family residences	The remaining 38 properties in Manchester Square and Belford Area would be acquired through LAWA's Aircraft Noise Mitigation Program.
20	Stella Middle Charter Academy and Bright Star Secondary Charter Academy	24,000 sq. ft.	Charter schools	The two schools would be relocated off-Airport property to a permanent facility. Modular facilities may be constructed on the Northside Improvements area for temporary operations until the schools have secured a permanent location.
N/A	Utility Relocation	N/A	Utilities providing power, water, sewer and others to the Project site and surrounding areas	Existing utilities located within and adjacent to roadways would be relocated or abandoned.
N/A	Existing Rental Car Facilities	N/A	Operations of rental car facilities including maintenance	Rental car agencies have indicated that in the short-term, existing rental car facilities would remain and continue to be used for vehicle storage, administrative functions, and heavy maintenance. Long-term disposition of privately-owned property would be up to each respective agency.

## NOTES:

N/A = Not Available

USO = United Service Organizations

1/ The cumulative total for all properties to be acquired.

2/ The cumulative acreage for all properties to be acquired in Manchester Square and the Belford Area.

SOURCE: MapLAX, *Los Angeles International Airport Landside Access Modernization Program, Program Brief*, January 2016; HNTB, *Airport Layout Plan*, July 6, 2012.

PREPARED BY: Ricondo &amp; Associates, Inc., April 2017.



[Preliminary Draft for Discussion Purposes Only]

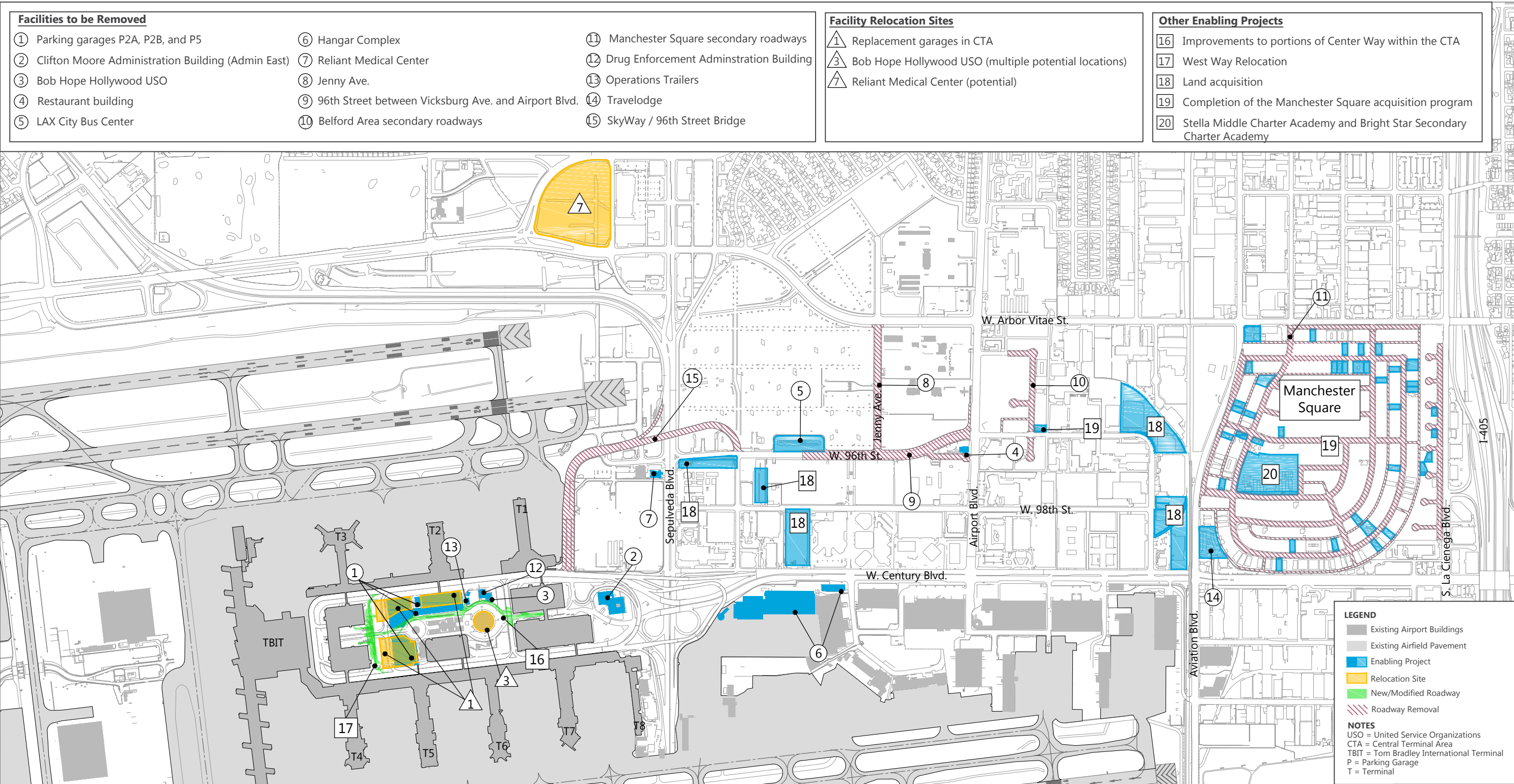


FIGURE A-4

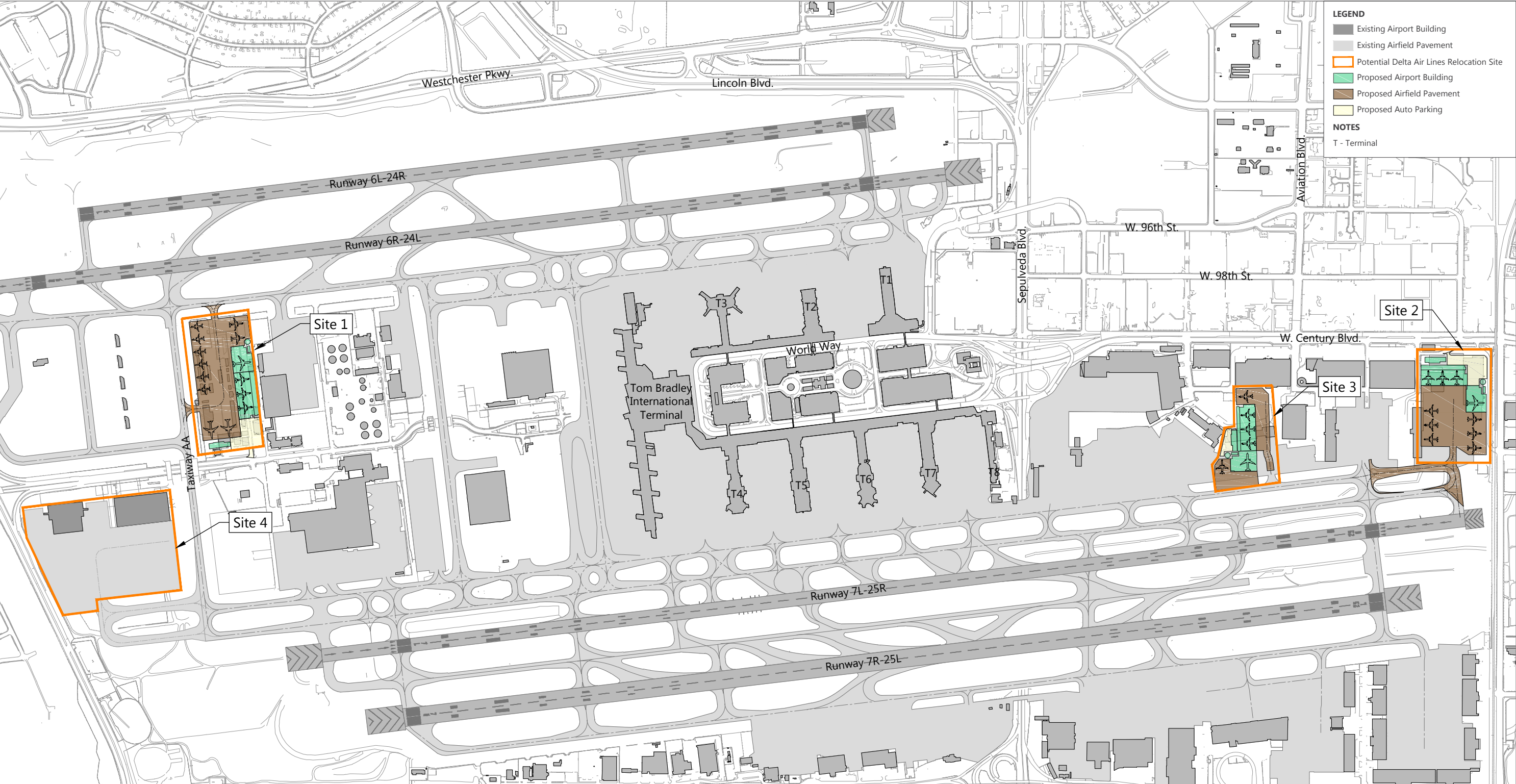




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SOURCE: Los Angeles World Airports; HNTB Corp., Los Angeles International Airport Layout Plan Future Layout Plan Sheet, July 2012; Parsons Brinckerhoff, April 2016.  
PREPARED BY: Ricondo & Associates, Inc., August 2017.



Enabling Project Relocation - Delta Air Lines Office and Hangars  
Site Relocation Concepts



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If the Proposed Action Alternative were not approved and implemented, LAWA would continue its efforts to relocate these incompatible uses. Should the land acquisition under the existing ANMP Relocation Plan for Manchester Square not be completed by the time the Proposed Action Alternative is approved and advanced into implementation, the City of Los Angeles and LAWA would explore the most appropriate and practical measures (e.g., voluntary acquisition, leasing, and/or eminent domain) to ensure that the designated areas are vacated consistent with the Proposed Action Alternative's construction sequencing plan given that these properties would be required for construction staging and Airport support purposes. **Table A-3** provides a list of the properties that are being acquired under the ANMP Relocation Plan.

**Table A-3 (1 of 2): Properties to be Acquired for Noise Mitigation**

MAP KEY NO.	PROPERTY ADDRESS	PRIMARY BUSINESS	LOT AREA (ACRES)	ZONING	APN
1	9520 Belford Ave., Los Angeles, CA 90045 5815 W. 96th St., Los Angeles, CA 90045	Residential	0.18	R3-1	4125023007
2	5507 W. 98th St., Los Angeles CA 90045 5509 W. 98th St., Los Angeles CA 90045	Residential	0.15	LAX	4128011002
3	9608 Aviation Blvd., Los Angeles CA 90045 9610 S. Aviation Blvd., Los Angeles, CA 90045 9612 S. Aviation Blvd., Los Angeles, CA 90045	Residential	0.15	LAX	4128011021
4	9508 S. Aviation Blvd., Los Angeles, CA 90045 9510 S. Aviation Blvd., Los Angeles, CA 90045	Residential	0.15	LAX	4128010019
5	9500 S. Aviation Blvd., Los Angeles, CA 90045 9502 S. Aviation Blvd., Los Angeles, CA 90045	Residential	0.16	LAX	4128010020
6	9302 Aviation Blvd., Los Angeles, CA 90045 9304 Aviation Blvd., Los Angeles, CA 90045 5532 W. 93rd St., Los Angeles, CA 90045	Residential	0.19	LAX	4128010001
7	9323 S. Isis Ave., Los Angeles, CA 90045	Residential	0.38	LAX	4128010026
8	9507 S. Isis Ave., Los Angeles, CA 90045	Residential	0.15	LAX	4128010014
9	5502 W. 96th St., Los Angeles, CA 90045 9601 S. Isis Ave., Los Angeles, CA 90045	Residential	0.15	LAX	4128011014
10	5431 W. 96th St., Los Angeles, CA 90045	Institution	5.51	LAX	4128012900
11	5452 W. 96th St., Los Angeles, CA 90045 9600 S. Isis Ave., Los Angeles, CA 90045 9602 S. Isis Ave., Los Angeles, CA 90045	Residential	0.14	LAX	4128012018
12	5429 W. 96th St., Los Angeles, CA 90045	Residential	0.13	LAX	4128007005
13	5418 W. Arbor Vitae St., Los Angeles, CA 90045 5420 W. Arbor Vitae St., Los Angeles, CA 90045	Residential	0.16	LAX	4128003025
14	5325 W. 93th St., Los Angeles, CA 90045 5327 W. 93th St., Los Angeles, CA 90045	Residential	0.15	LAX	4128003010
15	5307 W. 93th St., Los Angeles, CA 90045 5309 W. 93th St., Los Angeles, CA 90045	Residential	0.15	LAX	4128003013
16	9218 Hindry Pl., Los Angeles, CA 90045 9220 Hindry Pl., Los Angeles, CA 90045 5279 W. 93rd St., Los Angeles, CA 90045	Residential	0.18	LAX	4128004011
17	5336 W. 93th St., Los Angeles, CA 90045 5338 W. 93th St., Los Angeles, CA 90045	Residential	0.15	LAX	4128009026
18	5330 W. 93th St., Los Angeles, CA 90045 5332 W. 93th St., Los Angeles, CA 90045	Residential	0.15	LAX	4128009036
19	5324 W. 93th St., Los Angeles, CA 90045 5326 W. 93th St., Los Angeles, CA 90045	Residential	0.15	LAX	4128009023



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**Table A-3 (2 of 2): Properties to be Acquired for Noise Mitigation**

MAP KEY NO.	PROPERTY ADDRESS	PRIMARY BUSINESS	LOT AREA (ACRES)	ZONING	APN
20	5306 W. 93th St., Los Angeles, CA 90045 5308 W. 93th St., Los Angeles, CA 90045	Residential	0.31	LAX	4128009037
21	5302 W. 93th St., Los Angeles, CA 90045 9301 S. Hindry Pl., Los Angeles, CA 90045 9303 S. Hindry Pl., Los Angeles, CA 90045	Residential	0.17	LAX	4128009018
22	9318 Hindry Pl., Los Angeles, CA 90045	Residential	0.14	LAX	4128006018
23	9311 Glasgow Pl., Los Angeles, CA 90045 9313 Glasgow Pl., Los Angeles, CA 90045	Residential	0.15	LAX	4128006013
24	9312 Glasgow Pl., Los Angeles, CA 90045 9314 Glasgow Pl., Los Angeles, CA 90045	Residential	0.32	LAX	4128004039
25	9330 S. Glasgow Pl., Los Angeles, CA 90045 9332 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.15	LAX	4128005001
26	9336 S. Glasgow Pl., Los Angeles, CA 90045 9338 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.15	LAX	4128005002
27	9415 S. Glasgow Pl., Los Angeles, CA 90045 9417 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.15	LAX	4128006006
28	5200 W. 95th St., Los Angeles, CA 90045	Residential	0.12	LAX	4128005022
29	5200 W. 95th St., Los Angeles, CA 90045 9521 S. La Cienega Blvd., Los Angeles, CA 90045	Residential	0.11	LAX	4128005016
30	9627 S. Glasgow Pl., Los Angeles, CA 90045 9629 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.15	LAX	4128015005
31	5206 Pardee St., Los Angeles, CA 90045	Residential	0.14	LAX	4128016028
32	5211 W. 97th St., Los Angeles, CA 90045	Residential	0.18	LAX	4128016024
33	9742 S. Hindry Pl., Los Angeles, CA 90045	Residential	0.16	LAX	4128018019
34	9819 S. Glasgow Pl., Los Angeles, CA 90045 9821 S. Glasgow Pl., Los Angeles, CA 90045 9823 S. Glasgow Pl., Los Angeles, CA 90045 9825 S. Glasgow Pl., Los Angeles, CA 90045 9827 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.33	LAX	4128018022
35	5357 W. 99th St., Los Angeles, CA 90045 5359 W. 99th St., Los Angeles, CA 90045	Residential	0.16	LAX	4128020021
36	5412 W. 99th St., Los Angeles, CA 90045 5414 W. 99th St., Los Angeles, CA 90045	Residential	0.17	LAX	4128023014
37	5311 W. 99th Pl., Los Angeles, CA 90045 5313 W. 99th Pl., Los Angeles, CA 90045	Residential	0.16	LAX	4128019016
38	9828 S. Glasgow Pl., Los Angeles, CA 90045 9830 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.17	LAX	4128017022
39	9814 S. Glasgow Pl., Los Angeles, CA 90045 9816 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.17	LAX	4128017019

SOURCE: City GIS Data, 2015.

PREPARED BY: Ricondo &amp; Associates, Inc., February 2017.

Additional information for all parcels to be acquired, including the parcels being acquired under the ANMP Relocation Plan, is included in **Table A-4**. The locations of these parcels are shown on **Figure A-6**.



[DRAFT]

**Table A-4 (1 of 3): Properties to be Acquired**

MAP KEY NO. # <sup>1/</sup>	PROPERTY ADDRESS	PRIMARY BUSINESS	LOT AREA (ACRES)	ZONING	APN
1	9600 S. Sepulveda Blvd., Los Angeles, CA 90045	Owner Occupied/Billboard Lease Agreement	1.46	C2-2	4124025049 4124034900
2	6155 W 98 <sup>th</sup> St. Los Angeles, CA 90024	Sunrise LAX Parking	1.00	C2-2	4124027029
3	6141 W. Century Blvd., Los Angeles, CA 90045	Metro Billboard Lease Agreement	3.23	C2-2	4124030900
4	9520 Belford Ave., Los Angeles, CA 90045 5815 W. 96th St., Los Angeles, CA 90045	Residential	0.18	R3-1	4125023007
5	5651 W. 96th St., Los Angeles, CA 90045 5661 W. 96th St., Los Angeles, CA 90045	China Airlines	3.16	M2-1	4125021025
6	9606 Bellanca Ave., Los Angeles, CA 90045 9600 S. Bellanca Ave., Los Angeles, CA 90045 9610 S. Bellanca Ave., Los Angeles, CA 90045	Secom	2	M2-1	4125021026
7	9784 S Bellanca Ave., Los Angeles, CA 90045	Light Manufacturing <sup>2/</sup>	0.69	M2-1	4125026015
8	9790 Bellanca Ave., Los Angeles, CA 90045	Light Manufacturing <sup>2/</sup>	0.19	M2-1	4125026014
9	9830 Bellanca Ave., Los Angeles, CA 90045	VIP Tours of California	1.09	M2-1	4125026009
10	No Address	N/A	0.23	M2-1	4125026802
11	5601 W. Century Blvd., Los Angeles, CA 90045	Construction Staging	0.83	M2-1	4125026904
12	5507 W. 98th St., Los Angeles CA 90045 5509 W. 98th St., Los Angeles CA 90045	Residential	0.15	LAX	4128011002
13	9608 Aviation Blvd., Los Angeles CA 90045 9610 S. Aviation Blvd., Los Angeles, CA 90045 9612 S. Aviation Blvd., Los Angeles, CA 90045	Residential	0.15	LAX	4128011021
14	9508 S. Aviation Blvd., Los Angeles, CA 90045 9510 S. Aviation Blvd., Los Angeles, CA 90045	Residential	0.15	LAX	4128010019
15	9500 S. Aviation Blvd., Los Angeles, CA 90045 9502 S. Aviation Blvd., Los Angeles, CA 90045	Residential	0.16	LAX	4128010020
16	9302 Aviation Blvd., Los Angeles, CA 90045 9304 Aviation Blvd., Los Angeles, CA 90045 5532 W. 93rd St., Los Angeles, CA 90045	Residential	0.19	LAX	4128010001
17	9323 S. Isis Ave., Los Angeles, CA 90045	Residential	0.38	LAX	4128010026
18	9507 S. Isis Ave., Los Angeles, CA 90045	Residential	0.15	LAX	4128010014
19	5502 W. 96th St., Los Angeles, CA 90045 9601 S. Isis Ave., Los Angeles, CA 90045	Residential	0.15	LAX	4128011014
20	5431 W. 96th St., Los Angeles, CA 90045	Institution	5.51	LAX	4128012900
21	5452 W. 96th St., Los Angeles, CA 90045 9600 S. Isis Ave., Los Angeles, CA 90045 9602 S. Isis Ave., Los Angeles, CA 90045	Residential	0.14	LAX	4128012018
22	5429 W. 96th St., Los Angeles, CA 90045	Residential	0.13	LAX	4128007005
23	5418 W. Arbor Vitae St., Los Angeles, CA 90045 5420 W. Arbor Vitae St., Los Angeles, CA 90045	Residential	0.16	LAX	4128003025
24	5325 W. 93th St., Los Angeles, CA 90045 5327 W. 93th St., Los Angeles, CA 90045	Residential	0.15	LAX	4128003010
25	5307 W. 93th St., Los Angeles, CA 90045 5309 W. 93th St., Los Angeles, CA 90045	Residential	0.15	LAX	4128003013
26	9218 Hindry Pl., Los Angeles, CA 90045 9220 Hindry Pl., Los Angeles, CA 90045 5279 W. 93rd St., Los Angeles, CA 90045	Residential	0.18	LAX	4128004011
27	5336 W. 93th St., Los Angeles, CA 90045 5338 W. 93th St., Los Angeles, CA 90045	Residential	0.15	LAX	4128009026



[DRAFT]

Table A-4 (2 of 3): Properties to be Acquired

MAP KEY NO. # <sup>1/</sup>	PROPERTY ADDRESS	PRIMARY BUSINESS	LOT AREA (ACRES)	ZONING	APN
28	5330 W. 93th St., Los Angeles, CA 90045 5332 W. 93th St., Los Angeles, CA 90045	Residential	0.15	LAX	4128009036
29	5324 W. 93th St., Los Angeles, CA 90045 5326 W. 93th St., Los Angeles, CA 90045	Residential	0.15	LAX	4128009023
30	5306 W. 93th St., Los Angeles, CA 90045 5308 W. 93th St., Los Angeles, CA 90045	Residential	0.31	LAX	4128009037
31	5302 W. 93th St., Los Angeles, CA 90045 9301 S. Hindry Pl., Los Angeles, CA 90045 9303 S. Hindry Pl., Los Angeles, CA 90045	Residential	0.17	LAX	4128009018
32	9318 Hindry Pl., Los Angeles, CA 90045	Residential	0.14	LAX	4128006018
33	9311 Glasgow Pl., Los Angeles, CA 90045 9313 Glasgow Pl., Los Angeles, CA 90045	Residential	0.15	LAX	4128006013
34	9312 Glasgow Pl., Los Angeles, CA 90045 9314 Glasgow Pl., Los Angeles, CA 90045	Residential	0.32	LAX	4128004039
35	9330 S. Glasgow Pl., Los Angeles, CA 90045 9332 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.15	LAX	4128005001
36	9336 S. Glasgow Pl., Los Angeles, CA 90045 9338 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.15	LAX	4128005002
37	9415 S. Glasgow Pl., Los Angeles, CA 90045 9417 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.15	LAX	4128006006
38	5200 W. 95th St., Los Angeles, CA 90045	Residential	0.12	LAX	4128005022
39	5200 W. 95th St., Los Angeles, CA 90045 9521 S. La Cienega Blvd., Los Angeles, CA 90045	Residential	0.11	LAX	4128005016
40	9627 S. Glasgow Pl., Los Angeles, CA 90045 9629 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.15	LAX	4128015005
41	5206 Pardee St., Los Angeles, CA 90045	Residential	0.14	LAX	4128016028
42	5211 W. 97th St., Los Angeles, CA 90045	Residential	0.18	LAX	4128016024
43	9742 S. Hindry Pl., Los Angeles, CA 90045	Residential	0.16	LAX	4128018019
44	9819 S. Glasgow Pl., Los Angeles, CA 90045 9821 S. Glasgow Pl., Los Angeles, CA 90045 9823 S. Glasgow Pl., Los Angeles, CA 90045 9825 S. Glasgow Pl., Los Angeles, CA 90045 9827 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.33	LAX	4128018022
45	5357 W. 99th St., Los Angeles, CA 90045 5359 W. 99th St., Los Angeles, CA 90045	Residential	0.16	LAX	4128020021
46	5412 W. 99th St., Los Angeles, CA 90045 5414 W. 99th St., Los Angeles, CA 90045	Residential	0.17	LAX	4128023014
47	5311 W. 99th Pl., Los Angeles, CA 90045 5313 W. 99th Pl., Los Angeles, CA 90045	Residential	0.16	LAX	4128019016
48	9200 S. Aviation Blvd., Los Angeles, CA 90045 9210 S. Aviation Blvd., Los Angeles, CA 90045 5548 W. Arbor Vitae St., Los Angeles, CA 90045 5536 W. Arbor Vitae St., Los Angeles, CA 90045 5530 W. Arbor Vitae St., Los Angeles, CA 90045	Service Station	0.58	C2-1	4128002015
49	9828 S. Glasgow Pl., Los Angeles, CA 90045 9830 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.17	LAX	4128017022
50	9814 S. Glasgow Pl., Los Angeles, CA 90045 9816 S. Glasgow Pl., Los Angeles, CA 90045	Residential	0.17	LAX	4128017019



[DRAFT]

**Table A-4 (3 of 3): Properties to be Acquired**

MAP KEY NO. # <sup>1/</sup>	PROPERTY ADDRESS	PRIMARY BUSINESS	LOT AREA (ACRES)	ZONING	APN
A	6351 W. Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4117034901
B	6351 W. Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4117034901
C	6351 W. Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4117034901
D	6351 W. Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4117034901
E	6351 W. Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4117034901
F	6351 W. Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4117034901
G	9851 S. Sepulveda Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4117034901
H	6351 W. Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4117034901
I	6351 W. Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4117034901
J	6351 W. Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4117034901
K	6250 W. 96th St., Los Angeles, CA 90045	N/A	N/A	N/A	4124025049
L	6250 W. 96th St., Los Angeles, CA 90045	N/A	N/A	N/A	4124025049
M	9611 S. Vicksburg Ave., Los Angeles, CA 90045	N/A	N/A	N/A	4124025049
N	W. 96th St., Los Angeles, CA 90045	N/A	N/A	N/A	4124027017
O	5978 W. 96th St., Los Angeles, CA 90045	N/A	N/A	N/A	4124030900
P	6145 W. Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4124030900
Q	6145 W. Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4124030900
R	6046 W. 96th St., Los Angeles, CA 90045	N/A	N/A	N/A	4124028900
S	6150 W. 96th St., Los Angeles, CA 90045	N/A	N/A	N/A	4124027906
T	5978 W. 96th St., Los Angeles, CA 90045	N/A	N/A	N/A	4124028900
U	9775 Airport Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4124029031
V	9775 Airport Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4124029026
W	9420 Airport Blvd., Los Angeles, CA 60045	N/A	N/A	N/A	4125023903
X	5563 W Arbor Vitae St., Los Angeles, CA 90045	N/A	N/A	N/A	4128002015
Y	5447 W Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4128024092
Z	5447 W Century Blvd., Los Angeles, CA 90045	N/A	N/A	N/A	4128024092

## NOTES:

1/ Billboards are denoted with a letter on Figure A-6 and in the Map Key No. # column.

2/ Ownership information not available, this is the use.

SOURCE: City GIS Data, 2015.

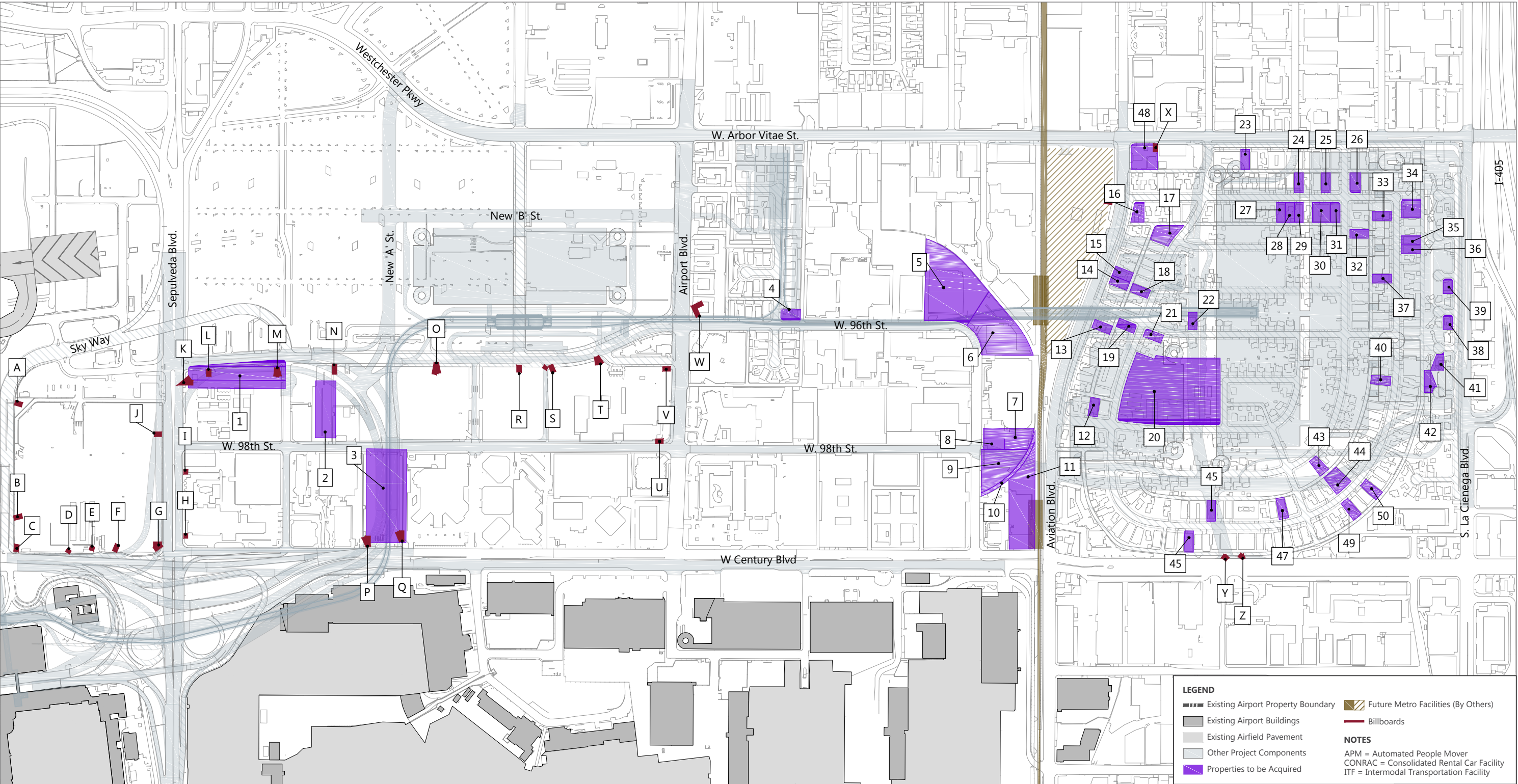
PREPARED BY: Ricondo &amp; Associates, Inc., April 2017.



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[Preliminary Draft for Discussion Purposes Only]



NOTE: Improvements depicted are conceptual only and do not represent engineered design.  
SOURCE: HNTB Corp., Los Angeles International Airport Layout Plan, July 2012; MapLAX, July 2016; Los Angeles World Airports, June 2016; Parsons Brinckerhoff, June 2016; Ricondo & Associates, July 2016.  
PREPARED BY: Ricondo & Associates, Inc., August 2017.

FIGURE A-6

Properties to be Acquired



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In addition to property acquisition under the ANMP, the proposed roadway improvements would require easements and property acquisition for the construction of new driveways, curb cuts, and ramps. LAWA would utilize easement and partial takes to the extent feasible, to minimize any acquisition required. **Table A-5** identifies the properties that would be affected.

**Table A-5 (1 of 2): Property Acquisition and Easements for Roadway Improvements**

#	LOCATION	APN #	PROPERTY OWNER	TYPE OF ACCESS (DRIVEWAY/RAMP)	TYPE OF ROW (PROPERTY TAKE/EASEMENT)
1	5965 W 98th St	4124029028	3rd Party	98th St Widening	Property Take
2	5945 W 98th St	4124029030	3rd Party	98th St Widening	Property Take
3	9775 Airport Blvd	4124029031	3rd Party	98th St Widening/Airport Blvd Widening	Property Take
4	5551 W Century Blvd	4128024002	3rd Party	Join Existing Aviation Blvd	Easement
5	5972 W 96th St	4124029012	3rd Party	96th St Rotary	Property Take
6	5966 W 96th St	4124029032	3rd Party	96th St Rotary	Property Take
7	5962 W 96th St	4124029033	3rd Party	96th St Rotary	Property Take
8	5958 W 96th St Los	4124029034	3rd Party	96th St Rotary	Property Take
9	5952 W 96th St	4124029035	3rd Party	96th St Rotary	Property Take
10	5948 W 96th St	4124029036	3rd Party	96th St Rotary	Property Take
11	5942 W 96th St	4124029037	3rd Party	96th St Rotary	Property Take
12	5938 W 96th St	4124029038	3rd Party	96th St Rotary	Property Take
13	5932 W 96th St	4124029039	3rd Party	96th St Rotary	Property Take
14	5928 W 96th St	4124029009	3rd Party	96th St Rotary	Property Take
15	5922 W 96th St	4124029010	3rd Party	96th St Rotary	Property Take
16	5918 W 96th St	4124029023	3rd Party	96th St Rotary	Property Take
17	5912 W 96th St	4124029024	3rd Party	96th St Rotary	Property Take
18	5906 W 96th St	4124029011	3rd Party	96th St Rotary	Property Take
19	5900 W 96th St	4124029026	3rd Party	96th St Rotary	Property Take
20	6101 W Century	4124030036	3rd Party	Curb Ramp/Driveway Relocation	Property Take/Easement
21	9133 S La Cienega Blvd Inglewood	4126011055	3rd Party	Curb Ramp	Property Take/Easement
22	901 W Arbor Vitae St Inglewood	4126014052	3rd Party	Curb Ramp	Property Take/Easement
23	939 W Arbor Vitae St Inglewood	4126014049	3rd Party	Curb Ramp	Property Take/Easement
24	1001 W Arbor Vitae St Inglewood	4126016017	3rd Party	Curb Ram	Property Take/Easement
25	1071 W Arbor Vitae St Inglewood	4126016010	3rd Party	Curb Ramp	Property Take/Easement
26	9150 S Aviation Blvd Inglewood	4126017006	3rd Party	Curb Ramp	Property Take/Easement
27	9131 Aviation Blvd Inglewood	4126020012	3rd Party	Curb Ramp/Driveway Relocation	Property Take/Easement



[DRAFT]

**Table A-5 (2 of 2): Property Acquisition and Easements for Roadway Improvements**

#	LOCATION	APN #	PROPERTY OWNER	TYPE OF ACCESS (DRIVEWAY/RAMP)	TYPE OF ROW (PROPERTY TAKE/EASEMENT)
28	9225 Aviation Blvd	4128001008	Metro	W Arbor Vitae St Road Widening	Property Take/Easement
29	9801 Airport Blvd	4124030041	3rd Party	Curb Ramp	Property Take/Easement
30	5705 W 98th St	4125024022	3rd Party	Curb Ramp	Property Take/Easement
31	5701 W Century Blvd	4125025040	3rd Party	Curb Ramp	Property Take/Easement
32	5307 W Century Blvd	4128024011	3rd Party	Roadway: Century Rt Turn Pocket	Property Take
33	5525 W Imperial Hwy	4129037037	3rd Party	Curb Ramp/Driveway Relocation	Property Take/Easement
34	5760 Arbor Vitae St	4125020014	3rd Party	Driveway Relocation	Easement
35	5771 W 96th St Los Angeles	4125021030	3rd Party	Driveway Relocation	Easement
36	5700 W 96th St Los Angeles	4125024024	3rd Party	Driveway Relocation	Easement
37	9625 Bellanca Ave	4125024025	3rd Party	Join Existing Bellanca Ave	Easement
38	9700 Bellanca Ave	4125021031	3rd Party	Join Existing Bellanca Ave	Easement
39	La Cienega Blvd & I-405 Off Ramp - New 98th St	4128025021	3rd Party	I-405 Ramp Widening	Property Take
40	Sepulveda Blvd, 98th St And Vicksburg	4124026900	3rd Party	Reconfiguration Of The Knot	Property Take
41	6206 W 96th St	4124027032	3rd Party	Reconfiguration Of The Knot	Property Take
42	6200 W 96th St	4124027031	3rd Party	Reconfiguration Of The Knot	Property Take
43	6151 W Century Blvd	4124030029	3rd Party	The Knot Improvements	Easement
44	5740 W Arbor Vitae St	4125020905	Metro	W Arbor Vitae St Road Widening	Property Take/Easement
45	5730 W Arbor Vitae St	4125020901	Metro	W Arbor Vitae St Road Widening	Property Take/Easement
46	5630 W Arbor Vitae St	4125020906	Metro	W Arbor Vitae St Road Widening	Property Take/Easement
47	9201 S Portal Ave	4125020907	Metro	W Arbor Vitae St Road Widening	Property Take/Easement
48	9319 S Bellanca Ave 9321 S Bellanca Ave 9323 S Bellanca Ave	4125026900	Metro	W Arbor Vitae St Road Widening	Property Take/Easement

SOURCE: MapLAX, August 2016.

PREPARED BY: Ricondo &amp; Associates, Inc., August 2016.

The proposed Project would also result in the removal of parking along some streets. **Table A-6** identifies the location and amount of street parking that would be eliminated due to implementation of the proposed Project. A total of approximately 200 metered parking spaces would be eliminated.



[DRAFT]

**Table A-6: Impacted Street Parking**

LOCATION	DIRECTION	TYPE OF PARKING	FROM	TO	SPACES REMOVED <sup>1/</sup>
93rd Street	WB	528 Linear Ft Parking	Airport Boulevard	Belford Avenue	21 (all)
95th Street	WB	414 Linear Ft Parking	Cul-de-sac	Belford Avenue	17 (all)
96th Street	WB	478 Linear Ft Parking	Airport Boulevard	Bellanca Avenue	10 (238 Linear Ft)
	WB	141 Linear Ft Double Parking	Airport Boulevard	Bellanca Avenue	24 (all)
98th Street	EB	25 Meters Short-Term Parking <sup>2/</sup>	Vicksburg Avenue	Airport Boulevard	8
	EB	8 Meters Short-Term Parking <sup>2/</sup>	Airport Boulevard	Bellanca Avenue	4
	WB	63 Meters Short-Term Parking <sup>2/</sup>	Vicksburg Avenue	Bellanca Avenue	16
Airport Boulevard	NB	1 Meter Parking	98th Street	96th Street	1
	NB	Loading Zone (2)	98th Street	96th Street	2
	NB	Taxi Loading Zone (4)	98th Street	96th Street	4
	NB	633 Linear Ft Parking	96th Street	93rd Street	26 (all)
Belford Avenue	NB	630 Linear Ft Parking	93rd Street	96th Street	25 (all)
	SB	541 Linear Ft Parking	93rd Street	96th Street	22 (all)
	SB	450 Linear Ft Parking	96th Street	Cul-de-sac	18 (all)
W Arbor Vitae Street	EB	94 Linear Ft Short-term Parking	Airport Boulevard	New D Street	4 (all)
	WB	335 Linear Ft Parking	New D Street	Bellanca Avenue	4 (100 Linear Ft)

## NOTES:

1/ Assumes 25 linear feet equals one parking spot.

2/ Peak a.m. and p.m. restrictions.

SOURCE: MapLAX, August 2016.

PREPARED BY: Ricondo &amp; Associates, Inc., August 2016.

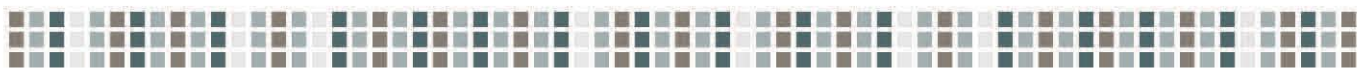


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## Appendix B

### On-Airport Roadway Evaluation









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## Appendix B On-Airport Roadway Evaluation

### B.1 Historic Traffic Levels

The Los Angeles International Airport (LAX or Airport) Central Terminal Area (CTA) curbside and roadway system consists of a two-level roadway; the upper level is dedicated to departing passenger activities (and transportation network company or “TNC” passenger pick-ups as well as drop-offs), and the lower level is primarily dedicated to arriving passenger activities. The CTA roadway network provides access to the Airport’s CTA public parking garages, which are intended to accommodate short-term and daily parking customers.

All traffic entering and exiting the LAX CTA is recorded by LAWA’s Traffic and Automated Vehicle Identification System (TRAVIS). A “trip” is defined as the entrance or exit of a vehicle to or from the Airport or airport-related property. Key roadways within and adjacent to the CTA are shown on **Figure B-1**.

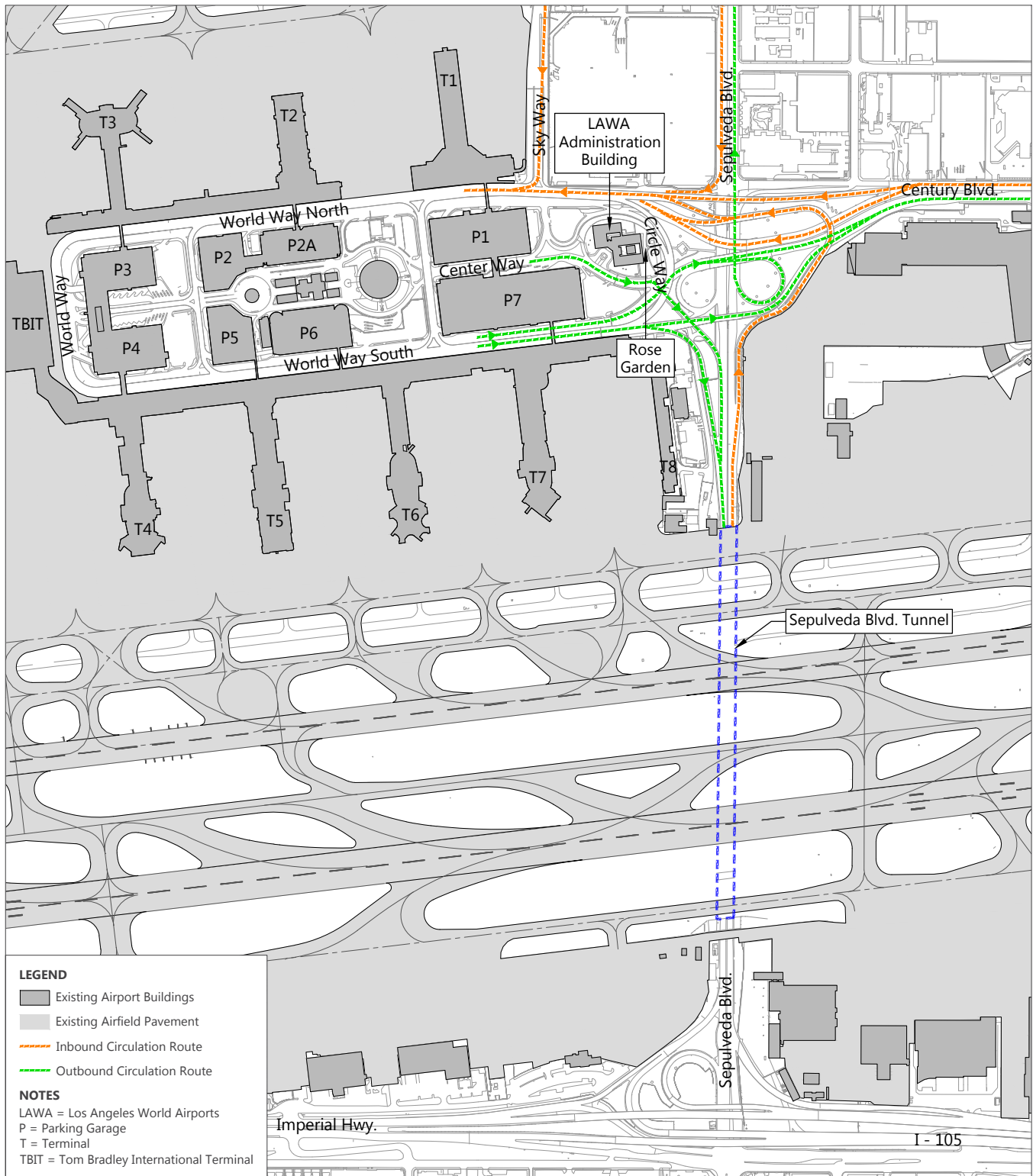
**Table B-1** shows the average daily traffic volume entering the LAX CTA during each month over the past 10 years. The month with the highest volume of average daily traffic is in **bold** for each year; the month with the lowest volume of average daily traffic is shown in *italics*. August is typically the busiest month at LAX, while the month with the lowest volume of traffic is most often February. Table B-1 shows a general increase in traffic volumes from 2007 to 2016, with the exception of a drop in traffic during the recession as evidenced in 2008 to mid-2012. Beginning in 2013, daily traffic began to rise again and is now above pre-recession levels.



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[Preliminary Draft for Discussion Purposes Only]



SOURCE: HNTB Corp., Los Angeles International Airport Layout Plan, July 2012.  
 PREPARED BY: Ricondo & Associates, Inc., August 2017.



NORTH

0 800 ft.

## Central Terminal Area Roadways



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[DRAFT]

Table B-1: Historic Average Daily Traffic Entering LAX CTA

MONTH <sup>1/,2/</sup>	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 <sup>4/</sup>
JANUARY	66,999	67,483	63,012	64,431	64,588	--- <sup>3/</sup>	57,985	71,268	73,038	75,513
FEBRUARY	65,339	64,924	61,899	60,857	60,640	--- <sup>3/</sup>	62,578	66,793	71,701	76,886
MARCH	68,380	69,819	64,504	65,057	64,293	64,608	68,228	72,828	78,666	85,586
APRIL	70,268	69,184	67,410	65,825	65,604	65,784	69,388	73,639	78,660	85,439
MAY	71,599	72,022	68,964	67,787	76,954	57,922	72,297	76,674	82,322	91,359
JUNE	73,669	75,118	73,221	74,578	<b>78,445</b>	64,141	<b>77,791</b>	82,022	<b>88,019</b>	98,898
JULY	78,342	75,640	74,975	<b>75,881</b>	69,362	67,416	77,244	<b>82,282</b>	85,488	<b>99,185</b>
AUGUST	<b>82,193</b>	<b>76,434</b>	<b>77,062</b>	74,758	71,574	<b>73,990</b>	77,346	81,846	85,149	98,883
SEPTEMBER	68,316	65,227	66,106	67,354	63,576	66,353	70,232	74,206	78,223	93,146
OCTOBER	68,152	64,260	66,173	66,674	66,947	67,713	70,463	74,267	78,583	92,606
NOVEMBER	72,098	64,128	66,116	66,805	--- <sup>3/</sup>	69,325	69,160	74,550	78,965	94,379
DECEMBER	71,900	70,972	71,006	<b>69,205</b>	--- <sup>3/</sup>	70,484	77,724	77,908	79,329	95,069

## NOTES:

--- = Not Available

1/ Months with the lowest volume of average daily traffic are shown in *italic* text.2/ Months with the highest volume of average daily traffic are shown in **bold** text.

3/ In late 2011, the roadway loop system was upgraded. During the transition, traffic data was considered unreliable. Therefore, the months of November 2011 through February 2012 are not included in this table.

4/ 2016 Data available as of October 14, 2016

SOURCES: Los Angeles World Airports, *Los Angeles International Airport Ground Transportation Report*, February 2015 (2007 – 2014); Los Angeles World Airports, *Traffic Data*, February 2017.

PREPARED BY: Ricondo &amp; Associates, Inc., October 2016.

## B.2 Existing Traffic Mix

Each terminal has an arrivals and departures curb where people can be picked-up or dropped-off, along with parking structures located within the interior of the roadway loop. The roadway loop (World Way) is the only means of vehicular access for passengers and visitors. This is true regardless of the type of ground access a passenger uses: from shuttles to/from the Metro light rail, FlyAway buses, TNCs such as Uber and Lyft, taxis, regional shuttles, rental car shuttles, limousines, hotel shuttles, or personal pick-ups and drop-offs. All of these modes of access are affected by congestion in the CTA.



[DRAFT]

Congestion through the CTA is a function of the sheer volume of traffic competing for a limited amount of space. **Figure B-2** shows that in 2014, approximately 77 percent of the upper level inbound traffic and 61 percent of the lower level inbound traffic in the LAX CTA were private vehicles.<sup>1</sup> Rental car, hotel, private parking, and door-to-door shuttles comprised approximately 9 percent of the upper level traffic and 14 percent of the lower level traffic. The remainder of the traffic consisted of taxis, limousines, and scheduled buses.<sup>2</sup>

Unlike many major U.S. airports, LAX does not have a consolidated rental car facility that provides a convenient and centralized location for airport passengers to pick-up and return cars. Twelve rental car agencies operate independent shuttles to transport passengers between the CTA and their individual rental car facilities that are spread over 20 locations throughout the surrounding area. In 2015, there were a total of over 1.1 million rental car shuttle trips on the upper and lower level roadways of the CTA, compounding the local traffic congestion.

In addition to the rental car shuttles, the large number of shuttles serving hotels and parking facilities located in the LAX vicinity contributes to congestion in the CTA and surrounding area, as passengers who choose to park remotely, stay in local hotels or take public transit to LAX, must take a bus, shuttle, taxi or similar service from the CTA. These outbound trips totaled approximately 950,000 in 2014. It is important to note that the dwell times (staging, loading and unloading, etc.), frequent lane changes, and maneuverability challenges of these vehicles disproportionately contributes to the congestion experienced on the CTA roadways.<sup>3</sup>

LAX is also served by other passenger transportation modes, such as FlyAway buses, shared ride vans, limousines and other commercial vehicles, all competing for limited space along the drop-off and pick-up curbs.<sup>4</sup> Although their percentage of the total vehicles accessing the CTA is less than the various shuttles, all of these vehicles contribute to congestion in the CTA.

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<sup>1</sup> The "Private Vehicles and Other" category includes all vehicles which do not have vehicle transponders issued by LAWA. This includes but is not limited to private vehicles, Transportation Network Companies (such as Uber and Lyft), police vehicles, construction and maintenance vehicles, and vendor delivery trucks.

<sup>2</sup> Los Angeles World Airports, *Los Angeles International Airport Ground Transportation Report*, February 2015.

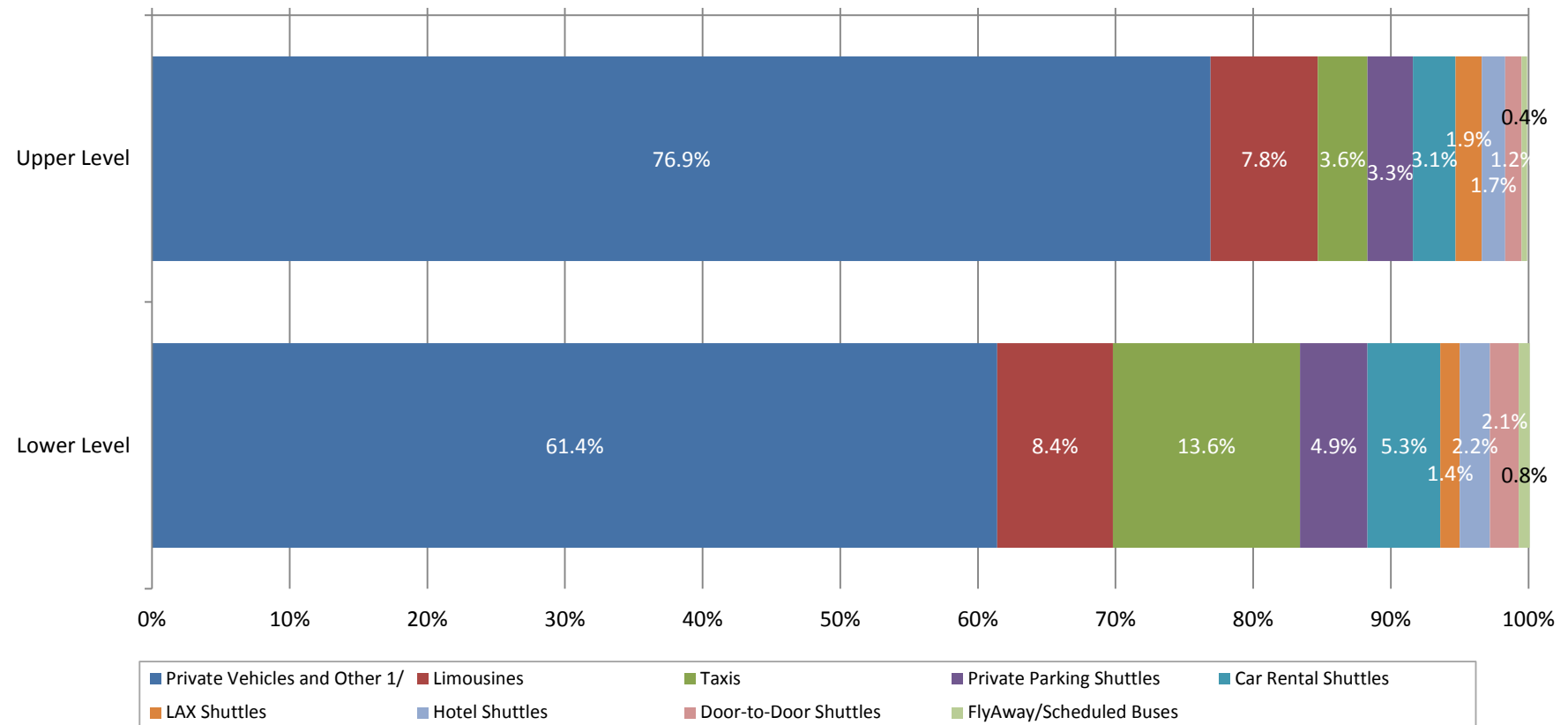
<sup>3</sup> Los Angeles World Airports, *Los Angeles International Airport Ground Transportation Report*, February 2015.

<sup>4</sup> A FlyAway is a facility/service which allows airline passengers and employees to park nearer to their point of origin and board a LAWA-operated bus to the airport.



[DRAFT]

Figure B-2: Existing (2014) Percentage of Traffic by Vehicle Type



## NOTE:

1/ The "Private Vehicles and Other" category includes all vehicles which do not have vehicle transponders issued by LAWA. This includes but is not limited to private vehicles, Transportation Network Companies (such as Uber and Lyft), police vehicles, construction and maintenance vehicles, and vendor delivery trucks.

SOURCE: Los Angeles World Airports, *Los Angeles International Airport Ground Transportation Report*, February 2015.

PREPARED BY: Ricondo & Associates, Inc., October 2016.



## B.3 Traffic Related Concerns

Intersection level of service (LOS) is a qualitative measure that describes traffic operating conditions at an intersection (e.g., delay, queue lengths, congestion)<sup>5</sup>. Intersection level of service range from "A" (i.e., excellent conditions with little or no vehicle delay) to "F" (i.e., excessive vehicle delays and queue lengths). Level of service definitions are provided and explained in detail in **Table B-2**. A standard LOS analysis evaluating volume/capacity (V/C) and LOS conditions using the CTA roadway traffic volumes for the 2014 conditions, for the Airport peak departures and arrivals hours, was conducted for key intersections in the CTA, and is detailed below in **Table B-3**. Within the CTA Peak departure and arrival hours directly correlate to peak hours of aircraft operations, whereas off-airport peaks do not necessarily correspond to peak airport departure and arrival times. Impact determination utilized the Circular 212 (C212) method,<sup>6</sup> as required by the City of Los Angeles Department of Transportation for projects involving land use development within the City of Los Angeles.<sup>7</sup> The use of this method analyzed intersections based on the critical movements that conflict with one another to determine the maximum amount of traffic throughput that can be attained in a given traffic signal cycle. With the exception of World Way South and Center Way (Exit) on the lower level, which operated at an LOS of B, all other CTA intersections operated at LOS A.

**Table B-2: Level of Service Definitions for Signalized Intersections**

LEVEL OF SERVICE (LOS)	VOLUME/CAPACITY RATIO RANGE	DEFINITION
A	0 - 0.600	EXCELLENT: No vehicle waits longer than one red light and no approach phase is fully used.
B	0.601 - 0.700	VERY GOOD: An occasional approach phase is fully used; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 - 0.800	GOOD: Occasionally, drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 - 0.900	FAIR: Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 – less than 1.000	POOR: Represents the most vehicles that intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	greater than or equal to 1.000	FAILURE: Backups from nearby intersections or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

SOURCE: Transportation Research Board, *Transportation Research Circular No. 212, Interim Materials on Highway Capacity*, January 1980.  
PREPARED BY: Ricondo & Associates, Inc. May 2016.

<sup>5</sup> Level of service (LOS) criteria is a standard measurement of traffic impacts recognized by the Federal Highway Administration (FHWA), as well as state and city agencies. Per the Airports Desk Reference as part of FAA Order 5050.4B, transportation effects should be evaluated in terms of LOS, with FAA Order 1050.1F stating that factors to consider when determining significance of socioeconomic impacts include, "Disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities."

<sup>6</sup> Transportation Research Board, *Transportation Research Circular 212, Interim Materials on Highway Capacity*, January 1980.

<sup>7</sup> Los Angeles Department of Transportation, *Traffic Study Policies and Procedures*, August 2014.



**Table B-3: Peak Hour CTA Signalized Intersection Turning Movement Volumes and Level of Service Analysis - Existing (2014) Conditions**

INTERSECTION	PEAK HOUR <sup>1/</sup>	EXISTING (2014)												V/C <sup>2/</sup>	LOS <sup>3/</sup>
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
		L	T	R	L	T	R	L	T	R	L	T	R		
World Way North and Sky Way (Upper Level)	Departure						916						1,954	0.428	A
World Way South and West Way (Upper Level)	Departure				528				1,502					0.394	A
World Way South and East Way (Upper Level)	Departure				523			88	1,924					0.448	A
World Way North and Sky Way (Lower Level)	Arrival	270	140				932						1,851	0.561	A
World Way South and Center Way (Exit) (Lower Level) <sup>4</sup>	Arrival	270	1,114	888					834	636				0.680	B
East Way and World Way South (Lower Level)	Arrival				475			157	1,588					0.439	A

## NOTES:

L= Left-turn movements, T = through movements, and R = right-turn movements

1/ The departures peak hour occurred from 6:16 a.m. to 7:16 a.m. The arrivals peak hour occurred from 8:18 p.m. to 9:18 p.m.

2/ Volume to capacity ratio.

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

4/ For the World Way South and Center Way intersection, World Way South volumes are noted in the Northbound column and Center Way volumes are noted in the Eastbound column of the table.

SOURCE: Ricondo &amp; Associates, Inc. May 2016.

PREPARED BY: Ricondo &amp; Associates, Inc. May 2016.

Because the C212 method assesses intersections in isolation from other traffic conditions in the vicinity, roadway links were also analyzed. Compared to off-Airport roadways, the on-Airport environment is unique. It has a different set of operational issues, such as traffic weaving to and from different terminal curbsides, higher proportion of traffic that is unfamiliar with the roadways leading to slower speeds, constant need of decision-making as a result of signage, and a complex mix of vehicle modes. The roadway link analysis methodology, discussed below, takes into account these complexities to provide a more realistic picture of the traffic conditions in the CTA.

## B.4 CTA Roadway Existing Conditions

The roadway link analysis methodology takes into account the adjacent curbside utilization by reducing the link throughput capacity by a factor directly proportional to the adjacent curbside utilization. The roadway link analysis provides a more realistic picture of the traffic conditions in the CTA. Analyses of the key roadway links within the CTA were prepared by calculating the ratio of roadway volume to capacity (V/C). Existing traffic volumes were based on Automated Vehicle Identification (AVI) counts, in-pavement loop detectors, and intersection turning movement counts collected in August 2014. Passenger arrival and departure profiles



were developed based on the LAX 2011 Passenger Survey, supplemented and verified with information from the LAX 2015 Passenger Survey. The study area as part of this Traffic Analysis is detailed below in **Figure B-3**.

The two-level on-Airport curbside and roadway network is primarily accessed from the following three off-Airport roadways: (1) Century Boulevard, (2) Sepulveda Boulevard, and (3) Sky Way/W. 96th Street bridge. Each of these roadways provides vehicular access to both the departures level and the arrivals level curbsides and roadways. Regardless of the off-Airport roadway used to access the CTA, all traffic entering the CTA must travel through the intersection of World Way North and Sky Way, near Terminal 1. On-Airport access from the departures level to the arrivals level is provided via a recirculation ramp located at the eastern end of the CTA and a ramp at the western end of Center Way connecting to West Way on the departures level. Access from the arrivals level to the departures level is provided via this same ramp at the western end of Center Way connecting to West Way on the departures level.

In order to analyze the operating conditions along the Airport roadway system, the calculated volume of traffic using each roadway link was compared to the capacity of the roadway at that particular location. Based on the Highway Capacity Manual, Special Report 209, the most up-to-date industry standard for capacity and LOS analysis,<sup>8</sup> the theoretical capacity of a roadway is the maximum hourly flow rate per lane under "ideal" conditions.

For airport roadways, however, capacities are substantially lower, as many of the "ideal" conditions cannot be attained as drivers are often unfamiliar with the roadway system and increased interactions between vehicles result in drivers slowing to change lanes and react to on-airport destination signage. Additionally, airport curbsides accommodate relatively intense activity in a compact area and as such inherently have a lower throughput capacity than non-airport roadway systems. Consequently, curbside roadway throughput capacity decreases as curbside utilization increases (i.e., double and triple parking increases which slows vehicles trying to pass). Therefore, the throughput capacity for each lane is related to the level of congestion at the adjacent curbside. **Figure B-4** illustrates the relationship of curbside roadway throughput capacity as a function of curbside utilization.

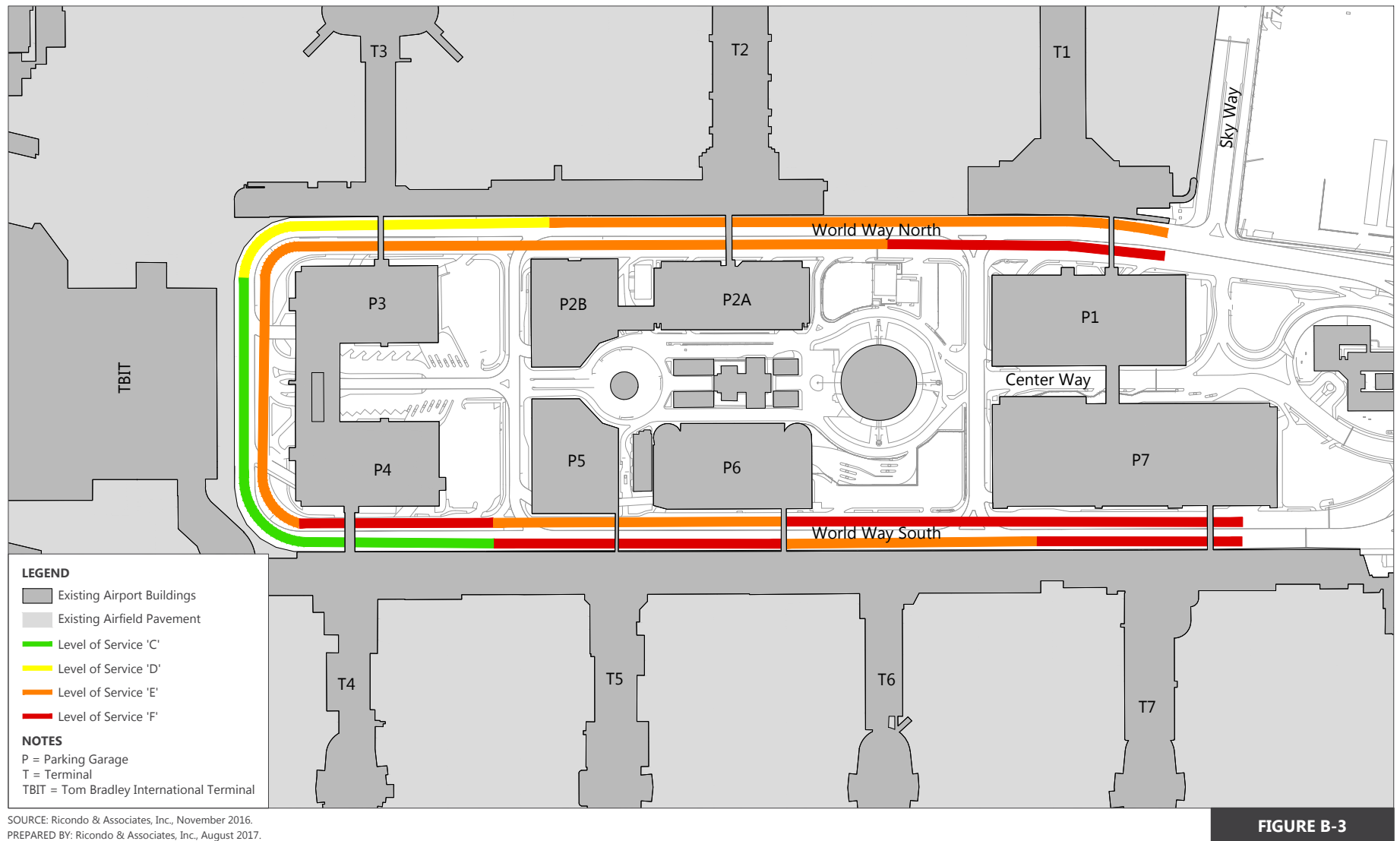
Roadway V/C ratios used to determine a roadway link's LOS are noted and described in greater detail in **Table B-4**. As discussed previously, the capacities of all travel lanes adjacent to a curbside are dependent on the adjacent curbside's utilization rate or level of congestion. The analysis evaluated the key roadway link V/C and LOS conditions using the CTA roadway traffic volumes for the 2014 conditions, as provided and depicted in **Table B-5** for the Airport peak departures and arrivals hours. As shown, over half of the CTA roadway links (13 out of 24) operated at LOS E or F at certain times of the day.

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<sup>8</sup> Transportation Research Board, *Highway Capacity Manual, Special Report 209: Chapter 2 – Capacity and Level of Service Concepts*, pp. 2-3 and 2-4, 2000.



[Preliminary Draft for Discussion Purposes Only]



SOURCE: Ricondo & Associates, Inc., November 2016.  
 PREPARED BY: Ricondo & Associates, Inc., August 2017.

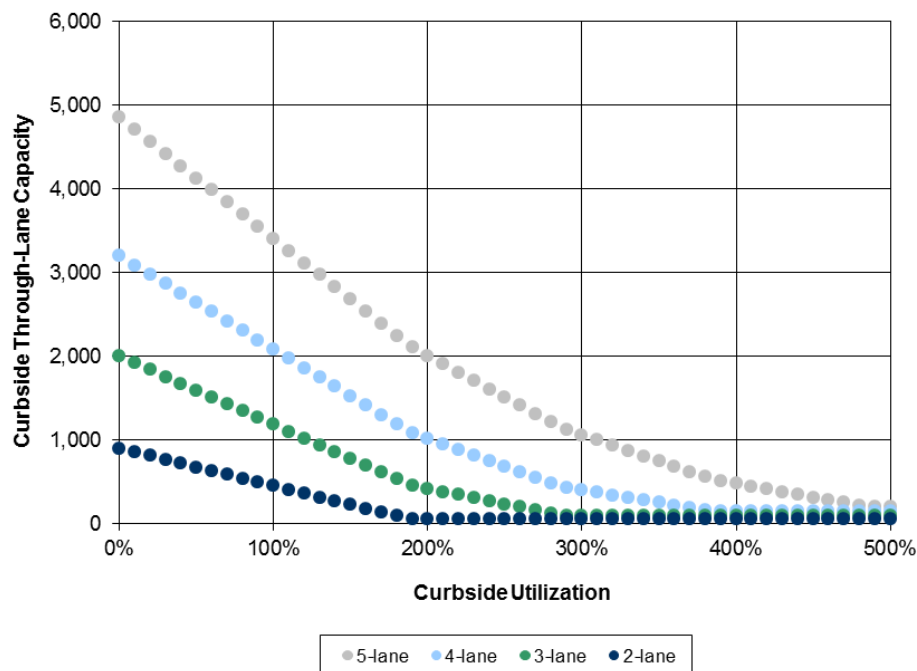


## On-Airport Traffic Study Analysis Study Area



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**Figure B-4: Curbside Roadway Throughput Capacity as a Function of Curbside Utilization**

NOTE: Legend includes number of lanes including the curbside loading/unloading lane

SOURCE: Transportation Research Board of the National Academies, Airport Cooperative Research Program, *ACRP Report 40, Airport Curbside and Terminal Area Roadway Operations* 2010.

PREPARED BY: Ricondo & Associates, Inc. April 2016.

**Table B-4: Roadway Level of Service and Volume to Capacity (V/C) Ratio Ranges**

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

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

PREPARED BY: Ricondo & Associates, Inc., February 2017.



[DRAFT]

**Table B-5: Peak Hour CTA Roadway Volumes and Level of Service Analysis - Existing (2014) Conditions**

ROADWAY LINK	2014		
	VOLUMES	ROADWAY V/C	LOS
<b>DEPARTURES</b>			
Upper Level Roadway Link Adjacent to Terminal 1	2,870	0.92	E
Upper Level Roadway Link Adjacent to Terminal 2	2,327	0.96	E
Upper Level Roadway Link Adjacent to Terminal 3	1,577	0.85	D
Upper Level Roadway Link Adjacent to TBIT	1,483	0.71	C
Upper Level Roadway Link Adjacent to Terminal 4	1,400	0.75	C
Upper Level Roadway Link Adjacent to Terminal 5	2,050	1.17	F
Upper Level Roadway Link Adjacent to Terminal 6	2,050	0.98	E
Upper Level Roadway Link Adjacent to Terminal 7	2,460	1.12	F
<b>ARRIVALS</b>			
Roadway Link Adjacent to Terminal 1 Lower Level Inner Curbside	601	0.32	A
Roadway Link Adjacent to Terminal 2 Lower Level Inner Curbside	530	0.40	A
Roadway Link Adjacent to Terminal 3 Lower Level Inner Curbside	473	0.20	A
Roadway Link Adjacent to TBIT Lower Level Inner Curbside	489	0.21	A
Roadway Link Adjacent to Terminal 4 Lower Level Inner Curbside	666	0.36	A
Roadway Link Adjacent to Terminal 5 Lower Level Inner Curbside	744	0.57	A
Roadway Link Adjacent to Terminal 6 Lower Level Inner Curbside	220	0.09	A
Roadway Link Adjacent to Terminal 7 Lower Level Inner Curbside	536	0.14	A
Roadway Link Adjacent to Terminal 1 Lower Level Outer Curbside	2,394	1.04	F
Roadway Link Adjacent to Terminal 2 Lower Level Outer Curbside	2,085	0.94	E
Roadway Link Adjacent to Terminal 3 Lower Level Outer Curbside	1,782	0.96	E
Roadway Link Adjacent to TBIT Lower Level Outer Curbside	1,578	1.00	E
Roadway Link Adjacent to Terminal 4 Lower Level Outer Curbside	1,300	1.34	F
Roadway Link Adjacent to Terminal 5 Lower Level Outer Curbside	1,740	0.91	E
Roadway Link Adjacent to Terminal 6 Lower Level Outer Curbside	1,903	1.40	F
Roadway Link Adjacent to Terminal 7 Lower Level Outer Curbside	1,863	2.37	F

NOTE: The departures peak hour occurred from 6:16 a.m. to 7:16 a.m. The arrivals peak hour occurred from 8:18 p.m. to 9:18 p.m.

SOURCE: Ricondo & Associates, Inc. May 2016.

PREPARED BY: Ricondo & Associates, Inc. May 2016.



[DRAFT]

As a result of the poor LOS on the various roadway segments, Airport traffic backs up into the surrounding streets. During peak times, the volume of traffic exceeds the roadway's ability to accommodate this traffic, creating queues on Sky Way, World Way North and, most notably, northbound Sepulveda Boulevard. On peak travel days, the queue on northbound Sepulveda Boulevard can extend through the Sepulveda Boulevard Tunnel to the I-105 Freeway.

Also during peak travel times, traffic levels on southbound Sepulveda Boulevard prevent traffic exiting the Airport from merging onto southbound Sepulveda Boulevard, due to the constriction of lanes entering the Sepulveda Tunnel. This causes traffic to back-up through the intersection of Center Way and World Way and can cause traffic to backup all along World Way throughout the CTA. World Way at the Tom Bradley International Terminal on both the upper and lower level roadways is another area of congestion, with high volumes of traffic transitioning to and from the limited curb space along the terminal frontage during peak travel times.

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## B.5 Recirculating Traffic

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As noted above, drivers waiting to access the curb to load or unload their passengers block moving lanes of traffic. On the lower level, rather than parking their vehicle in a structure, drivers may circle the Airport roadways while they wait for their passenger(s), thus contributing to the low LOSs (LOS E or F) on the lower level, outer curbsides. Hourly traffic counts were taken on the return road (Circle Way) from Thursday, August 7, 2014 to Monday, August 11, 2014. The counts were recorded on the portion of Circle Way adjacent to the rose garden, east of the LAWA Administration Building. When compared to the hourly traffic volumes entering the lower level of the CTA, an average of 18.7 percent of lower level traffic recirculated on the return road during this four-day period. Recirculation includes revisiting the curbside after missing a party or driving to a parking garage after dropping off a party curbside.



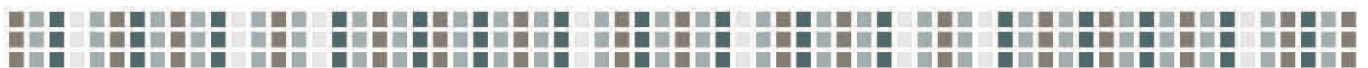
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## **Appendix C**

### Parking Analysis









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## Appendix C Parking Analysis

### C.1 Passenger Parking Demand

In 2015, a parking needs assessment was prepared assessing the existing and long-term demand for parking from the general public as well as employees.<sup>1</sup> The parking analysis showed that during peak periods there is an inadequate amount of parking both on-and off-Airport, resulting in the need for additional available parking for employees, visitors and travelers.

Parking demand was forecast using a design day, which is the average day in the peak month (ADPM) of demand. Based on 2013 parking volume data by month, provided by LAWA, the peak month of parking demand is December. Parking demand was segmented into four transaction types. Each transaction type is associated with one or more typical parking user group(s).

- 0 to 3 hours – meeter/greeter parkers who are picking-up or dropping-off passengers
- 3 to 24 hours – business day trip travelers
- 1 to 3 days – mostly business travelers; some leisure travelers
- More than 3 days – mostly leisure travelers; some business travelers

The parking assessment looked at both LAWA-owned parking and non-LAWA owned parking. LAWA-owned parking demand was segmented into each transaction type based on length-of-stay data. Non-LAWA owned parking was segmented into each transaction type category, except for the 0 to 3 hours type. The 0 to 3 hours type was assumed to be CTA parkers. The remaining three transaction types were calculated utilizing the same distribution of LAWA-owned parking.

The parking study applied an effective supply factor of 90 percent to the current demand estimates. The factor assumes that parking facilities are effectively full at 90 percent occupancy. This provides a buffer to

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<sup>1</sup> Walker Parking Consultants, *Public and Employee Parking Demand Analysis Draft Memorandum*, August 4, 2015.



[DRAFT]

account for misparking, debris in spaces, parking facility maintenance that may remove some spaces temporarily, and for dynamics of vehicles entering and exiting spaces.

**Table C-1** shows the existing number of spaces occupied, for each transaction type, during the peak of the average day in the peak month. The existing need at LAWA-owned and non-LAWA parking facilities, by transaction type, after incorporating the effective supply factor, is also calculated.

**Table C-1: 2014 Existing Parking Demand**

DEMAND AT LAWA-OWNED PARKING			
TRANSACTION TYPE	CURRENT SPACES OCCUPIED AT PEAK ON ADPM	EFFECTIVE SUPPLY FACTOR	CURRENT SPACES NEEDED AT PEAK ON ADPM
0-3 hours	1,364	0.90	1,516
3-24 hours	1,757	0.90	1,952
1 - 3 days	2,308	0.90	2,564
3+ days	5,319	0.90	5,910
<b>Total</b>	<b>10,748</b>		<b>11,942</b>
DEMAND AT NON-LAWA OWNED PARKING			
0-3 hours	0	0.90	0
3-24 hours	3,986	0.90	4,429
1 - 3 days	5,236	0.90	5,818
3+ days	12,066	0.90	13,407
<b>Total</b>	<b>21,287</b>	<b>0.90</b>	<b>23,654</b>

NOTE: ADPM = Average Day Peak Month

SOURCE: Walker Parking Consultants, *Public and Employee Parking Demand Analysis Draft Memorandum*, August 4, 2015.

PREPARED BY: Ricondo & Associates, Inc., November 2016.

To determine a surplus or deficit for each transaction type, assumptions were made regarding the parking facilities most likely to attract each transaction types:

- CTA garages fulfill demand for 0 to 3 hour parkers
- Lot C equally fulfills demand for 1 to 3 day and more than 3 day parkers
- Non-LAWA facilities equally fulfill demand for 3 to 24 hour, 1 to 3 day, and more than 3 day parkers

**Table C-2** combines the assessment of the spaces needed at the peak of the ADPM with the estimated number of spaces available at the same time. The LAWA-owned and non-LAWA owned demand is combined.



**Table C-2: 2014 Existing Net Parking Requirements by Transaction Type**

TRANSACTION TYPE	CURRENT SPACES OCCUPIED	EFFECTIVE SUPPLY FACTOR	CURRENT SPACES NEEDED	NUMBER OF EXISTING PARKING SPACES	ADDITIONAL SPACES NEEDED
0-3 hours	1,364	0.90	1,516	2,035	(519)
3-24 hours	5,743	0.90	6,381	6,192	189
1 - 3 days	7,544	0.90	8,382	8,914	(532)
3+ days	17,385	0.90	19,317	17,661	1,656
<b>Total</b>	<b>32,036</b>		<b>35,596</b>	<b>34,802</b>	<b>794</b>

NOTE: Parking requirements based on peak times for the Average Day Peak Month (ADPM).

SOURCE: Walker Parking Consultants, Public and Employee Parking Demand Analysis Draft Memorandum, August 4, 2015.

PREPARED BY: Ricondo & Associates, Inc., November 2016.

The parking analysis showed that during peak periods there is an inadequate amount of parking both on- and off-Airport. In fact, in 2014, parking structures in the CTA, particularly P-3 and P-4, filled to capacity during peak travel periods. Drivers seeking parking were instructed to go to adjacent garages, sometimes resulting in those lots also reaching capacity.

The 2015 parking needs assessment also analyzed peak period parking and employee parking at passenger activity levels of 95 million annual passengers (MAP).<sup>2</sup> Future parking demand was projected based on growth in curbside passenger arrival/departure activity from current design day, in August 2014, to future 95 MAP design day. Curbside passenger arrival/departure activity is a proxy for origin and destination (O&D) passengers. The current design day number of passengers is 153,055, which is projected to increase to 226,214, or by approximately 47.5 percent. The same projected growth figure was applied to current demand for each transaction type, assuming no changes in O&D percentage of total enplanements.

Net new parking required for each transaction type was projected by calculating future demand minus surplus parking for a given transaction type minus current demand on ADPM incorporating the effective supply factor. Surplus for each transaction type is based on the surplus of parking available after adjustments to peak month. To determine surplus by transaction type, assumptions regarding transaction types primarily fulfilled by parking facility groupings were made:

- CTA garages fulfill demand for 0 to 3 hour parkers
- Lot C equally fulfills demand for 1 to 3 day and more than 3 day parkers
- Non-LAWA facilities equally fulfill demand for 3 to 24 hour, 1 to 3 day and more than 3 day parkers

<sup>2</sup> Walker Parking Consultants, *Public and Employee Parking Demand Analysis Draft Memorandum*, August 4, 2015.



[DRAFT]

**Table C-3** illustrates projected net new parking required by transaction type, assuming existing parking patterns continue. The net factor expresses how many additional spaces would be needed at 95 MAP in addition to the existing need shown in Table C-2. The parking needs assessment applied two scenarios to model the impacts of transportation network carriers (TNCs) such as Uber and Lyft, and improvements to public transit in the future that would cause a shift from personal vehicles. Two scenarios were developed, one with a 10 percent reduction in parking requirements and one with a 20 percent reduction in parking requirements. The public parking analysis resulted in a projected need of as few as 4,049 spaces (with 20 percent of the demand being met by TNCs or public transit) to approximately 15,717 spaces at 95 MAP, if current parking patterns continue.

**Table C-3: Projected Net New Parking Required by Transaction Type**

TRANSACTION TYPE	CURRENT SPACES NEEDED AT PEAK ON ADPM	ESTIMATED AVAILABLE SPACES AT PEAK			PROJECTED FUTURE DEMAND	NET NEW SPACES REQUIRED	NET SPACES REQUIRED WITH 0.9 EFFECTIVE SUPPLY FACTOR
		CTA	LOT C	NON-LAWA			
0-3 hours	1,516	671	0	0	2,236	49	54
3-24 hours	6,381	0	0	449	9,413	2,583	2,841
1 - 3 days	8,382	0	702	668	12,364	2,612	2,902
3+ days	19,317	0	155	121	28,495	8,902	9,891
<b>Total</b>	<b>35,596</b>	<b>671</b>	<b>857</b>	<b>1,238</b>	<b>52,508</b>	<b>14,146</b>	<b>15,717</b>

Note: ADPM = Average Day Peak Month

SOURCE: Walker Parking Consultants, *Public and Employee Parking Demand Analysis Draft Memorandum*, August 4, 2015.  
PREPARED BY: Ricondo & Associates, Inc., November 2016.

## C.2 Employee Parking Demand

Employee parking demand at the 95 MAP level was projected by utilizing data provided by LAWA related to current inventory and demand, projecting growth in employee demand, converting to spaces needed at peak based on a multiplier, and applying an effective supply factor.<sup>3</sup> Based on data provided by LAWA, the current inventory of employee parking is just over 5,400 spaces in three parking areas (West, East, and South). Current demand, in terms of permits sold per month, totals nearly 13,900. Employee growth was projected at approximately 2.2 percent per year from current passenger levels to a passenger activity level of 95 MAP.

<sup>3</sup> Walker Parking Consultants, *Public and Employee Parking Demand Analysis Draft Memorandum*, August 4, 2015.



[DRAFT]

**Table C-4** illustrates the forecast of employee parking demand. Depending on the demand reduction scenario, a projected shortfall of approximately 2,260 employee parking spaces is forecast at the 95 MAP.

**Table C-4: Forecast of Employee Parking Demand**

	2015	2020 <sup>3/</sup>	2032 <sup>4/</sup>
Demand – Permits Sold per Month	13,857	15,437	20,004
Spaces Needed <sup>1/</sup>	5,046	5,622	7,283
Spaces Needed With Effective Supply Factor <sup>2/</sup>	5,312	5,917	7,667
Existing Employee Spaces	5,409	5,409	5,409
Net New Spaces Required	97	(508)	(2,258)

## NOTES:

1/ Assumes 100 percent occupancy

2/ Assumes 95 percent occupancy due to effective supply factor

3/ Parking study did not analyze 2024 so the closest year was chosen

4/ Parking study assumed 95 MAP would be reached in 2032

SOURCE: Walker Parking Consultants, *Public and Employee Parking Demand Analysis Draft Memorandum*, August 4, 2015.

PREPARED BY: Ricondo & Associates, Inc., November 2016.



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## Appendix D

### LAX Landside Access Modernization Program

#### Forecasts and Passenger Activity Levels









## Appendix D Forecasts and Passenger Activity Levels

Federal Aviation Administration (FAA) Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, paragraphs 503.b and 504.b, instructs that efficient and accurate environmental analyses rely on reasonable future aviation forecasts. The Landside Access Modernization Program does not impact aviation facilities at Los Angeles International Airport (LAX), but instead addresses existing ground access deficiencies that create significant surface traffic congestion during peak periods at LAX. Although forecasts of aviation activity do not correlate perfectly to surface transportation changes associated with a project such as the LAX Landside Access Modernization Program, this Environmental Assessment (EA) utilizes aviation forecasts from two sources to estimate impacts of the proposed project. This is because the majority of users of the ground access facilities proposed in the project will ultimately board or deplane an aircraft at LAX. Users who travel to the airport using facilities proposed in the project without arriving or departing via aircraft typically will be fewer in number and include airport employees, service shuttles, other commercial operators, and private vehicles dropping off/picking up passengers. These users have been factored into the environmental analysis through the roadway traffic modeling conducted for the EA.

Implementation of the LAX Landside Access Modernization Program would not increase the number of flights or change the types of aircraft using the airfield because it affects only efficiency of the landside/roadway system and landside development. The Proposed Action would not result in changes to air traffic flight patterns or aircraft taxi patterns. Furthermore, the Proposed Action would not change the number of passengers at LAX; it would only change how they access the Airport and terminal facilities. The analyses contained in the EA rely on forecasts developed by the FAA and the regional Metropolitan Planning Organization, the Southern California Association of Governments (SCAG).

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### D.1 FAA Terminal Area Forecast

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The FAA produces and publishes the Terminal Area Forecast (TAF) annually for all airports with FAA staffed Airport Traffic Control Towers (ATCT), federal contract tower airports, terminal radar approach control (TRACON) facilities, and many airports that do not have an ATCT. The TAF includes historical and forecast



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data for air carrier and commuter enplanements as well as airport operations and based aircraft.<sup>1</sup> The TAF is prepared to assist the FAA in meeting its planning, budgeting, and staffing requirements, and it also serves as a basis for planning airport improvements through Airport Improvement Program (AIP) funding.<sup>2</sup> The TAF is based on projected demand for air transportation considering local and national economic conditions, "independent of the ability of the airport and air traffic control system to furnish the capacity required to meet the demand."<sup>3</sup> Existing constraints at the airport are "embedded in historical data"<sup>4</sup> used by the FAA as a base for the forecast. Passengers at LAX grew at a 2.5 percent compounded annual growth rate (CAGR) over the period of 2005 to 2016.<sup>5</sup> Such growth over an 11-year period is similar to that assumed in the 2014 TAF at 2.1 percent CAGR between 2014 and 2040. The period 2005 to 2016 included seven consecutive years of sustained high growth.<sup>6</sup>

The 2015 TAF passenger enplanement forecast for LAX is included in **Table D-1**.<sup>7</sup> An enplanement is one passenger boarding an aircraft at LAX. Total passengers would include both enplanements (the passengers boarding an aircraft) and deplanements (those passengers exiting an aircraft) at LAX. For planning purposes, it is assumed that the total passenger count is equal to double the number of passenger enplanements. The LAX TAF enplanement forecast for the forecast years analyzed in the LAX Landside Access Modernization Program EA is included in **Table D-2**. The three analysis years were identified as follows: 2024 to represent conditions at the completion of Phase 1 of the Project; 2030 to represent conditions at the completion of Phase 2 of the Project; and 2035 to represent conditions 5 years after completion of the Project.

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<sup>1</sup> Based aircraft are those aircraft that use an airport as a home base, i.e., they have hangar or aircraft parking positions at the airport.

<sup>2</sup> U.S. Department of Transportation, Federal Aviation Administration, *Terminal Area Forecast Summary, Fiscal Years 2014 – 2040*, January 2015.

<sup>3</sup> U.S. Department of Transportation, Federal Aviation Administration, *Terminal Area Forecast Summary, Fiscal Years 2014 – 2040*, January 2015, p. 3.

<sup>4</sup> U.S. Department of Transportation, Federal Aviation Administration, *Terminal Area Forecast Summary, Fiscal Years 2014 – 2040*, January 2015, p. 3.

<sup>5</sup> City of Los Angeles, Los Angeles World Airports, Statistics - Ten Year Summary – Passengers, Available: [http://www.lawa.org/welcome\\_LAX.aspx?id=800](http://www.lawa.org/welcome_LAX.aspx?id=800), accessed January 26, 2017.

<sup>6</sup> Growth in total passengers: 2009-2010 = 4.5%; 2010-2011 = 4.7%; 2011-2012 = 3.0%; 2012-2013 = 4.7%; 2013-2014 = 6.0%; 2014-2015 = 6.1%; 2015-2016 = 8.0%. Source: City of Los Angeles, Los Angeles World Airports, Statistics - Ten Year Summary – Passengers, Available: [http://www.lawa.org/welcome\\_LAX.aspx?id=800](http://www.lawa.org/welcome_LAX.aspx?id=800), accessed July 14, 2017.

<sup>7</sup> The FAA publishes the TAF every January. At the time LAWA began the analyses for the LAX Landside Access Modernization Program, the 2015 FAA TAF was published. Similar to the 2015 TAF, the forecasts utilized for the LAX Landside Access Modernization Program EA are within 15 percent of the 2016 FAA TAF issued in January 2017 for the 10-year analytical period.



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**Table D-1: 2015 FAA Terminal Area Forecast: Los Angeles International Airport**

FISCAL YEAR <sup>1/</sup>	AIR CARRIER <sup>4/</sup>	AIR TAXI AND COMMUTER <sup>5/</sup>	INTERNATIONAL		TOTAL ENPLANEMENTS
			US FLAG <sup>6/</sup>	FOREIGN FLAG <sup>7/</sup>	
2010 <sup>2/</sup>	18,538,004	2,394,595	1,544,870	6,052,959	28,530,428
2011	19,493,020	2,772,104	1,858,262	6,043,924	30,167,310
2012	20,093,036	3,014,706	1,905,423	6,284,151	31,297,316
2013	20,515,493	3,039,701	1,916,942	6,485,333	31,967,534
2014	21,515,630	3,446,438	2,224,183	6,734,639	33,920,890
2015 <sup>3/</sup>	22,403,321	3,717,049	2,422,355	6,882,635	35,425,360
2016	24,032,244	3,133,257	2,587,700	7,210,021	36,963,222
2017	24,590,465	3,204,250	2,637,896	7,349,881	37,782,492
2018	25,107,652	3,273,055	2,688,488	7,490,844	38,560,039
2019	25,630,344	3,341,577	2,739,414	7,632,735	39,344,070
2020	26,221,149	3,422,610	2,791,061	7,776,634	40,211,454
2021	26,802,262	3,503,845	2,842,886	7,921,031	41,070,024
2022	27,340,719	3,580,940	2,894,744	8,065,518	41,881,921
2023	27,847,944	3,650,933	2,946,768	8,210,471	42,656,116
2024	28,339,349	3,717,120	2,998,790	8,355,419	43,410,678
2025	28,817,179	3,779,940	3,050,844	8,500,453	44,148,416
2026	29,325,139	3,847,438	3,102,956	8,645,649	44,921,182
2027	29,840,733	3,913,071	3,155,238	8,791,320	45,700,362
2028	30,349,518	3,977,989	3,207,605	8,937,230	46,472,342
2029	30,850,710	4,041,720	3,261,037	9,086,107	47,239,574
2030	31,356,970	4,106,036	3,314,636	9,235,446	48,013,088
2031	31,855,514	4,169,987	3,368,333	9,385,060	48,778,894
2032	32,363,641	4,238,333	3,422,685	9,536,498	49,561,157
2033	32,888,773	4,308,974	3,477,325	9,688,738	50,363,810
2034	33,441,600	4,383,920	3,532,006	9,841,093	51,198,619
2035	33,999,774	4,460,542	3,588,038	9,997,212	52,045,566

## NOTES:

1/ The federal fiscal year ends September 30. Fiscal year 2010 was the period from October 1, 2009 through September 30, 2010.

2/ Data for federal fiscal years 2010 through 2014 are based on actual historical data.

3/ Data for federal fiscal year 2015 through 2035 are FAA's forecast enplanement figures.

4/ Air Carrier = An air carrier is defined as an operator whose airplanes are designed to have more than 60 passenger seats or a cargo payload of more than 18,000 lbs.

5/ Commuter = A commuter air carrier is defined as a company which operates airplanes designed to have no more than 60 passenger seats that provides scheduled passenger service of five or more round trip flights per week on at least one route according to published flight schedules.

6/ U.S. Flag = An air carrier holding a certificate under section 401 of the Federal Aviation Act of 1958 (49 U.S.C. § 41102)

7/ Foreign Flag = Any air carrier not holding a certificate under section 401 of the Federal Aviation Act of 1958 (49 U.S.C. § 41102).

SOURCE: Federal Aviation Administration, APO Terminal Area Forecast 2015, January 2016.

PREPARED BY: Ricondo & Associates, Inc., November 2016.



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**Table D-2: 2015 FAA TAF - Enplanements**

FISCAL YEAR <sup>1/</sup>	AIR CARRIER	AIR TAXI AND COMMUTER	US FLAG	FOREIGN FLAG	TOTAL ENPLANEMENTS
2024	28,339,349	3,717,120	2,998,790	8,355,419	43,410,678
2030	31,356,970	4,106,036	3,314,636	9,235,446	48,013,088
2035	33,999,774	4,460,542	3,588,038	9,997,212	52,045,566

NOTE:

1/ The federal fiscal year ends September 30. Fiscal year 2016 was the period from October 1, 2015 through September 30, 2016.

SOURCE: Federal Aviation Administration, APO Terminal Area Forecast 2015, January 2016.

PREPARED BY: Ricondo &amp; Associates, Inc., November 2016.

FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, states: "Forecasts should be within 10 percent of the TAF for the 5-year analytical period and within 15 percent for the 10-year analytical period." The passenger forecasts utilized in this EA of 86 million annual passengers (MAP) (43 million enplanements) in 2024 and 95 MAP (47.5 million enplanements) in 2030 are consistent with the 2015 TAF. The forecast of 95 MAP (47.5 million enplanements) in 2035 is within 9 percent of the 2015 FAA TAF, projected at 104 MAP (52 million enplanements), and, thus, is consistent with FAA guidance pertaining to the use of forecasts for environmental analyses, as noted below in **Table D-3**.

**Table D-3: Comparison of 2015 TAF and EA Passenger Forecast to FAA Requirements**

YEAR	FAA TAF FORECAST <sup>1/</sup>	LAX FORECAST USED IN EA <sup>1/</sup>	ACTUAL DIFFERENCE BETWEEN EA AND TAF <sup>2/</sup>	PERCENTAGE DIFFERENCE
2024	86,821,756	86,000,000	-821,756	-0.95%
2030	96,026,576	95,000,000	-1,026,576	-1.07%
2035	104,091,532	95,000,000	-9,091,532	-8.73%

NOTES:

1/ Million Annual Passengers

2/ The LAX forecast used in this EA compared to the FAA TAF forecast.

SOURCE: Federal Aviation Administration, APO Terminal Area Forecast 2015, January 2016; Southern California Association of Governments, *Final 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*, Adopted April 7, 2016

PREPARED BY: Ricondo &amp; Associates, Inc. January 2017.



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## D.2 Regional Transportation Plan Forecasts

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To be consistent with the Regional Transportation Plan for the Los Angeles metropolitan area, LAWA also utilized the Southern California Association of Governments (SCAG) regional aviation forecasts to identify potential future passenger activity at LAX. As part of the Southern California Association of Governments 2016-2040 Regional Transportation Plan (SCAG RTP), SCAG developed a forecast of aviation activity for the Southern California region, encompassing multiple commercial service airports including LAX.<sup>8</sup> SCAG utilized a forecast methodology that blended a macro-economic demand forecast model relating historic passenger traffic to key socioeconomic variables for the entire SCAG region, with a traffic allocation model that allocated passenger traffic demand across the individual airports based on factors known to drive a passenger's preference for a certain airport.<sup>9</sup> Utilizing econometric forecasting approaches and regression analyses (similar to how FAA prepares the TAF), SCAG developed regional forecasts for three aviation market sectors: domestic short-haul origin and destination (O&D) traffic, domestic medium-to-long-haul (O&D) traffic, and international O&D traffic. The SCAG regional forecast resulted in a total passenger demand forecast within the SCAG region of 136.2 MAP in 2040.<sup>10</sup> SCAG needed to conduct this analysis in order to support its regional surface transportation demand model used to assess transportation air quality and surface transportation investment priorities, because O&D air passengers contribute to surface traffic across the SCAG region.

SCAG's air traffic allocation model examined catchment areas of each airport within the SCAG region. The SCAG RTP noted the air passenger demand handled by each airport in the region depends on passengers' choices regarding which airport to use, as well as physical capacity and policy constraints that may limit an airport's ability to accommodate the demand.<sup>11</sup> Four of the commercial service airports in the SCAG region, including LAX, were recognized by SCAG as having physical or policy capacity constraints that may limit their ability to accommodate increases in demand. Thus, the SCAG RTP analyzed the capacity constraints of each of these airports. For LAX, SCAG examined the existing LAX airfield (runway and taxiway system) including

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<sup>8</sup> Southern California Association of Governments, *Final 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*, Adopted April 7, 2016, Available: <http://scagrtpscscs.net/Pages/FINAL2016RTPSCS.aspx>.

<sup>9</sup> Southern California Association of Governments, *Final 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*, Aviation and Airport Ground Access Appendix, Adopted April 7, 2016, pp. 8-22, Available: <http://scagrtpscscs.net/Pages/FINAL2016RTPSCS.aspx>.

<sup>10</sup> Southern California Association of Governments, *Final 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*, Aviation and Airport Ground Access Appendix, Adopted April 7, 2016, p. 17, Available: <http://scagrtpscscs.net/Pages/FINAL2016RTPSCS.aspx>.

<sup>11</sup> Southern California Association of Governments, *Final 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*, Aviation and Airport Ground Access Appendix, Adopted April 7, 2016, p. 18, Available: <http://scagrtpscscs.net/Pages/FINAL2016RTPSCS.aspx>.



approved runway safety area (RSA) improvements, as well as existing terminals.<sup>12</sup> SCAG's analysis of airfield and terminal capacity was based on the published plans as described in the LAX Specific Plan Amendment Study (SPAS) and the LAX Master Plan. SCAG utilized FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*<sup>13</sup> to identify the hourly capacity and annual service volume to estimate the capacity of the LAX airfield.<sup>14</sup>

The 2016-2040 RTP published by SCAG identifies the airfield as the limiting factor of capacity at LAX, based on the existing runway configuration.<sup>15</sup> The Proposed Action would not affect or change any airfield components, including the runways, taxiways, or aircraft arrival and departure procedures, and thus would not increase the capacity of the LAX airfield. While SCAG considered sensitivity analyses for LAX's existing airfield capacity that ranged from 82.9 MAP to 96.6 MAP through the year 2040, it used 96.6 MAP for the allocation of passenger traffic to LAX among Southern California airports.<sup>16</sup> This forecast activity level for LAX is consistent with the FAA TAF for LAX and with the assumed activity levels utilized by LAWA for the LAX Landside Access Modernization Program.

The 2004 LAX Final Master Plan identified the curb and roadways component of the LAX system as one of the constraints on overall airport capacity under the No Action/No Project scenario, as discussed and depicted on Figure 1.2-1 of the LAX Final Master Plan.<sup>17</sup> The ground access component is only one component of the overall airport system, which includes other key components such as the runway and taxiway system and passenger processing components (e.g., ticket counters, security screening positions, holdrooms and gates).<sup>18</sup> The theoretical "physical throughput capacity of each component of an airport - gates, runways or other components of the airport - does not disclose the overall capacity of the airport as an operating whole."<sup>19</sup>

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<sup>12</sup> Southern California Association of Governments, *Final 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*, Aviation and Airport Ground Access Appendix, Adopted April 7, 2016, pp. 18-20, Available: <http://scagrtpscsc.net/Pages/FINAL2016RTPSCS.aspx>.

<sup>13</sup> U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5060-5, *Airport Capacity and Delay*, September 23, 1983.

<sup>14</sup> Southern California Association of Governments, *Final 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*, Aviation and Airport Ground Access Appendix, Adopted April 7, 2016, p. 19, Available: <http://scagrtpscsc.net/Pages/FINAL2016RTPSCS.aspx>.

<sup>15</sup> Note that according to the *2016-2040 Regional Transportation Plan/ Sustainable Communities Strategy (RTP/SCS)* published by the Southern California Association of Governments (SCAG) in April 2016, the airport system component limiting capacity at LAX is the airfield component. See Aviation & Airport Ground Access Appendix, p. 20.

<sup>16</sup> Southern California Association of Governments, *Final 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*, Aviation and Airport Ground Access Appendix, Adopted April 7, 2016, pp. 21-22, Available: <http://scagrtpscsc.net/Pages/FINAL2016RTPSCS.aspx>.

<sup>17</sup> City of Los Angeles, Los Angeles World Airports, *LAX Final Master Plan*, April 2004, Section 1.2 on pages 1-4 and 1-7.

<sup>18</sup> Note that according to the *2016-2040 Regional Transportation Plan/ Sustainable Communities Strategy (RTP/SCS)* published by the Southern California Association of Governments (SCAG) in April 2016, the airport system component limiting capacity at LAX is the airfield component. See Aviation & Airport Ground Access Appendix, p. 20.

<sup>19</sup> U.S. Department of Transportation, Federal Aviation Administration, *Record of Decision, Proposed LAX Master Plan Improvements, Appendix B, Responses to Comments on the Final Environmental Impact Statement*, May 20, 2005, p. B2-77, Available: [http://www.faa.gov/airports/environmental/records\\_decision/lax/#lax05](http://www.faa.gov/airports/environmental/records_decision/lax/#lax05), accessed August 25, 2016.



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Rather, practical capacity takes into account market assumptions, expected physical characteristics of various airport system functional elements and how they are planned and expected to work together.<sup>20</sup>

The analyses relied upon in the LAX Master Plan that identified the curbs and roadways component of the LAX system as one of the constraints on overall airport capacity were initiated in 1996 and were based on known conditions and assumptions made over 20 years ago.<sup>21,22</sup> Landside access factors that have changed since the 2004 LAX Master Plan include advent of shared ride services, increased regional traffic congestion, evolution of the Los Angeles County Metro and public transit system, advent of TNCs (e.g., Uber and Lyft), and improved traffic data collection. Additionally, LAWA has implemented a number of projects including the Bradley West Terminal, terminal renovations, Center Way improvements, single-level busing for some commercial vehicles, and other improvements. Given these facts, LAWA has decided to rely on known and reasonably foreseeable conditions, reflective of changed circumstances, rather than upon conditions predicted in the 2004 LAX Master Plan regarding the interaction between passenger activity levels and facilities and conditions at LAX.

**Table D-4** provides a list of historical passenger market shares for commercial passenger airports in the Los Angeles basin over the last ten years. Whereas LAX's passenger market share has increased, the other airports have seen their market shares stay relatively constant (John Wayne Airport and Long Beach Airport) or decline (Ontario International Airport and Hollywood Burbank Airport) over the 10-year period.

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<sup>20</sup> City of Los Angeles, Los Angeles World Airports, *Preliminary LAX Specific Plan Amendment Study Report*, July 2012, Section 6.2, p. 6-2, Available: <http://www.lawa.org/LAXSPAS/Reports.aspx>.

<sup>21</sup> See Section 3.3.1.1 of the 2000 LAX Draft Master Plan, page V-3.22 for information regarding the analysis of the LAX Master Plan No Action/No Project Alternative.

<sup>22</sup> Based on Table III-1.1 on page III-1.6 in Section 1.3 of the 2000 LAX Draft Master Plan, LAX accommodated 51 MAP in 1994 (year 1996 was not reported in Table III-1.1), and was forecasted to accommodate 74.2 MAP in 2005. In comparison, LAX actually accommodated 61.5 MAP in 2005 and 74.9 MAP in 2015. Therefore, LAX reached the passenger activity levels forecasted by the 2000 LAX Draft Master Plan 10 years later than expected, i.e., in 2015.



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**Table D-4: Historical Passenger Market Shares between 2006 and 2016**

CALENDAR YEAR	HOLLYWOOD BURBANK AIRPORT (BUR)	LOS ANGELES INTERNATIONAL AIRPORT (LAX)	LONG BEACH AIRPORT (LGB)	ONTARIO INTERNATIONAL AIRPORT (ONT)	JOHN WAYNE AIRPORT (SNA)
2006	7%	71%	3%	8%	11%
2007	7%	70%	3%	8%	11%
2008	7%	72%	3%	7%	11%
2009	6%	73%	4%	6%	11%
2010	6%	74%	4%	6%	11%
2011	5%	75%	4%	6%	10%
2012	5%	76%	4%	5%	10%
2013	5%	77%	3%	5%	11%
2014	4%	78%	3%	5%	10%
2015	4%	78%	3%	4%	11%
2016	4%	79%	3%	4%	10%

SOURCES: Ricondo & Associates, Inc., December 2016, 2005 - 2015, based on U.S. Department of Transportation T-100 data obtained from Innovata (historical passenger activity levels and calculated market shares); 2016 United States Department of Transportation, Form T-100, May 2017 (Long Beach Airport); Hollywood Burbank Airport, December 2016 Statistics, <http://bobhopeairport.com/wp-content/uploads/Stats-12-2016.pdf>, accessed May 4, 2017; City of Los Angeles, Los Angeles World Airports, Statistics - Ten Year Summary - Passengers, [http://lawa.org/welcome\\_LAX.aspx?id=800](http://lawa.org/welcome_LAX.aspx?id=800), accessed May 4, 2017; Ontario International Airport, December 2016 Statistics, [http://www.flyontario.com/sites/default/files/ont\\_airport\\_statistics\\_-\\_dec\\_2016.pdf](http://www.flyontario.com/sites/default/files/ont_airport_statistics_-_dec_2016.pdf), accessed May 4, 2017; Orange County, John Wayne Airport, "John Wayne Airport Posts December 2016 Statistics," <http://www.ocair.com/newsroom/news/?nr=nr-2017-02-27&tr=yes>, accessed May 4, 2017.

PREPARED BY: Ricondo & Associates, Inc., May 2017.

The decision to choose to fly to, from, or through LAX is driven by many factors, including: socioeconomic data, demographics, disposable income, geographic attributes, and external factors such as fuel costs and airline industry-related factors (airline mergers, airline hubbing practices, and airfares).<sup>23</sup> Although congested traffic conditions in the CTA at LAX may cause passengers to allow more time to get to the Airport to account for traffic delays, the historic data does not suggest that the Proposed Action would increase the number of passengers at LAX. It would only change how they access the Airport and terminal facilities, improve access options, and improve the landside travel experience for passengers.

Both the FAA TAF and the SCAG RTP forecasts of future passenger activity at LAX accurately predict continued growth in passengers at LAX with or without any ground access improvements. To be consistent with these

<sup>23</sup> U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5070-6B, Change 2, *Airport Master Plans*, January 27, 2015, Chapter 7 Aviation Forecasts, pp. 37-38, Available: [http://www.faa.gov/documentLibrary/media/Advisory\\_Circular/150-5070-6B-Change-2-Consolidated.pdf](http://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5070-6B-Change-2-Consolidated.pdf), accessed August 25, 2016.



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forecasts, LAWA used a passenger activity level of 86 MAP in 2024 and a passenger activity level of 95 MAP for 2030 and 2035.

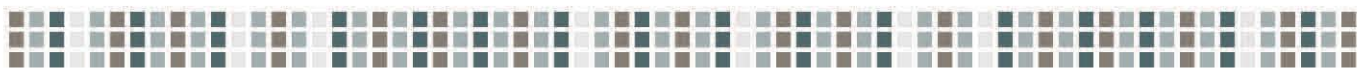


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## Appendix E

### Automated People Mover Alternatives









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## Appendix E. APM Alternatives

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### E.1 Introduction

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This Appendix summarizes the process that was used to identify a wide range of alternatives for the Automated People Mover (APM) system. The alternatives presented in this Appendix were determined through the evolution of LAX planning efforts conducted over the last 15 years.<sup>1,2</sup> A ground transportation center and an intermodal transportation center located outside the Central Terminal Area (CTA) and served by an automated people mover (APM) system is consistent with previous plans. Previous planning also identified a need for a consolidated rental car facility located outside the CTA and connected to the APM system.

This appendix includes alternatives considered for the APM identified in previous programmatic planning efforts. In addition to identifying the APM Alternatives, the construction and operational feasibility of each APM Alternative was evaluated to determine the vertical and horizontal alignments, number of CTA stations, and alignment within the CTA, that when combined, forms the Preferred APM CTA Alignment.

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### E.2 Identification and Evaluation of Potential APM Alternatives

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Due to the complexity and integration of the proposed facilities, APM alternatives have been categorized for evaluation. Four attributes of an APM alignment were identified, as evaluated below:

- Vertical APM Alignments
- Horizontal CTA APM Alignments
- CTA APM Stations
- East of the CTA APM Alignments

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<sup>1</sup> Los Angeles World Airports, *LAX Master Plan*, April 2004.

<sup>2</sup> City of Los Angeles, Department of City Planning, *Los Angeles International Airport (LAX) Specific Plan*, adopted December 14, 2004, last amended June 14, 2016, Available: [http://clkrep.lacity.org/online/docs/2013/13-0285-s3\\_ORD\\_184348\\_6-15-16.pdf](http://clkrep.lacity.org/online/docs/2013/13-0285-s3_ORD_184348_6-15-16.pdf).



A stand-alone alternative based on one attribute above is not feasible. At least one alternative from each category would need to be linked together in order to form a complete APM alignment, connecting the CTA to remote facilities. The attributes listed above need to be evaluated sequentially. For instance, the vertical alignment of an APM alignment will affect the feasibility of alternatives for the placement/location of a horizontal alignment, as well as the alignment inside and outside of the CTA. Each alternative and attribute is described and its construction and operational feasibility discussed in the following subsections.

- Vertical Alignment Alternatives
  - Alternative APM-1.a, Aerial APM Alternative
  - Alternative APM-1.b, At-Grade APM Alternative
  - Alternative APM-1.c, Underground APM Alternative
- Horizontal Alignment Alternatives
  - Alternative APM-2.a, Terminal/Airside APM Alternative
  - Alternative APM-2.b, World Way APM Alternative
  - Alternative APM-2.c, Parking Garage APM Alternative
  - Alternative APM-2.d, Center Way APM Alternative
- Central Terminal Area APM Stations
  - Alternative APM-3.a, One CTA APM Station Alternative
  - Alternative APM-3.b, Two CTA APM Stations Alternative
  - Alternative APM-3.c, Three CTA APM Stations Alternative
  - Alternative APM-3.d, Four CTA APM Stations Alternative
  - Alternative APM-3.e, Five CTA APM Stations Alternative
  - Alternative APM-3.f, APM Station at each Terminal Alternative
- East of the Central Terminal Area APM Alignments
  - Alternative APM-4.a, LAX Master Plan Preferred Alternative
  - Alternative APM-4.b, LAX Specific Plan Amendment Study Preferred Alternative
  - Alternative APM-4.c, Refined Concept Alternative



### E.2.1 VERTICAL APM ALIGNMENT ALTERNATIVES

In 2014, LAWA staff conducted an alternatives analysis of the APM alignment<sup>3</sup> examining different vertical (below grade, at grade, and above grade) and horizontal alignments. Vertical alignments are discussed below and shown on **Figure E-1**; horizontal alignments are discussed in Section E.2.2.

Functionally, any APM system (below grade, at grade, and above grade) that consists of a dedicated guideway (and associated integrated APM stations) for travel directly into and out of the CTA would improve access options by providing a redundant access option into the CTA. An APM, in general, would reduce total travel time for moving passengers from one end of the proposed system to another as compared to vehicular traffic. By providing a redundant access option to the CTA, each of the vertical alignments would decrease the overall number of trips and volume of vehicles entering the CTA. An APM, independent of its alignment, would allow for passengers to be dropped-off or picked-up at remote facilities along the APM alignment, thereby shifting the location of where private and commercial vehicles could operate within the CTA and on the surrounding street network. An APM, independent of its alignment, could provide a direct connection to the Metro rail and transit system. An APM, independent of its alignment, would allow for passengers to be dropped-off or picked-up at remote facilities along the APM alignment. By providing access to the CTA through a non-road mode, remote facilities can be located along key roadways within the regional transportation system.

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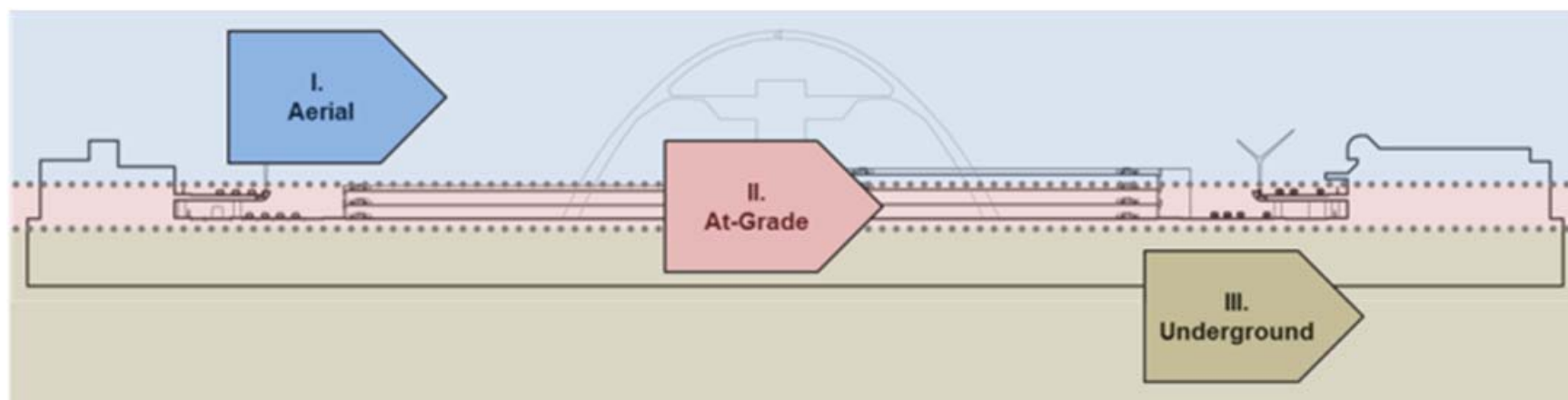
<sup>3</sup> City of Los Angeles, Los Angeles World Airports, *LAX Connected, Board of Airport Commissioners Ground Transportation Workshop*, May 5, 2014, Available: [http://www.connectinglax.com/files/5.5.14\\_BOAC.Briefing\\_LAX.Connected.pdf](http://www.connectinglax.com/files/5.5.14_BOAC.Briefing_LAX.Connected.pdf).



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SOURCE: Ricondo & Associates, Inc., November, 2016.  
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**FIGURE E-1**

APM Alternatives  
Vertical Alignments



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### E.2.1.1 Alternative APM-1.a, Aerial APM Alternative

#### Description of the Alternative

Alternative APM-1.a would consist of an elevated APM alignment. This alternative allows flexibility along the alignment to avoid existing facilities and reduce space requirements. The maximum height of an APM under this alternative would be limited by Air Traffic Control (ATC) line of sight requirements, and airspace constraints.

#### Construction and Operational Feasibility

Constructing an aerial APM alignment would be feasible considering the physical constraints at the Airport. Through the use of support columns, construction areas would be minimized and flexible in placement. Design of the APM guideway, stations, and support columns could be conducted to avoid existing facilities and span over existing roadways. Initial planning has determined that the required area needed for construction for column placement could be conducted with nominal impacts to passenger gates and roadway closures. There are no operational restrictions for an aerial alignment when compared to an at-grade or below-grade alignment.

### E.2.1.2 Alternative APM-1.b, At-Grade APM Alternative

#### Description of the Alternative

This alternative would consist of an APM alignment that is generally "at-grade." Ground level within the vicinity of the Airport is generally 100 feet above sea level (ASL).

#### Construction and Operational Feasibility

The existing conditions within the CTA are extremely constrained, including nine passenger terminals, a two-level loop roadway, and interior parking garages. There is no physical room for an at-grade APM alignment within the CTA without major demolition of existing roadways and/or parking garages. Similarly, construction of an at-grade APM alignment outside of the CTA would require extensive demolition and/or relocation of existing facilities, and cause major disruption of Airport operations during construction. Therefore, this alignment option was considered infeasible and was not retained for detailed study.

### E.2.1.3 Alternative APM-1.c, Underground APM Alternative

#### Description of the Alternative

Alternative APM-1.c would consist of an underground APM alignment. Under this alternative, the APM guideway would need to be tunneled beneath existing roadways and structures along the length of a preferred horizontal alignment. The tunnel would need to be large enough to provide for the APM track and height of the APM train cars.

#### Construction and Operational Feasibility

An underground APM alignment would require major tunneling work beneath an active airport and surrounding network of roadways and adjacent buildings. The Central Utility Plant for the Airport is located in



the center of the CTA; it provides heating, cooling, and hot water to each terminal in the CTA; thus a series of underground utilities emanates from the center of the CTA to each terminal building. Additionally, electrical power feeds are located off site and enter the CTA via underground conduits. The Central Outfall Sewer (COS), a 57-inch diameter circular 2-ring brick pipeline, runs underneath the CTA and serves the existing terminals. Based on the number of underground utilities and infrastructure beneath grade, this alignment option was considered infeasible and was not retained for detailed study.

## E.2.2 HORIZONTAL APM ALIGNMENT ALTERNATIVES

As identified in Section E.2.1, the only vertical alignment APM alternative determined feasible was an above-grade alignment. Thus, the analysis below is for horizontal alignment alternatives for an above-grade APM alignment. Horizontal alignments are discussed in the following subsections and shown on **Figure E-2**.

Functionally, any APM system that consists of a dedicated guideway, regardless of its horizontal alignment, would improve access options by providing a redundant access option into the CTA. An APM, in general, would reduce total travel time for moving passengers from one end of the proposed system to another as compared to vehicular traffic. By providing a redundant access option to the CTA, each of the horizontal alignments would decrease the overall number of trips and volume of vehicles entering the CTA. An APM, independent of its horizontal alignment, would allow for passengers to be dropped-off or picked-up at remote facilities along the APM alignment, thereby shifting the location of where private and commercial vehicles could operate within the CTA and on the surrounding street network. An APM, independent of its horizontal alignment, could provide a direct connection to the Metro rail and transit system. An APM, independent of its horizontal alignment, would allow for passengers to be dropped-off or picked-up at remote facilities along the APM alignment. By providing access to the CTA through a non-road mode, remote facilities can be located along key roadways within the regional transportation system.

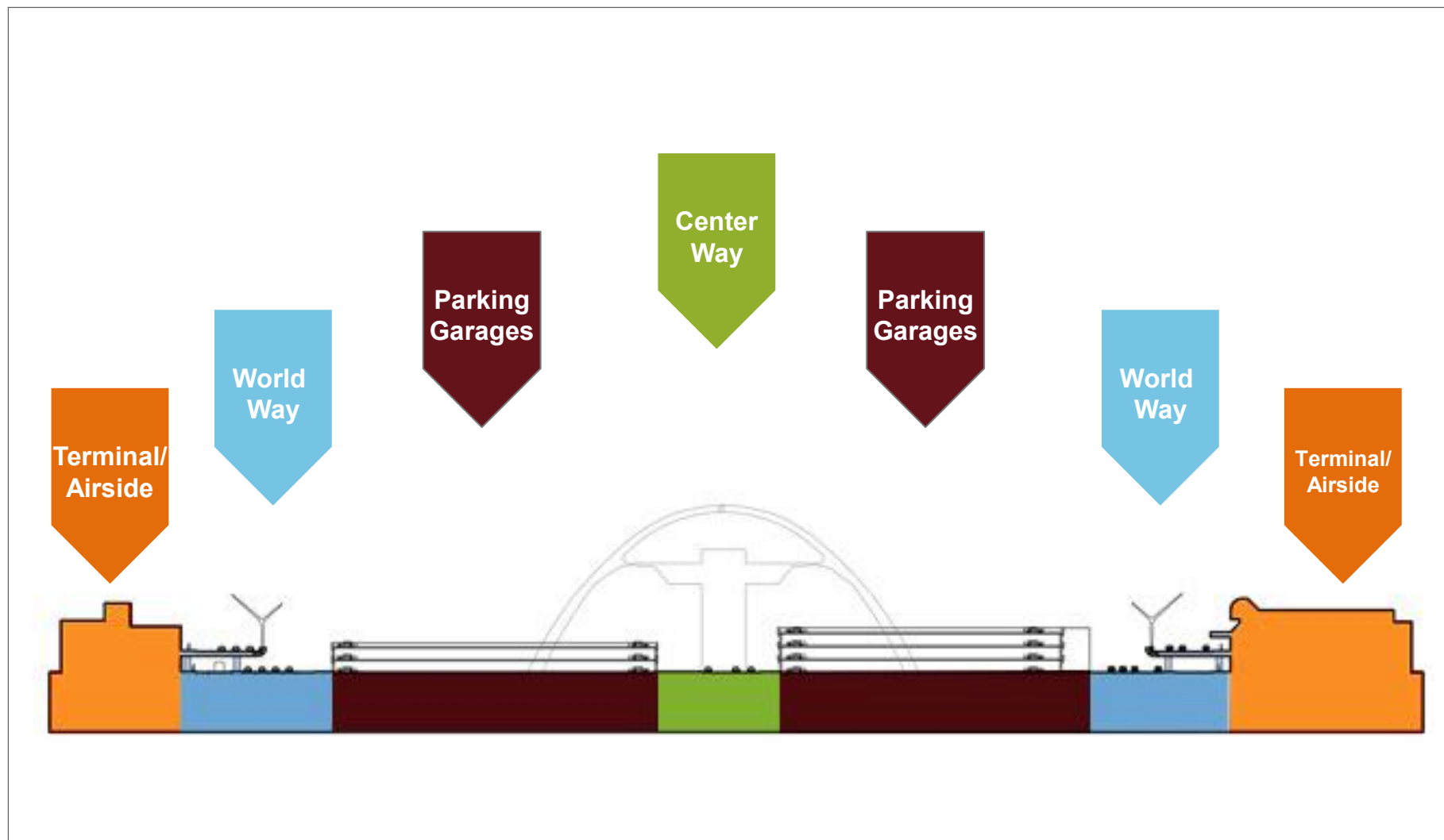
### E.2.2.1 Alternative APM-2.a, Terminal/Airside APM Alternative

#### Description of the Alternative

This alternative consists of a split APM alignment utilizing two corridors through the CTA: the northern section that runs parallel to World Way North and the southern section that runs parallel to World Way South. The APM would be constructed either on top of or beneath the existing terminal structures; an at-grade alignment would not be possible due to conflicts with the existing terminals and aircraft movement areas. The alignment would either be in a scissor or loop alignment, extending across Terminals 1, 2, and 3, and Tom Bradley International Terminal to the north, and across Terminals 4, 5, 6, 7, and 8 to the south. Under this alternative, the APM station(s) would be integrated into the terminals, allowing for vertical circulation to the arrivals and departures levels.



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**FIGURE E-2**

APM Alternatives  
Horizontal Alignments



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### Construction and Operational Feasibility

Construction of an integrated APM guideway and stations within the existing terminals/airfield would be infeasible within the current terminal/airfield configuration/constraints. Reconstruction of each terminal would be tremendously costly and severely impact access to the passenger terminals and aircraft gates during construction. Therefore, this alignment option was considered infeasible and was not retained for detailed study.

#### E.2.2.2 Alternative APM-2.b, World Way APM Alternative

##### Description of the Alternative

Similar to Alternative APM-2.a, Alternative APM-2.b would also consist of a split APM alignment utilizing two corridors through the CTA, consisting of either a scissor or loop alignment with access to all terminals. The northern section of the alignment would be constructed directly along World Way North and the southern section would be constructed along World Way South. APM station(s) would be located along World Way and connected to the passenger terminals and existing parking garages via passenger walkways.

### Construction and Operational Feasibility

The structural integrity of the existing Upper World Way could not withstand the loading requirements of the APM. Reconstruction of this roadway to withstand the additional load of an APM would be extremely costly and severely impact access to the passenger terminals during construction. Construction of an elevated APM alignment along Lower World Way would require a construction right-of-way of up to 60 feet, or the equivalent of four lanes of roadway and a sidewalk. After construction, this APM alignment would result in the permanent removal of up to two roadway lanes for the placement of APM support columns. Removal of these lanes would severely impact vehicular access to the passenger terminals within the CTA. Therefore, this alignment option was considered infeasible.

#### E.2.2.3 Alternative APM-2.c, Parking Garage APM Alternative

##### Description of the Alternative

Similar to Alternative APM-2.a, Alternative APM-2.c would also consist of a split APM alignment utilizing two corridors through the CTA: the northern section that runs parallel to World Way North and the southern section that runs parallel to World Way South. However, under this alternative, the APM guideway and stations would be constructed above, beneath, or through the existing parking garages adjacent to World Way. Under this alternative, the stations would be integrated into the parking garages, allowing for vertical circulation within each garage. Pedestrian walkways would connect the APM station(s) to the terminals.



### Construction and Operational Feasibility

Construction of this alternative would require substantial structural changes to the existing parking garages within the CTA. During construction of Alternative APM-2.c, the already constrained existing parking capacity within the CTA would decrease by approximately 40 percent.<sup>4</sup> Therefore, because of the substantial demolition required and the extended period of time parking within the CTA would be impacted, this alignment option was considered infeasible and was not retained for detailed study.

#### E.2.2.4 Alternative APM-2.d, Center Way APM Alternative

### Description of the Alternative

Alternative APM-2.d would consist of a single APM alignment, commonly referred to as a “spine” alignment, located along Center Way. The APM alignment would travel along the northern portion of Center Way, to the north of the Central Utility Plant and the Theme Building, generally extending from the LAWA Administration Building to between Parking Garages P3 and P4. APM station(s) would be located along Center Way.

### Construction and Operational Feasibility

Constructing an aerial APM alignment along Center Way would be feasible considering the physical constraints at the Airport. Through the use of columns, construction areas would be minimized and flexible in placement. Design of the APM guideway, stations, and support columns could be conducted to avoid existing facilities and span over existing roadways. Initial planning determined that the construction impacts for an APM within the interior of the CTA, including the guideway and APM support columns, could be conducted with nominal impacts to passenger gates and roadway closures.

A dual-track guideway would provide simultaneous operations in two directions, both to and from the CTA. This would result in consistent headways and a time-certain schedule, operating more efficiently than a scissor or loop alignment. Furthermore, a single APM alignment generally following Center Way would meet minimum turning radii requirements for an APM system. The passenger walking distances to/from the APM and the passenger terminals would depend on the location of the stations (see Section E.2.4). These walking distances may be farther than those in Alternatives APM-2.a through APM-2.c; however, distances would be acceptable based on industry standards through incorporation of moving walkways. This alternative was considered feasible and, in combination with Alternative APM-1.a, Aerial APM Alternative, was retained for further evaluation.

#### E.2.3 CENTRAL TERMINAL AREA APM STATIONS

The APM alternatives analysis conducted by LAWA staff in 2014 examined the number and location of the APM stations within the CTA.<sup>5</sup> As identified in Sections E.2.1 and E.2.2, the only vertical alignment APM

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<sup>4</sup> City of Los Angeles, Los Angeles World Airports, *LAX Connected, Board of Airport Commissioners Ground Transportation Workshop*, May 5, 2014, Available: [http://www.connectinglax.com/files/5.5.14\\_BOAC.Briefing\\_LAX.Connected.pdf](http://www.connectinglax.com/files/5.5.14_BOAC.Briefing_LAX.Connected.pdf).

<sup>5</sup> City of Los Angeles, Los Angeles World Airports, *LAX Connected, Board of Airport Commissioners Ground Transportation Workshop*, May 5, 2014, Available: [http://www.connectinglax.com/files/5.5.14\\_BOAC.Briefing\\_LAX.Connected.pdf](http://www.connectinglax.com/files/5.5.14_BOAC.Briefing_LAX.Connected.pdf).



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alternative determined feasible was an above-grade alignment. With an above-grade alignment, the only horizontal APM alternative determined feasible in terms of maintaining Airport operations and ability to construct within the CTA, was the Center Way alignment. Thus, the analysis below is for stations located along an above-grade APM aligned over Center Way within the CTA. Screening of the CTA Station Alternatives examined constructability, maintenance of access/airport operations, APM operations, and pedestrian walk distances between APM stations and the terminals. Pedestrian walk distances over 1,320 feet (a quarter mile) between an APM station and terminal, even with the use of moving walkways, was identified as being too far and inconvenient for passengers. Six APM station alternatives within the CTA were examined. These are described in greater detail below and shown in **Figure E-3**.

### E.2.3.1 Alternative APM-3.a, One CTA APM Station Alternative

#### Description of the Alternative

Alternative APM-3.a would consist of one APM station within the CTA. This station would be centrally located and provide access to all of the passenger terminals within the CTA. Construction of one station under this alternative would involve the least amount of construction when compared to the other CTA alignment alternatives. Alternative APM-3.a could be constructed without demolishing or reconstructing any of the parking garages within the CTA.

#### Construction and Operational Feasibility

Providing only one APM station within the CTA would result in subpar operations of the APM system. This alternative would require passengers to walk up to 2,200 feet from their terminal to a single APM station. Headways may need to be increased under this alternative in order to provide the level of service needed for APM ridership. Additionally, a single station would need to be sized appropriately to physically hold all of the dwelling APM passengers. Because of the walk distances and inconvenience to passengers, this alternative option was considered infeasible and was not retained for detailed study in this EA.

### E.2.3.2 Alternative APM-3.b, Two CTA APM Stations Alternative

#### Description of the Alternative

Alternative APM-3.b would consist of two APM stations within the CTA, one to the west and one to the east. The west APM station would serve Terminals 3, 4, and 5, and the Tom Bradley International Terminal; the east APM station would serve Terminals 1, 2, 6, 7, and 8.

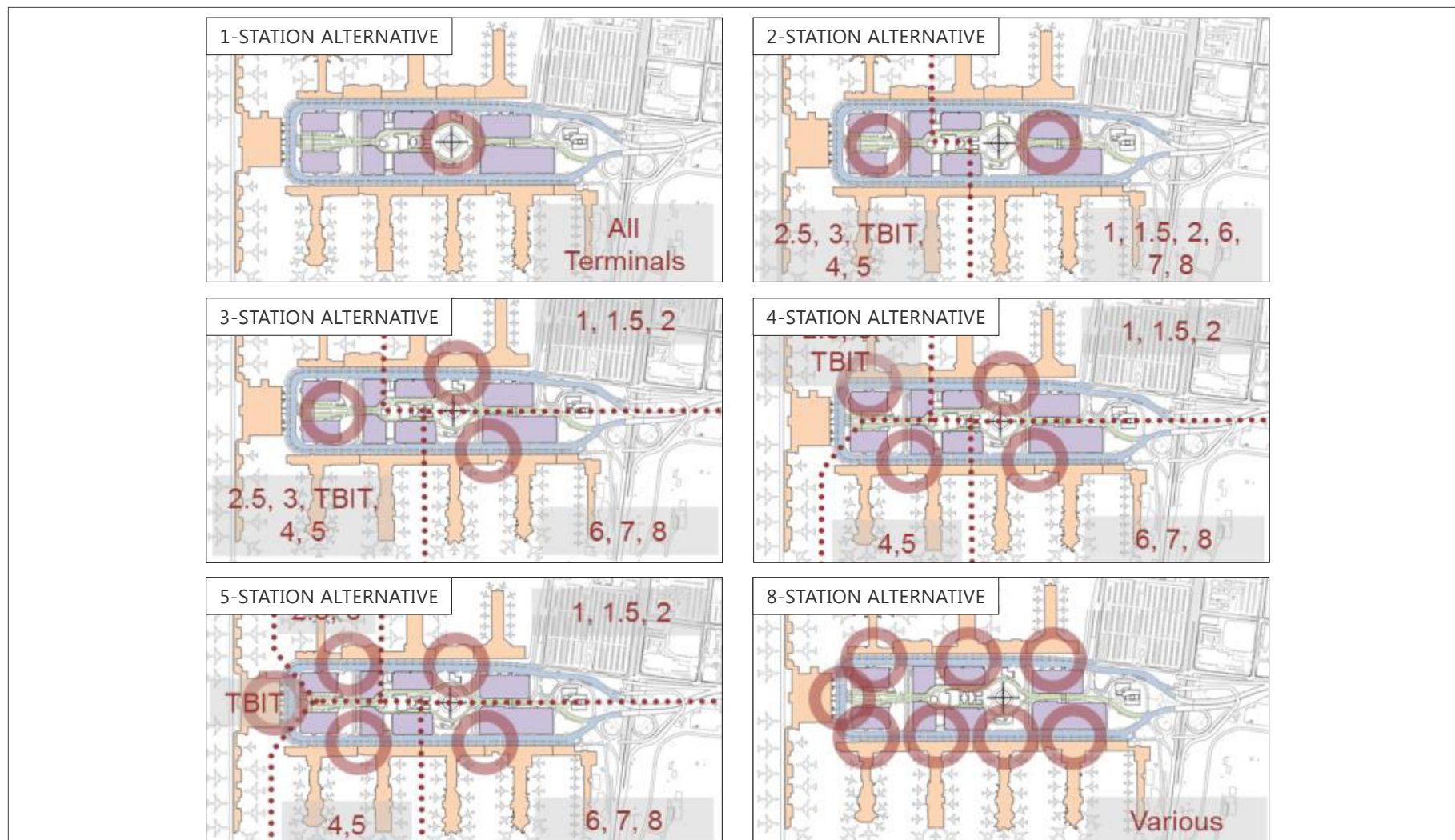
This alternative would be located above Center Way along the alignment inside the CTA, as shown on **Figure E-4**. One station would be located between Parking Garages P1 and P7, and the second station would be located between Parking Garages P3 and P4. Elevated pedestrian walkways would be utilized to connect the stations to the adjacent terminal buildings.



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SOURCE: Ricondo & Associates, Inc., November, 2016.  
PREPARED BY: Ricondo & Associates, Inc., August 2017.

**FIGURE E-3**

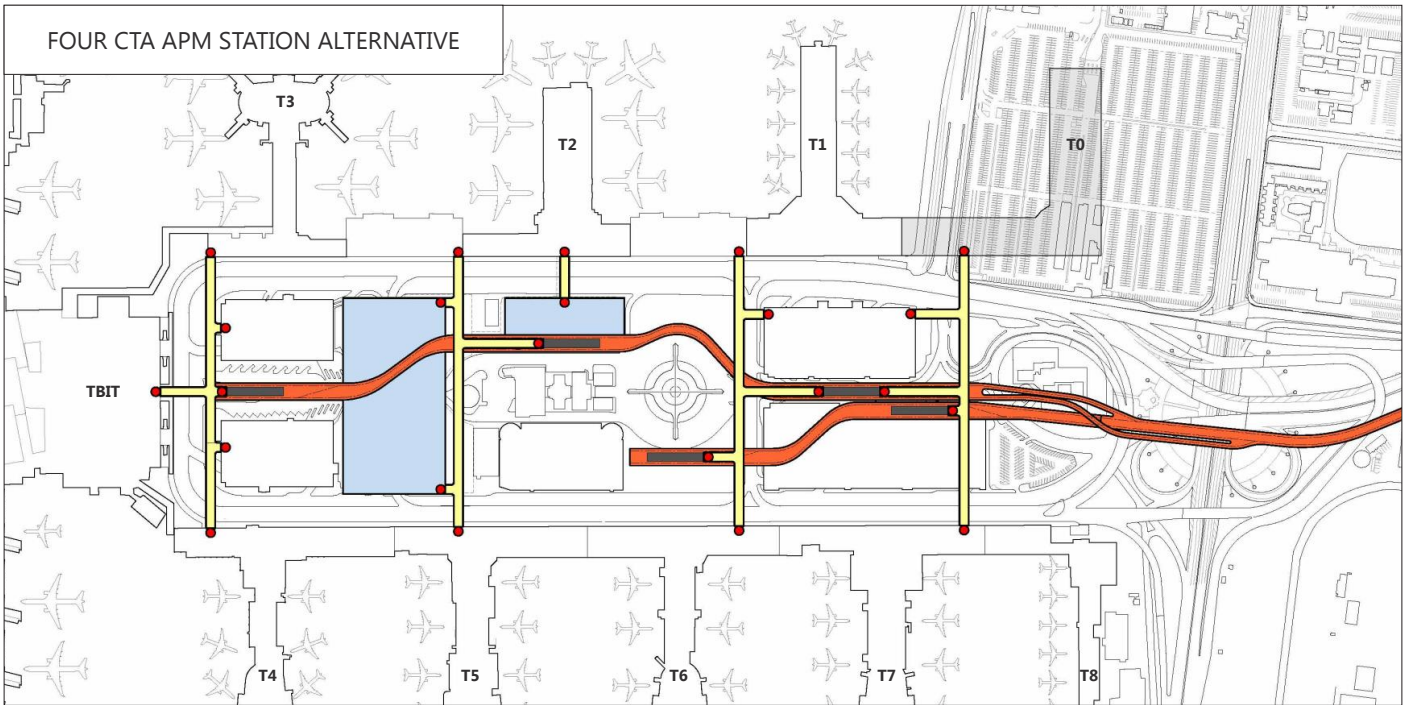
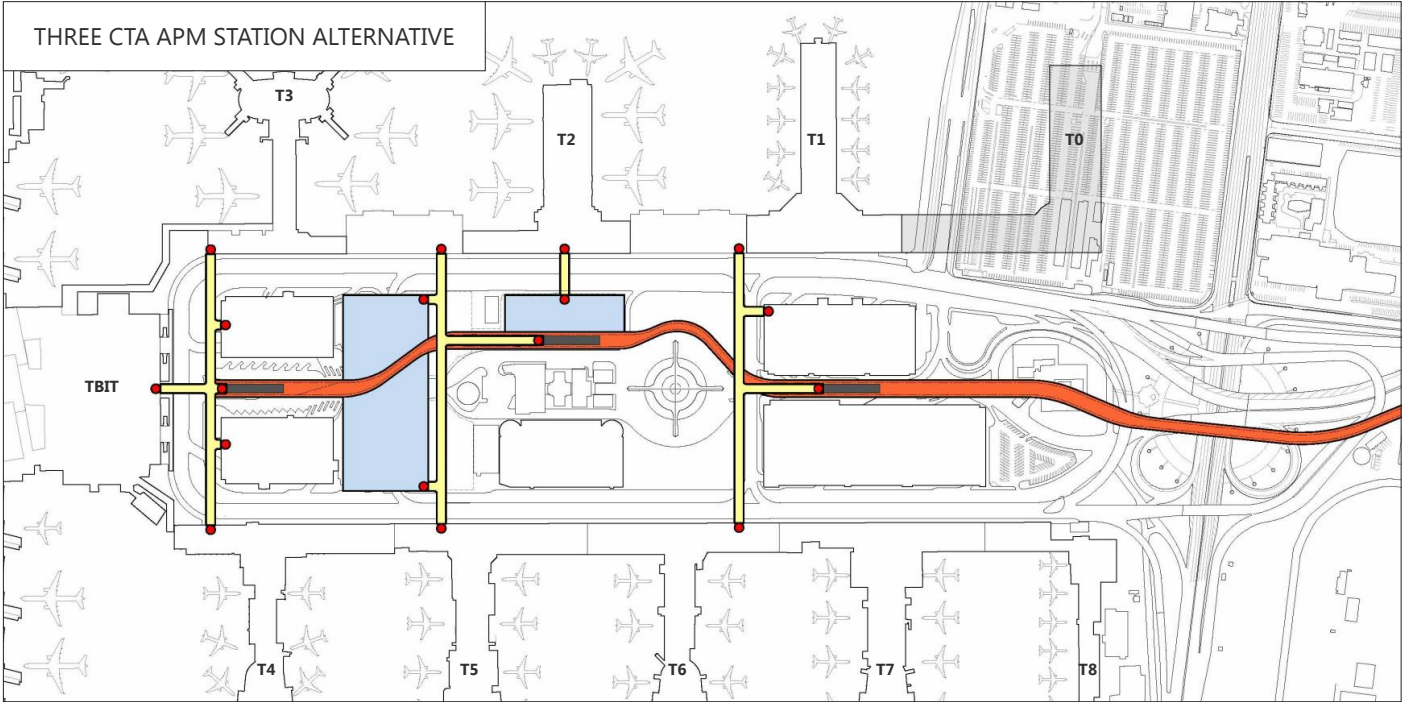
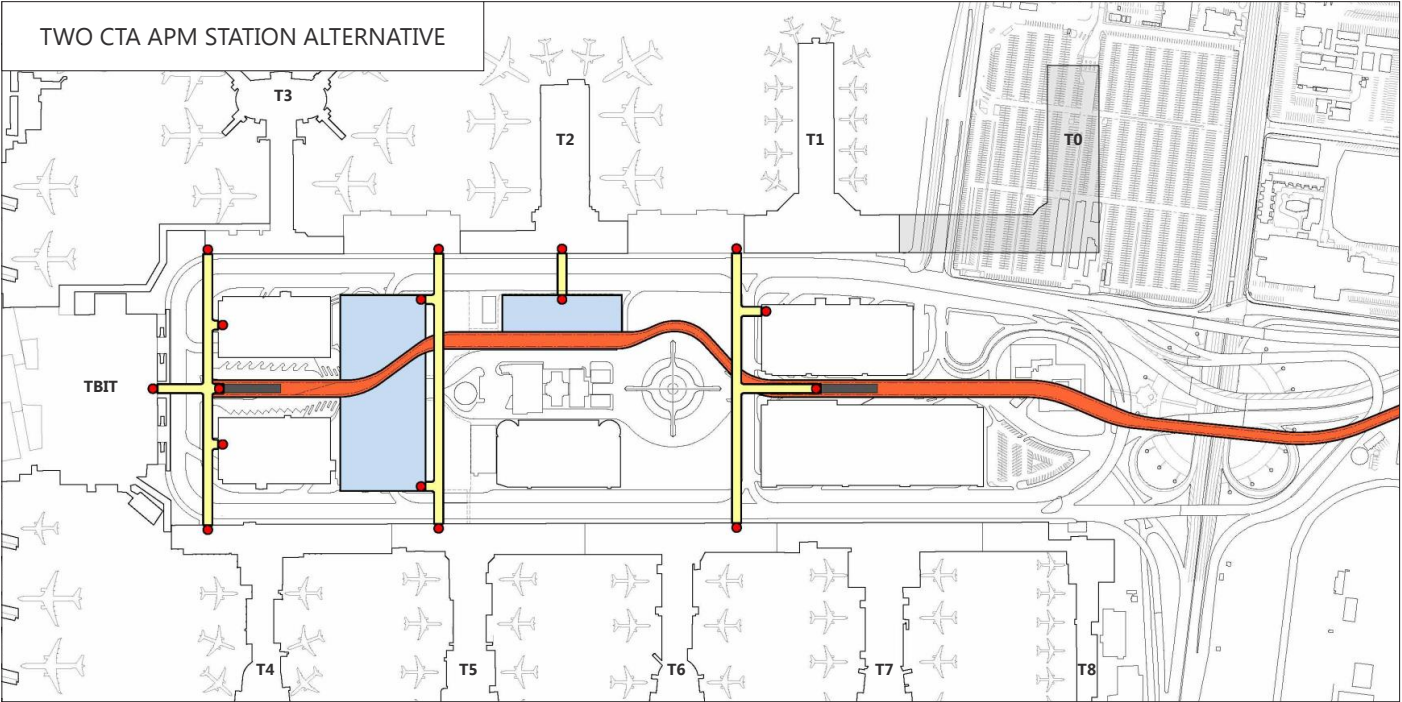
Station Alternatives



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SOURCE: MapLAX 2014, September 2016.  
PREPARED BY: Ricondo & Associates, Inc., August 2017.

FIGURE E-4

APM Alternatives  
Central Terminal Area



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### Construction and Operational Feasibility

Construction of two stations under this alternative would involve a minimal amount of construction when compared to the other APM station alternatives. Alternative APM-3.b would only require the demolition and reconstruction of two parking garages within the CTA. Initial planning has determined that the required area needed for construction for column placement could be conducted with nominal impacts to passenger gates and roadway closures.

Providing only two APM stations within the CTA would result in subpar operations of the APM system. This alternative would require passengers to walk an average of 850 feet from their terminal to an APM station, with some passengers experiencing walking distances of up to 1,600 feet. Total travel time for this alternative is the highest of the CTA alignment alternatives at an average of 15.2 minutes.<sup>6</sup> Therefore, because of the walk distances and inconvenience to passengers, this alternative option was considered inadequate and was not retained for detailed study.

#### E.2.3.3 Alternative APM-3.c, Three CTA APM Stations Alternative

### Description of the Alternative

This alternative is similar to the Two CTA APM Station Alternative, but would include a third APM station inside the CTA to the north of the LAX Theme Building. The additional station would only require minimal changes to the alignment proposed in the Two CTA APM Station Alternative. This alternative, as shown on Figure E-4, was designed to improve passenger connectivity while maintaining limited impacts to Airport operations.

Alternative APM-3.c would consist of three APM stations within the CTA, one at the west end of the APM alignment, one in the center of the CTA, and one just west of the LAWA Administration Building. The West CTA APM station would service Terminal 4 and the Tom Bradley International Terminal. The Center CTA APM Station would service Terminals 2, 3, 5, and 6; the East CTA APM Station would service Terminals 1, 7, and 8.

### Construction and Operational Feasibility

Constructing an aerial APM alignment that generally follows Center Way would be feasible considering the physical constraints at the Airport. Through the use of columns, construction areas would be minimized and flexible in placement. Alternative APM-3.c would only require the demolition and reconstruction of two parking garages within the CTA. Initial planning has determined that the required area needed for construction for column placement could be conducted with nominal impacts to passenger gates and roadway closures.

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<sup>6</sup> While travel time is a function of walk distance, it also includes several additional variables including wait time, dwell time, and other factors.



Providing three APM stations within the CTA would result in efficient operations of the APM system. This alternative would require passengers to walk an average of 690 feet from their terminal to an APM station, an approximate 19 percent reduction compared to Alternative APM-3.b. Total travel time, including walking, dwell, and APM travel time, for this alternative would be less than Alternatives APM-3.a and APM-3.B, at an average of 14.3 minutes. This alternative was considered feasible and was included in this EA for environmental evaluation.

#### E.2.3.4 Alternative APM-3.d, Four CTA APM Stations Alternative

##### Description of the Alternative

Alternative APM-3.d would consist of four APM stations within the CTA, two to the west and two to the east. This alternative is a variation of the Three CTA APM Station Alternative with a fourth station located near World Way South. The fourth station includes a new track spur as shown on Figure E-4. The northern section of the alignment is the same as the Three CTA APM Station Alternative, including the locations of the APM stations. Of the two APM stations to the west, one would be located to the north, serving Terminal 3 and the Tom Bradley International Terminal; the other would be located to the south, serving Terminals 4 and 5. Of the two APM stations to the east, one would be located to the north, serving Terminals 1 and 2; and one would be located to the south, serving Terminals 6, 7, and 8. The additional southern station would be located to the south of the LAX Theme Building. Elevated pedestrian walkways would be utilized to connect the stations to the adjacent terminal buildings.

##### Construction and Operational Feasibility

With the addition of a "spur" alignment to the south, Alternative APM-3.d would require the demolition and reconstruction of an additional parking garage as compared to Alternative APM-3.c, for a total of three parking garages being replaced, would cost more, and would also take longer to construct. However, initial planning has determined that the required area needed for construction for column placement could be conducted with nominal impacts to passenger gates and roadway closures. Alternative APM-3.d would require two APM lines which would intersect within the CTA. When compared to other alignments within the CTA, this alignment would reduce walk times. Travel times would be better with the 4-station scissors alternative, but slightly higher for the 4-station hybrid alternative (see Figure E-4).

The Four CTA APM Station Alternative, as depicted on Figure E-4, would require construction of a spur south of the Theme Building, resulting in the APM guideway being located to the north, east, and south of the Theme Building. This would result in additional impacts to the Theme Building, a building that has been determined to be eligible for listing on the National Register of Historic Places, for its unique architectural qualities. Because this alternative would have a greater effect on the Theme Building when compared to other alternatives, it was not retained for detailed study.

#### E.2.3.5 Alternative APM-3.e, Five CTA APM Stations Alternative

##### Description of the Alternative

Alternative APM-3.e would consist of five APM stations within the CTA, three to the west and two to the east. Of the three APM stations to the west, one would be located to the north, serving Terminal 3; one would be



located adjacent to and serving the Tom Bradley International Terminal; and one would be located to the south, serving Terminals 4 and 5. Of the two APM stations to the east, one would be located to the north, serving Terminals 1 and 2; and one would be located to the south, serving Terminals 6, 7, and 8.

### Construction and Operational Feasibility

As identified in Section E.2.1, the only vertical alignment APM alternative determined feasible was an above-grade alignment. With an above-grade alignment, the only horizontal APM alternative determined feasible was the Center Way alignment (see Section E.2.2). Construction of five stations within the CTA, as shown on Figure E-3 would only be feasible for a scissor or loop alignment. Based on the length of the spine alignment through the CTA, it would be infeasible to construct five APM stations along this alignment in the vicinity of the terminals. The required length for boarding/deboarding passengers at each APM station would leave nominal space between stations, as well as increase the total travel time as a result of the additional dwell time at each station. Therefore, this alternative option was considered infeasible and was not retained for detailed study.

#### E.2.3.6 Alternative APM-3.f, Eight CTA APM Stations Alternative

### Description of the Alternative

Under Alternative APM-3.f, an APM station would be located adjacent to and serving each of the terminals within the CTA.

### Construction and Operational Feasibility

Similar to Alternative APM-3.e, Five CTA APM Stations, based on the length of the spine alignment through the CTA, it would be impossible to construct an individual station for each of the 8 terminals within the CTA along this alignment, separately adjacent to each terminal. The required length for boarding/deboarding passengers at each APM station would leave nominal space between stations, as well as increase the total travel time as a result of the additional dwell time at each station. Therefore, this alternative option was considered infeasible and was not retained for detailed study.

#### E.2.4 EAST OF THE CENTRAL TERMINAL AREA APM ALIGNMENTS

Over the last 10 years, LAWA has identified and studied several APM alignments, including in the LAX Master Plan and the LAX Specific Plan Amendment Study. These alignments, along with a Refined Concept Alternative, are discussed below and shown on **Figure E-5**.



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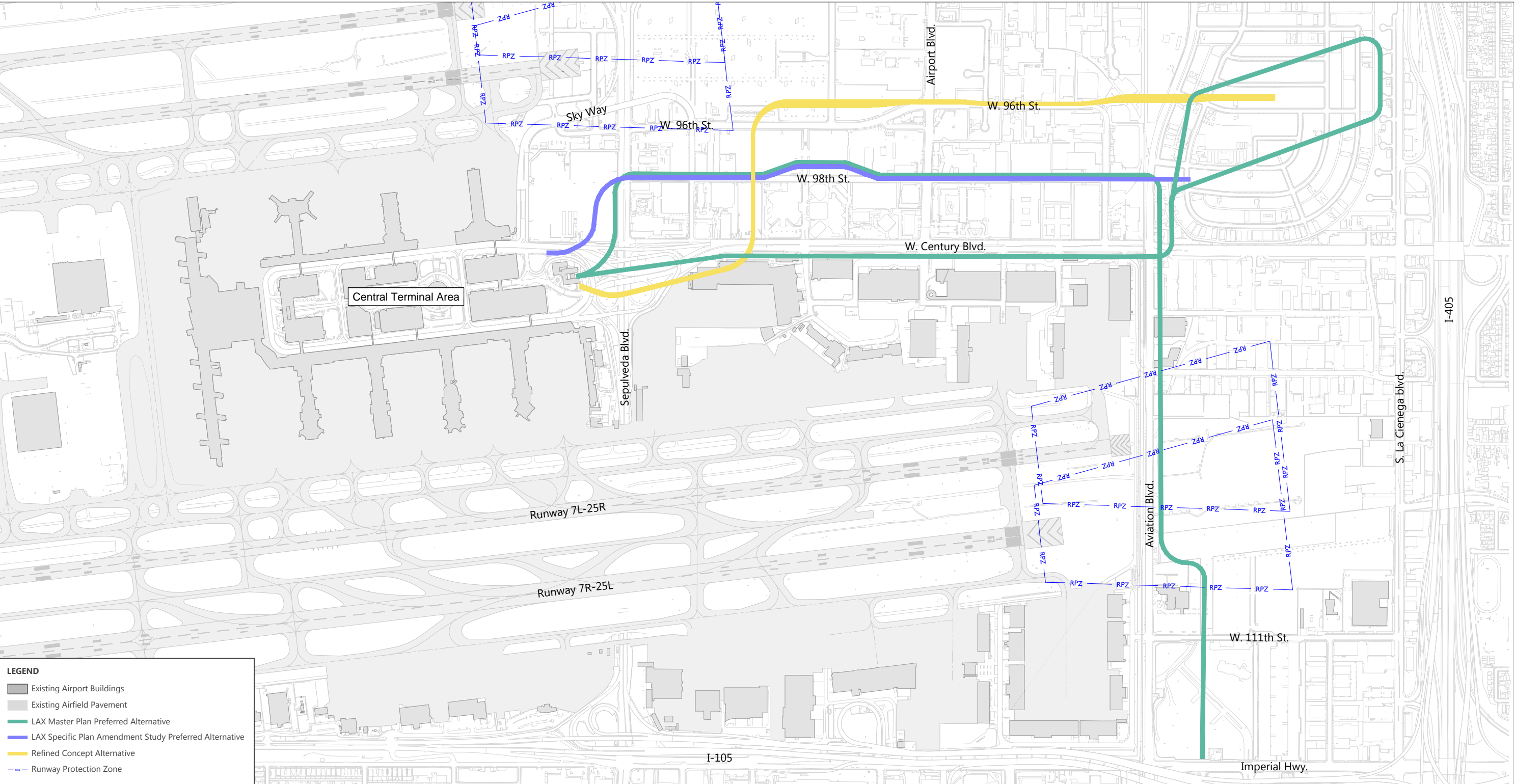


FIGURE E-5



APM Alternatives  
East of the Central Terminal Area



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### E.2.4.1 Alternative APM-4.a, LAX Master Plan Preferred Alternative

#### Description of the Alternative

In the 2004 Master Plan, LAWA sought to address congestion problems by proposing transportation facilities that would provide new options for passengers and employees to access the passenger terminal areas. These facilities, which were approved at a programmatic level in 2004, included an APM system connecting a consolidated rental car facility, intermodal transportation facilities, and the CTA. The APM studied in the LAX Master Plan EIR/EIS included two separate, but coordinated routes, as shown on Figure E-5. One route would connect the intermodal transportation facility and the consolidated rental car facility to the CTA along a route that generally would follow W. 98th Street and Aviation Boulevard. A second route would connect the ground transportation center with the CTA via a route that would be located along the south side of W. Century Boulevard.

#### Construction and Operational Feasibility

The APM alignment under Alternative APM-4.a would include two separate, but coordinated routes. One route would generally travel down W. 98th Street between Sepulveda Boulevard and Aviation Boulevard. However, the right-of-way on W. 98th Street between Airport Boulevard and Bellanca Boulevard is extremely narrow. Construction of an aerial APM in this area would require acquisition of several adjacent parcels. Properties here consist of hotels and office buildings, for which acquisition would be extremely costly and is not financially feasible for LAWA.

### E.2.4.2 Alternative APM-4.b, LAX Specific Plan Amendment Study Preferred Alternative

#### Description of the Alternative

In July 2012, LAWA prepared the LAX Specific Plan Amendment Study (SPAS), which identified 9 alternatives, two of which contained an APM alignment. Alternative 3 reflected the implementation of the APM alignment proposed under the LAX Master Plan as described in Section E.2.1.4.1. Alternative 9 was a ground access improvement alternative that included a single APM alignment connecting the consolidated rental car facility, intermodal transportation facility, and the CTA. The elevated alignment studied in the SPAS Final EIR generally follows W. 98th Street from the CTA to just east of Aviation Boulevard in Manchester Square. The APM alignment would include a bridge over Sepulveda Boulevard and stops at the future Metro LAX/Crenshaw Light Rail Station at/near Century and Aviation Boulevards. The proposed APM alignment under the preferred SPAS alternative, as included in the SPAS Final EIR, is shown on Figure E-5.

#### Construction and Operational Feasibility

Development of the APM alignment east of the CTA would generally be well-removed from the passenger terminals and adjacent access roads. Construction along W. 98th Street would not interfere with access to the CTA or any other on-Airport facilities. However, construction of any APM alignment at the intersection of Sepulveda Boulevard and W. Century Boulevard (at the entrance of the CTA) would require extensive coordination and a detailed phasing plan to minimize roadway closures in this area. The majority of the APM alignment proposed under Alternative APM-4.b is a straight-away. This alignment only requires three turning



movements outside of the CTA which would accommodate the turning radii of the APM trains. A dual-track guideway provides simultaneous operations in two directions, both to and from the CTA.

Alternative APM-4.b travels down W. 98th Street between Sepulveda Boulevard and Aviation Boulevard. However, the right-of-way on W. 98th Street between Airport Boulevard and Bellanca Boulevard is extremely narrow. Construction of an aerial APM in this area would require acquisition of several adjacent parcels. Properties here consist of hotels and office buildings, for which acquisition would be extremely costly and is not financially feasible for LAWA.

### E.2.4.3 Alternative APM-4.c, Refined Concept Alternative

#### Description of the Alternative

As part of the LAX Landside Access Modernization Program planning process, LAWA conducted an initial screening analysis<sup>7</sup>, then performed a refined analysis<sup>8</sup> on the alternatives that passed the initial screening. The APM alignment under the Refined Concept Alternative is similar to the alignment proposed under the preferred SPAS alternative; however, instead of traveling down W. 98th Street, the alignment would generally follow W. 96th Street. This single APM alignment would connect to the consolidated rental car facility, two intermodal transportation facilities, the future Metro LAX/Crenshaw Light Rail Station at/near W. 96th Street and Aviation Boulevard, and the CTA. The proposed APM alignment under the Refined Concept Alternative is shown on Figure E-5.

#### Construction and Operational Feasibility

Similar to Alternative APM-4.b, development of this section of the APM alignment would generally be well-removed from the passenger terminals and adjacent access roads and construction along W. 96th Street would not interfere with access to the CTA or any other on-Airport facilities. Construction at the intersection of Sepulveda Boulevard and W. Century Boulevard (at the entrance of the CTA) would require extensive coordination and a detailed phasing plan to minimize roadway closures in this area.

The majority of the APM alignment proposed under Alternative APM-4.c is a straight-away. This alignment only requires two turning movements outside of the CTA which would accommodate the turning radii of the APM trains. A dual-track guideway provides simultaneous operations in two directions, both to and from the CTA.

Construction of an APM alignment along W. 96th Street would be located within LAWA property between Sepulveda Boulevard and Aviation Boulevard. Additionally, the right-of-way along W. 96th Street from Airport Boulevard to Bellanca Boulevard is wider than W. 98th Street and would provide adequate space for the APM

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<sup>7</sup> City of Los Angeles, Los Angeles World Airports, *LAX Connected, Board of Airport Commissioners Ground Transportation Workshop*, May 5, 2014, Available: [http://www.connectinglax.com/files/5.5.14\\_BOAC.Briefing\\_LAX.Connected.pdf](http://www.connectinglax.com/files/5.5.14_BOAC.Briefing_LAX.Connected.pdf).

<sup>8</sup> City of Los Angeles, Los Angeles World Airports, *LAX Connected, Board of Airport Commissioners Transportation-Infrastructure Development Program (T-IDP) Update*, September 18, 2014, Available: [http://www.connectinglax.com/files/9.18.14\\_BOAC.APM.Update.pdf](http://www.connectinglax.com/files/9.18.14_BOAC.APM.Update.pdf).



support columns. However, this alternative would require an easement through existing properties located along the proposed alignment between Bellanca Boulevard and Aviation Boulevard.

## E.3 Conclusion

Each of the alternatives was evaluated for its construction and operational feasibility. The results of that analysis are shown in **Table E-1**. Based on the analysis performed, the Aerial Grade, Center Way Alignment with three CTA stations was selected as the Preferred APM Alternative.

**Table E-1: Summary of APM Alternatives Evaluation**

ALTERNATIVE		CONSTRUCTION AND OPERATIONALLY FEASIBLE?
<b>Vertical APM Alignments</b>		
APM-1.a	Aerial Grade APM Alternative	Yes
APM-1.b	At-Grade APM Alternative	No
APM-1.c	Underground APM Alternative	No
<b>Horizontal APM Alignments</b>		
APM-2.a	Terminal/Airside APM Alternative	No
APM-2.b	World Way APM Alternative	No
APM-2.c	Parking Garage APM Alternative	No
APM-2.d	Center Way APM Alternative	Yes
<b>CTA APM Stations</b>		
APM-3.a	1-CTA Station Alternative	No
APM-3.b	2-CTA Station Alternative	No
APM-3.c	3-CTA Station Alternative	Yes
APM-3.d	4-CTA Station Alternative	No
APM-3.e	5-CTA Station Alternative	No
APM-3.f	8-CTA Station Alternative	No
<b>East of the CTA APM Alignments</b>		
APM-4.a	LAX Master Plan Preferred Alternative	No
APM-4.b	LAX Specific Plan Amendment Study Preferred Alternative	No
APM-4.c	Refined Concept Alternative	Yes

SOURCE: Ricondo & Associates, Inc., December 2016.

PREPARED BY: Ricondo & Associates, Inc. February 2017.



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## **Appendix F**

### Air Quality



F.1 Air Quality Protocol

F.2 Letter from South Coast Air Quality Management District dated May 10, 2016

F.3 Construction Emissions Worksheets

F.4 Hazardous Air Pollutant Inventories

F.5 Transportation Conformity Working Group Coordination

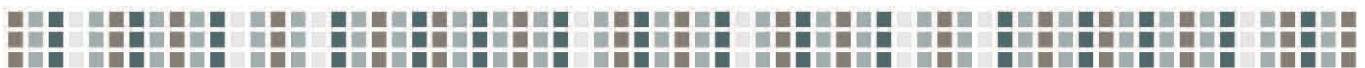






## F.1

### Air Quality Protocol









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# 1. Introduction

Los Angeles World Airports (LAWA) is preparing an Environmental Assessment (EA) per the requirements of the National Environmental Policy Act (NEPA) to consider and disclose the environmental impacts of the Los Angeles International Airport (LAX) Landside Access Modernization Program. An EA is required because elements of the LAX Landside Access Modernization Program will require federal approvals that trigger NEPA compliance.

This Air Quality Protocol document (Protocol) identifies the technical assumptions, methodologies, databases, and models that will be used to conduct the Air Quality Impact Analysis and develop the Greenhouse Gas (GHG) Emission Inventories for the LAX Landside Access Modernization Program EA, including a draft conformity analysis under the Clean Air Act. The purpose of the Protocol is to document in advance of any data collection or data analysis, the approach to the analysis, and obtain input from South Coast Air Quality Management District (SCAQMD), California Air Resources Board (ARB), California Department of Transportation (Caltrans), Federal Highway Administration (FHWA), Southern California Association of Governments (SCAG), and U.S. Environmental Protection Agency (USEPA).

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## 1.1 Background

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LAWA is in the midst of a proposed modernization program at Los Angeles International Airport (LAX or the Airport). LAX is the nation's third busiest airport in terms of total annual passengers and in terms of total annual aircraft operations. Although it has functioned as an airport since 1928, the Central Terminal Area (CTA) at LAX was constructed in 1961 and its facilities are in need of modernization due to their age and significant congestion on the terminal roadway network.

The LAX Landside Access Modernization Program EA is being prepared to assess the potential environmental effects of constructing and operating the proposed components of the LAX Landside Access Modernization Program and to disclose these effects to LAWA, federal decision-makers, affected agencies and jurisdictions, and the general public, in compliance with NEPA. In accordance with the requirements under NEPA, an EA is being prepared in compliance with FAA Orders 1050.1F *Environmental Impacts: Policies and Procedures*<sup>1</sup> and

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<sup>1</sup> U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures*, effective July 16, 2015.



FAA Order 5050.4B *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*<sup>2</sup> and their associated desk references.

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## 1.2 Project Description

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LAWA proposes to implement the LAX Landside Access Modernization Program (Project) to:

- Enhance the passenger experience by providing new access options for all modes of travel, including direct connections to transit, convenient parking, and commercial vehicles;
- Provide easier and more efficient access to rental cars and non-CTA parking facilities;
- Relieve congestion at LAX and on the surrounding street system by developing a flexible transportation system that provides alternatives to the CTA for passengers, airport and other employees, and airport-related vendors accessing LAX; and
- Promote the sustainability of LAX by improving the efficiency and operation of the surface transportation system in which LAX operates.

The LAX Landside Access Modernization Program consists of several primary components. The centerpiece is an Automated People Mover (APM) system with 6 stations, which would provide free, fast, convenient, and reliable access to the CTA for passengers, employees, and other users of LAX, 24 hours a day. The APM system would transport passengers between the CTA and the other main components of the Project located east of the CTA, including a state-of-the-art, Consolidated Rental Car Facility (CONRAC), new public parking facilities and multiple locations for passenger pick up and drop off. In addition, the APM system would include a station at the multi-modal/transit facility at 96th Street/Aviation Boulevard planned by Metro as a separate and independent project to provide the opportunity for passengers to access the Metro regional rail system. The LAX Landside Access Modernization Program would reduce traffic volumes and congestion within the CTA as well as on local streets, by shifting passengers to the APM system for the first/last mile of their trip to the Airport, and providing a seamless connection to the Metro transit system.

Project components associated with the LAX Landside Access Modernization Program include:

- APM system with six APM stations connecting the CTA to new ground transportation facilities proposed between Sepulveda Boulevard and Interstate 405;
- Passenger walkway systems connecting the APM stations to passenger terminals, parking garages, and ground transportation facilities;

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<sup>2</sup> U.S. Department of Transportation, Federal Aviation Administration, Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, effective April 28, 2006.



- Modifications to existing passenger terminals and parking garages within the CTA for passenger walkway system connections and vertical circulation to the arrival, departure, and concourse levels;
- Intermodal transportation facilities (ITF) that would provide pick up and drop off areas outside the CTA for private vehicles and commercial shuttles;
- CONRAC designed to consolidate car rental agencies in a centralized location with access to the CTA via the APM;
- Roadway improvements designed to improve access to the proposed facilities and the CTA and reduce traffic congestion in neighboring communities; and
- Utilities needed to support the LAX Landside Access Modernization Program.

To the extent possible, construction laydown and staging areas would be located adjacent to or within the construction sites for the proposed facilities or at existing LAX construction staging areas.

Enabling projects required to implement the LAX Landside Access Modernization Program include:

- Demolition of parking garages P2A, P2B, and P5 and construction of replacement garages in the CTA that may result in an increase of approximately 1,100 parking spaces within the CTA;
- Relocation of LAWA administrative offices housed in the Clifton Moore Administration building (1 World Way, also known as Admin East) to the existing LAWA-owned Skyview Center at 6053 West Century Boulevard or another location in the vicinity of LAX;
- Demolition of the Clifton Moore Administration building (1 World Way);
- Relocation of existing rental car facilities;
- Demolition of the existing restaurant building located at 9601 Airport Boulevard on property owned by LAWA;
- Demolition of the Metro LAX City Bus Center bus terminal located north of West 96th Street;
- Demolition of the USO and U.S. Customs and Border Protection Facility located on the lower level of the CTA between parking garages P1 and P2A and south of Terminal 2;
- Improvements of portions of Center Way within the CTA;
- Demolition and replacement of existing hangars/buildings located at 6150 and 6190 West Century Boulevard owned by LAWA that are currently leased for storage;
- Demolition of the Reliant Medical Center located on LAWA-owned property at 9601 South Sepulveda Boulevard;
- Completion of the Manchester Square acquisition program including the Stella Middle Charter Academy and Bright Star Secondary Charter Academy facilities located at 5431 West 98th Street; and
- Acquisition of other parcels where the APM or roadway improvements are proposed including, but not limited to:
  - 6141 West Century Boulevard owned by Metro and leased by an off-airport parking operator;



- 9606/9610 Bellanca Avenue occupied by Secom International; and
- 9600 South Sepulveda Boulevard owned by WallyPark.
- Closure and demolition of roads
- Demolition of the Travelodge Hotel located at 5547 W. Century Boulevard located on LAWA-owned property.

Construction of the proposed LAX Landside Access Modernization Program is anticipated to occur in two separate phases. The first phase would be constructed over approximately 6 years, beginning in 2018 and finishing in 2024. While most construction of the Phase 1 Project would be completed by 2022, system and operational testing of the APM and other facilities would extend into 2023. The second phase of construction would begin in 2025 and be completed by 2030. In order to meet schedule constraints, multiple Project components may be under construction concurrently. Construction of the proposed Project is contingent on Project approvals, which are anticipated to be obtained in 2017. The general sequence of construction activities that is currently anticipated for the proposed Project, by phase, is summarized below.

The first phase would include enabling projects and the construction of: the APM operating system and fixed facilities; the CONRAC; two ITFs (ITF West and ITF East); and a portion of roadway improvements (see **Figure 1**). As previously discussed, these elements would be constructed over approximately 6 years, beginning in 2018 and finishing in 2024. Further information for each facility is discussed below.

- The initial stages of construction would focus on enabling projects, including CTA parking garage reconstruction, property acquisition, and utility relocation.
- Facilities to be constructed as part of the ITF West in 2018 and 2019 include the western portion of the public parking garage, the ITF West APM Station, adjacent APM power substation, and internal circulation roadways.
- Construction of the APM would begin in approximately 2018 and conclude in approximately 2022. Construction during this timeframe would include the APM operating system and fixed facilities, consisting of the APM guideway, the three CTA APM stations, passenger walkways, traction power substations, and the APM Maintenance and Storage Facility. The APM stations associated with the ITFs and CONRAC would be constructed in conjunction with those facilities. Construction of the APM would also include the necessary enabling projects and roadway modifications necessary for the construction of the APM guideway.
- Construction of the CONRAC would occur simultaneously with the APM, beginning in approximately 2019 and concluding in approximately 2022. Facilities to be constructed in this timeframe include the CONRAC facility, CONRAC APM Station, and internal circulation roadways. Concurrent construction of the CONRAC and APM would provide for both facilities to come online at the same time, thus eliminating the need for short-term operations of shuttle buses between facility opening dates.
- The ITF East would be constructed during the first phase of the Project, estimated to begin in approximately 2019 and conclude by end of 2023. Facilities to be constructed in this timeframe include the ITF East public parking garage, the ITF East APM Station, adjacent APM power substation, and internal circulation roadways.



## LAX Landside Access Modernization Program Components Phase 1 (2024)



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- The 6-level eastern section of the public parking garage at the ITF West would begin construction in approximately 2022 and be completed by the end of approximately 2023/beginning of 2024.
- Roadway improvements constructed during the first phase of the Project would include:
  - New 'A' Street (W. Century Boulevard to Westchester Parkway/W. Arbor Vitae Street)
  - New 'B' Street (New 'A' Street to Airport Boulevard)
  - W. 96th Street (Airport Boulevard to Bellanca Avenue)
  - New 'D' Street (W. 96th Street to W. Arbor Vitae Street)
  - W. Arbor Vitae Street (Aviation Boulevard to S. La Cienega Boulevard)
  - Aviation Boulevard (W. Century Boulevard to W. Arbor Vitae Street)
  - S. La Cienega Boulevard (W. 98th Street to W. Arbor Vitae Street)
  - New W. 98th Street Segment (Aviation Boulevard to S. La Cienega Boulevard)
  - Extended Concourse Way (W. Century Boulevard to Arbor Vitae Street)
  - Southbound S. Sepulveda Boulevard to World Way (departures and arrivals) Ramps
  - Airport Boulevard (W. 98th Street to W. Arbor Vitae Street)
  - W. 98th Street (Airport Boulevard to Aviation Boulevard)
  - W. Century Boulevard (New 'A' Street to Aviation Boulevard)
  - S. La Cienega Boulevard/I-405 On- and Off-Ramps
  - New 'C' Street (Imperial Highway to W. 111th Street)

Phase 2 of the Project is not planned for implementation until 2025 and would be completed by approximately 2030. Phase 2 consists of additional roadway elements associated with the W. Century Boulevard and Sepulveda Boulevard entrance and exit ramps into the CTA; LAWA would not implement these improvements until after the APM is operational.

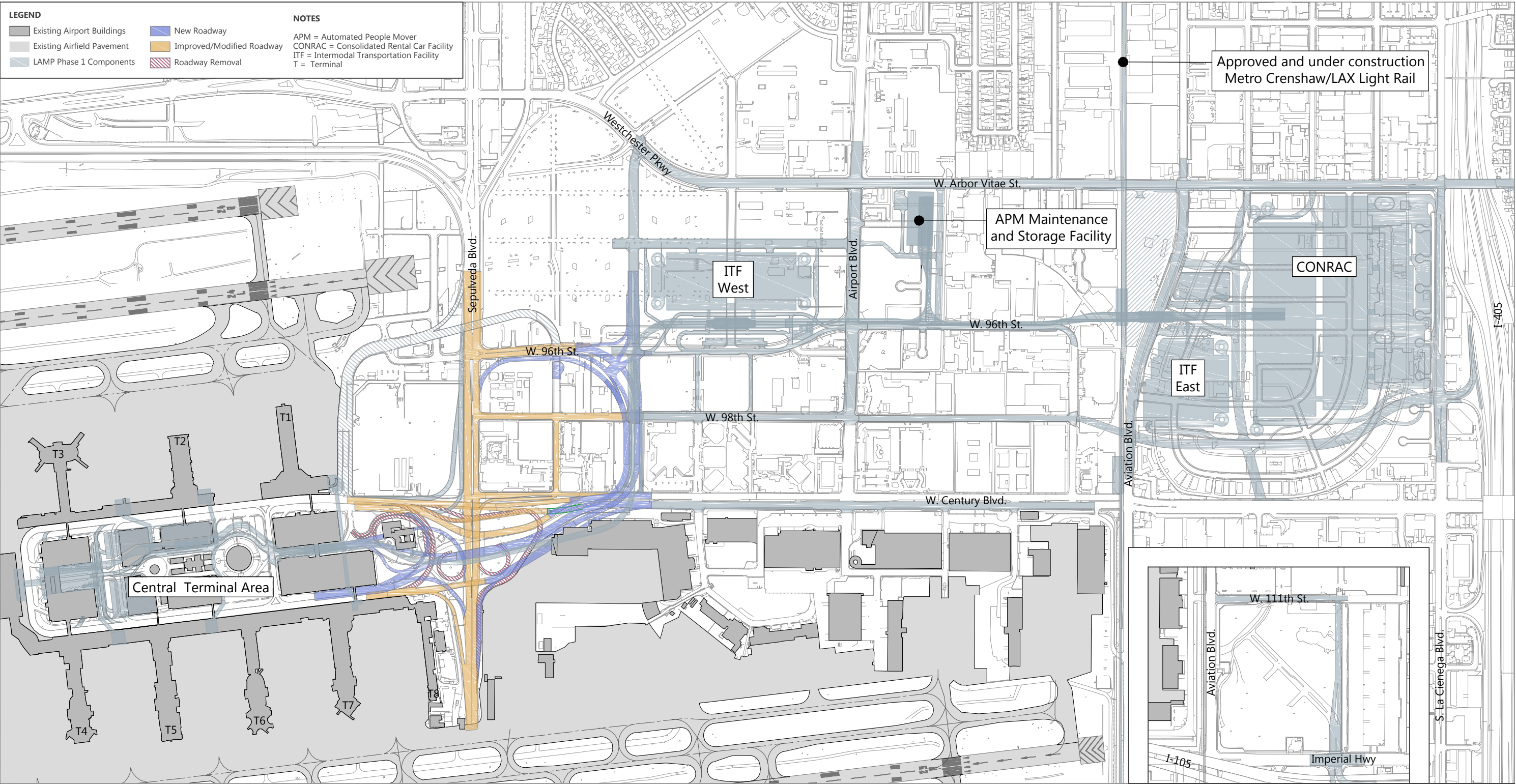
The second phase of construction would mainly include the remaining roadway improvements, as outlined below and shown on **Figure 2**. Construction of these elements would begin in 2025 and be completed by 2035. Roadway improvements constructed during the second phase of the Project would include:

- S. Sepulveda Boulevard (north of LAX Airport Tunnel to W. 96th Street)
- Northbound S. Sepulveda Boulevard to eastbound W. Century Boulevard Ramp
- Westbound W. Century Boulevard (New 'A' Street to World Way)
- Westbound W. Century Boulevard Viaduct to World Way
- Eastbound World Way (Arrivals) to southbound S. Sepulveda Boulevard Ramp
- Eastbound World Way (Departures) to southbound S. Sepulveda Boulevard Ramp (join existing ramp)



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- Eastbound World Way (Arrivals & Departures) to eastbound W. Century Boulevard and to northbound New 'A' Street
- Eastbound World Way (Departures) to northbound S. Sepulveda Boulevard Ramp

The proposed Project would require changes to the configuration and use of existing parcels owned by LAWA where the Project components are proposed to be constructed. These changes would create new parcels owned by LAWA that would be needed for construction preparations (referred to as laydown and staging areas) during construction of the proposed Project in Phase 1.

## 1.3 Regulatory Setting

### 1.3.1 CRITERIA AIR POLLUTANTS AND AIR QUALITY

Air quality is regulated by federal, State, and local laws. On the federal level, air quality is governed by the federal Clean Air Act (CAA) administered by the United States Environmental Protection Agency (USEPA) in coordination with state and local governments. Additionally, air quality in California is governed by regulations under the California Clean Air Act (CCAA), administered by the California Air Resources Board (CARB) and by the regional air quality management districts. Air quality in the Los Angeles region is subject to the rules and regulations established by CARB and the South Coast Air Quality Management District (SCAQMD). Mobile source emissions are also regulated by several additional agencies, including the Federal Highway Administration, Federal Transit Administration, Caltrans, and the Southern California Association of Governments (SCAG), which is also the regional Metropolitan Planning Organization (MPO)<sup>3</sup>.

#### 1.3.1.1 Federal

The USEPA is responsible for enforcing the CAA. The CAA as enacted in 1970 and amended in 1977 and 1990 is the comprehensive federal law regulating air pollutant emissions from stationary and mobile sources. The CAA requires the USEPA to establish minimum National Ambient Air Quality Standards (NAAQS), and assigns primary responsibility to individual states to assure compliance with the NAAQS. Areas not meeting the NAAQS, referred to as nonattainment areas, are required to implement specific air pollution control measures.

Under the authority granted by the CAA, USEPA has established NAAQS for the following criteria pollutants: sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM<sub>10</sub>), particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers (PM<sub>2.5</sub>), lead (Pb), nitrogen dioxide (NO<sub>2</sub>), and ozone (O<sub>3</sub>), addressed through its precursors

<sup>3</sup> An MPO is a federally mandated and federally funded transportation policy-making organization made up of representatives from local governments and governmental transportation authorities. Introduced by the Federal Aid Highway Act of 1962, the formation of an MPO is required for any urbanized area with a population greater than 50,000. Federal funding for transportation projects and programs are channeled through the MPO. Congress created MPOs to ensure that existing and future expenditures of governmental funds for transportation projects and programs are based on a continuing, cooperative, and comprehensive planning process.



volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>). O<sub>3</sub> is a secondary pollutant, meaning that it is formed from reactions of “precursor” compounds under certain conditions. The primary precursor compounds that lead to the formation of O<sub>3</sub> are VOC and NO<sub>x</sub>. The NAAQS are further discussed in Section 1.4.

The CAA also specifies future dates for achieving compliance with the NAAQS for areas not meeting these standards and mandates that states submit and implement a State Implementation Plan (SIP). These plans must include pollution control measures that demonstrate how the standards will be met.

The California SIP is comprised of a comprehensive statewide strategy and individual plans developed at the regional or local level, which includes the SCAQMD Air Quality Management Plans (AQMP) (as further discussed in Section 1.3.1.3). The California SIP is designed to attain federal O<sub>3</sub> and fine particulate matter (PM<sub>2.5</sub>) air quality standards through a combination of reduction measures and new technologies. In 2013, CARB adopted the 2012 South Coast AQMP as an update to the State strategy for Southern California. Minor revisions were adopted in 2015 by CARB. Additionally, SCAQMD released the Draft Final 2016 AQMP for public review in December 2016 and adopted the Final 2016 AQMP on March 3, 2017.<sup>4</sup>

Section 176(c) of the CAA prohibits federal funding, permitting, or assistance to any activity that does not conform to the applicable SIP. The implementing regulations identify two categories for conformity: Transportation Conformity and General Conformity.

### 1.3.1.2 State

The CCAA, administered by CARB, requires all air districts in the state to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practicable date. The currently applicable CAAQS, and the attainment status with regard to the CAAQS, is presented in Section 1.4 for each criteria pollutant.

In addition to administering the CCAA, CARB has been granted jurisdiction to develop emission standards (subject to USEPA approval) for on-road motor vehicles, stationary sources, and some off-road mobile sources. In turn, CARB has delegated authority to the local air quality management districts to issue air quality permits and enforce permit conditions at the regional and local level.

### 1.3.1.3 South Coast Air Quality Management District

SCAQMD is an air pollution control agency that has jurisdiction over Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino Counties. The South Coast Air Basin (the Basin) is a sub-region of SCAQMD’s jurisdiction. While air quality in this area has improved substantially over the years, the South Coast Air Basin requires continued diligence to meet federal and state air quality standards.

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<sup>4</sup> South Coast Air Quality Management District, *Final 2016 Air Quality Management Plan*, March 2017.



Since 1997, the SCAQMD has adopted a series of AQMPs to meet the CAAQS and NAAQS. Each iteration of the Plan is an update from the previous version to outline a strategy for meeting federal requirements while incorporating the latest technical planning information. The Final 2012 AQMP was adopted by the SCAQMD Governing Board and submitted to the USEPA in December 2012.<sup>5</sup> In 2015, AQMD approved a supplement to the 2012 AQMP demonstrating the 24-hour PM<sub>2.5</sub> standard would be attained. SCAQMD approved the 2016 AQMP on March 3, 2017, which is a comprehensive and integrated Plan primarily focused on addressing O<sub>3</sub> standards. EPA is reviewing this amendment to the SIP pursuant to the CAA.

#### 1.3.1.4 Southern California Association of Governments

The SCAG is the MPO representing six counties, including Los Angeles, and serving as a forum for the discussion of various planning and policy initiatives. 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, growth management, and air quality. Under the federal CAA, SCAG is also responsible for determining conformity of transportation projects, plans, and programs with applicable air quality plans.

#### 1.3.2 GREENHOUSE GASES AND CLIMATE CHANGE

The climate change regulatory setting – international, federal, state, and local – is complex and rapidly evolving. The United Nations and World Meteorological Organization established the International Governmental Panel on Climate Change (IPCC) in 1988. In 1994, the United States joined other countries in signing the United Nations Framework Convention on Climate Change (UNFCCC) to gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts; and cooperate in preparing for adaptation to the impacts of climate change. Federally, the USEPA has published endangerment findings for greenhouse gases indicating that emissions of greenhouse gases from new motor vehicles and certain aircraft contribute to air pollution that endangers the public health and welfare under the CAA, Section 202(a). A number of California and City of Los Angeles statutes, policies and regulations have been promulgated to reduce the growth in greenhouse gas emissions. These documents will be discussed in the EA, and the EA will describe the resulting Project-related greenhouse gas emissions in the context of these State and local policies.

Consistent with FAA's Aviation Emissions and Air Quality Handbook, LAWA proposes to develop a greenhouse gas inventory since a criteria pollutant inventory is being prepared. Therefore, this NEPA Air Quality Protocol discusses the process that will be used to prepare a greenhouse gas inventory.

#### 1.3.3 SIGNIFICANCE THRESHOLDS AND EVALUATION THRESHOLDS

Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for air quality:

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<sup>5</sup> South Coast Air Quality Management District, "Air Quality Management Plans (AQMP)," <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan> (accessed January 7, 2015).



*The action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the Environmental Protection Agency under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.*

While not a threshold of significance for NEPA, under the General Conformity rules (40 CFR Part 93.153), if Project-related emissions are greater than the *de minimis* threshold established by regulation, a conformity determination is required. As is noted in the subsequent sections, LAX is located in a non-attainment or maintenance area for a number of pollutants. Therefore, the *de minimis* thresholds applicable to the proposed Project are:

- Ozone (Extreme nonattainment):
  - NO<sub>x</sub>: 10 tons per year
  - VOC: 10 tons per year
- PM<sub>2.5</sub> (Serious non attainment) – 70 tons per year
- PM<sub>10</sub> (Maintenance) – 100 tons per year
- Lead (Nonattainment) – 25 tons per year
- Carbon Monoxide (Maintenance) – 100 tons per year
- Nitrogen Dioxide (Maintenance) – 100 tons per year

Presently, there is no threshold of significance in FAA guidance for greenhouse gases.

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## 1.4 Regional Air Quality Status

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As discussed in Section 1.3, LAX is subject to the NAAQS and the CAAQS. **Table 1-1** presents the currently applicable NAAQS and CAAQS that are in effect for each criteria air pollutant.



**Table 1-1: National and California Ambient Air Quality Standards**

POLLUTANT	AVERAGING TIME	CAAQS	NAAQS	
			PRIMARY	SECONDARY
Ozone (O <sub>3</sub> )	8-hour	0.070 ppm (137 µg/m <sup>3</sup> )	0.075 ppm <sup>3/</sup> (147 µg/m <sup>3</sup> )	Same as Primary
	1-Hour	0.09 ppm (180 µg/m <sup>3</sup> )	N/A	N/A
Carbon Monoxide (CO)	8-hour	9.0 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )	N/A
	1-Hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	N/A
Nitrogen Dioxide (NO <sub>2</sub> )	Annual	0.030 ppm (57 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary <sup>1/</sup>
	1-Hour	0.18 ppm (339 µg/m <sup>3</sup> )	100 ppb (188 µg/m <sup>3</sup> )	N/A
Sulfur Dioxide (SO <sub>2</sub> ) <sup>2/</sup>	Annual	N/A	0.03 ppm (80 µg/m <sup>3</sup> )	N/A
	24-Hour	0.04 ppm (105 µg/m <sup>3</sup> )	0.14 ppm (365 µg/m <sup>3</sup> )	N/A
	3-Hour	N/A	N/A	0.5 ppm (1300 µg/m <sup>3</sup> )
	1-Hour	0.25 ppm (655 µg/m <sup>3</sup> )	75 ppb (196 µg/m <sup>3</sup> )	N/A
Respirable Particulate Matter (PM <sub>10</sub> )	AAM	20 µg/m <sup>3</sup>	N/A	N/A
	24-Hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	Same as Primary
Fine Particulate Matter (PM <sub>2.5</sub> )	AAM	12 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-Hour	N/A	35 µg/m <sup>3</sup>	Same as Primary
Lead (Pb)	Rolling 3-Month Average	N/A	0.15 µg/m <sup>3</sup>	Same as Primary
	Monthly	1.5 µg/m <sup>3</sup>	N/A	N/A
Visibility Reducing Particles	8-Hour	Extinction of 0.23 per kilometer	N/A	N/A
Sulfates	24-Hour	25 µg/m <sup>3</sup>	N/A	N/A

## NOTES:

NAAQS = National Ambient Air Quality Standards

N/A = Not applicable

CAAQS = California Ambient Air Quality Standards

mg/m<sup>3</sup> = milligrams per cubic meter

ppm = parts per million (by volume)

AAM = Annual arithmetic mean

µg/m<sup>3</sup> = micrograms per cubic meter

ppb = parts per billion

1/ On March 20, 2012, the USEPA took final action to retain the current secondary NAAQS for NO<sub>2</sub> (0.053 ppm averaged over a year) and SO<sub>2</sub> (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<sub>2</sub> NAAQS was updated and the previous 24-hour and annual primary NAAQS were revoked. The previous 1971 SO<sub>2</sub> NAAQS (24-hour: 0.14 ppm; annual: 0.030 ppm) remains in effect until one year after an area is designated for the 2010 NAAQS (75 FR 35520).

3/ On October 1, 2015, the 8-hour O<sub>3</sub> NAAQS was updated to 0.070 ppm; this standard will become effective for the southern California region when USEPA issues implementation rules promulgating nonattainment areas for this standard, anticipated to occur in fall of 2017.

SOURCE: California Air Resources Board, *Ambient Air Quality Standards Chart*, Available: <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>, accessed August 5, 2016.

PREPARED BY: Ricondo & Associates, Inc., May 2017.



LAX is located in the South Coast Air Basin, which is a sub-region of the SCAQMD's jurisdiction. The Basin is designated as a federal nonattainment area for O<sub>3</sub>, PM<sub>2.5</sub>, and Pb. Nonattainment designations under the CAA for O<sub>3</sub> and PM<sub>2.5</sub> are categorized into levels of severity based on the level of concentrations above the standard, which is also used to set the required attainment date. Attainment/maintenance means that the pollutant is currently in attainment and that measures are included in the SIP to ensure that the NAAQS for that pollutant are not exceeded again (maintained). **Table 1-2** presents the federal attainment designations for each of the criteria air pollutants.

**Table 1-2: South Coast Air Basin Attainment Status**

POLLUTANT	NATIONAL STANDARDS <sup>1/</sup>
Ozone (O <sub>3</sub> ) 8-Hour Standard	Nonattainment – Extreme
Ozone (O <sub>3</sub> ) 1-Hour Standard	(Nonattainment – Extreme) <sup>2/</sup>
Carbon Monoxide (CO)	Attainment – Maintenance
Nitrogen Dioxide (NO <sub>2</sub> )	Attainment – Maintenance
Sulfur Dioxide (SO <sub>2</sub> )	Attainment
Respirable Particulate Matter (PM <sub>10</sub> )	Attainment – Maintenance
Fine Particulate Matter (PM <sub>2.5</sub> )	Nonattainment – Serious <sup>3/</sup>
Lead (Pb)	Nonattainment

NOTES:

1/ Status as of June 17, 2016.

2/ The South Coast Air Basin had not attained the 1-hour O<sub>3</sub> standard by the time it was replaced with the 1997 8-hour O<sub>3</sub> standard. Therefore, the State Implementation Plan for the South Coast must still contain demonstrations that the 1-hour O<sub>3</sub> standard will be attained.

3/ Classified as moderate nonattainment for 2012 NAAQS and serious nonattainment for 2006 NAAQS. Thus, for conformity purposes the serious nonattainment *de minimis* threshold will be used.

SOURCE: U.S. Environmental Protection Agency, "Green Book Nonattainment Areas," April 22, 2016, available: <https://www3.epa.gov/airquality/greenbook/index.html> (accessed May 24, 2016).

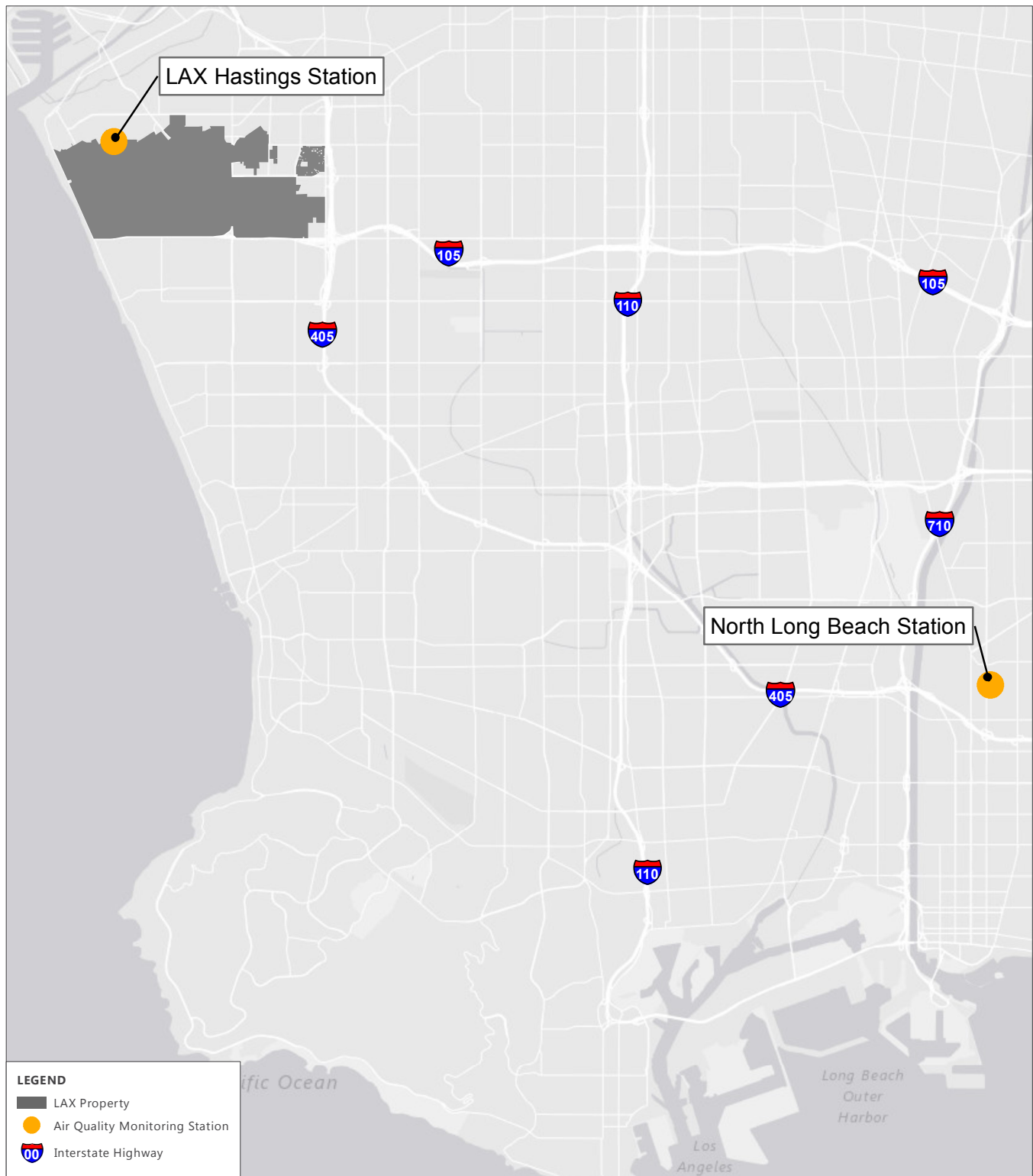
PREPARED BY: Ricondo & Associates, Inc., September 2016.

## 1.5 Ambient Air Quality Status

The SCAQMD maintains a network of air quality monitoring stations located throughout the South Coast Air Basin. The closest monitoring station to LAX is the Southwest Coastal Los Angeles Monitoring Station located at 7201 W. Westchester Parkway (LAX Hastings site). This station monitors O<sub>3</sub>, CO, SO<sub>2</sub>, NO<sub>2</sub>, and PM<sub>10</sub>. Data available from this monitoring station is summarized for the five-year period of 2011 to 2015 in **Table 1-3**. However, as PM<sub>2.5</sub> has not been historically monitored at the LAX Hastings station, data for this pollutant was obtained from the South Coastal Los Angeles County Monitoring Station located at 3648 North Long Beach Boulevard (North Long Beach). **Figure 3** depicts the location of these monitoring stations.



[Preliminary Draft for Discussion Purposes Only]



SOURCE: Ricondo & Associates, Inc., March 2017.  
PREPARED BY: Ricondo & Associates, Inc., May 2017.

**FIGURE 3**

0 15,000 ft.

## Ambient Air Quality Monitoring Stations



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Table 1-3: Ambient Air Quality Measurements

POLLUTANT	2011	2012	2013	2014	2015
<b>Ozone (O<sub>3</sub>)</b>					
Maximum Concentration 1-hr period, ppm	0.078	0.106	0.105	0.114	0.096
Maximum National Concentration 8-hr period, ppm	0.067	0.075	0.081	0.080	0.077
Maximum California Concentration 8-hr period, ppm	0.067	0.075	0.082	0.080	0.078
<b>Carbon Monoxide (CO)</b>					
Maximum Concentration 1-hr period, ppm	2.3	2.8	3.1	2.7	1.7
Maximum National Concentration 8-hr period, ppm	1.79	1.51	0	1.9	--- <sup>1/</sup>
Maximum California Concentration 8-hr period, ppm	1.79	1.73	2.51	1.9	--- <sup>1/</sup>
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Maximum Concentration 1-hr period, ppm	0.098	0.077	0.078	0.087	0.087
Annual Arithmetic Mean (AAM), ppm	0.013	0.010	0.012	0.012	0.011
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Maximum Concentration 1-hr period, ppm	0.0115	0.0050	0.0095	0.0154	0.0150
Maximum Concentration 24-hr period, ppm	0.0019	0.0013	0.0019	0.0025	0.0016
Annual Arithmetic Mean (AAM), ppm	0.000	--- <sup>1/</sup>	--- <sup>1/</sup>	--- <sup>1/</sup>	0.000
<b>Respirable Particulate Matter (PM<sub>10</sub>)</b>					
Maximum National Concentration 24-hr period, µg/m <sup>3</sup>	41	31	38	46	31
Maximum California Concentration 24-hr period, µg/m <sup>3</sup>	41	30	37	45	31
Annual National Concentration, µg/m <sup>3</sup>	21.7	19.8	20.8	22.1	21.3
Annual California Concentration, µg/m <sup>3</sup>	21.4	19.6	--- <sup>1/</sup>	21.9	--- <sup>1/</sup>
<b>Fine Particulate Matter (PM<sub>2.5</sub>)<sup>2/</sup></b>					
Maximum National Concentration 24-hr period, µg/m <sup>3</sup>	39.7	49.8	47.2	51.5	48.8
Maximum California Concentration 24-hr period, µg/m <sup>3</sup>	44.0	58.6	51.7	51.4	48.8
Annual National Concentration, µg/m <sup>3</sup>	11.0	10.3	11.3	11.4	12.9

## NOTES:

1/ --- = insufficient data was available to determine the value

2/ PM<sub>2.5</sub> data is from North Long Beach (South Coastal) monitoring station.SOURCE: California Air Resources Board, iADAM: Air Quality Data Statistics, Available: <http://www.arb.ca.gov/adam/>, accessed May 24, 2015; California Air Resources Board, AQMIS2, Available: <http://www.arb.ca.gov/aqmis2/aqmis2.php>, accessed December 15, 2016.

PREPARED BY: Ricondo &amp; Associates, Inc., December 2016.



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## 2. NEPA Air Quality Protocol

The air quality analysis to be conducted for the LAX Landside Access Modernization Program EA will address construction and operations emissions. Construction activities to be analyzed are all efforts associated with building the proposed landside improvements. The construction emissions generally include on-site and off-site construction equipment, fugitive dust, fugitive VOCs, and worker vehicle trips that would occur during the construction period, estimated to be approximately 6 years in Phase 1 and up to 10 years in Phase 2. Operational sources specific to the LAX Landside Access Modernization Program will also be included in the air quality analysis, including ground access vehicles and busing operations.

This data will be evaluated to determine if the emissions caused by the proposed LAX Landside Access Modernization Program would qualify as significant under the FAA's NEPA threshold (discussed in Section 1.3.3). The same data will be used to determine whether the proposed program conforms with the State Implementation Plan (SIP) under the Clean Air Act conformity requirements (see Section 3 of this Protocol).

---

### 2.1 Scope of Analysis

---

This section will discuss the overall approach to the EA air quality analysis, including: scenarios and years to be analyzed, types of analysis to be performed, pollutants to be considered, and cumulative impacts. Overall, the study will include the criteria air pollutant air quality impact analysis (emissions and dispersion). An emissions inventory of greenhouse gases and hazardous air pollutants will also be prepared. Section 2.2 presents the methodology to be used for emission calculations; Section 2.3 discusses the methodology for dispersion modeling followed by sections on cumulative impact analysis (Section 2.4), hazardous air pollutants (Section 2.5), and greenhouse gas emission calculations (Section 2.6).

#### 2.1.1 SCENARIOS/ANALYSIS YEARS

Year 2015 will be used as the existing condition for the EA because this represents the last full year of available data when the study began. The air quality analysis conducted for the LAX Landside Access Modernization Program EA will address construction-related impacts for the approximately 6 years of proposed construction activities, and operations-related impacts for the future horizon year of 2024. The year 2024 represents completion of Phase 1 of the Project. For purposes of the EA, it will be assumed that the Phase 2 roadway elements will be completed by 2030; thus, a year 2030 analysis will consider the operational effects of Phase 1 and Phase 2 roadway elements of the LAX Landside Access Modernization Program. A future year analysis of 2035 will consider operational emissions five years after completion of the Program and



include a cumulative impact evaluation of other projects that may be undertaken by LAWA for which FAA approval is not being sought at this time, as well as other regional projects in the Airport vicinity.

Analysis for the following years and conditions will be conducted in the EA:

- 2015 Existing Conditions
- Future 2024
  - No Action – existing Airport facilities with regional and Airport activity levels associated with 2024.
  - Proposed Action and any other action alternative carried forward for detailed consideration in the EA – including the Phase 1 LAX Landside Access Modernization Program with 2024 regional and Airport activity levels
- Future 2030
  - No Action – existing Airport facilities with regional and Airport activity levels associated with 2030.
  - Proposed Action and any other action alternative carried forward for detailed consideration in the EA – including the Phase 1 LAX Landside Access Modernization Program and the Phase 2 roadway elements of the Landside Access Modernization Program with 2030 regional and Airport activity levels.
- Future 2035
  - No Action – existing Airport facilities with regional and Airport activity levels associated with 2035.
  - Proposed Action and any other action alternative carried forward for detailed consideration in the EA – including the Phase 1 LAX Landside Access Modernization Program and the Phase 2 roadway elements of the Landside Access Modernization Program with 2035 regional and Airport activity levels.
  - Cumulative Impacts: will consider the air quality effects of the Phase 1 and 2 LAX Landside Access Modernization Program, combined with estimates of other LAWA projects and other regional projects in the Airport vicinity.

Additional analysis will be performed to estimate construction emissions, the peak emission year, and other years specified in the SIP, as required by the general conformity rules (see Section 3.3).

### 2.1.2 POLLUTANTS OF INTEREST

Six criteria pollutants will be evaluated in the LAX Landside Access Modernization Program EA air quality analysis, namely CO, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub>. These pollutants will be analyzed because they were shown to have significant impacts in previous air quality analysis conducted for the 2005 LAX Master Plan Final Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) and subsequent EIRs prepared by LAWA. Although Pb is a criteria pollutant, it will not be evaluated in the air quality analysis of the EA, since no leaded fuel is provided at LAX by LAWA.



Following standard industry practice and USEPA guidance, the evaluation of O<sub>3</sub> will be conducted by evaluating precursor pollutant emissions of VOC and NO<sub>x</sub>. O<sub>3</sub> is a secondary 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<sub>3</sub> modeling will be conducted for this EA.

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## 2.2 Direct and Indirect Project Emission Inventory Methodology

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The criteria pollutant emission inventories will be developed using standard industry software/models and federal, State, and locally approved methodologies. Results of the emission inventories will be compared to mass daily emissions thresholds established by SCAQMD for the Basin.

It is important to note that while FAA normally requires the use of the Aviation Environmental Design Tool (AEDT) for airport air quality evaluation, that tool is not usable for the type of development reflected in the LAX Landside Access Modernization Program. The AEDT focuses on emissions of aircraft and ground support equipment. Since the LAX Landside Access Modernization Program will not affect those sources, the LAX Landside Access Modernization Program EA will rely on other tools that are available to evaluate ground access/on-road vehicle emissions. EMFAC2014 will be used to quantify emissions from on-road sources whereas construction emissions will be quantified using the models listed in **Table 2-1**.

Mass emissions inventories will be prepared for the 2015 existing condition year and for 2024 Proposed Action, No Action conditions and any other action alternative carried forward for detailed consideration in the EA. These inventories will identify peak year construction emissions associated with completing the proposed LAX Landside Access Modernization Program between 2018 and 2024. Mass emissions inventories will also be prepared for 2025 through 2030 to determine the peak year construction emissions associated with Phase 2. Operational emissions will be calculated for future condition 2024 Proposed Action, No Action, and any other action alternative carried forward for detailed consideration in the EA; future condition 2030 Proposed Action, No Action, and any other action alternative carried forward for detailed consideration in the EA; and future condition 2035 Proposed Action, No Action, and any other action alternative carried forward for detailed consideration in the EA. Operational emissions for a future cumulative impact evaluation will also be conducted.

The overview of the inventory process is provided below for both construction and operations.



**Table 2-1: Construction Sources Pollutant and Emission Model Summary**

CONSTRUCTION SOURCE	POLLUTANT	MODEL/REFERENCE
Off-Road Equipment	CO, SO <sub>2</sub>	OFFROAD2007, OFFROAD2011 <sup>1/</sup>
	VOC, NO <sub>x</sub> , PM <sub>10</sub>	2011 Inventory Model (commonly referred to as OFFROAD2011) <sup>2/</sup>
	PM <sub>2.5</sub>	CARB Speciation Profiles (& Size Distributions) <sup>3/</sup>
On-Road On-Site Equipment	CO, VOC, NO <sub>x</sub> , PM <sub>10</sub>	EMFAC2014 <sup>4/</sup>
On-Road Off-Site Equipment	CO, VOC, NO <sub>x</sub> , PM <sub>10</sub>	EMFAC2014 <sup>4/</sup>
Fugitive Dust	PM <sub>10</sub> , PM <sub>2.5</sub>	USEPA AP42 <sup>5/</sup>
Fugitive VOCs	VOC	CalEEMod <sup>6/</sup>

## NOTES:

1/ California Air Resources Board, OFFROAD2007 Model, available: <http://www.arb.ca.gov/msei/documentation.htm> (accessed May 24, 2016).

2/ California Air Resources Board, 2011 Inventory Model for In-Use Off-Road Equipment, available: [www.arb.ca.gov/msei/categories.htm#offroad\\_motor\\_vehicles](http://www.arb.ca.gov/msei/categories.htm#offroad_motor_vehicles) (accessed May 24, 2016).

3/ South Coast Air Quality Management District, "Final – Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds," October 2006, available: <http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/pm-2-5-significance-thresholds-and-calculation-methodology> (accessed May 24, 2016); California Environmental Protection Agency, Air Resources Board, "Speciation Profiles Used in ARB Modeling," April 15, 2016, available: <http://www.arb.ca.gov/ei/speciate/speciate.htm#assnfrac> (accessed May 31, 2016).

4/ California Air Resources Board, EMFAC2014 Model, available: <http://www.arb.ca.gov/msei/categories.htm#emfac2014> (access May 24, 2016).

5/ U.S. Environmental Protection Agency, "Emissions Factors & AP 42, Compilation of Air Pollutant Emission Factors," available: <http://www.epa.gov/ttn/chief/ap42/index.html> (accessed May 24, 2016).

6/ California Air Pollution Control Officers Association, California Emissions Estimator Model (CalEEMod) Version 2013.2.2, prepared by ENVIRON International Corporation and the California Air Districts, available: <http://www.caleemod.com/> (accessed on May 24, 2016)

SOURCE: Ricondo & Associates, Inc., May 2016.

PREPARED BY: Ricondo & Associates, Inc., May 2016.

## Construction:

- Direct and indirect Project-related emissions:
  - Identify construction-related emissions sources that will likely be needed to build the LAX Landside Access Modernization Program.
  - Capture construction activities of site-preparation, construction of paved and concrete surfaces, building erection-related activities, material delivery, and construction employee work commute.
  - Prepare emissions inventory of construction emissions for all construction years.

## Operations:

- Identify operational emission sources whose emissions would change due to the LAX Landside Access Modernization Program.
- Develop annual and daily operational emissions inventories for the identified sources.



#### Dispersion Analysis:

- A dispersion analysis will be conducted for comparison to the NAAQS to determine if the Project would create a new exceedance or exacerbate an existing exceedance.

#### Conformity:

- See Chapter 3 for a more detailed description of the approach to conformity.
- Parts of the Project will be processed under the General Conformity rules, for those requiring only FAA approval, and others under the Transportation Conformity rules (those that are subject to surface transportation agency approvals).
  - Construction emissions: will be processed under General Conformity for all project elements whose construction emissions are reasonably foreseeable and that could be practicably controlled by the FAA.
  - Operating emissions: operating emissions for all roadway project elements will be processed under Transportation conformity, with the exception of 7 roadway project elements (noted in Table 3-2) that will be processed under General Conformity as those roadway project elements are not in the conforming Transportation Improvement Program.
  - A Project Level Transportation Conformity analysis may be required for two Project elements (New 'C' Street and the I-405 ramps at La Cienega Blvd), if they are deemed to be projects of air quality concern. Caltrans and FHWA will be invited to be cooperating agencies in the preparation of the Environmental Assessment; if they elect to be cooperating agencies, the EA will include information and analyses to meet their NEPA and Conformity requirements.
- As is noted in Chapter 3, SCAQMD has allocated a portion of the NO<sub>x</sub> and VOC General Conformity budget in the SIP to this Project. It is envisioned that all NO<sub>x</sub> and VOC Project-related emissions that would be processed under General Conformity will fall within this budget.
- Some elements of the LAX Landside Access Modernization Program are subject to approval by agencies in addition to the FAA. These project elements are included in the SCAG Regional Transportation Plan and Transportation Improvement Program which are already shown to conform with the current State Implementation Plans. A Hot Spot Analysis may be prepared to identify project-level effects for certain Project elements; that work will be coordinated with the SCAG Transportation Conformity Working Group. During this coordination, it is expected that the agencies will notify FAA/LAWA if the project is a project of air quality concern and will recommend the appropriate approach needed for project level transportation conformity. Chapter 3 discusses the conformity process and the roles of the agencies in conformity.

The following section discusses the assumptions associated with each Project-related inventory (construction and operation); cumulative effects are discussed in Section 2.4.

### 2.2.1 CONSTRUCTION SOURCES

Emissions inventories for construction activity will be prepared. Emission estimates for CO, VOC, NO<sub>x</sub>, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> will be developed for:



- Off-Road On-Site Equipment
- On-Road On-Site Equipment
- On-Road Off-Site Equipment
- Fugitive Dust
- Fugitive VOCs

To estimate construction emissions, resource requirements and activity schedules will be developed by LAWA. The construction activity data will include types and specifications for both on-road and off-road construction equipment, and total operating hours by equipment type by month for each applicable construction activity/project. Equipment specifications will include equipment type, manufacturer, model, capacity, horsepower, fuel consumption, and fuel type, as appropriate. Using this data, monthly, quarterly, and annual construction emissions estimates will be developed. Peak month average day emissions estimates will be developed by identifying a peak month of construction emissions and dividing the emissions by the number of days in that month.

A summary of construction source pollutants and models/references to be used is shown in Table 2-1.

#### 2.2.1.1 Off-Road On-Site Equipment Emissions Inventory

Off-road construction equipment includes dozers, loaders, sweepers, and other heavy-duty construction equipment that is not licensed for travel on public roadways. Using a compiled listing of all off-road construction equipment types, models, and horsepower ratings, emission rates will be obtained/derived from the sources shown in Table 2-1.

Daily emission inventories for off-road equipment will be calculated by multiplying the appropriate emission factor by the horsepower, load factor, and daily operational hours for each type of equipment as shown in **Equation 2-1**.



### Equation 2-1: Off-Road On-Site Equipment Emissions

$$E = HP \times L \times n \times H \times EF$$

Where:

$E$  = emissions (lb/day)

$HP$  = project equipment horsepower

$L$  = load factor

$n$  = number of pieces of equipment in a specified equipment category

$H$  = hours per day of equipment operation

$EF$  = emission factor (lb/hp-hr)

SOURCE: Ricondo & Associates, Inc., January 2015.

PREPARED BY: Ricondo & Associates, Inc., January 2015.

#### 2.2.1.2 On-Road On-Site Equipment Emissions Inventory

On-road on-site equipment includes shuttle vans transporting construction employees from the employee parking areas to the construction site, on-site pickup trucks, crew vans, water trucks, dump trucks, haul trucks and other on-road vehicles (i.e., vehicles licensed to travel on public roadways). Exhaust emissions from on-road on-site sources will be calculated using peak construction year emission factors for CO, VOC, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> from CARB's emission factor model EMFAC2014.

On-road on-site equipment types from the proposed Project construction schedule will be matched with vehicle types corresponding to EMFAC2011 vehicle classes.<sup>6</sup> Other factors including region, calendar year, season, model year, speed and fuel type will also be selected for each equipment type. The EMFAC2014 model will output emission rates (grams/mile) for each equipment type. To calculate the total emissions, roundtrip distances for on-site travel will be determined for each equipment category and substituted into **Equation 2-2** shown below. The EMFAC factors account for start-up, running and idling. In addition, VOC emission factors include diurnal, hot soak, running, and resting emissions, and the PM<sub>10</sub> and PM<sub>2.5</sub> factors include tire and brake wear.

<sup>6</sup> Although EMFAC2014 is the current release of the model, the vehicle classes are based on either EMFAC2007 or EMFAC2011; therefore, EMFAC2011 vehicle classes are the most recent versions.



**Equation 2-2: On-Road On-Site Equipment Emissions**

$$E = VMT \times EF$$

Where:

$E$  = emissions (lb/day)

$VMT$  = vehicle miles traveled per day

$EF$  = emission factor (lb/mile)

SOURCE: Ricondo & Associates, Inc., January 2015.

PREPARED BY: Ricondo & Associates, Inc., January 2015.

### 2.2.1.3 On-Road Off-Site Equipment Emissions Inventory

On-road off-site trip types identified in the construction schedule include personal vehicles used by construction employees to access the construction employee parking areas, and may also include equipment and material delivery/haul vehicles. Emissions from these trips will be calculated using EMFAC2014 for all criteria pollutants. An assumption of workers per crew and vehicle miles traveled (VMT) per day will be based on the Proposed Action construction schedule. In general, the EMFAC2014 emissions factors will be multiplied by the total VMT for each vehicle type to obtain emissions in pounds per day, similar to Equation 2-2 in Section 2.2.1.2.

Construction-worker vehicle emissions include: vehicle exhaust, tire wear, brake wear, and paved road dust using SCAQMD default assumptions for vehicle fleet mix, travel distance, and average travel speeds.

### 2.2.1.4 Fugitive Dust

Additional sources of  $PM_{10}$  and  $PM_{2.5}$  emissions associated with construction activities are related to fugitive dust. Fugitive dust includes re-suspended road dust from both off- and on-road vehicles, dust from grading, loading and unloading, hauling and storage activities, as well as rock crushing operations and batch plants, if applicable. Fugitive dust emissions ( $PM_{10}$  and  $PM_{2.5}$ ) will be calculated using the guidance from the USEPA's Compilation of Air Pollutant Emission Factors (AP-42)<sup>7</sup> and SCAQMD's California Environmental Quality Act (CEQA) Air Quality Handbook.<sup>8</sup> Fugitive dust emissions will be calculated as outlined in AP-42 for the following construction activities:

<sup>7</sup> U.S. Environmental Protection Agency, AP-42 - Compilation of Air Pollutant Emission Factors, Fifth Edition, 1995; as updated at <https://www3.epa.gov/ttn/chief/ap42/index.html>.

<sup>8</sup> South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993 and on-line updates.



- Vehicles traveling on paved roads. All haul trucks, flatbed trucks, and automobiles are assumed to travel on paved roads.
- On-site construction activities (grading, crushing, loading, hauling and storage) will be calculated based on LAWA's current Title V permit for batch plants. The emissions will be calculated based on construction material demand using the emissions equation in the permit. Operations activities of an on-site construction batch plant, if applicable.
- An on-site rock crusher. An overall emission factor will be derived by summing emission factors for crushing activities including tertiary crushing, fines crushing, and screening, if applicable.

Monthly fugitive dust emissions will be calculated for each piece of construction equipment or construction activity, from which annual and daily fugitive dust emissions will be determined.

#### 2.2.1.5 Fugitive VOCs (Paving and Painting)

Construction materials that can be sources of VOC emissions include hot-mix asphalt paving, parking lot striping, and architectural coating. VOC emissions from asphalt paving operations result from the evaporation of the petroleum distillate solvent, or diluent, used to liquefy asphalt cement. Asphalt paving emissions will be calculated using the SCAQMD recommended approach included in the CalEEMod model.

### 2.2.2 OPERATIONAL SOURCES

Operational emissions provide an indication of the changes in emissions that completing and operating the proposed Project would have when comparing operational emissions without the LAX Landside Access Modernization Program.

The FAA's Terminal Area Forecast for LAX, published in January 2016, forecasts demand for air travel in 2024, 2030, and 2035 at LAX. The forecast predicts an increase in total aircraft activity and total passenger activity at LAX. Implementation of the LAX Landside Access Modernization Program would not increase the number of flights or type of aircraft using the airfield because it only affects landside development and efficiency of the landside/roadway system. The LAX Landside Access Modernization Program would also not result in changes to air traffic flight patterns or aircraft taxi patterns. Finally, the LAX Landside Access Modernization Program would not change the number of passengers at LAX; it would only change how they access the airport and terminal facilities.

Therefore, changes in surface vehicle traffic patterns and trips that would occur because of the LAX Landside Access Modernization Program facilities, as well as emissions from new stationary facilities and energy demand for the proposed LAX Landside Access Modernization Program facilities, are the only operational sources that will be analyzed for impacts.

Daily and annual emissions will be calculated for each source for the 2015 existing condition and future years 2024, 2030, and 2035 Proposed Action and No Action conditions and any other action alternative carried forward for detailed consideration in the EA.



### 2.2.2.1 Mobile Sources

Mobile sources include on-road vehicles. On-road vehicles include the automobiles, trucks, buses, and other motor vehicles that operate on the public roadways and in the parking areas at and near LAX.

No direct criteria pollutant emissions would occur from operation of the APM; rather, emissions would occur from off-airport utility plant operations necessary to support the additional electricity demand. The method for estimating these emissions is discussed below in Section 2.2.2.2.

#### *On-Road Vehicles*

All surface vehicles traveling to or from LAX will be considered in the Air Quality analysis, including: privately-owned vehicles, government-owned vehicles, and commercially-owned vehicles, such as rental cars, shuttles, buses, taxicabs, and trucks. Temporal data that identifies the vehicle volumes by hour for traffic and on-airport parking will be determined from the transportation analysis.

Assumptions to be used for these vehicles are:

- Emissions from passenger, employee, and cargo delivery trips will be calculated using Los Angeles County average fleet emission factors per mile obtained from EMFAC2014.
- VMTs will be obtained from the traffic analysis to be prepared as part of the LAX Landside Access Modernization Program EA.
- The emission factors will be multiplied by the total annual forecast VMTs for the 2015 existing condition and 2024, 2030, and 2035 Proposed Action and No Action conditions, as well as any other action alternative carried forward for detailed consideration in the EA.

### 2.2.2.2 Stationary Sources

Stationary sources include fixed combustion equipment (e.g., natural gas space heaters and water heaters) and incremental electricity demand. Both will be analyzed in the EA.

It is anticipated that the LAX Landside Access Modernization Program electrical demand as well as heating and cooling demands will be provided by grid based power (such as from the Los Angeles Department of Water and Power). The EA will analyze the potential increase in greenhouse gas emissions associated with the 2024 Proposed Action scenario, 2030 Proposed Action scenario, and 2035 Proposed Action scenario demand on regional utility plants, as well as for any other action alternative carried forward for detailed consideration in the EA. For cumulative impacts, CalEEMod<sup>9</sup> will be used to develop an emissions inventory, including emissions for small package plants, for new buildings assumed to be constructed on property used for construction laydown and staging areas during construction of the LAX Landside Access Modernization Program (see Section 2.4 for more information).

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<sup>9</sup> California Air Pollution Control Officers Association, California Emissions Estimator Model (CalEEMod) Version 2013.2.2, prepared by ENVIRON International Corporation and the California Air Districts, available: <http://www.caleemod.com/> (accessed on May 24, 2016).



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## 2.3 Dispersion Analysis

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Dispersion is the process by which atmospheric pollutants disseminate due to wind and vertical stability. Air dispersion modeling is used to predict ground-level ambient air concentrations of pollutants in the vicinity of known air emission sources. The results of a dispersion analysis are used to assess pollutant concentrations at or near an airport. The base data for the dispersion analysis are the emissions inventories described in Section 2.2.2 above, meteorological data that define the wind speeds and direction in the Project vicinity, and receptor locations where the ground level concentrations will be calculated.

Air dispersion modeling will be used to predict pollutant concentrations for operational sources for the 2015 existing condition, 2024, 2030, and 2035 Proposed Action and No Action conditions, as well as for any other action alternative carried forward for detailed consideration in the EA. Predicted concentrations resulting from the LAX Landside Access Modernization Program will be calculated for the following criteria pollutants: CO, NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub>. Project-related concentrations of CO, NO<sub>2</sub>, and SO<sub>2</sub> will be added to the background concentrations for comparison to NAAQS. The background concentrations represent contributions from non-Project sources in the vicinity of the Airport. The modeled, project-related pollutant concentrations for PM<sub>10</sub> and PM<sub>2.5</sub> will be directly compared to the Project only thresholds listed in Section 1.3.3.

### 2.3.1 MODELS/ANALYSIS

Dispersion modeling of on-airport construction, mobile and stationary sources, and off-airport mobile emissions, will be conducted using the most current EPA-approved American Meteorological Society (AMS)/EPA Regulatory Model (AERMOD) air dispersion model. Model inputs/assumptions include:

- The averaging periods to be selected in AERMOD for each pollutant are based on the Basin's attainment status and averaging periods in the NAAQS.
- The equipment used on the construction site and staging areas and the equipment transfer and haul trucks will be included in the dispersion modeling of all pollutants.
- The fugitive dust generated by these sources will be included in the PM<sub>10</sub> and PM<sub>2.5</sub> analyses.
- Several methods exist to quantify NO<sub>2</sub> emissions. The analysis will test the Ozone Limiting Method (OLM), Plume Volume Molar Ratio Method (PVMRM), and the Ambient Ratio Method 2 to determine which method best identifies the NO<sub>2</sub> concentrations. The results of the analysis will be coordinated with FAA and SCAQMD to determine the appropriate method to use to identify NO<sub>2</sub> concentrations.
- The meteorological data discussed in the following section will be used for this analysis.



### 2.3.2 METEOROLOGY

Five years of the most recent site-specific National Weather Service (NWS) hourly surface data will be used in the modeling to determine peak concentrations (2015).<sup>10</sup> The meteorological data for the NWS LAX site is available from the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI), formerly the National Climatic Data Center website. This data will be preprocessed along with Automated Surface Observing System (ASOS) 1-minute wind data using AERMET. AERMET is a meteorological preprocessor for organizing available meteorological data into a format suitable for use in the AERMOD air quality dispersion model. The dataset is comprised of hourly surface data collected at LAX for 2011 through 2015; the data includes ambient temperature, wind speed, wind direction, and atmospheric stability parameters, as well as mixing height parameters from the appropriate upper air station. The site-specific datasets will be used to model pollutant concentrations for comparisons to the NAAQS and to the CAAQS, as applicable.

### 2.3.3 SOURCE/RECEPTOR LOCATIONS

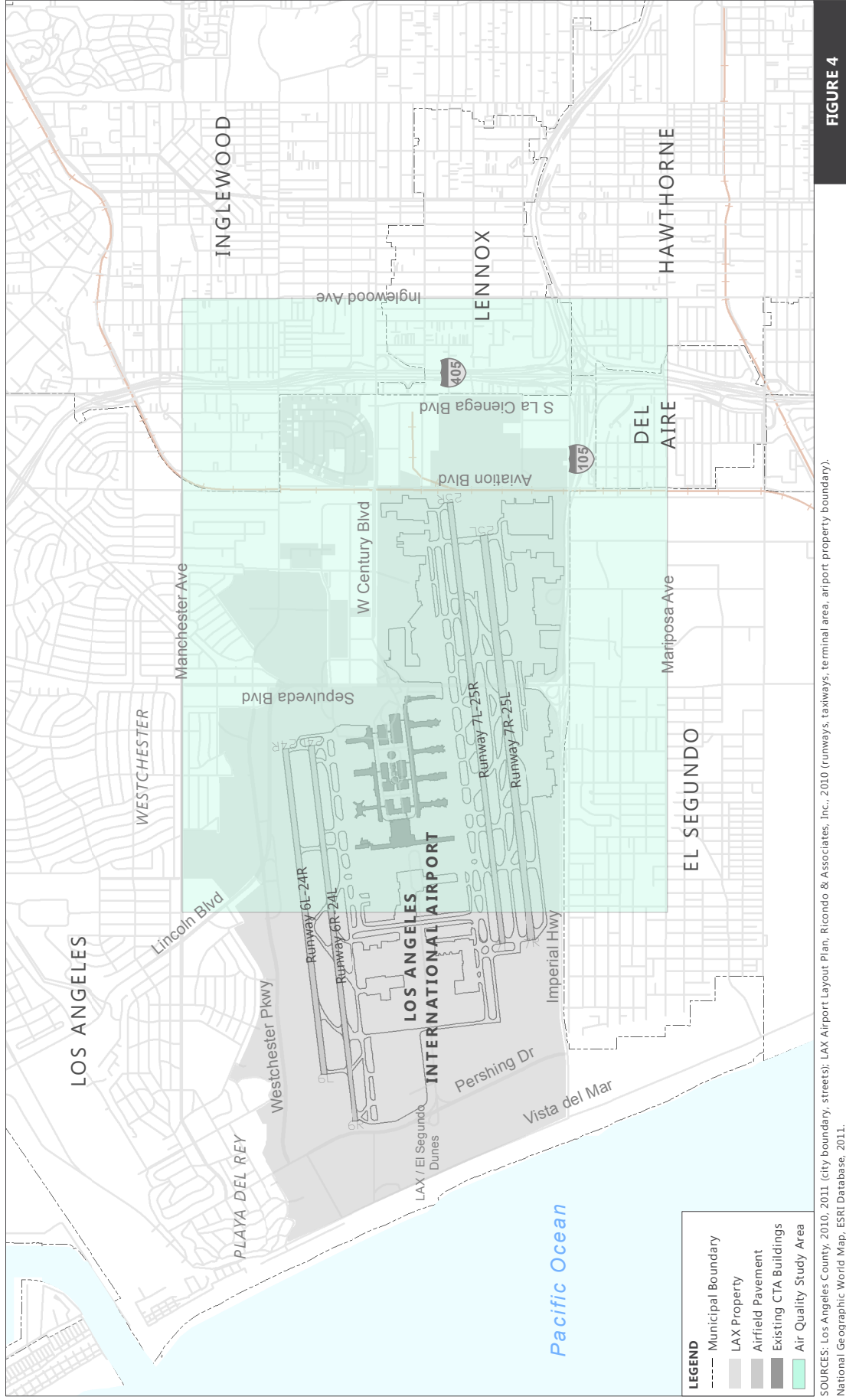
Receptor points are the geographic locations where the air dispersion model will calculate air pollutant concentrations. These receptor locations will be placed in areas where the general public has unrestricted access near the Project. Receptors will be placed at reasonable distances from the Project sources, outside of any fencing or other access restrictions. Modeled concentrations at these locations would therefore be higher than concentrations modeled farther away from the Project. Based on the complete analysis of the entire 183 intersections analyzed in the Traffic Study completed for the LAX Landside Access Modernization Program, the air quality analysis completed for the CEQA process determined that emission increases with the proposed Project were only occurring in a much limited area. Thus, LAWA proposes to complete the NEPA air quality analysis using the focused Study Area and 5 years of meteorological data. **Figure 4** identifies the Air Quality Study Area for the NEPA analysis.

Up to 1,000 receptor locations at an assumed height of 0 meters (ground level) will be used for this air quality impact analysis; including receptors located at off-airport locations near the Project. National Elevation Dataset (NED) files that cover the modeling domain will be downloaded from the U.S. Geological Survey (USGS) website. These files will be processed in AERMAP to provide terrain elevations for sources and receptors.

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<sup>10</sup> In accordance with 40 CFR Appendix W to Part 51, July 1, 2011, available: <http://www.gpo.gov/fdsys/granule/CFR-2011-title40-vol2/CFR-2011-title40-vol2-part51-appW> (Accessed December 30, 2014).





Air Quality Study Area



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## 2.4 Cumulative Impacts

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The EA will discuss other construction projects that would occur during the same timeframe in the context of a cumulative impacts emissions inventory. As noted earlier, the Phase 1 projects and the Phase 2 roadway elements are being addressed as part of the Proposed Action. The construction of various additional on-going and anticipated future projects at LAX would potentially occur simultaneously with construction of the LAX Landside Access Modernization Program. Projects to be considered in the cumulative air quality analysis of the EA will include on-airport and off-airport construction projects. The projects identified to be included in the cumulative analysis include:

- South Terminal Improvements
- West Aircraft Maintenance Area Project
- Terminal 1 Improvements
- Terminal 1.5
- Terminal 2 Improvements
- Terminal 3 Connector
- Terminals 2 and 3 Modernization Project
- Concourse 0
- Runway 7R-25L Rehabilitation
- Runway 7L/25R Runway Safety Area Improvements
- North Airfield Safety Improvements
- Airport Security Buildings
- Canine Facility
- Midfield Satellite Concourse – North (including Taxiway C14)
- Midfield Satellite Concourse - South
- LAX Northside Development
- Argo Drainage Sub-Basin Stormwater Infiltration and Treatment Facility
- Secured Area Access Post (SAAP) Project
- Metro Crenshaw/LAX Transit Corridor and Stations
- Miscellaneous LAX Projects and Improvements

In addition, the cumulative impact analysis will include future potential development on parcels of land that are needed for construction of the Phase 1 LAX Landside Access Modernization Program facilities, but would be available for airport support or other uses after completion of Phase 1. At this time, LAWA does not have



specific plans for the redevelopment of these sites, and as a result, they are not ripe for detailed evaluation. Estimates of project effects for the potential future development parcels will be developed based on general assumptions about the type and size of development that could occur on these parcels.

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## 2.5 Inventory of Hazardous Air Pollutants

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FAA Orders 1050.1F and 5050.4B and their associated desk references provide guidance concerning the evaluation of Hazardous Air Pollutants (HAPs). The 2015 FAA Air Quality Handbook<sup>11</sup> Chapter 6.2 (Hazardous Air Pollutants) provides the greatest degree of guidance about the inclusion of HAPs evaluation in FAA NEPA documents. HAPs are pollutants for which there are no NAAQS, but are still regulated under the federal CAA because of their potentially adverse effects on human health and the environment. These pollutants are comprised of a wide array of organic and inorganic compounds (e.g., formaldehyde, acetaldehyde, benzene, toluene, acrolein, 1,3-butadiene, xylene, lead, naphthalene, propionaldehyde). Such emissions are present in the exhaust of motor vehicle engines and, to a lesser extent, from boilers, fuel facilities, and other stationary sources.

Relative to the evaluation of HAPS at airports, FAA's Air Quality Handbook notes the following:

- The USEPA has identified 187 air pollutants that are considered to be HAPs and therefore subject to the requirements of CAA Section 112 (*Hazardous Air Pollutants*). From this list of 187 HAPs, 40 have been further designated by the USEPA as having the greatest potential health threat to the general public and are known as "Section 112(k) HAPs." The major categories of HAPs in this group include volatile and semi-volatile organic compounds (i.e., VOCs, SVOCs) and heavy metals.
- USEPA has identified 21 HAPs that are designated as Mobile Source Air Toxics to signify those HAPs that are emitted by motor vehicles and non-road engines (e.g., farm and construction equipment, heavy industrial vehicles, ground support equipment (GSE), etc.). These pollutants include VOCs and heavy metals that are commonly associated with the combustion of gasoline and diesel fuels.
- In 2009, the FAA published a document providing an approach to, and technical guidance for, preparing speciated organic gas (OG) emission inventories for airport sources including aircraft, auxiliary power units (APUs), GSE, motor vehicles, and stationary sources. That document noted that "HAPs emission inventories prepared in support of environmental documents prepared by, or on behalf of, the FAA under NEPA should be done consistently." Importantly, it points out that "emission inventories of aviation-related OGs; which include the OGs identified by the EPA to be HAPs and the OGs listed in the EPA's Integrated Risk Information System (IRIS), are not required by current EPA regulations. However, in those cases where it is necessary to prepare such an aviation-related HAP inventory, the inventory must be prepared following this guidance and using EDMS/AEDT."

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<sup>11</sup> U.S. Department of Transportation, Federal Aviation Administration, *Aviation Emissions and Air Quality Handbook, Version 3, Update 1*, January 2015.



- Finally, the Handbook notes, “It is also important to note that other than an emissions inventory, a HAPs assessment prepared for the FAA must not include any other type of analysis including, but not limited to, atmospheric dispersion modeling, toxicity weighting, or human health risk analyses. These types of assessments require a more complete understanding of the reactions of HAPs in the atmosphere and downstream plume evolution as well as human exposure patterns. Because the science of these relationships with respect to aviation-related HAPs is still evolving, the corresponding level of understanding is also currently limited.”

Therefore in accordance with FAA guidance, the EA will contain an inventory of HAPs, but not prepare a Human Health Risk Assessment. The FAA Air Quality Handbook (Section 6.2.2) notes that a HAPs emissions inventory should be prepared when: a) the project is “major,” b) located in nonattainment or maintenance area; and c) a criteria air pollutant emissions inventory is also prepared. LAWA prepared a Human Health Risk Assessment in its Environmental Impact Report for California Environmental Quality Act (CEQA) purposes. The EA will note that LAWA prepared a Human Health Risk Assessment for the CEQA document, and refer the reader to that material with no interpretation.

The HAPs emissions inventory will be prepared using the same assumptions and models as will be used to prepare the criteria pollutant emissions inventory discussed in the preceding sections of this chapter.

The analysis approach described above is expected to comply with FHWA’s October 2016 Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, which includes HAPs from mobile sources including diesel particulate matter.<sup>12</sup>

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## 2.6 Greenhouse Gas Emissions Protocol

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### 2.6.1 INTRODUCTION

Because the EA will include emissions estimates for criteria pollutants, FAA guidance indicates that emissions estimates for greenhouse gases (GHGs) should also be prepared. 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 greenhouse gases. These gases, including water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), O<sub>3</sub>, chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>), all act as effective global insulators, trapping heat in the Earth’s atmosphere. The potential of these gases or aerosols to trap heat in the atmosphere is known as the global warming potential (GWP). Individual greenhouse gas species have varying GWP and atmospheric lifetimes.

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<sup>12</sup> U.S. Department of Transportation, Federal Highway Administration, *Memorandum: Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents*, October 18, 2016.



Individual greenhouse gas emissions are normalized by multiplying individual emissions by its GWP to calculate the CO<sub>2</sub> equivalent (CO<sub>2</sub>e); this produces a consistent methodology for comparing emissions because it normalizes various greenhouse gas emissions to a consistent metric. The reference gas for GWP is CO<sub>2</sub>; CO<sub>2</sub> has a GWP of one. All other greenhouse gases have a greater global warming effect than CO<sub>2</sub> on a molecule-per-molecule basis. The global warming potential of select greenhouse gases are shown in **Table 2-2**.

**Table 2-2: Global Warming Potentials (GWP) and Atmospheric Lifetimes of Select Greenhouse Gases**

GAS	ATMOSPHERIC LIFETIME (YEARS)	GLOBAL WARMING POTENTIAL (100-YEAR TIME HORIZON)
Carbon Dioxide (CO <sub>2</sub> )	50 – 200	1
Methane (CH <sub>4</sub> )	12	28
Nitrous Oxide (N <sub>2</sub> O)	114	265
HFC-23	270	12,400
HFC-134a	14	1,300
HFC-152a	1.4	138
PFC: Perfluoromethane (CF <sub>4</sub> )	50,000	6,630
PFC: Perfluoroethane (C <sub>2</sub> F <sub>6</sub> )	10,000	11,100
Sulfur Hexafluoride (SF <sub>6</sub> )	3,200	23,500

SOURCE: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.

PREPARED BY: Ricondo & Associates, Inc., January 2015.

### 2.6.1.1 Scope of Analysis

For the LAX Landside Access Modernization Program EA, the greenhouse gases of concern are primarily CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O from construction and operational sources. The analysis of greenhouse gas emissions will generally mirror the air quality criteria pollutant emissions inventory, as discussed in Section 2.2 and will not directly track LAWA's existing Airport greenhouse gas inventory. This inventory will focus on CO<sub>2</sub> emissions, and where data is available concerning other greenhouse gases, will inventory those pollutants to create a CO<sub>2</sub>e.

In preparing the greenhouse gas inventory, it is important to set the boundaries of the evaluation. The inventory will focus on emissions by sources whose greenhouse gas emissions would be changed by the proposed LAX Landside Access Modernization Program; not all sources at the Airport would be affected and thus, the inventory will not be a complete airport inventory.

### 2.6.2 EMISSIONS INVENTORIES AND METHODOLOGY

The inventory of greenhouse gases will provide estimates of the amount of greenhouse gases from existing uses within the Project site and the amount of greenhouse gases associated with the construction and long-



term operation of the proposed LAX Landside Access Modernization Program. The conditions to be considered in the greenhouse gas emissions inventory are the same as those discussed in Section 2.1.1 for the criteria pollutant air quality evaluation.

#### 2.6.2.1 Construction Sources

The Project-related construction sources for which greenhouse gas emissions will be calculated are outlined below. CO<sub>2</sub> emission rates will be calculated from OFFROAD2007 and EMFAC2014 following the methodology outlined in Section 2.2.1, as appropriate.

- Off-Road On-Site Equipment
- On-Road On-Site Equipment
- On-Road Off-Site Equipment

#### 2.6.2.2 Operational Sources

As indicated previously, the existing conditions will represent 2015. Additionally, operational impacts will be compared to the Proposed Action and No Action scenarios for 2024, 2030, and 2035, as well as for any other action alternative carried forward for detailed consideration in the EA.

##### *Mobile Sources - On-Road Vehicles*

Greenhouse gas emissions from on-road vehicles will be calculated using EMFAC2014 emission factors and the total daily VMT to obtain emissions in pounds per day. VMT will be determined by multiplying the estimated daily trip generation for the LAX Landside Access Modernization Program by an average trip length. Temporal data that identifies the vehicle volumes by hour for traffic and on-airport parking will be determined from the transportation analysis.

##### *Stationary Sources*

As discussed in Section 2.2.2.2, greenhouse gas emissions will also occur from stationary sources including fixed combustion equipment and incremental electricity demand. These emissions will be estimated using CalEEMod, which will estimate the increase in greenhouse gas emissions that would occur from natural gas combustion, purchased electricity, water delivery, wastewater treatment, and solid waste disposal. This approach will provide a conservative estimation as no energy conservation measures will be assumed (although LAWA will be incorporating conservation and efficiency measures into the Project pursuant to its Sustainability Plan). Water and solid waste usage rates will be determined as part of the development for this Project. Electricity and natural gas usage rates will be determined based on building areas (square footages) for the various components of the Project. Default assumptions in CalEEMod will be adjusted to reflect these parameters to estimate emissions.



## 3. CAA Conformity

Because the Project will require federal approvals and the site is located in a non-attainment and maintenance area for various pollutants, the federal agencies will be required to show that the Project conforms with the State Implementation Plan (SIP) for the applicable pollutants. As is noted in Table 1-2, the South Coast Air Basin is designated nonattainment or maintenance for 6 of the criteria pollutants.<sup>13</sup> This chapter discusses the approach that will be used to demonstrate conformity.

### 3.1 Overview of Conformity

A Federal agency responsible for an applicable action is required to determine if the action “conforms” to the applicable SIP, by ensuring that the action does not:

- cause or contribute to any new violation of any NAAQS;
- increase the frequency or severity of any existing violations of any NAAQS; or
- delay the timely attainment of any NAAQS or any required interim emission reductions or other milestones.

Federal actions subject to conformity are divided into two categories: transportation conformity actions and general conformity actions. General conformity actions are all other Federal actions in nonattainment and maintenance areas that are not covered by the Transportation Conformity rules (40 CFR Part 51 and Part 93).

#### 3.1.1 TRANSPORTATION CONFORMITY

Transportation conformity ensures that certain ground transportation-related actions of the Federal government and recipients of Federal transportation assistance are consistent with air quality goals as established in the State Implementation Plan (SIP). This is done through procedures for the consideration of metropolitan transportation plans (MTP/RTPs), shorter-term transportation improvement programs (TIPs), and Federal FHWA/FTA projects as defined by 40 CFR § 93.101. Transportation conformity only applies to the transportation-related pollutants: ozone, particulate matter, nitrogen dioxide, and carbon monoxide.

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<sup>13</sup> As indicated in Section 2.1.2, although the South Coast Air Basin is designated as a federal nonattainment area for lead, it will not be evaluated in the air quality analysis of the EA, since no leaded fuel is provided at LAX by LAWA.



Transportation Conformity determinations are made by the Federal agency overseeing the improvements to the transportation network, either the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA). MPO policy boards make initial conformity determinations for metropolitan transportation plans and TIPs in metropolitan areas, while State Departments of Transportation (DOTs) may conduct the analyses associated with project level conformity. A formal interagency consultation process is required for developing SIPs, MTPs/RTPs, TIPs, and making conformity determinations. As a result, the consultation process typically includes the U.S. Environmental Protection Agency (USEPA), FHWA, FTA, State and local transportation agencies, and air quality agencies.

All federally funded or approved highway and public transportation projects subject to transportation conformity are required to meet project-level conformity requirements. To demonstrate project-level conformity, a project must:

- a) come from a conforming metropolitan transportation plan and TIP;
- b) its design concept and scope must not have changed significantly from that in the metropolitan transportation plan and TIP;
- c) the analysis must have used the latest planning assumptions and latest emissions model; and
- d) in particulate matter (PM) nonattainment and maintenance areas, there must be a demonstration of compliance with any control measures in the SIP.

In carbon monoxide and particulate matter nonattainment and maintenance areas, additional analysis may be necessary to determine if a project has localized air quality impacts. This localized air analysis is referred to as a “hot-spot” analysis.

To facilitate the review of transportation conformity for projects, the SCAG has formed a working group called the Transportation Conformity Working Group (TCWG).<sup>14</sup> Membership of the SCAG’s TCWG includes Federal (USEPA, FHWA, FTA), State (ARB, Caltrans), regional (Air Quality Management Districts, SCAG), and sub-regional (County Transportation Commissions) agencies, and other stakeholders.

Steps in the transportation conformity process used by SCAG through its TCWG are:

- Compare project in RTP with project being evaluated
- Surface traffic modeling that shows analysis for study area
- Modeling has to be comparable to RTP
- Assumptions and analysis years have to be coordinated
- Coordination with SCAG TCWG

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<sup>14</sup> Southern California Association of Governments, “Transportation Conformity Working Group (TCWG),” available: <http://www.scag.ca.gov/programs/Pages/TCWG.aspx> (accessed May 24, 2016).



- Conduct Hotspot analyses and/or Qualitative Analysis
- ADT/VMT evaluations to ensure that the reductions associated with the project and/or mitigations have been achieved
- TCWG render a finding, published on SCAG website

### 3.1.2 GENERAL CONFORMITY

Projects that are not processed under Transportation Conformity are processed under General Conformity. The process of evaluating projects under the General Conformity Rules generally starts with 1) determining if the project is exempt, 2) determining if the project is presumed to conform, and 3) preparation of an applicability analysis, if the project is not exempt or presumed to conform. While the FAA has assembled a list of projects presumed to conform, the LAX Landside Access Modernization Program is neither exempt nor presumed to conform.

General conformity applies to all criteria pollutants for which an area is in nonattainment or maintenance status. An applicability analysis under General Conformity consists of preparing an emissions inventory and contrasting that result with the *de minimis* thresholds. The regulation defines the thresholds based on pollutant and attainment/non-attainment designation. The thresholds applicable at LAX under General Conformity are shown in Section 1.3.3. Therefore, the emissions inventory prepared, as defined in Section 2 will be compared to the *de minimis* thresholds.

40 CFR Part 93.159(d) notes that when comparing emissions to *de minimis* thresholds, the following scenarios must be considered: a) emissions in the year of attainment or the farthest year for which emissions are projected in the maintenance plan; b) the year in which the total of direct and indirect emissions from the action are expected to be the greatest on an annual basis; and c) any year for which the SIP has an applicable emissions budget. If emissions in all of these scenarios are less than *de minimis*, no further analysis is needed. If emissions are above *de minimis* a conformity determination is required.

In a General Conformity Determination, the rule allows for the following avenues to show conformity:

1. A written determination from the State/local air quality agency stating that the project emissions, together with all other emissions in the non-attainment or maintenance area, would not exceed the emissions budget in the SIP.
2. A written commitment from the Governor, or the Governor's designee for SIP actions, to include the emissions in a revised SIP (this automatically results in a call for a SIP revision).
3. Offsetting or mitigating project emissions so that there is no net increase within the non-attainment or maintenance area.
4. The applicable MPO determines that the emissions from the project, or portion thereof, are included in a conforming transportation plan and transportation improvement program

A Conformity Determination has a publication process that is similar to the NEPA EA process (40 CFR Part 93.155 and 93.156). A draft Conformity Determination is issued with a 30-day agency and public comment period (similar to that which will occur on the Draft EA). Upon the response to comments, a final Conformity



Determination is issued. Notices of the availability of the Draft and Final Conformity Determination must be published in a daily newspaper of general circulation.

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## 3.2 Conformity Approach

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Given the type of projects that comprise the LAX Landside Access Modernization Program, it is anticipated that Federal actions will be required of the FAA and surface modal agencies, such as the Federal Highway Administration. Given the differences in requirements and approaches of the two previously described conformity processes and the requirements of the various agencies, it is anticipated that both general conformity and transportation conformity will be used to show conformity of the LAX Landside Access Modernization Program with the current approved SIPs. In general, this can be summarized as:

- Construction emissions: all construction emissions from the LAX Landside Access Modernization Program will be accounted for and processed through General Conformity except improvements that are within the current approved and conforming transportation plan and that require Caltrans/Federal Highway Administration approvals (see Section 3.4 and Table 3-2); and
- Operational emissions: Roadway projects that are within the current approved and conforming transportation plan and that require Caltrans/Federal Highway Administration approvals will be processed in accordance with the Transportation Conformity requirements. All other projects will be processed under General Conformity. Building operating emissions will be processed under General Conformity.

Regardless of how conformity will be demonstrated, an emissions inventory and a dispersion analysis will be conducted for all elements of the Project, as described in the preceding chapters. The following sections discuss the approaches to both general and transportation conformity.

The draft and final conformity processes will be integrated with the NEPA process through issuance of the Draft EA and Final EA.

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## 3.3 General Conformity

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Using the emissions inventories discussed in Section 2, an applicability analysis will be conducted using both construction emissions and operating emissions. As noted in Section 2, in the General Conformity section of the EA, the inventory for the Proposed Action and No Action conditions for future years 2024, 2030, and 2035 will be summarized.<sup>15</sup> Interim year emissions will be evaluated based on construction and operating emissions for the Project. Ongoing operational emissions will be interpolated between year 2015 emissions, 2024

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<sup>15</sup> Conformity analyses will only be performed for the Proposed Action.



emissions, 2030 emissions, and 2035 emissions. To identify total Project-related emissions, the No Action emissions will be subtracted from the Proposed Action emissions.<sup>16</sup>

Per the requirements of 40 CFR Part 93.159(d), the general conformity analysis will identify three conditions:

- (1) The Act mandated attainment year or, if applicable, the farthest year for which emissions are projected in the maintenance plan;
- (2) The year during which the total of direct and indirect emissions from the action is expected to be the greatest on an annual basis; and
- (3) Any year for which the applicable SIP specifies an emissions budget.

Given the regional attainment/non-attainment designation, the general conformity rule will require an evaluation of virtually every year's emissions through the construction horizon of the Project. Relative to the *de minimis* threshold, it is anticipated that the peak Project-related emissions would likely be greatest in the earlier years when construction emissions are at their peak. Construction emissions will be specifically calculated for the peak year. Operational emissions for some years will be interpolated between the evaluation years noted in Section 2.1.1.

The total Project-related emissions will then be compared to the *de minimis* thresholds noted previously. It is anticipated that the construction emissions from the Project during peak construction periods will exceed the *de minimis* thresholds. Based on coordination with the SCAQMD, who prepared the Air Quality Management Plan (AQMP) that is the foundation of the current SIP, SCAQMD has determined that the emissions from the LAX Landside Access Modernization Program construction are included in the General Conformity Budget for NO<sub>x</sub> and VOC emissions in the AQMP for the duration of the Phase 1 LAX Landside Access Modernization Program implementation.

As noted in the May 10, 2016 letter from SCAQMD to LAWA, SCAQMD has confirmed the availability of emissions reserved in the SIP for projects like the LAX Landside Access Modernization Program. Anticipating that General Conformity would require some allocation of project emissions, SCAQMD developed a General Conformity Budget when the 2012 AQMP was prepared. The AQMP documentation (*Final 2012 AQMP: Appendix III Base and Future Year Emission Inventory* see pages III-2-52 and III-2-53) notes that SCAQMD reserved 1 ton of NO<sub>x</sub> per day and 0.2 ton of VOC per year in the AQMP for future General Conformity projects (and thus was approved by USEPA in the SIP). This would translate to 365 tons of NO<sub>x</sub> and 73 tons of VOC. In its May letter, SCAQMD confirmed that a portion of the NO<sub>x</sub> and VOC emissions budget is available to the LAX Landside Access Modernization Program, as shown in **Table 3-1**.

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<sup>16</sup> Emissions associated with electric generation would be excluded under general conformity as those emissions are assessed and accounted for under stationary source permits.



**Table 3-1: SCAQMD NO<sub>x</sub> and VOC Emission Budget Available for the LAX Landside Access Modernization Program**

YEAR	POLLUTANT	
	NOX (TPY)	VOC (TPY)
2017	82	10
2018	164	32
2019	194	41
2020	198	42
2021	122	37
2022	63	23
2023	53	21

SOURCE: South Coast Air Quality Management District, May 10, 2016.

PREPARED BY: Ricondo & Associates, Inc., May 2016.

It is assumed that all Project NO<sub>x</sub> and VOC emissions resulting from construction will be captured in the General Conformity Budget allocation noted in the May 10, 2016 letter. Construction emissions above that budget or construction emissions for pollutants other than NO<sub>x</sub> and VOC would need to show conformity using one of the other routes noted in Section 3.1.2. Similarly, any operational emissions associated with projects falling under the authority of the FAA would need to demonstrate conformity as described in Section 3.1.2 of this document.

## 3.4 Transportation Conformity

LAWA has conducted extensive coordination of the Project elements with the various transportation agencies that have assets at LAX or in the Project area. As a result, the SCAG, the MPO for the LAX region, has included the LAX Landside Access Modernization Program elements in the current regional plans. **Table 3-2** identifies each element of the LAX Landside Access Modernization Program and their relationship relative to being part of the MPOs transportation modelling system as well as those specifically named in the conforming plan. It should be noted that the forecast level of activity associated with LAX through 2035 is included in the conforming TIP and RTP. The FHWA and FTA approved the conformity determination for the 2016-2040 RTP/SCS and the 2015 FTIP, as amended, on June 1, 2016. Thus, for purposes of transportation conformity, the operation of the roadway elements shown in Table 3-2 and the anticipated level of activity at LAX using these roadways have been shown to conform.

At the request of the air quality agencies consulted during preparation of the Air Quality Protocol, it was agreed that construction emissions associated with the LAX Landside Access Modernization Program would be processed under General Conformity. The operational emissions associated with the LAX Landside Access Modernization Program would also be processed under General Conformity, unless those projects operational emissions have been or will be addressed under Transportation Conformity. Table 3-2 identifies that construction emissions for all project elements would be processed and evaluated under General Conformity. Operational emissions of non-roadway facilities or roadways not considered regionally significant (i.e., not



contained in the 2016-2040 RTP/SCS) would also be processed and evaluated under General Conformity. Operational emissions of regionally significant roadways (i.e., contained in the 2016-2040 RTP/SCS) would be processed and evaluated through Transportation Conformity, in accordance with 40 CFR 93.153. Any project level analysis under Transportation Conformity deemed necessary by FHWA will be completed using the analysis documented in Section 3.1.1. Table 3-2 also identifies the roadway elements for which project-level transportation conformity analysis is anticipated.



Table 3-2: LAX Landside Access Modernization Program Phase 1 Project Elements (1 of 4)

PROJECT ELEMENT	GENERAL DESCRIPTION	INCLUDED IN FINAL 2016 RTP	PRELIMINARY PHASING	CONFORMITY APPROACH		
				GENERAL CONFORMITY	TRANS. CONFORMITY	PROJECT LEVEL TRANSP. CONFORMITY
APM System	A 2.25-mile Automated People Mover (APM) system with six APM stations connecting the CTA to new proposed ground transportation facilities; passenger walkway systems connecting the APM stations to passenger terminals, parking garages, and ground transportation facilities; modifications to existing passenger terminals and parking garages to support the APM walkway system connections, including vertical circulation cores to the arrival, departure, and concourse levels;	Yes/RTP ID 1122001	2018 - 2022	Yes – Construction and Operational Emissions	No	No
APM Maintenance and Storage Facility	The APM Maintenance and Storage Facility where the APM train cars would be cleaned, repaired, and washed; it would also be the operating center of the APM system.	Yes/RTP ID 1122001	2018 - 2020	Yes – Construction and Operational Emissions	No	No
APM Power Substations	Up to four traction power substations (TPSS) would provide power to the APM guideway.	Yes/RTP ID 1122001	2018 - 2020	Yes – Construction and Operational Emissions	No	No
ITF West	The ITF West facility would include an APM station, two new adjacent and interconnected public parking structures (one with four elevated parking decks and one with five elevated parking decks), a commercial vehicle curb, and internal circulation roads.	Yes/RTP ID 1120002	2018 - 2022	Yes – Construction and Operational Emissions	No	No
ITF East	The ITF East facility would include an APM station, an adjacent and interconnected public parking structure, a commercial vehicle curb, and internal circulation roads	Yes/RTP ID 1160031	2019 - 2022	Yes – Construction and Operational Emissions	No	No
CONRAC Facility	The CONRAC would provide a centralized location for car rental agencies serving LAX passengers. It would include a customer service building, APM station, ready/return garage, idle storage garage, and quick turnaround areas.	Yes/RTP ID 1122003	2018 - 2022	Yes – Construction and Operational Emissions	No	No



Table 3-2: LAX Landside Access Modernization Program Phase 1 Project Elements (2 of 4)

PROJECT ELEMENT	GENERAL DESCRIPTION	INCLUDED IN FINAL 2016 RTP	PRELIMINARY PHASING	CONFORMITY APPROACH			PROJECT LEVEL TRANSP CONFORMITY
				GENERAL CONFORMITY	TRANS. CONFORMITY		
Roadway Improvements							
New 'A' St	New 2,400-foot roadway between Westchester Parkway and Century Blvd	Yes/RTP ID 1160009	2018 - 2022	Yes – Construction Emissions	Yes – Operational Emissions		
New 'B' St	New 1,700-foot roadway between new 'A' St and Airport Blvd	Yes/RTP ID 1160010	2018 - 2022	Yes – Construction Emissions	Yes – Operational Emissions		
New 'C' St	New 1,200-foot roadway between Imperial Hwy and W. 111 <sup>th</sup> St (I-105 ramp improvements)	Yes/RTP ID 1160011	2018 - 2022	Yes – Construction Emissions	Yes		Yes
New 'D' St	New 1,100-foot roadway between W. 96 <sup>th</sup> St and W. Arbor Vitae St	No	2018 - 2022	Yes - Operational and Construction	No		
New 98 <sup>th</sup> St Segment	New 3,400-foot roadway between Aviation Blvd and La Cienega Blvd	Yes/RTP ID 1160012	2018 - 2022	Yes – Construction Emissions	Yes – Operational Emissions		
Extended Concourse Way	New 500-foot roadway between Century Blvd and Arbor Vitae Street	Yes/RTP ID 1160013	2018 - 2022	Yes – Construction Emissions	Yes – Operational Emissions		
Sepulveda Blvd	Shift the southbound lanes of Sepulveda Boulevard between W. Century Boulevard and W. 96th Street by approximately 42 feet to the west; new ramps to the World Way (arrivals and departure levels) from southbound Sepulveda Blvd.	Yes/RTP ID 1160014	2018 - 2022	Yes – Construction Emissions	Yes – Operational Emissions		
Airport Blvd	W. 98 <sup>th</sup> St to West Arbor Vitae St – widen to provide up to 3 lanes in each direction	Yes/RTP ID 1160015	2018 - 2022	Yes – Constructions Emissions	Yes – Operational Emissions		
West Arbor Vitae St	Aviation Blvd to La Cienega Blvd – widen to provide up to 3 lanes in each direction	Yes/RTP ID 1160016	2018 - 2022	Yes – Construction Emissions	Yes – Operational Emissions		



Table 3-2: LAX Landside Access Modernization Program Phase 1 Project Elements (3 of 4)

PROJECT ELEMENT	GENERAL DESCRIPTION	INCLUDED IN FINAL 2016 RTP	PRELIMINARY PHASING	CONFORMITY APPROACH			PROJECT LEVEL TRANSP CONFORMITY
				GENERAL CONFORMITY	TRANS. CONFORMITY		
West 96 <sup>th</sup> St	Airport Blvd to Bellanca Ave – widen by 15 feet	Yes/RTP ID 1160018	2018 - 2022	Yes – Construction Emissions	Yes – Operational Emissions		
West 98 <sup>th</sup> St	Airport Blvd to Aviation Blvd – widen to provide up to 2 lanes in each direction	Yes/RTP ID 1160019	2018 - 2022	Yes – Construction Emissions	Yes – Operational Emissions		
Century Blvd	New 'A' St. to Aviation Blvd – widen to provide up to additional lane in east direction	Yes/RTP ID 1160020	2018 - 2022	Yes – Construction Emissions	Yes – Operational Emissions		
Aviation Blvd	Century Blvd to West Arbor Vitae St – widen to provide up to 3 lanes in each direction	Yes/RTP ID 1160021	2018 - 2022	Yes – Construction Emissions	Yes – Operational Emissions		
La Cienega Blvd	W. 98th St to W. Arbor Vitae St – widen to provide up to 3 lanes in each direction	Yes/RTP ID 1160022	2018 - 2022	Yes – Construction Emissions	Yes – Operational Emissions		
I-405 ramps at La Cienega Boulevard	Widen to provide 2 additional lanes at the La Cienega Blvd intersection	Yes/RTP ID 1160024	2018 - 2022	Yes – Construction Emissions	Yes		Yes
Parking Garage P2A	Existing parking garage would be demolished and a replacement garage would be constructed in the CTA.	Yes/RTP ID 1160008	2018 - 2019	Yes – Construction Emissions	Yes – Operational Emissions		
Parking Garage P2B	Existing parking garage would be demolished and a replacement garage would be constructed in the CTA.	Yes/RTP ID 1160008	2019 - 2020	Yes – Construction Emissions	Yes – Operational Emissions		
Parking Garage P5	Existing parking garage would be demolished and a replacement garage would be constructed in the CTA.	Yes/RTP ID 1160008	2020 - 2021	Yes – Construction Emissions	Yes – Operational Emissions		



Table 3-2: LAX Landside Access Modernization Program Phase 1 Project Elements (3 of 4)

PROJECT ELEMENT	GENERAL DESCRIPTION	INCLUDED IN FINAL 2016 RTP	PRELIMINARY PHASING	CONFORMITY APPROACH		
				GENERAL CONFORMITY	TRANS. CONFORMITY	PROJECT LEVEL TRANSP. CONFORMITY
Bob Hope Hollywood USO	Building would be demolished. Existing uses would be accommodated in the ground floor of the Theme Building.	No	2018 - 2019	Yes – Operational and construction	No	
Restaurant Building	Building would be demolished.	No	2022	Yes – Operational and construction	No	
LAX City Bus Center	Transportation center would be demolished and relocated to either the proposed Metro Airport Metro Connector (AMC) 96th Street Transit Station to be constructed adjacent to the ITF East or adjacent to the Aviation/Century Boulevard station of the Metro Crenshaw/LAX Line currently under construction.	No	2018 - 2019	Yes – Operational and construction	No	
Delta Hangar Complex	Buildings would be demolished. Replacement facilities would be constructed on-Airport property.	No	2018 - 2020	Yes – Operational and construction	No	
Reliant Medical Center	Building would be demolished. Existing uses could be accommodated either on-Airport property or elsewhere.	No	2019 - 2020	Yes – Operational and construction	No	
Clifton Moore Administration Building (1 World Way)	Building would be demolished and LAWA administrative offices would be relocated to the existing LAWA-owned Skyview Center located at 6033 and 6053 W. Century Boulevard.	No	2025 - 2030	Yes – Operational and construction	No	

SOURCE: MapLAX, January 2016; Ricondo & Associates, Inc., February 2017.  
 PREPARED BY: Ricondo & Associates, Inc., February 2017.



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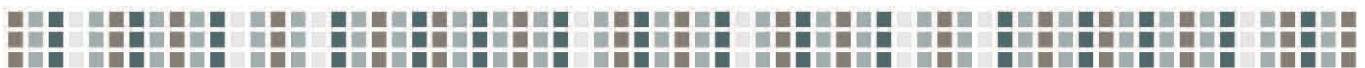


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## F.2

Letter from South Coast Air Quality Management  
District dated May 10, 2016











**South Coast  
Air Quality Management District**

21865 Copley Drive, Diamond Bar, CA 91765-4178  
(909) 396-2000 • [www.aqmd.gov](http://www.aqmd.gov)

May 10, 2016

Ms Lisa Trifiletti  
Deputy Executive Director  
Environmental Programs Group  
Los Angeles World Airports  
P.O. Box 92216  
Los Angeles, CA 90009-2216

Dear Ms. Trifiletti,

Thank you for meeting with South Coast Air Quality Management District (SCAQMD) staff and providing us with the anticipated construction emissions for NO<sub>x</sub> and VOC (dated May 3, 2016 and attached) for Phase I of the LAX Landside Access Modernization Program (LAMP) for general conformity purposes.

The conformity determination process is intended to demonstrate that a proposed Federal action will not: (1) cause or contribute to new violations of a national ambient air quality standard (NAAQS); (2) interfere with provisions in the applicable SIP for maintenance of any NAAQS; (3) increase the frequency or severity of existing violations of any standard; or (4) delay the timely attainment of any standard.

The South Coast Air Basin (Basin) is designated as extreme non-attainment for ozone and serious non-attainment for PM<sub>2.5</sub>. To streamline the review process and to facilitate conformity determinations for projects in the Basin, two separate VOC and NO<sub>x</sub> general conformity budgets were established in the Final 2012 AQMP: 1 tpd of NO<sub>x</sub> and 0.2 tpd of VOC were set aside for this purpose every year, starting in 2013 until 2030, from the projected emission growth in the Final 2012 AQMP. SCAQMD has set up a tracking system for projects requiring conformity determinations on a first come first serve basis, whereby the project emissions are debited from the applicable set aside accounts until they are depleted.

SCAQMD staff has reviewed the construction emissions submitted for the LAMP and determined that the NO<sub>x</sub> and VOC emissions from 2017 through 2023 can be accommodated within the General Conformity Budgets established in the Final 2012 AQMP. Therefore, the project will conform to the SIP and is not expected to result in any new or additional violations of the NAAQS or impede the projected attainment of the standards.



If you have any questions, please contact me at (909) 396-2239 or [pfine@aqmd.gov](mailto:pfine@aqmd.gov).

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Fine', with a long horizontal flourish extending to the right.

Philip M. Fine, Ph.D.  
Deputy Executive Officer  
Planning, Rule Development & Area Sources  
South Coast Air Quality Management District

IM:JW  
Attachment

cc: Tom Kelly, US EPA Region IX  
Barbara Baird, SCAQMD  
Henry Hogo, SCAQMD  
Sang-Mi Lee, SCAQMD





Los Angeles  
World Airports

May 3, 2016

Dr. Philip Fine  
Deputy Executive Officer  
Planning, Rule Development and Area Source Division  
South Coast Air Quality Management District  
21865 Copley Drive  
Diamond Bar, California 91765

LAX

LA/Ontario

Van Nuys

City of Los Angeles

Eric Garcetti  
Mayor

Board of Airport  
Commissioners

Sean O. Burton  
President

Valeria C. Velasco  
Vice President

Jeffery J. Daar  
Gabriel L. Eshaghian  
Beatrice C. Hsu  
Nolan V. Rollins  
Dr. Cynthia A. Telles

Deborah Flint  
Chief Executive Officer

Subject: Los Angeles International Airport Landside Access Modernization Program  
Construction Emissions

Dear Dr. Fine:

Thank you for discussing the general conformity process under the approved 2012 Air Quality Management Plan (AQMP) with us last Friday, April 29, 2016.

Attached, please find summary tables of anticipated LAX Landside Access Modernization Program (LAMP) construction NOx and VOC emissions for Phase I of the LAMP (see Table 3). These annual estimates, in tons per year, assume that the fleet average emissions from off-road construction equipment will meet the Tier 3 NOx and VOC Standards, and the fleet average on-road haul and delivery trucks will achieve a 1.2 grams NOx per mile and 0.14 gram VOC per mile emission rates with 2007 and later model year vehicles. In addition, these estimates do not include emissions from those elements currently known to require a project-level transportation conformity determination by the Federal Highway Administration or Federal Transit Administration. Improvements to the I-405 on- and off-ramps at S. La Cienega Boulevard and the improvements associated with the I-105 and Aviation Boulevard exit ramps are not included in the attached calculations.

We respectfully request that AQMD determine that these emissions are included in the General Conformity Budgets identified in the Final 2012 AQMP (Appendix III, Chapter 2). Please contact me with any other questions at (424) 646-5186.

Sincerely,

Lisa Trifiletti  
Deputy Executive Director  
Environmental Programs Group

LT:dke

Attachment

cc: H. Hogo, South Coast AQMD  
J. Wong, South Coast AQMD





# ATTACHMENT

**Table 1. Summary of LAX LAMP Construction NOx Emissions Subject to General Conformity**

Emission Source	NOx Emissions, tons per year						
	2017	2018	2019	2020	2021	2022	2023
Off-Road, On-Site Equipment <sup>a</sup>	56	94	105	124	82	37	30
On-Road, On-Site Trucks <sup>b</sup>	8	18	21	16	11	7	6
On-Road, Off-Site Haul & Deliveries <sup>b</sup>	16	45	59	51	22	15	13
On-Road, Off-Site Worker Trips	2	7	8	6	7	4	4
<b>Total</b>	<b>82</b>	<b>164</b>	<b>194</b>	<b>198</b>	<b>122</b>	<b>63</b>	<b>53</b>

- a. Assumes the fleet average emissions from off-road construction equipment meets the Tier 3 NOx Standards.  
b. Assumes the fleet average emissions from on-road trucks meets the phased-in 2007 model year NOx standard (~1.2 g/mile).

**Table 2. Summary of LAX LAMP Construction VOC Emissions Subject to General Conformity**

Emission Source	VOC Emissions, tons per year						
	2017	2018	2019	2020	2021	2022	2023
Off-Road, On-Site Equipment <sup>a</sup>	3	5	6	7	4	2	2
On-Road, On-Site Trucks <sup>b</sup>	2	8	13	18	16	10	9
On-Road, Off-Site Haul & Deliveries <sup>b</sup>	1	2	3	3	1	1	1
On-Road, Off-Site Worker Trips	4	17	19	15	16	11	9
<b>Total</b>	<b>10</b>	<b>32</b>	<b>41</b>	<b>42</b>	<b>37</b>	<b>23</b>	<b>21</b>

- a. Assumes the fleet average emissions from off-road construction equipment meets the Tier 3 VOC Standards.  
b. Assumes the fleet average emissions from on-road trucks meets the phased-in 2007 model year VOC standard (0.14 g/mile).



**Table 3. Phase 1 LAX LAMP Project Elements**

<ul style="list-style-type: none"> <li>Automated People Mover (APM) System including guideway, 6 APM stations, maintenance and storage facility and APM power substations</li> </ul>
<ul style="list-style-type: none"> <li>Consolidated Rental Car Facility</li> </ul>
<ul style="list-style-type: none"> <li>Intermodal Transportation Facility West</li> </ul>
<ul style="list-style-type: none"> <li>Intermodal Transportation Facility East</li> </ul>
<ul style="list-style-type: none"> <li>Roadway Improvements <ul style="list-style-type: none"> <li>New 'A' Street (W. Century Boulevard to Westchester Parkway/W. Arbor Vitae Street)</li> <li>New 'B' Street (New 'A' Street to Airport Boulevard)</li> <li>W. 96th Street (Airport Boulevard to Bellanca Avenue)</li> <li>New 'D' Street (W. 96th Street to W. Arbor Vitae Street)</li> <li>W. Arbor Vitae Street (Airport Boulevard to S. La Cienega Boulevard)</li> <li>Aviation Boulevard (W. Century Boulevard to W. Arbor Vitae Street)</li> <li>S. La Cienega Boulevard (W. Century Boulevard to W. Arbor Vitae Street)</li> <li>New W. 98th Street (Aviation Boulevard to S. La Cienega Boulevard)</li> <li>Concourse Way (W. Century Boulevard to Arbor Vitae Street)</li> <li>Southbound S. Sepulveda Boulevard to World Way (departures and arrivals) Ramp</li> <li>Airport Boulevard (W. 98th Street to W. Arbor Vitae Street)</li> <li>W. 98th Street (Airport Boulevard to Aviation Boulevard)</li> <li>W. Century Boulevard (New 'A' Street to Aviation Boulevard)</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>Various enabling projects including utility relocations</li> </ul>

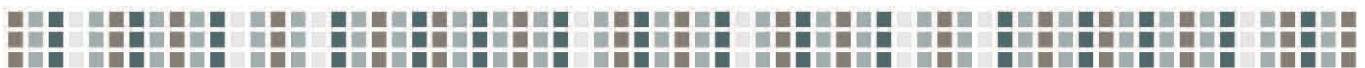






## F.3

### Construction Emissions Worksheets









LAX Landside Access Modernization Program Project, Draft EA

LAX Landside Access Modernization Program Project, 8/12/15  
Construction emissions inventory assumptions control sheet

Onroad & Offroad Fleet Assumptions	
<input type="checkbox"/> Assume EPA Tier Emissions Rates for Offroad Diesel Equipment.	
<input checked="" type="checkbox"/> 20% Assumed offroad, on-site equipment to be Tier 3	
<input checked="" type="checkbox"/> 40% Assumed offroad, on-site equipment to be Tier 4 Interim	
<input checked="" type="checkbox"/> 40% Assumed offroad, on-site equipment to be Tier 4	
<input type="checkbox"/> Realistic compliance with EPA 2010 Heavy Duty Onroad Equipment Standard.	
<input checked="" type="checkbox"/> 25% Assumed compliance with the 2007 Standard	

Off-Site Vehicle Trips Assumptions			
Worker Trips (off-site)			
Miles (roundtrip)	40		
Carpool factor	1.11		
Idle time/trip (min.)	5		
Worker vehicle fleet mix			
LDA	LDT1	LDT2	
50%	30%	20%	
Hauling Trips (off-site)			
Idle time/trip (min.)	5		

Toggle Results	
<input checked="" type="checkbox"/> Include diesel exhaust sources in inventory	1
<input checked="" type="checkbox"/> Include equipment related fugitive PM dust in inventory	1
<input checked="" type="checkbox"/> Include gasoline sources in emissions inventory	1
<input checked="" type="checkbox"/> Include the wear sources in emissions inventory	1
<input checked="" type="checkbox"/> Include break wear sources in emissions inventory	1
<input checked="" type="checkbox"/> Include architectural coating sources in inventory	1
<input checked="" type="checkbox"/> Include batch plant fugitive PM dust in inventory	1
<input checked="" type="checkbox"/> Include grading fugitive PM dust in inventory	1
<input checked="" type="checkbox"/> Include demolition related fugitive PM dust in inventory	1
<input checked="" type="checkbox"/> Include off-gassing related paving fugitive VOCs in inventory	1

Haul Trip Type (off-site)	Truck Type	EMFAC Category	Roundtrip Distance (mi.)
Material Deliveries	Flatbed	T7 Single Construction	40
Concrete Deliveries	Mixer Truck	T7 Single Construction	8
Base Material Deliveries	Tandem Dump	T7 Single Construction	40
Asphalt Deliveries	Tandem Dump	T7 Single Construction	40
Demolition Hauling	Tandem Dump	T7 Single Construction	20

Equipment shift multiplier	1
Offroad equipment usage factor	83%

Diesel Particulate Matter Filter Reduction	85%
Percent of Tier 3 Equipment to be Filtered	50%

On-Site / Off-Site Vehicle Activity Assumptions	
<b>On-Road Trucks</b>	
Percent of time in use On-Site	25.00%

On-Site Vehicle Activity Assumptions	
<b>On-Site Trucks</b>	
Speed (mi/hr)	15
Cold startups per shift	1
Idle time (min./hr)	5

Include Potential Future Related Development? (Yes/No)	
No	

Emissions Reductions due to Alternative Diesel Fuel (measured as a % as compared with conventional diesel)					Percent of Fleet:	
Assumed Neste NEXBTL High Performance Renewable (HPR) Diesel Fuel ( <a href="https://www.neste.com/sites/default/files/attachments/nexbtl_03032014.pdf">https://www.neste.com/sites/default/files/attachments/nexbtl_03032014.pdf</a> )					90% for mitigated scenario	
CO2e	CO	ROG	NOx	SOx	PM10	PM2.5
40%	24%	30%	9%	0%	33%	33%



LAX Landside Access Modernization Program Project, 81L8i95  
Equipment specifications and emission factors reference

g/lb = 463.5924

EPA onroad	0%	Diesel	1
EPA offroad	0	Gasoline	1
Fugitive Dust	1		

Off-Road/On-Site Equipment

ID	Description	Equipment ID	Equipment Model	On/Off Road	Fuel Type	HP	Load Factor	Usage Factor	OFFROAD2007 Category	OFFROAD2011 Category	OFFROAD 07 HP Bin	OFFROAD 11 HP Bin	EPA HP Bin
Tier 2	Backhoe (CAT 416)	Backhoe (CAT 416)	CAT 416	On/Off Road	DSL	90	0.369	0.83	Tractors_Loaders_Backhoes	Tractors_Loaders_Backhoes	120	120	99
Tier 2	Bobcat S650	Bobcat S650	S650	On-Road, On-Site Equipment	DSL	75	0.369	0.83	Tractors_Loaders_Backhoes	Tractors_Loaders_Backhoes	120	120	99
Tier 2	Compactor (CAT 815)	Compactor (CAT 815)	CAT 815	On-Road, On-Site Equipment	DSL	255	0.302	0.83	Surfacing_Equipment	Other_Construction_Equipment	500	500	299
Tier 2	Compactor (CAT 825)	Compactor (CAT 825)	CAT 825	On-Road, On-Site Equipment	DSL	255	0.302	0.83	Surfacing_Equipment	Other_Construction_Equipment	500	500	299
Tier 2	Roller (CAT CB564D)	Roller (CAT CB564D)	CAT CB564D	On-Road, On-Site Equipment	DSL	100	0.375	0.83	Rollers	Rollers	120	120	174
Tier 2	Roller (Hamm 3520 single)	Roller (Hamm 3520 single)	Hammm 3520 single	On-Road, On-Site Equipment	DSL	200	0.375	0.83	Rollers	Rollers	250	250	299
Tier 2	Crane (Terex Explorer 5600)	Crane (Terex Explorer 5600)	Terex Explorer 5600	On-Road, On-Site Equipment	DSL	550	0.288	0.83	Cranes	Cranes	750	750	600
Tier 2	Curb Paver (Gomaco Comm. III)	Curb Paver (Gomaco Comm. III)	Gomaco Comm. III	On-Road, On-Site Equipment	DSL	175	0.415	0.83	Pavers	Pavers	175	175	299
Tier 2	Dozer (CAT D6)	Dozer (CAT D6)	CAT D6	On-Road, On-Site Equipment	DSL	250	0.369	0.83	Tractors_Loaders_Backhoes	Tractors_Loaders_Backhoes	250	250	299
Tier 2	Excavator (CAT 385)	Excavator (CAT 385)	CAT 385	On-Road, On-Site Equipment	DSL	515	0.382	0.83	Excavators	Excavators	750	750	600
Tier 2	Generators (400A)	Generators (400A)	N/A	On-Road, On-Site Equipment	DSL	5	0.740	0.83	Generator_Seis	Other_Construction_Equipment	15	50	99
Tier 2	Grader (CAT 12)	Grader (CAT 12)	CAT 12	On-Road, On-Site Equipment	DSL	135	0.409	0.83	Graders	Graders	175	175	174
Tier 2	Grader (CAT 14)	Grader (CAT 14)	CAT 14	On-Road, On-Site Equipment	DSL	135	0.409	0.83	Graders	Graders	175	175	174
Tier 2	Hand Paint Cart	Hand Paint Cart	N/A	On-Road, On-Site Equipment	DSL	24	0.415	0.83	Other_Construction_Equipment	Other_Construction_Equipment	25	50	99
Tier 2	Loader (CAT 914G)	Loader (CAT 914G)	CAT 914G	On-Road, On-Site Equipment	DSL	100	0.362	0.83	Rubber_Tired_Loaders	Rubber_Tired_Loaders	120	120	174
Tier 2	Milling Machine (CAT PM-200)	Milling Machine (CAT PM-200)	CAT PM-200	On-Road, On-Site Equipment	DSL	575	0.415	0.83	Other_Construction_Equipment	Other_Construction_Equipment	500	500	299
Tier 2	Paving Machine (CAT AP1055)	Paving Machine (CAT AP1055)	CAT AP1055	On-Road, On-Site Equipment	DSL	225	0.415	0.83	Pavers	Pavers	250	250	299
Tier 2	Pier Drill (150TN crane)	Pier Drill (150TN crane)	N/A	On-Road, On-Site Equipment	DSL	550	0.288	0.83	Cranes	Cranes	750	750	600
Tier 2	Portable Generator (4000W)	Portable Generator (4000W)	N/A	On-Road, On-Site Equipment	DSL	8	0.740	0.83	Generator_Seis	Other_Construction_Equipment	15	50	99
Tier 2	Rail Machine	Rail Machine	N/A	On-Road, On-Site Equipment	DSL	660	0.415	0.83	Other_Construction_Equipment	Other_Construction_Equipment	500	500	600
Tier 2	Rubber-Tire Crane (Terex AC100)	Rubber-Tire Crane (Terex AC100)	Terex AC100	On-Road, On-Site Equipment	DSL	465	0.288	0.83	Cranes	Cranes	500	500	600
Tier 2	Scissor Lift (JLG 2630ES)	Scissor Lift (JLG 2630ES)	JLG 2630ES	On-Road, On-Site Equipment	ELEC	0	0.308	0.00	Aerial_Lifts	Aerial_Lifts	15	50	99
Tier 2	Snail Tandem Compactor (CB24B)	Snail Tandem Compactor (CB24B)	CB24B	On-Road, On-Site Equipment	DSL	35	0.302	0.83	Surfacing_Equipment	Other_Construction_Equipment	50	50	99
Tier 2	Trackhoe (PC200)	Trackhoe (PC200)	CAT T9	On-Road, On-Site Equipment	DSL	155	0.382	0.83	Excavators	Excavators	175	175	174
Tier 2	Trencher (CAT T9)	Trencher (CAT T9)	CAT T9	On-Road, On-Site Equipment	N/A	125	0.503	0.00	Trenchers	Trenchers	175	175	174

On-Road/On-Site Equipment

ID	Description	Equipment ID	EMFAC Category	On/Off Road	Fuel Type	HP	Max Daily Hrs	Usage Factor
Tier 2	Pickup Truck (F250)	Pickup Truck (F250)	LHDZ	On-Road, On-Site Trucks	GAS	385	4	0.25
Tier 2	Boom Truck	Boom Truck	T7 Single Construction	On-Road, On-Site Trucks	DSL	275	6	0.25
Tier 2	Concrete Delivery Truck	Concrete Delivery Truck	T7 Single Construction	On-Road, On-Site Trucks	DSL	350	6	0.25
Tier 2	Concrete Haul Truck (Mack MHD)	Concrete Haul Truck (Mack MHD)	T7 Single Construction	On-Road, On-Site Trucks	DSL	345	8	0.25
Tier 2	Concrete Pump Truck	Concrete Pump Truck	T7 Single Construction	On-Road, On-Site Trucks	DSL	400	6	0.25
Tier 2	Concrete Truck (Terex FD4000)	Concrete Truck (Terex FD4000)	T7 Single Construction	On-Road, On-Site Trucks	DSL	425	6	0.25
Tier 2	Delivery Truck (semi)	Delivery Truck (semi)	T7 Single Construction	On-Road, On-Site Trucks	DSL	250	4	0.25
Tier 2	Flat Bed Truck (1TN)	Flat Bed Truck (1TN)	T7 Single Construction	On-Road, On-Site Trucks	DSL	250	4	0.25
Tier 2	Forklift Boom Truck (G10-55A)	Forklift Boom Truck (G10-55A)	T7 Single Construction	On-Road, On-Site Trucks	DSL	125	10	0.25
Tier 2	Form Truck (Mack Granite)	Form Truck (Mack Granite)	T7 Single Construction	On-Road, On-Site Trucks	DSL	405	3	0.25
Tier 2	Haul Truck (Mack Granite)	Haul Truck (Mack Granite)	T7 Single Construction	On-Road, On-Site Trucks	DSL	405	4	0.25
Tier 2	Haul Truck (Mack Med. Duty)	Haul Truck (Mack Med. Duty)	T7 Single Construction	On-Road, On-Site Trucks	DSL	345	6	0.25
Tier 2	Haul Truck (semi)	Haul Truck (semi)	T7 Single Construction	On-Road, On-Site Trucks	DSL	250	10	0.25
Tier 2	Mechanic Truck (1TN)	Mechanic Truck (1TN)	T7 Single Construction	On-Road, On-Site Trucks	DSL	405	6	0.25
Tier 2	Mechanic Truck (2TN)	Mechanic Truck (2TN)	T7 Single Construction	On-Road, On-Site Trucks	DSL	300	3	0.25
Tier 2	Precast Delivery Truck (semi)	Precast Delivery Truck (semi)	T7 Single Construction	On-Road, On-Site Trucks	DSL	300	2	0.25
Tier 2	Pump Truck	Pump Truck	T7 Single Construction	On-Road, On-Site Trucks	DSL	425	6	0.25
Tier 2	Rail Delivery Truck	Rail Delivery Truck	T7 Single Construction	On-Road, On-Site Trucks	DSL	350	10	0.25
Tier 2	Seed Truck	Seed Truck	T7 Single Construction	On-Road, On-Site Trucks	DSL	250	4	0.25
Tier 2	Steel Delivery Truck	Steel Delivery Truck	T7 Single Construction	On-Road, On-Site Trucks	DSL	250	4	0.25
Tier 2	Stone Haul Truck (Mack Med. Duty)	Stone Haul Truck (Mack Med. Duty)	T7 Single Construction	On-Road, On-Site Trucks	DSL	345	6	0.25
Tier 2	Striping Truck (2.5TN)	Striping Truck (2.5TN)	T7 Single Construction	On-Road, On-Site Trucks	DSL	350	6	0.25
Tier 2	Water Truck (2.5TN)	Water Truck (2.5TN)	T7 Single Construction	On-Road, On-Site Trucks	DSL	300	2	0.25
Tier 2	Man Lift (Versallift VO-355-MH)	Man Lift (Versallift VO-355-MH)	T7 Single Construction	On-Road, On-Site Trucks	DSL	300	6	0.25

On-Road/Off-Site Equipment

ID	Description	Equipment ID	EMFAC Category	On/Off Road	Fuel Type	HP	Usage Factor
Worker Trips	Employee_Vehicles	Employee_Vehicles	LD&LDT1&LD12	On-Road, Off-Site Workers	GAS		1.00
Material Deliveries	Material_Delivery	Material_Delivery	T7 Single Construction	On-Road, Off-Site Deliveries	DSL	250	1.00
Concrete Deliveries	Concrete_Delivery	Concrete_Delivery	T7 Single Construction	On-Road, Off-Site Deliveries	DSL	350	1.00
Base Material Deliveries	Base_Material_Delivery	Base_Material_Delivery	T7 Single Construction	On-Road, Off-Site Deliveries	DSL	450	1.00
Asphalt Deliveries	Asphalt_Delivery	Asphalt_Delivery	T7 Single Construction	On-Road, Off-Site Deliveries	DSL	450	1.00
Demolition Hauling	Demolition_Hauling	Demolition_Hauling	T7 Single Construction	On-Road, Off-Site Deliveries	DSL	450	1.00

Fugitive/On-Site

Equipment ID	On/Off Road
Demolition_Fugitive	Fugitive, On-Site
VOC_Fugitive	Fugitive, On-Site
Grading_Fugitive	Fugitive, On-Site
Batching_Fugitive	Fugitive, On-Site







LAX Landside Access Modernization Program Project, 81U895 --  
Equipment specifications and emission factors reference

Emissions Reduction from Alternative Fuel  
36.00%

OFFROAD2007																
Off-Road/On-Site Equipment			CO2e Emission Factors (lb/hr)													
ID	Backup EPA Tier	Equipment ID	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Tier 2		Backhoe (CAT 416)	19.6545	19.6513	19.6485	19.6462	19.6443	19.6429	19.6418	19.6409	19.6401	19.6395	19.6390	19.6385	19.6381	19.6378
Tier 2		Bobcat S650	18.4261	18.4231	18.4205	18.4183	18.4166	18.4152	18.4142	18.4133	18.4126	18.4120	18.4115	18.4111	18.4107	18.4104
Tier 2		Compactor (CAT 815)	51.2200	51.2171	51.2145	51.2122	51.2100	51.2080	51.2062	51.2045	51.2029	51.2014	51.2002	51.1989	51.1978	51.1967
Tier 2		Compactor (CAT 825)	51.2200	51.2171	51.2145	51.2122	51.2100	51.2080	51.2062	51.2045	51.2029	51.2014	51.2002	51.1989	51.1978	51.1967
Tier 2		Roller (CAT CB564D)	25.0305	25.0280	25.0216	25.0174	25.0135	25.0100	25.0070	25.0044	25.0023	25.0006	24.9992	24.9979	24.9968	24.9958
Tier 2		Roller (Hamm 3520 single)	50.0027	49.9996	49.9966	49.9938	49.9911	49.9886	49.9863	49.9841	49.9821	49.9803	49.9786	49.9769	49.9755	49.9742
Tier 2		Crane (Terex Explorer 5600)	105.5981	105.5914	105.5847	105.5782	105.5721	105.5665	105.5614	105.5567	105.5523	105.5483	105.5445	105.5411	105.5380	105.5354
Tier 2		Curb Paver (Gomaco Comm. III)	48.4849	48.4793	48.4740	48.4688	48.4643	48.4598	48.4554	48.4511	48.4467	48.4424	48.4382	48.4350	48.4321	48.4296
Tier 2		Dozer (CAT D6)	61.3779	61.3741	61.3704	61.3671	61.3641	61.3611	61.3581	61.3551	61.3521	61.3511	61.3500	61.3489	61.3478	61.3468
Tier 2		Excavator (CAT 385)	131.0469	131.0394	131.0303	131.0231	131.0166	131.0109	131.0056	131.0008	130.9966	130.9930	130.9900	130.9878	130.9859	130.9846
Tier 2		Generators (400A)	2.4680	2.4679	2.4678	2.4677	2.4676	2.4675	2.4675	2.4674	2.4674	2.4674	2.4674	2.4674	2.4673	2.4673
Tier 2		Grader (CAT 12)	36.7848	36.7805	36.7764	36.7724	36.7688	36.7653	36.7622	36.7595	36.7571	36.7551	36.7534	36.7519	36.7506	36.7495
Tier 2		Grader (CAT 14)	36.7848	36.7805	36.7764	36.7724	36.7688	36.7653	36.7622	36.7595	36.7571	36.7551	36.7534	36.7519	36.7506	36.7495
Tier 2		Hand Paint Cart	6.6503	6.6503	6.6503	6.6503	6.6503	6.6503	6.6503	6.6503	6.6503	6.6503	6.6503	6.6503	6.6503	6.6503
Tier 2		Loader (CAT 914G)	24.1349	24.1306	24.1266	24.1229	24.1195	24.1165	24.1138	24.1116	24.1098	24.1083	24.1071	24.1061	24.1053	24.1045
Tier 2		Milling Machine (CAT PM-200)	159.1055	159.0985	159.0919	159.0856	159.0796	159.0740	159.0689	159.0641	159.0598	159.0561	159.0533	159.0511	159.0491	159.0480
Tier 2		Paving Machine (CAT AP1055)	62.3051	62.2997	62.2946	62.2899	62.2854	62.2814	62.2775	62.2740	62.2707	62.2677	62.2649	62.2624	62.2601	62.2580
Tier 2		Pier Drill (150TN crane)	105.5981	105.5914	105.5847	105.5782	105.5721	105.5665	105.5614	105.5567	105.5523	105.5483	105.5445	105.5411	105.5380	105.5354
Tier 2		Portable Generator (4000W)	3.9488	3.9486	3.9484	3.9482	3.9481	3.9480	3.9480	3.9479	3.9479	3.9478	3.9478	3.9478	3.9477	3.9477
Tier 2		Rail Machine	182.6255	182.6174	182.6099	182.6026	182.5958	182.5893	182.5834	182.5779	182.5730	182.5687	182.5655	182.5630	182.5607	182.5594
Tier 2		Rubber-Tire Crane (Terex AC100)	89.2777	89.2720	89.2664	89.2611	89.2561	89.2514	89.2471	89.2432	89.2396	89.2361	89.2329	89.2301	89.2275	89.2253
Tier 2		Scissor Lift (JLG 2630ES)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2		Small Tandem Compactor (CB24B)	7.0560	7.0533	7.0507	7.0483	7.0461	7.0441	7.0422	7.0406	7.0392	7.0381	7.0372	7.0364	7.0358	7.0352
Tier 2		Trackhoe (PC200)	39.4558	39.4508	39.4463	39.4426	39.4389	39.4368	39.4344	39.4323	39.4304	39.4288	39.4273	39.4260	39.4249	39.4241
Tier 2		Trencher (CAT T9)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC2014

On-Road/On-Site Equipment			CO2e Emission Factors (lb/hr)													
ID	Description	Equipment ID	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Pickup Truck (F250)		9.3172	9.2481	9.1777	9.1114	9.0484	8.9887	8.9325	8.8806	8.8324	8.7883	8.7484	8.7129	8.6816	8.6538
	Boom Truck		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Concrete Delivery Truck		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Concrete Haul Truck (Mack MHD)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Concrete Pump Truck		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Concrete Truck (Terex FD4000)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Delivery Truck (semi)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Flat Bed Truck (1TN)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Forklift Boom Truck (G10-55A)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Forklift Boom Truck (Mack Granite)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Haul Truck (Mack Granite)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Haul Truck (Mack Med. Duty)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Haul Truck (semi)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Mechanic Truck (1TN)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Mechanic Truck (2TN)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Precast Delivery Truck (semi)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Pump Truck		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Rail Delivery Truck		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Seed Truck		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Steel Delivery Truck		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Stone Haul Truck (Mack Med. Duty)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Stripping Truck (2.5TN)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Water Truck (2.5TN)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Work Truck (2.5TN)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064
	Man Lift (Versalift VO-355-MH)		14.2021	13.8484	13.6494	13.3891	13.1803	12.9674	12.7463	12.5178	12.2826	12.0430	11.7918	11.5300	11.2682	11.0064

EMFAC2014

On-Road/Off-Site Equipment			CO2e Emission Factors (lb/mi)													
ID	Description	Equipment ID	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0.8114	Worker Trips		0.7903	0.7864	0.7829	0.7794	0.7759	0.7724	0.7689	0.7654	0.7619	0.7584	0.7549	0.7514	0.7479	0.7444
2.5322	Material Deliveries	Material_Delivery	2.4818	2.4780	2.4742	2.4704	2.4666	2.4628	2.4590	2.4552	2.4514	2.4476	2.4438	2.4400	2.4362	2.4324
2.5322	Concrete Deliveries	Concrete_Delivery	2.7072	2.6529	2.6074	2.5632	2.5289	2.4934	2.3675	2.3610	2.3522	2.3441	2.3357	2.3285	2.3217	2.3137
2.5322	Base Material Deliveries	Base_Material_Delivery	2.4818	2.4780	2.4742	2.4704	2.4666	2.4628	2.4590	2.4552	2.4514	2.4476	2.4438	2.4400	2.4362	2.4324
2.5322	Asphalt Deliveries	Asphalt_Delivery	2.5322	2.4818	2.4380	2.4005	2.3683	2.3351	2.2209	2.2150	2.2069	2.1993	2.1915	2.1848	2.1785	2.1712
2.5759	Demolition Hauling	Demolition_Hauling	2.5759	2.5246	2.4811	2.4412	2.4084	2.3747	2.2576	2.2515	2.2432	2.2355	2.2276	2.2207	2.2143	2.2068



LAX Landside Access Modernization Program Project, 8100195  
Equipment specifications and emission factors reference

8%  
59  
Or #ions Reduction from Alternative Fuel

OFFROAD2011

Off-Road/On-Site Equipment		Equipment ID
Tier 2	Backhoe (CAT 416)	
Tier 2	Bobcat S650	
Tier 2	Compactor (CAT 815)	
Tier 2	Compactor (CAT 825)	
Tier 2	Roller (CAT CB564D)	
Tier 2	Roller (Hamm 3520 single)	
Tier 2	Crane (Terex Explorer 5600)	
Tier 2	Curb Paver (Gomaco Comm. III)	
Tier 2	Dozer (CAT D6)	
Tier 2	Excavator (CAT 385)	
Tier 2	Generators (400A)	
Tier 2	Grader (CAT 12)	
Tier 2	Grader (CAT 14)	
Tier 2	Hand Paint Cart	
Tier 2	Loader (CAT 914G)	
Tier 2	Milling Machine (CAT PM-200)	
Tier 2	Paving Machine (CAT AP1055)	
Tier 2	Pier Drill (150TN crane)	
Tier 2	Portable Generator (4000W)	
Tier 2	Rail Machine	
Tier 2	Rubber-Tire Crane (Terex AC100)	
Tier 2	Scissor Lift (JLG 2630ES)	
Tier 2	Small Tandem Compactor (CB24B)	
Tier 2	Trackhoe (PC200)	
Tier 2	Trencher (CAT T9)	

EMFAC2014

On-Road/On-Site Equipment	
ID	Description
	Pickup Truck (F250)
	Boom Truck
	Concrete Delivery Truck
	Concrete Haul Truck (Mack MHD)
	Concrete Pump Truck
	Concrete Truck (Terex FD4000)
	Delivery Truck (semi)
	Flat Bed Truck (1TN)
	Forklift Boom Truck (G10-55A)
	Form Truck (Mack Granite)
	Haul Truck (Mack Granite)
	Haul Truck (Mack Med. Duty)
	Haul Truck (semi)
	Mechanic Truck (1TN)
	Mechanic Truck (2TN)
	Precast Delivery Truck (semi)
	Pump Truck
	Rail Delivery Truck
	Seed Truck
	Steel Delivery Truck
	Stone Haul Truck (Mack Med. Duty)
	Striping Truck (2.5TN)
	Water Truck (2.5TN)
	Work Truck (2.5TN)
	Man Lift (Versalift VO-355-MH)

EMFAC2014

On-Road/Off-Site Equipment	
ID	Equipment ID
Worker Trips	Employee_Vehicles
Material Deliveries	Material_Delivery
Concrete Deliveries	Concrete_Delivery
Base Material Deliveries	Base_Delivery
Asphalt Deliveries	Asphalt_Delivery
Demolition Hauling	Demolition_Hauling



LAX Landside Access Modernization Program Project, 810195  
Equipment specifications and emission factors reference

Emissions Reduction from Alternative Fuel  
30%  
104  
CEIDARS: (PM2.5 = PM10 x 0.92)

Off-Road/On-Site Equipment		Equipment ID
Tier 2	Backhoe (CAT 416)	Bobcat S650
Tier 2		Compactor (CAT 815)
Tier 2		Compactor (CAT 825)
Tier 2		Roller (CAT CB564D)
Tier 2		Roller (Hamm 3520 single)
Tier 2		Crane (Terex Explorer 5600)
Tier 2		Curb Paver (Gomaco Comm. III)
Tier 2		Dozer (CAT D6)
Tier 2		Excavator (CAT 385)
Tier 2		Generators (400A)
Tier 2		Grader (CAT 12)
Tier 2		Grader (CAT 14)
Tier 2		Hand Paint Cart
Tier 2		Loader (CAT 914G)
Tier 2		Milling Machine (CAT PM-200)
Tier 2		Paving Machine (CAT AP1055)
Tier 2		Pier Drill (150TN crane)
Tier 2		Portable Generator (4000W)
Tier 2		Rail Machine
Tier 2		Rubber-Tire Crane (Terex AC100)
Tier 2		Scissor Lift (JLG 2630ES)
Tier 2		Small Tandem Compactor (CB24B)
Tier 2		Trackhoe (PC200)
Tier 2		Trencher (CAT T9)

EMFAC2014

On-Road/On-Site Equipment		PM2.5 Emission Factors (lb/hr)													
ID	Description	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Pickup Truck (F250)	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
	Boom Truck	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Concrete Delivery Truck	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Concrete Haul Truck (Mack MHD)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Concrete Pump Truck	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Concrete Truck (Terex FD4000)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Delivery Truck (semi)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Flat Bed Truck (1TN)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Forklift Boom Truck (G10-55A)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Form Truck (Mack Granite)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Haul Truck (Mack Granite)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Haul Truck (Mack Med. Duty)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Haul Truck (semi)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Mechanic Truck (1TN)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Tractor (2TN)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Precast Delivery Truck (semi)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Pump Truck	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Rail Delivery Truck	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Seed Truck	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Steel Delivery Truck	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Stone Haul Truck (Mack Med. Duty)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Stripping Truck (2.5TN)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Water Truck (2.5TN)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Work Truck (2.5TN)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Man Lift (Versalift VO-355-MH)	0.0013	0.0009	0.0008	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005

EMFAC2014

On-Road/Off-Site Equipment		PM2.5 Emission Factors (lb/hr)													
ID	Description	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Worker Trips	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	Employee_Vehicles	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	Material_Delivery	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Concrete_Delivery	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Base_Material_Deliveries	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Asphalt_Deliveries	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Demolition_Hauling	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002



LAX Landside Access Modernization Program Project, 81U9195''  
Equipment specifications and emission factors reference

Emissions Reduction from Alternative Fuel  
30%  
89  
OFFROAD2011

Off-Road/On-Site Equipment		PM10 Emission Factors (lb/hr)													
ID	Equipment ID	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Tier 2	Backhoe (CAT 416)	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032
Tier 2	Bobcat S650	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033
Tier 2	Compactor (CAT 815)	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029
Tier 2	Compactor (CAT 825)	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029
Tier 2	Roller (CAT CB564D)	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Tier 2	Roller (Hamm 3520 single)	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028
Tier 2	Crane (Terex Explorer 5600)	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060
Tier 2	Curb Paver (Gomaco Comm. III)	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
Tier 2	Dozer (CAT D6)	0.2471	0.2471	0.2471	0.2471	0.2471	0.2471	0.2471	0.2471	0.2471	0.2471	0.2471	0.2471	0.2471	0.2471
Tier 2	Excavator (CAT 385)	0.0324	0.0324	0.0324	0.0324	0.0324	0.0324	0.0324	0.0324	0.0324	0.0324	0.0324	0.0311	0.0310	0.0310
Tier 2	Generators (400A)	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Tier 2	Grader (CAT 12)	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Tier 2	Grader (CAT 14)	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Tier 2	Hand Paint Cart	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Tier 2	Loader (CAT 914G)	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043
Tier 2	Milling Machine (CAT PM-200)	0.2527	0.2527	0.2527	0.2527	0.2527	0.2527	0.2527	0.2527	0.2527	0.2527	0.2527	0.2527	0.2527	0.2527
Tier 2	Paving Machine (CAT AP1055)	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0031	0.0028	0.0025	0.0021	0.0021
Tier 2	Pier Drill (150TN crane)	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060
Tier 2	Portable Generator (4000W)	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Tier 2	Rail Machine	0.2540	0.2540	0.2540	0.2540	0.2540	0.2540	0.2540	0.2540	0.2540	0.2540	0.2540	0.2540	0.2540	0.2540
Tier 2	Rubber-Tire Crane (Terex AC100)	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050
Tier 2	Scissor Lift (JLG 2630ES)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2	Small Tandem Compactor (CB24B)	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Tier 2	Trackhoe (PC200)	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0098	0.0098
Tier 2	Trencher (CAT T9)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC2014

On-Road/On-Site Equipment		PM10 Emission Factors (lb/hr)													
ID	Description	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Pickup Truck (F250)	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
	Boom Truck	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Concrete Delivery Truck	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Concrete Haul Truck (Mack MHD)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Concrete Pump Truck	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Concrete Truck (Terex FD4000)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Delivery Truck (semi)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Flat Bed Truck (1TN)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Forklift Boom Truck (G10-55A)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Form Truck (Mack Granite)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Haul Truck (Mack Granite)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Haul Truck (Mack Med. Duty)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Haul Truck (semi)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Mechanic Truck (1TN)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Mechanic Truck (2TN)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Precast Delivery Truck (semi)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Pump Truck	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Rail Delivery Truck	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Seed Truck	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Steel Delivery Truck	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Stone Haul Truck (Mack Med. Duty)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Striping Truck (2.5TN)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Water Truck (2.5TN)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Work Truck (2.5TN)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
	Man Lift (Versalift VO-355-MH)	0.0025	0.0021	0.0021	0.0019	0.0018	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017

EMFAC2014

On-Road/Off-Site Equipment		Equipment ID
ID	Description	
	Worker Trips	Employee_Vehicles
	Material Deliveries	Material_Delivery
	Concrete Deliveries	Concrete_Delivery
	Base Material Deliveries	Base_Delivery
	Asphalt Deliveries	Asphalt_Delivery
	Demolition Hauling	Demolition_Hauling







LAX Landside Access Modernization Program Project, 810195 --  
Equipment specifications and emission factors reference

Emissions Reduction from Alternative Fuel  
0%

Off-Road/On-Site Equipment			SOx Emission Factors (lb/hr)													
ID	Backup EPA Tier	Equipment ID	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Tier 2		Backhoe (CAT 416)	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Tier 2		Bobcat S650	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Tier 2		Compactor (CAT 815)	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Tier 2		Compactor (CAT 825)	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Tier 2		Roller (CAT CB564D)	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Tier 2		Roller (Hamm 3520 single)	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
Tier 2		Crane (Terex Explorer 5600)	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
Tier 2		Curb Paver (Gomaco Comm. III)	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
Tier 2		Dozer (CAT D6)	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Tier 2		Excavator (CAT 385)	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Tier 2		Generators (400A)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Tier 2		Grader (CAT 12)	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Tier 2		Grader (CAT 14)	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Tier 2		Hand Paint Cart	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Tier 2		Loader (CAT 914G)	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Tier 2		Milling Machine (CAT PM-200)	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
Tier 2		Paving Machine (CAT AP1055)	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011
Tier 2		Pier Drill (150TN crane)	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
Tier 2		Portable Generator (4000W)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Tier 2		Rail Machine	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028
Tier 2		Rubber-Tire Crane (Terex AC100)	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Tier 2		Scissor Lift (JLG 2630ES)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Tier 2		Small Tandem Compactor (CB24B)	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Tier 2		Trackhoe (PC200)	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Tier 2		Trencher (CAT T9)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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On-Road/On-Site Equipment			SOx Emission Factors (lb/hr)													
ID	Description	Equipment ID	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Pickup Truck (F250)		0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	Boom Truck		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Concrete Delivery Truck		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Concrete Haul Truck (Mack MHD)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Concrete Pump Truck		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Concrete Truck (Terex FD4000)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Delivery Truck (semi)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Flat Bed Truck (1TN)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Forklift Boom Truck (G10-55A)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Form Truck (Mack Granite)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Haul Truck (Mack Granite)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Haul Truck (Mack Med. Duty)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Haul Truck (semi)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Mechanic Truck (1TN)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Mechanic Truck (2TN)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Precast Delivery Truck (semi)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Pump Truck		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Rail Delivery Truck		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Seed Truck		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Steel Delivery Truck		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Stone Haul Truck (Mack Med. Duty)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Stripping Truck (2.5TN)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Water Truck (2.5TN)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Work Truck (2.5TN)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Man Lift (Versalift VO-355-MH)		0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002

EMFAC2014

On-Road/Off-Site Equipment			SOx Emission Factors (lb/mi)													
ID	Description	Equipment ID	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Worker Trips	Employee_Vehicles	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Material Deliveries	Material_Delivery	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Concrete Deliveries	Concrete_Delivery	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Base Material Deliveries	Base_Delivery	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Asphalt Deliveries	Asphalt_Delivery	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Demolition Hauling	Demolition_Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



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Fugitive Dust emissions due to equipment use & material transfer

< - - MANUALL TURNED OFF. GRADING IS REPRESENTED IN GRADING TAB.

Fugitive Dust 1 Grading Dust 0

Equipment Details/Performance														
	Backhoe		Excavator		Loaders		Grader		Bulldozer		Misc			
	CAT 416	Komatsu PC200	CAT 385C	Bobcat S650	CAT 12	CAT 14H	CAT D6	All Models	Crane (Terex Explorer 5600)	Crane (Terex AC100)	Pier Drill (150 ton Crane)	Paving Machine (CAT AP1055)	Other Construction Equipment	On-Road
	T7 Single Construction (Empty)		T7 Single Construction (Full)		LHD2		LDA & LDT 1 & LD12							
	Paved	Paved	Paved	Paved	Paved	Paved	Paved	Paved	Paved	Paved	Paved	Paved	Paved	Paved
Vehicle weight, empty (lb)	14,881	44,110	187,360	8,327	27,998	41,465	45,200	39,304	320,000	240,000	300,000	44,558		17,400
Soil Capacity (yd3)	1	2	7.06											17,400
Vehicle Speed (mi/hr)	2.2	0.8	0.8	2.0	7.1	7.1								10
Cycle Time (min)	74	74	90%	30										35
Number of Cycles/hr	90%	90%	470	90%										20
Bucket Fill Factor	24	133	46	80										3
Volume Moved (yd3/hour)	80	5	80	2,400										30.0
Travel Distance (ft/cycle)	2,160	370	370	0.45	7.10	7.10								
Travel Distance (ft/hr)	0.41	0.07	0.07	0.45										
VMT/hr														
Transportation on Roads														
Mean Vehicle Weight (tons)	23.3	98.0	98.0	4.2	22.6	22.6	19.7	160.0	120.0	150.0	22.3	2.0		8.7
PM10 Emissions (lb/VMT)	0.0008	0.0024	0.0103	0.0010	0.0023	0.0023	0.0020	0.0170	0.0127	0.0159	0.0023	0.0002		0.0009
PM2.5 Emissions (lb/VMT)	0.0002	0.0006	0.0025	0.0002	0.0006	0.0006	0.0005	0.0042	0.0031	0.0039	0.0006	0.0002		0.0002
Mitigation	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%	61%		61%
PM10 Emissions (lb/hr)	0.0001	0.0001	0.0003	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0119
PM2.5 Emissions (lb/hr)	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0214
Material Handling/Drop Operations														
PM10 Emissions (lb/ton)	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012		0.00012
PM2.5 Emissions (lb/ton)	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002		0.00002
Material Handling Rate (ton/hr)	33	180	635	62	40	40						41		41
Mitigation	61%	61%	61%	61%	61%	61%						61%		61%
PM10 Emissions (lb/hr)	0.002	0.008	0.030	0.003	0.002	0.002						0.002		0.002
PM2.5 Emissions (lb/hr)	0.000	0.001	0.005	0.000	0.000	0.000						0.000		0.000
Scraping														
Excavation rate (ton/hr)														
Mitigation														
Scraping PM10 Emissions (lb/hr)														
Scraping PM2.5 Emissions (lb/hr)														
Grading														
PM10 Emissions (lb/VMT)				1.54	1.54	1.54								
PM2.5 Emissions (lb/VMT)				0.17	0.17	0.17								
Mitigation				61%	61%	61%								
PM10 Emissions (lb/hr)				0.00	0.00	0.00								
PM2.5 Emissions (lb/hr)				0.00	0.00	0.00								
Bulldozing														
Mitigation				61%	61%	61%								
PM10 Emissions (lb/hr)				0.29	0.29	0.29								
PM2.5 Emissions (lb/hr)				0.16	0.16	0.16								
Total PM10 Emissions (lb/hr)	0.0017	0.0085	0.0301	0.0031	0.0020	0.0000	0.2936	0.0000	0.0000	0.0000	0.0000	0.0000	0.2936	0.0119
Total PM2.5 Emissions (lb/hr)	0.0003	0.0013	0.0046	0.0005	0.0003	0.0000	0.1614	0.0000	0.0000	0.0000	0.0000	0.0000	0.1614	0.0029
														0.0027
														0.0007



# LAX Landside Access Modernization Program Project, Draft EA

## LAX Landside Access Modernization Program Project, Draft EA

### Fugitive Dust emissions due to grading

Source: Equation from USEPA, AP-42, Fifth Edition, Volume I, Chapter 11.9 - Western Surface Coal Mining, July 1998, Table 11.9-1

sf/acre = 43,560

Fugitive Dust 1

This table assumes all disturbed area is to be graded. Not all grading below actually occurs on this project.

$$\text{PM}_{10} \text{ Emissions (lb/VMT)} = 0.60 \times 0.051 (\text{S})^2$$

$$\text{PM}_{2.5} \text{ Emissions (lb/VMT)} = 0.031 \times 0.04 (\text{S})^{2.5}$$

Where:

S = 7.1 mean vehicle speed in mph

PM10 Emissions (lb/VMT)	1.54
PM2.5 Emissions (lb/VMT)	0.17

Mitigation 61%

$$\text{VMT} = \text{As/Wb} \times 43,560 (\text{sqft/acre}) / 5,280 (\text{ft/mile})$$

Where:

As = varies acreage of grading site (acre)  
Wb = 12 blade width (ft) CalEEMod default

Project #	Project Description	Area (sqft)	Acres	VMT	PM10 (lb)	PM2.5 (lb)
5	Commercial Vehicle Holding Lot E	60400	1.39	0.95	0.573	0.062
12	Construct Temporary Metro Bus Terminal	25000	0.57	0.39	0.237	0.026
21	Demolish Old Metro Bus Facility	84300	1.94	1.33	0.800	0.086
30	Demolish LAWA-owned Properties on Belford Lot	100000	2.30	1.58	0.949	0.103
39	Demolish Clifton Moore Administration Building	34200	0.79	0.54	0.325	0.035
49	Demolish Bob Hope Hollywood USO	4000	0.09	0.06	0.038	0.004
59	Demolition/Reconstruction Parking Garage P2B	64500	1.48	1.02	0.612	0.066
70	Demolition/Reconstruction Parking Garage P2A	77600	1.78	1.22	0.737	0.080
80	Demolition/Reconstruction Parking Garage P5	69200	1.59	1.09	0.657	0.071
90	Restaurant Building Demolition	5100	0.12	0.08	0.048	0.005
99	New Delta Hangar Complex	0	0.00	0.00	0.000	0.000
109	Demolish Delta Hangar Complex	182500	4.19	2.88	1.733	0.187
118	Demolish Reliant Medical Center	30600	0.70	0.48	0.291	0.031
128	APM Guideway	0	0.00	0.00	0.000	0.000
176	West CTA APM Station	103400	2.37	1.63	0.982	0.106
191	Center CTA Station	10350	0.24	0.16	0.098	0.011
198	East CTA Station	10350	0.24	0.16	0.098	0.011
205	CTA APM Pedestrian Walkways	77500	1.78	1.22	0.736	0.079
212	Vertical Circulation Cores	0	0.00	0.00	0.000	0.000
221	Maintenance and Storage Facility	348480	8.00	5.50	3.309	0.357
231	CTA Processor Power Station	3000	0.07	0.05	0.028	0.003
238	CTA West Processor Power Station	3000	0.07	0.05	0.028	0.003
245	CTA East Processor Power Station	3000	0.07	0.05	0.028	0.003
253	APM Station at ITF West	11250	0.26	0.18	0.107	0.012
258	Western Public Parking Garage ITF-W	289050	6.64	4.56	2.745	0.296
278	Eastern Public Parking Garage ITF-W	289050	6.64	4.56	2.745	0.296
299	APM Station at ITF East	13500	0.31	0.21	0.128	0.014
304	ITF-E Public Parking Garage	707600	16.24	11.17	6.719	0.725
325	Short Term Layover Parking	100000	2.30	1.58	0.949	0.103
347	ConRAC APM Station	33000	0.76	0.52	0.313	0.034
351	ConRAC Customer Service Building	160000	3.67	2.53	1.519	0.164
335	Rental Car Ready/Return Parking Area	2400000	55.10	37.88	22.788	2.461
370	Quick Turnaround Area (QTA)	684400	15.71	10.80	6.498	0.702
358	Idle Storage Area	2206000	50.64	34.82	20.946	2.262
380	QTA Support and Additional Site Functions	185200	4.25	2.92	1.758	0.190
389	Employee Parking Area	330600	7.59	5.22	3.139	0.339
399	New 'A' St - W 96th to Century Blvd	54400	1.25	0.86	0.517	0.056
404	New 'A' St - W Century to Westchester Pkwy/ W Arbor Vitae St	160000	3.67	2.53	1.519	0.164
409	New 'B' St - New 'A' St to Airport Blvd	170000	3.90	2.68	1.614	0.174
414	New 'C' St - Imperial Hwy and W. 111th St	76800	1.76	1.21	0.729	0.079
419	New 'D' St - W. 96th St to W. Arbor Vitae St	70400	1.62	1.11	0.668	0.072
424	New 98th St - Bellanca Ave to La Cienega	270000	6.20	4.26	2.564	0.277
429	New 98th St - Aviation Blvd to La Cienega	270000	6.20	4.26	2.564	0.277
434	New Concourse Way - Century Blvd to New 98th St	45000	1.03	0.71	0.427	0.046
440	Airport Blvd - West 98th St to West Arbor Vitae St	171945	3.95	2.71	1.633	0.176
445	West Arbor Vitae St - Airport Blvd to Aviation Blvd	248400	5.70	3.92	2.359	0.255
450	West Arbor Vitae St - Aviation Blvd to La Cienega Blvd	214002	4.91	3.38	2.032	0.219
455	West 96th St - Airport Blvd to Bellanca Ave.	72000	1.65	1.14	0.684	0.074
460	West 98th St - New 'A' St to Aviation Blvd	144000	3.31	2.27	1.367	0.148
465	Century Blvd-New 'A' St. to Aviation Blvd	486000	11.16	7.67	4.615	0.498
470	Aviation Blvd - New 98th St to West Arbor	143000	3.28	2.26	1.358	0.147
475	Aviation Blvd - Century Blvd to New 98th St	140787	3.23	2.22	1.337	0.144
480	La Cienega Blvd - Century Blvd to W. Arbor	136395	3.13	2.15	1.295	0.140
485	I-405 Ramp Improvements to La Cienega Blvd	27200	0.62	0.43	0.258	0.028
490	Demo Sky Way & Improve Sepulveda Blvd (SB) Ramps to CTA	93600	2.15	1.48	0.889	0.096
498	Sepulveda Blvd - Sepulveda Tunnel to W. 96th	93600	2.15	1.48	0.889	0.096
503	Sepulveda Blvd - Century to W. 96th St	216000	4.96	3.41	2.051	0.221
509	Office Space	300000	6.89	4.73	2.848	0.308
514	Hotel - 400 rooms	300000	6.89	4.73	2.848	0.308
519	Conference Center	100000	2.30	1.58	0.949	0.103
524	Restaurant/Bars	65000	1.49	1.03	0.617	0.067
529	Food/Drugs Retail Space	35000	0.80	0.55	0.332	0.036
534	Personal Care/Services	25000	0.57	0.39	0.237	0.026
539	Clothing Retail Space	40000	0.92	0.63	0.380	0.041
544	Other Development	35000	0.80	0.55	0.332	0.036



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Fugitive Dust emissions due to concrete batching

Concrete Batching (11.12 AP-42)		Aggregate Handling And Storage Piles (13.2.4 AP-42) Equations from in 11.12 AP-42 Table 11.12-1 noted.						
Process	Uncontrolled	Control Efficiency	Controlled	Uncontrolled	Control Efficiency	Controlled		
Aggregate Transfer	0.0033	70.0%	0.00099000	lb PM10/ton agg	0.000499714	70.0%	0.00014991	lb PM2.5/ton agg
Sand Transfer	0.00099	0.0%	0.00099000	lb PM10/ton sand	0.000149914	0.0%	0.00014991	lb PM2.5/ton sand
Sand / Aggregate Stockpile Loss to Wind			0.00012057	lb PM10/ton agg & sand			0.00001826	lb PM2.5/ton agg & sand
Aggregate & Sand Transfer from Stockpile			0.00099000	lb PM10/ton agg & sand			0.00014991	lb PM2.5/ton agg & sand
Fly Ash/Cement Pneumatic Unloading to Storage Silo	Average of Aggregate & Sand Transfers --> 0.46	99.0%	0.00460000	lb PM10/ton cement	0.069657143	99.0%	0.00069657	lb PM2.5/ton cement
Fly Ash/Cement Supplement Unloading to Storage Silo	1.1	99.0%	0.01100000	lb PM10/ton supplement	0.166571429	99.0%	0.00166571	lb PM2.5/ton supplement
Weigh Hopper Loading	0.0024		0.00002400	lb PM10/ton total	0.000363429	99.0%	0.0000363	lb PM2.5/ton total
Mixer Loading	0.134		0.00134000	lb PM10/ton total	0.020291429	99.0%	0.00020291	lb PM2.5/ton total
LAWA lbs PM10 per ton of concrete plantwide emission factor:				LAWA lbs PM2.5 per ton of concrete plantwide emission factor:				
0.003844				0.000582				
Aggregate Handling And Storage Piles (13.2.4 AP-42)				Course Aggregate (lb/CY)				
$E = k * (0.0032) * ((U / 5) ^ \wedge 1.3) / (((M / 2) ^ \wedge 1.4)$				Sand (lb/CY)				
$E =$				Cement (lb/CY)				
$k$ for <10 um				Cement Supplement (lb/CY)				
$k =$ Emission factor (pound (lb)/ton)				Water (lb)				
$k =$ particle size multiplier (dimensionless)				Total:				
$U =$ mean wind speed (miles per hour (mph))								
$M =$ material moisture content (%)								



## LAX Landside Access Modernization Program Project Draft EA

## Batch Plant Permit Consistency Analysis

**Assumptions:**

Delivery logistics provided in Connico Construction Assumptions PDF is accurate. All concrete deliveries occur during the construction phase of each project component.

**Total Concrete Demand (cy per month):**

**Peak Total Concrete Demand (cy per month):**  
**LAWA Batching Permit Limits (cy per month):**

Assumptions:					
Delivery logistics provided in Conitico Construction Assumptions PDF is accurate					
All concrete deliveries occur during the construction phase of each project component.					
Project #	Project Component	Concrete Deliveries	CY Concrete	Construction Phase (does not include demo/grading/finishes/etc.)	Total Concrete Demand (cy per month):
5	Commercial Vehicle Holding Lot E	0	0		Peak Total Concrete Demand (cy per month): 61,261 LAWA Batching Permit Limits (cy per month): 70,000
12	Construct Temporary Metro Bus Terminal	0	0		
21	Demolish Old Metro Bus Facility	0	0		
30	Demolish LAWA-owned Properties on Belford Lot	0	0		
39	Demolish Clifton Moore Administration Building	0	0		
49	Demolish Bob Hope Hollywood USO	0	0		
59	Demolition/Reconstruction Parking Garage P2B	2800	28,000	5/13/2020	
70	Demolition/Reconstruction Parking Garage P2A	3,200	32,000	12/20/2021	
80	Demolition/Reconstruction Parking Garage P5	5,100	51,000	3/24/2023	
90	Restaurant Building Demolition	0	0		
99	New Delta Hangar Complex	0	0		
109	Demolish Delta Hangar Complex	0	0		
118	Demolish Reliant Medical Center	0	0		
128	APM Guideway	13,500	135,000		
	APM Guideway Seg 1 - Century Blvd to MSF	3,375	33,750	4/4/2018	
	APM Guideway Seg 2 - MSF to ConRAC	3,375	33,750	1/9/2019	
	CTA West APM Guideway Seg 3A - Theme Bldg to West Processor	563	5,625	3/12/2020	
	CTA West APM Guideway Seg 3A to P2A Garage	563	5,625	4/12/2020	
	CTA West APM Guideway Seg 3A to P2A Garage to Theme	563	5,625	10/19/2021	
	APM Guideway Seg 3B-Knot to Theme Building (CTA East)	1,688	16,875	12/20/2021	
	APM Guideway Seg 4-Century Blvd to Knot at Sepulveda	3,375	33,750	5/3/2019	
	West CTA APM Station	6,100	61,000	4/1/2021	
176	East CTA Station	325	3,250	12/4/2017	
191	CTA APM Pedestrian Walkways	325	3,250	4/21/2020	
205	Vertical Circulation Cores	800	8,000	5/21/2018	
212	Maintenance and Storage Facility	0	0		
221	CTA Processor Power Station	2,600	26,000	5/30/2018	
231	CTA West Processor Power Station	75	750	2/3/2020	
238	CTA East Processor Power Station	75	750	5/22/2018	
245	APM Station at ITF West	75	750	10/25/2018	
253	Western Public Parking Garage ITF-W	360	3,600	4/11/2019	
258	Eastern Public Parking Garage ITF-W	14,000	140,000	3/18/2019	
278	APM Station at ITF East	16,700	167,000	1/20/2023	
299	ITF-E Public Parking Garage	14,000	140,000	9/30/2020	
304	Short Term Layover Parking	29,500	295,000	9/30/2020	
325	ConRAC APM Station	0	0		
347	ConRAC Customer Service Building	0	0		
351	Rental Car Ready/Return Parking Area	0	0		
370	Quick Turnaround Area (QTA)	23,600	236,000	7/18/2019	
358	Idle Storage Area	10,800	108,000	8/17/2020	
380	QTA Support and Additional Site Functions	28,500	285,000	2/13/2020	
Employee Parking Area		475	4,750	8/5/2020	
399	New 'A' St - W 96th to Century Blvd	0	0		
404	New 'A' St - W Century to Westchester Pkwy / W Arbor Vitae St	0	0		
409	New 'B' St - New 'A' St to Airport Blvd	0	0		
414	New 'C' St - Imperial Hwy and W 111th St	0	0		
419	New 'D' St - W 96th St to W Arbor Vitae St	0	0		
424	New 98th St - Bellanca Ave to La Cienega	0	0		
429	New 98th St - Aviation Blvd to La Cienega	0	0		
434	New Concourse Way - Century Blvd to New 98th St	0	0		
440	Airport Blvd - West 98th St to West Arbor Vitae St	0	0		
445	West Arbor Vitae St - Airport Blvd to Aviation Blvd	0	0		
450	West Arbor Vitae St - Aviation Blvd to La Cienega Blvd	0	0		
455	West 96th St - Airport Blvd to Bellanca Ave	0	0		
460	Century Blvd-New 'A' St to Aviation Blvd	0	0		
465	Aviation Blvd - New 98th St to West Arbor	0	0		
475	La Cienega Blvd - Century Blvd to New 98th St	0	0		
480	I-405 Ramp Improvements to La Cienega Blvd	0	0		
485	Demo Sky Way & Improve Sepulveda Blvd (SB) Ramps to CTA	0	0		
498	Sepulveda Blvd - Sepulveda Tunnel to W 96th	0	0		
503	Office Space	0	0		
509	Hotel - 400 rooms	0	0		
514	Conference Center	0	0		
519	Restaurant/Bars	0	0		
524	Food/Drugs Retail Space	0	0		
529	Personal Care/Services	0	0		
534	Clothing Retail Space	0	0		
539	Other Development	0	0		
544		0	0		

Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17
0	0	0	0	0	0	0	0	0



## LAX Landside Access Modernization Program Project, Draft EA

## LAX Landside Access Modernization Program Project Draft EA

## Batch Plant Permit Consistency Analysis

Assumptions:

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All concrete deliveries occur during the construction phase of each project component

[illegible]



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Assumptions:

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[illegible]



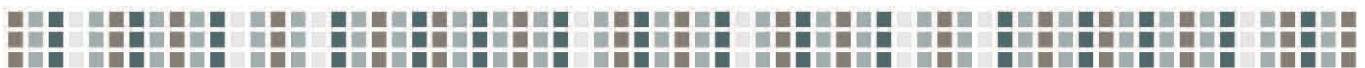
## LAX Landside Access Modernization Program Project, Draft EA

Pollutant	Year														Gen Conf de minimis	GEQA Threshold	Phase 1		Phase 2	
																	Peak Daily	Peak Yearly	Peak Daily	Peak Yearly
	2017	2018	2019	2020	2021	2022	2023	2024	2024	2024	2025	2026	2027	2028						
MT/Year	183	6,152	10,717	10,261	6,868	3,757	2,895	991	1,047	56	108	29	189	0	0	0	189	10,717	10,717	
Peak lbs/day	7,858	86,279	98,066	105,995	88,012	50,406	38,939	19,941	19,941	5,408	7,300	1,316	8,634	0	0	0	8,634	105,995	8,634	
CO	0.7	20.8	33.0	28.5	18.6	9.6	8.0	2.4	2.5	0.1	0.3	0.1	0.4	0.0	0.0	0.0	0.4	33.0	0.4	
Peak lbs/day	26	270	292	268	220	117	103	52	52	13	18	2	17	0	0	0	18	292	18	
ROG	0	5	4	4	2	1	0	0	0	0	0	0	0	0	0	0	0	4.5	0.1	
Peak lbs/day	6	81	34	34	22	17	7	3	3	1	2	0	3	0	0	0	3	81	3	
NOX	1	18	36	35	20	11	7	2	2	0	0	0	0	0	0	0	0.5	35.7	0.5	
Peak lbs/day	26	231	305	341	250	138	103	36	36	17	21	3	19	0	0	0	21	341	21	
SOX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	0.0	
Peak lbs/day	0	1	1	2	1	1	1	0	0	0	0	0	0	0	0	0	0	2	0	
PM10	0	2	3	3	2	1	1	0	0	0	0	0	0	0	0	0	0.1	3.0	0.1	
Peak lbs/day	6	23	26	24	21	14	14	7	7	6	8	0	7	0	0	0	8	26	6	
PM2.5	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0.1	1.3	0.1	
Peak lbs/day	3	11	11	11	10	6	6	3	3	3	4	0	3	0	0	0	11	11	4	



## F.4

### Hazardous Air Pollutant Inventories









HAPS Summary - Particulate Matter

Compound	CAS	Proposed Project Construction (tons per year)											
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
antimony	7440360	2.63E-06	2.72E-05	3.59E-05	3.12E-05	2.40E-05	1.49E-05	1.03E-05	4.70E-06	2.19E-06	2.12E-07	2.25E-06	
arsenic	7440382	3.36E-06	3.74E-05	4.96E-05	4.32E-05	3.35E-05	2.04E-05	1.45E-05	6.54E-06	2.78E-06	2.79E-07	2.89E-06	
cadmium	7440439	5.40E-06	5.59E-05	7.36E-05	6.40E-05	4.92E-05	3.05E-05	2.11E-05	9.64E-06	4.49E-06	4.36E-07	4.62E-06	
chlorine	7782505	6.15E-04	8.58E-03	1.15E-02	9.84E-03	7.82E-03	4.53E-03	3.43E-03	1.52E-03	5.00E-04	5.51E-05	5.33E-04	
chromium	7440473	4.04E-05	7.49E-04	1.03E-03	8.97E-04	7.30E-04	4.06E-04	3.24E-04	1.40E-04	3.20E-05	4.24E-06	3.62E-05	
cobalt	7440484	1.88E-05	2.04E-04	2.68E-04	2.32E-04	1.80E-04	1.10E-04	7.76E-05	3.53E-05	1.56E-05	1.53E-06	1.61E-05	
lead	7439921	9.74E-05	1.03E-03	1.36E-03	1.19E-03	9.14E-04	5.64E-04	3.92E-04	1.79E-04	8.08E-05	7.94E-06	8.35E-05	
manganese	7439965	1.65E-04	2.18E-03	2.93E-03	2.55E-03	2.02E-03	1.18E-03	8.80E-04	3.90E-04	1.35E-04	1.47E-05	1.44E-04	
mercury	7439976	2.77E-06	2.86E-05	3.78E-05	3.28E-05	2.52E-05	1.57E-05	1.08E-05	4.94E-06	2.30E-06	2.24E-07	2.37E-06	
nickel	7440020	1.29E-05	3.22E-04	4.47E-04	3.90E-04	3.22E-04	1.73E-04	1.44E-04	6.13E-05	9.77E-06	1.59E-06	1.19E-05	
organic compound		8.69E-03	1.50E-01	2.09E-01	1.85E-01	1.46E-01	8.13E-02	6.32E-02	2.73E-02	6.95E-03	8.96E-04	7.78E-03	
other	99999	5.51E-05	5.37E-03	6.94E-03	5.41E-03	4.89E-03	2.37E-03	2.35E-03	9.84E-04	1.77E-05	1.34E-05	5.08E-05	
phosphorus	7723140	2.75E-04	2.93E-03	3.88E-03	3.38E-03	2.60E-03	1.60E-03	1.12E-03	5.07E-04	2.28E-04	2.25E-05	2.36E-04	
selenium	7782492	5.00E-07	1.18E-05	1.66E-05	1.46E-05	1.19E-05	6.41E-06	5.26E-06	2.24E-06	3.84E-07	6.08E-08	4.63E-07	
sulfates	1.5E+07	1.03E-03	2.80E-02	3.79E-02	3.20E-02	2.69E-02	1.42E-02	1.23E-02	5.22E-03	7.59E-04	1.25E-04	9.29E-04	
unknown		5.95E-02	7.13E-01	9.55E-01	8.33E-01	6.50E-01	3.89E-01	2.81E-01	1.26E-01	4.89E-02	5.10E-03	5.14E-02	







HAPS Summary - Particulate Matter

	Construction + Operations (tons per year)			
	2024	2025	2026	2027
Compound	1.60E-03	1.60E-03	1.59E-03	1.60E-03
antimony	2.43E-03	2.43E-03	2.42E-03	2.43E-03
arsenic	3.29E-03	3.28E-03	3.27E-03	3.27E-03
cadmium	7.09E-01	6.99E-01	6.90E-01	6.81E-01
chlorine	7.29E-02	7.28E-02	7.28E-02	7.29E-02
chromium	1.30E-02	1.29E-02	1.28E-02	1.27E-02
cobalt	6.25E-02	6.24E-02	6.23E-02	6.23E-02
lead	1.69E-01	1.69E-01	1.68E-01	1.69E-01
manganese	1.69E-03	1.68E-03	1.68E-03	1.68E-03
mercury	3.54E-02	3.53E-02	3.53E-02	3.53E-02
nickel	1.32E+01	1.32E+01	1.32E+01	1.32E+01
organic compound	8.26E-01	7.92E-01	7.60E-01	7.27E-01
other	1.78E-01	1.77E-01	1.77E-01	1.77E-01
phosphorus	1.24E-03	1.24E-03	1.24E-03	1.24E-03
selenium	3.31E+00	3.26E+00	3.20E+00	3.15E+00
sulfates	5.01E+01	5.00E+01	5.00E+01	5.00E+01
unknown				



HAPS Summary - Volatile Organic Compounds

Compound	CAS	Proposed Project Construction (tons per year)											
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
1,3-butadiene	106990	3.22E-06	2.26E-04	2.57E-04	2.01E-04	1.67E-04	8.01E-05	6.28E-05	2.42E-05	4.57E-07	3.19E-07	1.16E-06	
2,2,4-trimethylpentane	540841	3.62E-06	2.54E-04	2.90E-04	2.27E-04	1.88E-04	9.01E-05	7.07E-05	2.72E-05	5.14E-07	3.59E-07	1.30E-06	
acetaldehyde	75070	8.05E-07	5.65E-05	6.44E-05	5.03E-05	4.18E-05	2.00E-05	1.57E-05	6.04E-06	1.14E-07	7.98E-08	2.89E-07	
acrolein	107028	1.11E-04	7.76E-03	8.85E-03	6.92E-03	5.75E-03	2.75E-03	2.16E-03	8.31E-04	1.57E-05	1.10E-05	3.98E-05	
benzene	71432	5.64E-06	3.95E-04	4.51E-04	3.52E-04	2.93E-04	1.40E-04	1.10E-04	4.23E-05	7.99E-07	5.59E-07	2.02E-06	
cumene	98828	8.05E-07	5.65E-05	6.44E-05	5.03E-05	4.18E-05	2.00E-05	1.57E-05	6.04E-06	1.14E-07	7.98E-08	2.89E-07	
ethyl benzene	100414	3.99E-05	2.79E-03	3.19E-03	2.49E-03	2.07E-03	9.91E-04	7.77E-04	2.99E-04	5.65E-06	3.95E-06	1.43E-05	
hexane	110543	5.40E-05	3.78E-03	4.31E-03	3.37E-03	2.80E-03	1.34E-03	1.05E-03	4.05E-04	7.65E-06	5.35E-06	1.94E-05	
methanol	67561	1.25E-03	8.79E-02	1.00E-01	7.84E-02	6.51E-02	3.12E-02	2.45E-02	9.41E-03	1.78E-04	1.24E-04	4.50E-04	
methyl n-butyl ketone	591786	8.05E-07	5.65E-05	6.44E-05	5.03E-05	4.18E-05	2.00E-05	1.57E-05	6.04E-06	1.14E-07	7.98E-08	2.89E-07	
m-xylene	108383	7.25E-06	5.08E-04	5.79E-04	4.53E-04	3.76E-04	1.80E-04	1.41E-04	5.44E-05	1.03E-06	7.18E-07	2.60E-06	
naphthalene	91203	1.22E-04	8.52E-03	9.72E-03	7.60E-03	6.31E-03	3.02E-03	2.37E-03	9.13E-04	1.72E-05	1.21E-05	4.37E-05	
o-xylene	95476	2.22E-04	3.88E-03	3.30E-03	3.19E-03	1.86E-03	2.72E-03	7.85E-06	4.55E-04	5.71E-08	7.49E-05	7.24E-04	
propionaldehyde	123386	2.01E-06	1.41E-04	1.61E-04	1.26E-04	1.05E-04	5.00E-05	3.93E-05	1.51E-05	2.85E-07	2.00E-07	7.23E-07	
p-xylene	106423	1.04E-04	7.31E-03	8.34E-03	6.52E-03	5.41E-03	2.59E-03	2.03E-03	7.83E-04	1.48E-05	1.03E-05	3.74E-05	
unidentified	999999	1.61E-06	1.13E-04	1.29E-04	1.01E-04	8.36E-05	4.00E-05	3.14E-05	1.21E-05	2.28E-07	1.60E-07	5.78E-07	



HAPS Summary - Volatile Organic Compe

\*Denotes interpolated data

Compound	Proposed Project Operations (tons per year)													
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035		
1,3-butadiene	1.56E-02	1.47E-02	1.38E-02	1.29E-02	1.20E-02	1.12E-02	1.03E-02	9.70E-03	9.13E-03	8.56E-03	7.99E-03	7.41E-03	7.41E-03	
2,2,4-trimethylpentane	1.75E-02	1.65E-02	1.55E-02	1.45E-02	1.35E-02	1.26E-02	1.16E-02	1.09E-02	1.03E-02	9.63E-03	8.98E-03	8.34E-03	8.34E-03	
acetaldehyde	3.90E-03	3.68E-03	3.45E-03	3.23E-03	3.01E-03	2.79E-03	2.57E-03	2.42E-03	2.28E-03	2.14E-03	2.00E-03	1.85E-03	1.85E-03	
acrolein	5.36E-01	5.05E-01	4.75E-01	4.44E-01	4.14E-01	3.84E-01	3.53E-01	3.33E-01	3.14E-01	2.94E-01	2.75E-01	2.55E-01	2.55E-01	
benzene	2.73E-02	2.57E-02	2.42E-02	2.26E-02	2.11E-02	1.95E-02	1.80E-02	1.70E-02	1.60E-02	1.50E-02	1.40E-02	1.30E-02	1.30E-02	
cumene	3.90E-03	3.68E-03	3.45E-03	3.23E-03	3.01E-03	2.79E-03	2.57E-03	2.42E-03	2.28E-03	2.14E-03	2.00E-03	1.85E-03	1.85E-03	
ethyl benzene	1.93E-01	1.82E-01	1.71E-01	1.60E-01	1.49E-01	1.38E-01	1.27E-01	1.20E-01	1.13E-01	1.06E-01	9.88E-02	9.18E-02	9.18E-02	
hexane	2.91E-01	2.77E-01	2.62E-01	2.47E-01	2.33E-01	2.18E-01	2.03E-01	1.94E-01	1.84E-01	1.75E-01	1.66E-01	1.56E-01	1.56E-01	
methanol	6.28E+00	5.94E+00	5.59E+00	5.25E+00	4.90E+00	4.56E+00	4.22E+00	3.99E+00	3.77E+00	3.55E+00	3.33E+00	3.11E+00	3.11E+00	
methyl n-butyl ketone	3.90E-03	3.68E-03	3.45E-03	3.23E-03	3.01E-03	2.79E-03	2.57E-03	2.42E-03	2.28E-03	2.14E-03	2.00E-03	1.85E-03	1.85E-03	
m-xylene	3.51E-02	3.31E-02	3.11E-02	2.91E-02	2.71E-02	2.51E-02	2.31E-02	2.18E-02	2.05E-02	1.93E-02	1.80E-02	1.67E-02	1.67E-02	
naphthalene	5.88E-01	5.55E-01	5.21E-01	4.88E-01	4.55E-01	4.21E-01	3.88E-01	3.66E-01	3.45E-01	3.23E-01	3.01E-01	2.80E-01	2.80E-01	
o-xylene	3.11E-03	3.00E-03	2.89E-03	2.78E-03	2.67E-03	2.55E-03	2.44E-03	2.37E-03	2.30E-03	2.23E-03	2.16E-03	2.09E-03	2.09E-03	
propionaldehyde	2.49E-02	2.45E-02	2.40E-02	2.35E-02	2.30E-02	2.25E-02	2.20E-02	2.17E-02	2.15E-02	2.12E-02	2.09E-02	2.06E-02	2.06E-02	
p-xylene	5.05E-01	4.76E-01	4.47E-01	4.19E-01	3.90E-01	3.61E-01	3.33E-01	3.14E-01	2.96E-01	2.77E-01	2.59E-01	2.40E-01	2.40E-01	
unidentified	7.79E-03	7.35E-03	6.91E-03	6.46E-03	6.02E-03	5.58E-03	5.14E-03	4.85E-03	4.56E-03	4.28E-03	3.99E-03	3.71E-03	3.71E-03	



HAPS Summary - Volatile Organic Compe

Compound	Construction + Operations (tons per year)			
	2024	2025	2026	2027
1,3-butadiene	1.56E-02	1.47E-02	1.38E-02	1.29E-02
2,2,4-trimethylpentane	1.76E-02	1.65E-02	1.55E-02	1.45E-02
acetaldehyde	3.90E-03	3.68E-03	3.45E-03	3.23E-03
acrolein	5.37E-01	5.05E-01	4.75E-01	4.44E-01
benzene	2.73E-02	2.57E-02	2.42E-02	2.26E-02
cumene	3.90E-03	3.68E-03	3.45E-03	3.23E-03
ethyl benzene	1.93E-01	1.82E-01	1.71E-01	1.60E-01
hexane	2.92E-01	2.77E-01	2.62E-01	2.47E-01
methanol	6.29E+00	5.94E+00	5.59E+00	5.25E+00
methyl n-butyl ketone	3.90E-03	3.68E-03	3.45E-03	3.23E-03
m-xylene	3.51E-02	3.31E-02	3.11E-02	2.91E-02
naphthalene	5.89E-01	5.55E-01	5.21E-01	4.88E-01
o-xylene	3.56E-03	3.00E-03	2.96E-03	3.50E-03
propionaldehyde	2.50E-02	2.45E-02	2.40E-02	2.35E-02
p-xylene	5.05E-01	4.76E-01	4.47E-01	4.19E-01
unidentified	7.81E-03	7.35E-03	6.91E-03	6.46E-03



No Action Alternative

## HAPS Summary - Particulate Matter

[illegible]



HAPS Summary - Particulate Matter

\*Denotes interpolated data

	No Project Operations (tons per year)											
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Compound	1.68E-03	1.70E-03	1.72E-03	1.75E-03	1.77E-03	1.79E-03	1.81E-03	1.81E-03	1.81E-03	1.81E-03	1.81E-03	1.81E-03
antimony	2.55E-03	2.58E-03	2.61E-03	2.65E-03	2.68E-03	2.72E-03	2.75E-03	2.75E-03	2.75E-03	2.75E-03	2.75E-03	2.75E-03
arsenic	3.45E-03	3.49E-03	3.54E-03	3.58E-03	3.63E-03	3.68E-03	3.72E-03	3.72E-03	3.72E-03	3.72E-03	3.72E-03	3.72E-03
cadmium	7.58E-01	7.58E-01	7.58E-01	7.58E-01	7.58E-01	7.57E-01	7.57E-01	7.46E-01	7.35E-01	7.25E-01	7.14E-01	7.03E-01
chlorine	7.62E-02	7.71E-02	7.81E-02	7.91E-02	8.01E-02	8.11E-02	8.21E-02	8.20E-02	8.19E-02	8.19E-02	8.18E-02	8.17E-02
chromium	1.37E-02	1.38E-02	1.39E-02	1.40E-02	1.41E-02	1.43E-02	1.44E-02	1.43E-02	1.42E-02	1.41E-02	1.40E-02	1.40E-02
cobalt	6.55E-02	6.64E-02	6.73E-02	6.81E-02	6.90E-02	6.99E-02	7.07E-02	7.07E-02	7.07E-02	7.07E-02	7.07E-02	7.07E-02
lead	1.77E-01	1.79E-01	1.81E-01	1.84E-01	1.86E-01	1.88E-01	1.91E-01	1.90E-01	1.90E-01	1.90E-01	1.90E-01	1.90E-01
manganese	1.77E-03	1.79E-03	1.81E-03	1.84E-03	1.86E-03	1.88E-03	1.91E-03	1.91E-03	1.91E-03	1.91E-03	1.91E-03	1.91E-03
mercury	3.70E-02	3.74E-02	3.79E-02	3.83E-02	3.87E-02	3.92E-02	3.96E-02	3.96E-02	3.95E-02	3.94E-02	3.93E-02	3.93E-02
nickel	1.38E+01	1.40E+01	1.42E+01	1.44E+01	1.46E+01	1.48E+01	1.49E+01	1.49E+01	1.49E+01	1.49E+01	1.49E+01	1.49E+01
organic compound	9.23E-01	8.97E-01	8.71E-01	8.46E-01	8.20E-01	7.94E-01	7.69E-01	7.28E-01	6.88E-01	6.47E-01	6.07E-01	5.66E-01
other	1.86E-01	1.89E-01	1.91E-01	1.94E-01	1.96E-01	1.98E-01	2.01E-01	2.01E-01	2.01E-01	2.01E-01	2.01E-01	2.01E-01
phosphorus	1.29E-03	1.31E-03	1.33E-03	1.35E-03	1.37E-03	1.38E-03	1.40E-03	1.40E-03	1.40E-03	1.40E-03	1.40E-03	1.40E-03
selenium	3.56E+00	3.54E+00	3.53E+00	3.51E+00	3.49E+00	3.48E+00	3.46E+00	3.39E+00	3.32E+00	3.25E+00	3.18E+00	3.11E+00
sulfates												
unknown	5.24E+01	5.31E+01	5.38E+01	5.45E+01	5.52E+01	5.59E+01	5.66E+01	5.66E+01	5.66E+01	5.66E+01	5.66E+01	5.66E+01



HAPS Summary - Particulate Matter

	Construction + Operations (tons per year)			
	2024	2025	2026	2027
Compound	1.68E-03	1.70E-03	1.72E-03	1.75E-03
antimony	2.55E-03	2.58E-03	2.61E-03	2.65E-03
arsenic	3.45E-03	3.49E-03	3.54E-03	3.58E-03
cadmium	7.58E-01	7.58E-01	7.58E-01	7.58E-01
chlorine	7.62E-02	7.71E-02	7.81E-02	7.91E-02
chromium	1.37E-02	1.38E-02	1.39E-02	1.40E-02
cobalt	6.55E-02	6.64E-02	6.73E-02	6.81E-02
lead	1.77E-01	1.79E-01	1.81E-01	1.84E-01
manganese	1.77E-03	1.79E-03	1.81E-03	1.84E-03
mercury	3.70E-02	3.74E-02	3.79E-02	3.83E-02
nickel	1.38E+01	1.40E+01	1.42E+01	1.44E+01
organic compound	9.23E-01	8.97E-01	8.71E-01	8.46E-01
other	1.86E-01	1.89E-01	1.91E-01	1.94E-01
phosphorus	1.29E-03	1.31E-03	1.33E-03	1.35E-03
selenium	3.56E+00	3.54E+00	3.53E+00	3.51E+00
sulfates	5.24E+01	5.31E+01	5.38E+01	5.45E+01
unknown				







HAPS Summary - Volatile Organic Compounds

Compound	CAS
1,3-butadiene	106990
2,2,4-trimethylpentane	540841
acetaldehyde	75070
acrolein	107028
benzene	71432
cumene	98828
ethyl benzene	100414
hexane	110543
methanol	67561
methyl n-butyl ketone	591786
m-xylene	108383
naphthalene	91203
o-xylene	95476
propionaldehyde	123386
p-xylene	106423
unidentified	999999

+Denotes interpolated data

No Project Operations (tons per year)											
2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
1.74E-02	1.66E-02	1.58E-02	1.50E-02	1.42E-02	1.34E-02	1.26E-02	1.19E-02	1.12E-02	1.05E-02	9.77E-03	9.07E-03
1.96E-02	1.87E-02	1.78E-02	1.69E-02	1.60E-02	1.50E-02	1.41E-02	1.33E-02	1.26E-02	1.18E-02	1.10E-02	1.02E-02
4.36E-03	4.15E-03	3.95E-03	3.75E-03	3.54E-03	3.34E-03	3.14E-03	2.96E-03	2.79E-03	2.62E-03	2.44E-03	2.27E-03
5.99E-01	5.71E-01	5.43E-01	5.15E-01	4.87E-01	4.59E-01	4.31E-01	4.08E-01	3.84E-01	3.60E-01	3.36E-01	3.12E-01
3.05E-02	2.91E-02	2.77E-02	2.62E-02	2.48E-02	2.34E-02	2.20E-02	2.07E-02	1.95E-02	1.83E-02	1.71E-02	1.59E-02
4.36E-03	4.15E-03	3.95E-03	3.75E-03	3.54E-03	3.34E-03	3.14E-03	2.96E-03	2.79E-03	2.62E-03	2.44E-03	2.27E-03
2.16E-01	2.06E-01	1.96E-01	1.86E-01	1.75E-01	1.65E-01	1.55E-01	1.47E-01	1.38E-01	1.29E-01	1.21E-01	1.12E-01
2.92E-01	2.78E-01	2.65E-01	2.51E-01	2.37E-01	2.24E-01	2.10E-01	1.99E-01	1.87E-01	1.75E-01	1.64E-01	1.52E-01
6.79E+00	6.47E+00	6.15E+00	5.84E+00	5.52E+00	5.20E+00	4.89E+00	4.61E+00	4.34E+00	4.07E+00	3.80E+00	3.53E+00
4.36E-03	4.15E-03	3.95E-03	3.75E-03	3.54E-03	3.34E-03	3.14E-03	2.96E-03	2.79E-03	2.62E-03	2.44E-03	2.27E-03
3.92E-02	3.74E-02	3.56E-02	3.37E-02	3.19E-02	3.01E-02	2.82E-02	2.67E-02	2.51E-02	2.35E-02	2.20E-02	2.04E-02
6.58E-01	6.27E-01	5.97E-01	5.66E-01	5.35E-01	5.05E-01	4.74E-01	4.48E-01	4.21E-01	3.95E-01	3.69E-01	3.42E-01
2.18E-03	2.08E-03	1.98E-03	1.87E-03	1.77E-03	1.67E-03	1.57E-03	1.48E-03	1.39E-03	1.31E-03	1.22E-03	1.13E-03
1.09E-02	1.04E-02	9.88E-03	9.37E-03	8.86E-03	8.35E-03	7.84E-03	7.41E-03	6.97E-03	6.54E-03	6.10E-03	5.67E-03
5.64E-01	5.38E-01	5.12E-01	4.85E-01	4.59E-01	4.33E-01	4.06E-01	3.84E-01	3.61E-01	3.39E-01	3.16E-01	2.94E-01
8.72E-03	8.31E-03	7.90E-03	7.50E-03	7.09E-03	6.68E-03	6.28E-03	5.93E-03	5.58E-03	5.23E-03	4.88E-03	4.54E-03



HAPS Summary - Volatile Organic Compounds

Compound	CAS	Construction + Operations (tons per year)			
		2024	2025	2026	2027
1,3-butadiene	106990	1.74E-02	1.66E-02	1.58E-02	1.50E-02
2,2,4-trimethylpentane	540841	1.96E-02	1.87E-02	1.78E-02	1.69E-02
acetaldehyde	75070	4.36E-03	4.15E-03	3.95E-03	3.75E-03
acrolein	107028	5.99E-01	5.71E-01	5.43E-01	5.15E-01
benzene	71432	3.05E-02	2.91E-02	2.77E-02	2.62E-02
cumene	98828	4.36E-03	4.15E-03	3.95E-03	3.75E-03
ethyl benzene	100414	2.16E-01	2.06E-01	1.96E-01	1.86E-01
hexane	110543	2.92E-01	2.78E-01	2.65E-01	2.51E-01
methanol	67561	6.79E+00	6.47E+00	6.15E+00	5.84E+00
methyl n-butyl ketone	591786	4.36E-03	4.15E-03	3.95E-03	3.75E-03
m-xylene	108383	3.92E-02	3.74E-02	3.56E-02	3.37E-02
naphthalene	91203	6.58E-01	6.27E-01	5.97E-01	5.66E-01
o-xylene	95476	2.18E-03	2.08E-03	1.98E-03	1.87E-03
propionaldehyde	123386	1.09E-02	1.04E-02	9.88E-03	9.37E-03
p-xylene	106423	5.64E-01	5.38E-01	5.12E-01	4.85E-01
unidentified	999999	8.72E-03	8.31E-03	7.90E-03	7.50E-03



## F.5

### Transportation Conformity Working Group Coordination











## MEETING OF THE

# TRANSPORTATION CONFORMITY WORKING GROUP

SOUTHERN CALIFORNIA  
ASSOCIATION OF GOVERNMENTS  
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#### REGIONAL COUNCIL OFFICERS

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Margaret E. Finlay, Duarte  
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Community, Economic &  
Human Development  
Rex Richardson, Long Beach  
Energy & Environment  
Carmen Ramirez, Oxnard  
Transportation  
Curt Hagman, San Bernardino County

**Tuesday, July 25, 2017  
10:00 a.m. – 12:00 p.m.**

**SCAG Main Office  
Policy Committee A Conference Room  
818 West 7<sup>th</sup>, 12<sup>th</sup> Floor  
Los Angeles, CA 90017  
213.236.1800**

**Teleconference  
Call-in Telephone: (866) 434-5269  
Passcode: 357777**

If members of the public wish to review the attachments or have any questions on any of the agenda items, please contact:

Rongsheng Luo at 213.236.1994 or [luo@scag.ca.gov](mailto:luo@scag.ca.gov)  
Anita Au at 213.236.1874 or [au@scag.ca.gov](mailto:au@scag.ca.gov)

SCAG, in accordance with the Americans with Disabilities Act (ADA), will accommodate persons who require a modification of accommodation in order to participate in this meeting. If you require such assistance, please contact SCAG at (213) 236-1868 at least 72 hours in advance of the meeting to enable SCAG to make reasonable arrangements. To request documents related to this document in an alternative format, please contact (213) 236-1868.



# Transportation Conformity Working Group

## AGENDA

PAGE #

TIME

### 1.0 CALL TO ORDER AND SELF-INTRODUCTION

Wayne Chiou, Chair

### 2.0 PUBLIC COMMENT PERIOD

Members of the public desiring to speak on an agenda item or items not on the agenda, but within the purview of the TCWG, must fill out a speaker's card prior to speaking and submit it to the Staff Assistant. A speaker's card must be turned in before the meeting is called to order. Comments will be limited to three minutes. The Chair may limit the total time for comments to twenty (20) minutes.

### 3.0 CONSENT CALENDAR

3.1 Revised May 23, 2017 TCWG Meeting Minutes 3.1-1  
Attachment 3.1

3.2 June 27, 2017 TCWG Meeting Minutes 3.2-1  
Attachment 3.2

### 4.0 INFORMATION ITEMS

4.1 Review of PM Hot Spot Interagency Review Forms 4.1-1 30 minutes  
Attachments 4.1-1 LA0D465; 4.1-2 LAE0465;  
4.1-3 LAWA Roadway Improvement; 4.1-4 SR-91 Improvement

4.2 FTIP Update John Asuncion, SCAG 5 minutes

4.3 RTP Update Daniel Tran, SCAG 5 minutes

4.4 EPA Update Karina O'Connor and Wienke Tax, EPA 10 minutes  
- Standing Update  
- Sanction Clocks Update

4.5 ARB Update Dennis Wade, ARB 10 minutes  
- Standing Update  
- SIP Update

4.6 Air Districts Update District Representatives 10 minutes  
- Standing Update  
- AQMP/SIP Update

### 5.0 INFORMATION SHARING

5 minutes

### 6.0 ADJOURNMENT

The next meeting of the Transportation Conformity Working Group will be held on Tuesday, August 22, 2017 at the SCAG office in downtown Los Angeles.



**RTIP ID#** *(required)* 1160024 (I-405/La Cienega); 1160011 (I-105/Imperial Highway)

**TCWG Consideration Date** July 25, 2017

**Project Description** *(clearly describe project)*

Project Overview

The Los Angeles International Airport (LAX) Landside Access Modernization Program consists of several components, including:

- Construction of an Automated People Mover (APM) system with six APM stations connecting the Central Terminal Area (CTA) via an aboveground fixed guideway to new proposed buildings that will provide ground access to the airport.
- Passenger walkway systems connecting the APM stations to passenger terminals, parking garages, and ground transportation facilities.
- Modifications to existing passenger terminals and parking garages to support the APM walkway system connections, including vertical circulation cores to the arrival, departure, and concourse levels at the terminals.
- An APM maintenance and storage facility (MSF) and APM power substations.
- A Consolidated Rental Car facility (CONRAC) designed to meet the needs of car rental agencies serving LAX with access to the CTA via the APM.
- Two Intermodal Transportation Facilities (ITF) providing parking and pick-up and drop-off areas outside the CTA for private vehicles and commercial shuttles.
- Roadway improvements and project design features to improve access to the proposed facilities and the CTA and reduce traffic congestion in neighboring communities.
- Security features, including security fencing, surveillance cameras, security lighting, and emergency phones/call boxes, to reduce demands on the Los Angeles World Airports Police Department (LAWAPD).
- Fire safety features in compliance with fire and building code requirements including fire hydrants, fire sprinklers, and fire extinguishers.
- Utilities infrastructure, both new and modified, as needed, to support the proposed undertaking.
- Land acquisition for the APM right-of-way in various locations totaling about 26 acres. and
- Various enabling projects to allow construction of the Proposed Action, including utility relocation and demolition of certain existing facilities, some of which would be reconstructed.

LAWA has conducted extensive coordination of the Project elements with the various transportation agencies that have assets at LAX or in the Project area. As a result, the Southern California Association of Governments (SCAG), the Metropolitan Planning Organization (MPO) for the LAX region, has included the LAX Landside Access Modernization Program elements in the current regional plans, specifically, in the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016-2040 RTP/SCS) adopted in April 2016.

As part of the environmental process for the LAX Landside Access Modernization Program, an air quality protocol (Protocol) was developed outlining the methodologies and assumptions for the air quality analyses to be conducted. The Protocol was then distributed to all appropriate agencies for input, including the SCAG, the South Coast Air Quality Management District (SCAQMD), California Air Resources Board (ARB), California Department of Transportation (Caltrans), Federal Highway Administration (FHWA), and U.S. Environmental Protection Agency (USEPA).

At the request of the air quality agencies consulted during preparation of the Protocol, it was agreed that construction emissions associated with the LAX Landside Access Modernization Program would be processed under General Conformity. The operational emissions associated with the LAX Landside Access Modernization Program would also be processed under General Conformity, unless those projects operational emissions have been or will be addressed under Transportation Conformity. Table 3-2 identifies that construction emissions for all project elements would be processed and evaluated under General Conformity.



**Project Description (Continued)**

Operational emissions of non-roadway facilities or roadways not considered regionally significant (i.e., not contained in the 2016-2040 RTP/SCS) would also be processed and evaluated under General Conformity. Operational emissions of regionally significant roadways (i.e., contained in the 2016-2040 RTP/SCS) would be processed and evaluated through Transportation Conformity, in accordance with 40 CFR 93.153. Any project level analysis under Transportation Conformity deemed necessary by FHWA will be completed using the analysis documented in Section 3.1.1. Table 3-2 also identifies the roadway elements for which project-level transportation conformity analysis is anticipated.

**Roadway Improvements**

The Protocol identified those project elements that would be processed under general conformity and transportation conformity. Specifically, as part of the Proposed Action, improvements would be made to the I-105 and I-405 on- and off-ramps that would be processed under transportation conformity. Improvements to the I-405 off-ramps at La Cienega (RTIP ID #1160024) include widening the existing off-ramp to provide two additional lanes to allow traffic to flow across S. La Cienega Boulevard and onto the new W. 98th Street segment and to the CONRAC entrance (see Figure 1). At the intersection of the I-105 and Imperial Highway (RTIP ID #1160011), improvements would be made to allow dual left turn lanes, a through lane to the New 'C' Street, and a shared through-right turn lane (see Figure 2).

Implementation of the LAX Landside Access Modernization Program would reduce traffic during peak hours within the CTA; improve traffic levels at 30 intersections adjacent to the airport; reduce vehicle miles travelled, reduce emissions of carbon monoxide, nitrogen oxides, volatile organic compounds, particulate matter, fine particulate matter, and greenhouse gases; provide a direct connection to the LA Metro rail system; and create an area-wide Transportation Demand Management Program for LAX employees.

**Type of Project** (use Table 1 on instruction sheet)

Reconfigure existing interchange; intersection signalization; roadway realignment

**County**

Los Angeles

**Narrative Location/Route & Postmiles**

The Proposed Action is located in the western area of Los Angeles, generally bound by the I-405, the I-105, LAX Airport, and W. Arbor Vitae Street.

**Caltrans Projects – EA# 34180**

**Lead Agency:** Federal Aviation Administration

**Contact Person**

Victor Globa

**Phone#**

310.725.3637

**Fax#****Email**

Victor.Globa@faa.gov

**Hot Spot Pollutant of Concern** (check one or both)

**PM2.5** ☒

**PM10** ☒

**Federal Action for which Project-Level PM Conformity is Needed** (check appropriate box)

<b>Categorical Exclusion (NEPA)</b>	<input checked="" type="checkbox"/>	<b>EA or Draft EIS</b>	<b>FONSI or Final EIS</b>	<b>PS&amp;E or Construction</b>	<b>Other</b>
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**Scheduled Date of Federal Action:** Anticipated December 2017

**NEPA Assignment – Project Type** (check appropriate box)

<b>Exempt</b>	<b>Section 326 –Categorical Exemption</b>	<input checked="" type="checkbox"/>	<b>Section 327 – Non-Categorical Exemption</b>
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**Current Programming Dates** (as appropriate)

<b>PE/Environmental</b>	<b>ENG</b>	<b>ROW</b>	<b>CON</b>
-------------------------	------------	------------	------------



<b>Start</b>	January 2016	June 2018	January 2018	January 2019
<b>End</b>	December 2017	May 2020	December 2018	May 2020
<b>Project Purpose and Need (Summary):</b> <i>(attach additional sheets as necessary)</i>  The LAX Landside Access Modernization Program (“Proposed Action”) seeks to: <ul style="list-style-type: none"> <li>• Improve access options and the landside travel experience for passengers;</li> <li>• Enhance efficiency and alleviate delays on and congestion of on-Airport and surrounding roadways;</li> <li>• Shift the location of a portion of traffic from the CTA to locations outside the CTA and off of the surrounding street network;</li> <li>• Provide a non-road connection to the Metro rail and transit system; and</li> <li>• Improve connectivity and mobility for Airport passengers, visitors, and employees between the regional ground transportation system, including highways, local roadways, and regional transit options, and LAX.</li> </ul> The Proposed Action is needed to: <ul style="list-style-type: none"> <li>• Reduce vehicle travel times and distance and provide traffic congestion relief;</li> <li>• Reduce traffic congestion and provide additional parking during peak periods;</li> <li>• Reduce vehicle congestion and conflicts within the CTA and surrounding streets;</li> <li>• Provide improved transit connectivity; and</li> <li>• Provide a consolidated rental car facility to reduce crowded and uncomfortable passenger conditions on the terminal curbside by removing the rental car shuttles from the CTA.</li> </ul>				
<b>Surrounding Land Use/Traffic Generators</b> <i>(especially effect on diesel traffic)</i> The majority of the Proposed Project Area contains LAX property and airport-related uses, intermixed with some non-airport uses (i.e., residential, commercial, and light industrial uses). Traffic in the area is attributable to the airport as well as the I-105 and I-405 highways.				
<b>Opening Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility</b>  See attached pages.				
<b>RTP Horizon Year / Design Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility</b>  See attached pages.				



**Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT**

See attached pages.

**RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT**

See attached pages.

**Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)***

The proposed intersection improvements would improve traffic conditions at both the I-405/La Cienega and I-105/Imperial Highway off-ramps by adding through movements. These proposed improvements would result in the redistribution of truck traffic. Specifically, truck traffic utilizing the I-405/La Cienega ramps would decrease in future years with the proposed project as compared to the without project scenario, while trucks utilizing the I-105/Imperial Highway ramps would slightly increase in future years with the proposed project as compared to the without project scenario. Under the proposed project, the intersection improvements at the I-105/Imperial Highway ramps would allow direct access to and from the construction staging areas at Aviation Boulevard/111th Street. Additionally, by providing direct connections to this area, the surrounding surface streets of Aviation Boulevard, Imperial Highway, La Cienega Boulevard, and 111th Street may see an overall decrease in truck activity.

**Comments/Explanation/Details *(attach additional sheets as necessary)***

As outlined in 40 CFR 93.123(b)(1)(i), a hotspot demonstration is required for new or expanded highway projects that have a significant increase in the number of diesel vehicles, including trucks. As shown in the attached pages, the number of truck trips through the I-405/La Cienega intersection would decrease with the proposed project as compared to the without project scenario, in both 2024 and 2035. However, under the proposed project the total number of truck trips increases at I-105/Imperial Highway as compared to the without project scenario (in both 2024 and 2035). As shown in the attached pages, truck traffic in the NB/SB direction is estimated to increase from 23 percent trucks to 37 percent trucks, as a percentage of overall traffic. This is due to the proposed SB intersection leg connecting to future "C" Street, which is expected to result in a redistribution of truck traffic in the vicinity of the intersection. Confirmation of the expected truck traffic redistribution can be seen in the decreased truck traffic percentage in the EB/WB direction (14 percent to 10 percent). While looking at the intersection as a whole, the percentage of truck traffic utilizing the intersection is expected to increase by approximately 4 percent when comparing the proposed project to the without project scenario. Therefore, although there is a heavy increase of truck traffic expected in the NB/SB direction (14 percent), the percent increase in overall truck traffic through the intersection is minimal (4 percent).

As shown in the attached air quality analysis, neither of the proposed improvements would cause or contribute to any new localized PM<sub>10</sub>, and/or PM<sub>2.5</sub> violations, increase the frequency or severity of any existing PM<sub>10</sub>, and/or PM<sub>2.5</sub> violations, or delay timely attainment of any NAAQS or any required interim emission reductions or other milestones in PM<sub>10</sub>, and PM<sub>2.5</sub> nonattainment and maintenance areas. Therefore, neither of the proposed improvements would be considered a "Project of Air Quality Concern."



[Preliminary Draft for Discussion Purposes Only]



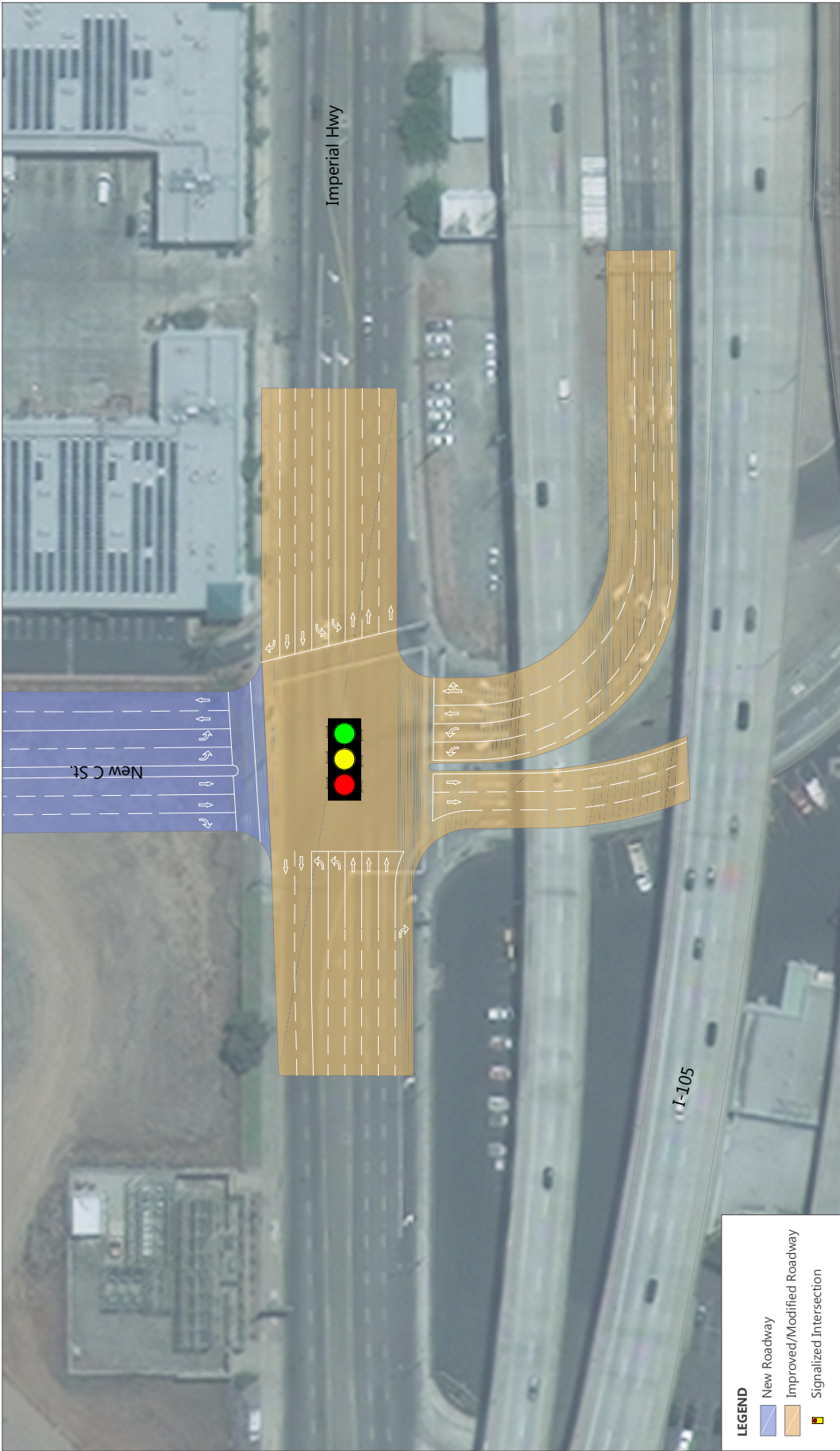
FIGURE 1

## I-405/La Cienega Improvements



Drawing: P:\LAX\LAMP105 - AutoCAD\LAMP\_PM Conformity Hot Spot Analysis.dwg Layout: 01 - La Cienega\_I-405-P Plotted: Jul 18, 2017, 12:30PM





NOTE: Improvements depicted are conceptual only and do not represent engineering design.  
SOURCE: Los Angeles World Airports, August 2014 (aerial photography for visual reference only, may not be to scale); MapLAX, July 2016.  
PREPARED BY: Ricondo & Associates, Inc., July 2017.



0 100 ft.

Drawing: PILAXILAMP105 - AutoCAD/LAMP\_P105\_Conformity Hot Spot Analysis.dwg/Layout: 02 - I-105\_Imperial Highway Plotted: Jul 18, 2017, 12:33PM

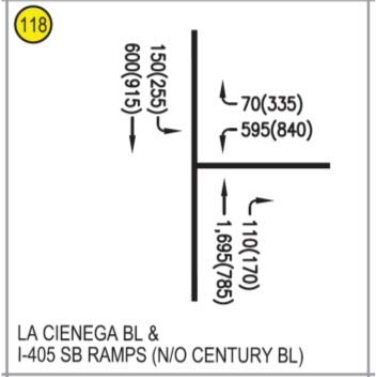
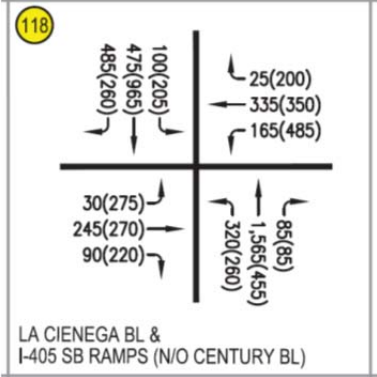
LAX Landside Access Modernization Program  
Particulate Matter Conformity Hot Spot Analysis

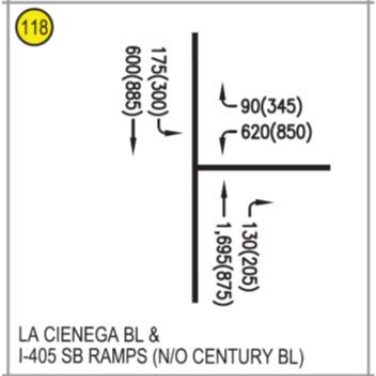
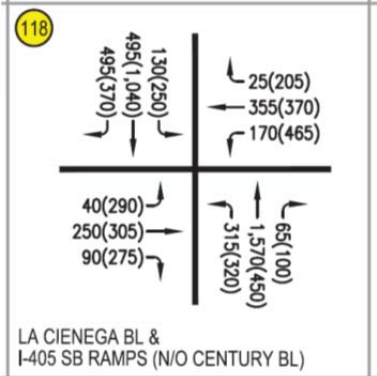
I-105/Imperial Highway Improvements

FIGURE 2



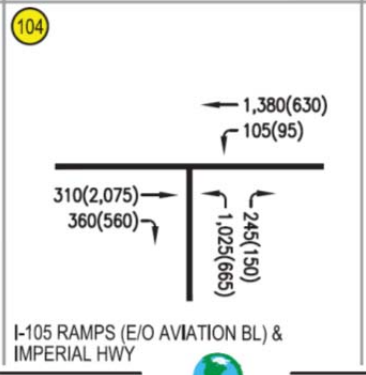
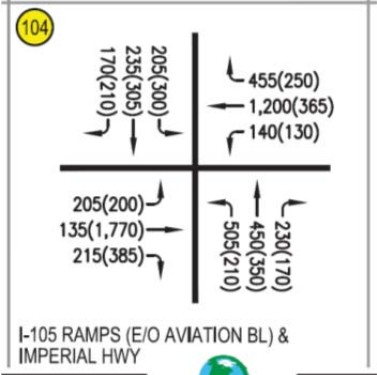
## I-405/La Cienega

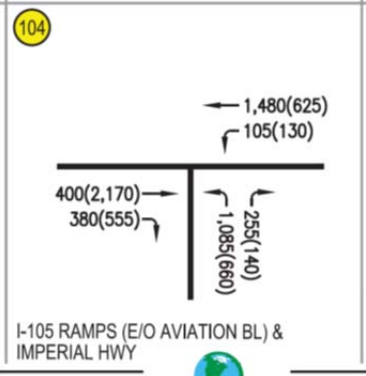
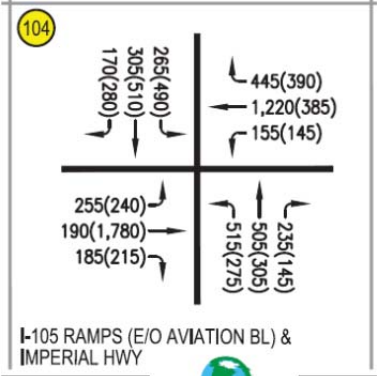
2024	Without Project	With Project
Intersection LOS		
a.m. peak	C	B
p.m. peak	B	A
Traffic Volumes (AADT)		
La Cienega Blvd. (NB/SB)	33,000	34,100
I-405 Ramps (EB/WB)	16,000	26,100
Truck Volumes (AADT)		
La Cienega Blvd. (NB/SB)	1,700 (5%)	1,440 (4%)
I-405 Ramps (EB/WB)	930 (6%)	580 (2%)
Intersection Geometry/Volumes	 <p>LA CIENEGA BL &amp; I-405 SB RAMPS (N/O CENTURY BL)</p>	 <p>LA CIENEGA BL &amp; I-405 SB RAMPS (N/O CENTURY BL)</p>

2035	Without Project	With Project
Intersection LOS		
a.m. peak	D	B
p.m. peak	C	B
Traffic Volumes (AADT)		
La Cienega Blvd. (NB/SB)	34,600	37,650
I-405 Ramps (EB/WB)	17,000	28,690
Truck Volumes (AADT)		
La Cienega Blvd. (NB/SB)	1,790 (5%)	1,650 (4%)
I-405 Ramps (EB/WB)	1,330 (8%)	1,050 (4%)
Intersection Geometry/Volumes	 <p>LA CIENEGA BL &amp; I-405 SB RAMPS (N/O CENTURY BL)</p>	 <p>LA CIENEGA BL &amp; I-405 SB RAMPS (N/O CENTURY BL)</p>



## I-105/Imperial Highway

2024	Without Project	With Project
Intersection LOS		
a.m. peak	C	C
p.m. peak	B	B
Traffic Volumes (AADT)		
I-105 Ramps (NB/SB)	14,700	22,400
Imperial Hwy. (EB/WB)	41,750	39,900
Truck Volumes (AADT)		
I-105 Ramps (NB/SB)	3,320 (23%)	8,200 (37%)
Imperial Hwy. (EB/WB)	5,870 (14%)	3,990 (10%)
Intersection Geometry/Volumes		

2035	Without Project	With Project
Intersection LOS		
a.m. peak	D	D
p.m. peak	C	C
Traffic Volumes (AADT)		
I-105 Ramps (NB/SB)	14,850	29,950
Imperial Hwy. (EB/WB)	42,800	43,450
Truck Volumes (AADT)		
I-105 Ramps (NB/SB)	4,430 (30%)	8,960 (30%)
Imperial Hwy. (EB/WB)	6,030 (14%)	4,880 (11%)
Intersection Geometry/Volumes		



PM10 Emissions for Road Projects Requiring Project Level Transportation Conformity (includes Auto Exhaust, Truck Exhaust, and Road Dust*)		
Project Element	I-405 Ramp Improvements to La Cienga Blvd	New 'C' St - Imperial Hwy and W. 111th St
Operations Roadway Link Nos.	91567, 91568	2677670
2024 Total Emissions Without Project (tons/year)	0.029	0.0
2024 Total Emissions With Project (tons/year)	0.064	0.115
<b>2024 Emissions Increment (tons/year)</b>	<b>0.034</b>	<b>0.115</b>
2030 Total Emissions Without Project (tons/year)	0.032	0
2030 Total Emissions With Project (tons/year)	0.059	0.103
<b>2030 Emissions Increment (tons/year)</b>	<b>0.028</b>	<b>0.103</b>
2035 Total Emissions Without Project (tons/year)	0.031	0
2035 Total Emissions With Project (tons/year)	0.059	0.103
<b>2035 Emissions Increment (tons/year)</b>	<b>0.027</b>	<b>0.103</b>

\* Road dust contributes over 90 percent to the total emissions on these links.

PM2.5 Emissions for Road Projects Requiring Project Level Transportation Conformity (includes Auto Exhaust, Truck Exhaust, and Road Dust*)		
Project Element	I-405 Ramp Improvements to La Cienga Blvd	New 'C' St - Imperial Hwy and W. 111th St
Operations Roadway Link Nos.	91567, 91568	2677670
2024 Total Emissions Without Project (tons/year)	0.009	0.0
2024 Total Emissions With Project (tons/year)	0.021	0.004
<b>2024 Emissions Increment (tons/year)</b>	<b>0.012</b>	<b>0.004</b>
2030 Total Emissions Without Project (tons/year)	0.010	0.0
2030 Total Emissions With Project (tons/year)	0.019	0.033
<b>2030 Emissions Increment (tons/year)</b>	<b>0.009</b>	<b>0.033</b>
2035 Total Emissions Without Project (tons/year)	0.010	0.0
2035 Total Emissions With Project (tons/year)	0.019	0.033
<b>2035 Emissions Increment (tons/year)</b>	<b>0.009</b>	<b>0.033</b>

\* Road dust contributes over 90 percent to the total emissions on these links.



## Stephen Culberson

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**From:** Yoon, Andrew U@DOT <andrew.yoon@dot.ca.gov>  
**Sent:** Monday, August 14, 2017 10:51 AM  
**To:** Rongsheng Luo (LUO@scag.ca.gov)  
**Cc:** Tony Harris; Stephen Culberson; Joseph.Vaughn@dot.gov; Karina O'Connor (oconnor.karina@epa.gov); Tavitas, Rodney A@DOT; Victor.Globa@faa.gov  
**Subject:** PM Hot-Spot Forms for LAWA Roadway Improvements (RTP IDs 1160024 and 1160011)  
**Attachments:** conformity-faqs-memo.pdf  
**Importance:** High

Good morning Rongsheng,

Following the discussion at the TCWG in July 2017, Caltrans has reached out to FHWA and HQ to clarify whether or not the LAWA's projects fit the definition of a FHWA/FTA project and, in turn, whether or not the transportation conformity requirements apply. Joseph Vaughn from FHWA has provided me with the definition of a FHWA/FTA project for which transportation conformity requirements apply as shown in the email below.

Here are the points that Caltrans has been able to clarify:

- LAWA has indicated that these projects will be constructed as part of the bigger Landside Access Modernization Program (LAMP) for which an environmental document is currently underway; and that the projects will be privately funded and will not require federal funds;
- Approval of Fact sheets for Exceptions to Design Standards has been delegated to Caltrans and will not require approval by FHWA.
- Jeff Holm and Josue Yambo with FHWA Project Delivery in California Division have determined that the project will not require an FHWA approval on Modified Access Report for the proposed changes to the intersections at La Cienega Bl or Imperial Highway.

Based on the research completed up to now and the discussion and determination noted above, Caltrans concludes that the LAWA's roadway improvements (1160024 at I-405/La Cienega and 1160011 at I-105/Imperial Highway) are not considered a FHWA/FTA project as defined in the 40 CFR 93.101. And as such, Caltrans concludes that the transportation conformity requirements do not apply for the subject projects; and request that the projects be rescinded from further discussion at the TCWG unless any of the projects' conditions change in the future.

Please contact me for any questions regarding the research/discussion/determination noted in the email. Thank you for your patience and assistance in moving the discussion forward.

Regards,

Andrew Yoon, P.E.  
Senior Transportation Engineer  
Air Quality Branch  
Office of Environmental Engineering  
Department of Transportation, District 7  
Ph: 213.897.6117  
Fx: 213.897.1634



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**From:** Vaughn, Joseph (FHWA) [<mailto:Joseph.Vaughn@dot.gov>]  
**Sent:** Tuesday, July 25, 2017 11:17 AM  
**To:** Yoon, Andrew U@DOT  
**Cc:** Karina O'Connor ([oconnor.karina@epa.gov](mailto:oconnor.karina@epa.gov))  
**Subject:** Transportation project definition

Andrew-per our discussion this morning, please see below the definition of a “transportation project”:

“Transportation conformity also applies to “FHWA/FTA projects”, which are defined in the transportation conformity rule as “any highway or transit project which is proposed to receive funding assistance and approval through the Federal Aid Highway program or the Federal mass transit program, or requires Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) approval for some aspect of the project, such as connection to an Interstate highway or deviation from applicable design standards on the interstate system.” (40 CFR 93.101)”

Hope this helps—per the description this morning, the LAWA project does not meet this definition.

Regards-Joseph

Joseph Vaughn  
Environmental Specialist  
FHWA, CA Division  
(916) 498-5346





U.S. Department  
of Transportation  
Federal Highway  
Administration

# Memorandum

**SENT VIA ELECTRONIC MAIL**

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Subject: **INFORMATION**: General and  
Transportation Conformity Frequently  
Asked Questions  
*/S/Original signed by*

Date: April 6, 2011

From: April L. Marchese  
Director, Office of Natural Environment  
Washington, DC

In Reply Refer To:  
HEPN-10

To: Division Administrators

## PURPOSE

The purpose of this memorandum is to share a new set of frequently asked questions (FAQs) regarding how and when general conformity requirements (40 CFR Part 93 subpart A) and transportation conformity requirements (40 CFR Part 93 subpart B) apply at the project level. These FAQs also address the Federal Highway Administration's (FHWA) role in implementation of non-highway projects and meeting Clean Air Act (CAA) requirements.

These FAQs do not address all the requirements of either general or transportation conformity, nor are they intended to supersede or alter either the general or transportation conformity regulations, which should be consulted in all cases on questions regarding their requirements. The U.S. Environmental Protection Agency was consulted on the interpretation of the conformity requirements for these FAQs.

## BACKGROUND

The CAA requires that Federal agencies do not adopt, accept, approve or fund activities that are not consistent with air quality goals. The transportation and general conformity regulations provide the framework for meeting this CAA requirement. Transportation conformity applies to Federal highway and transit projects, while general conformity applies to all other Federal actions. However, certain transportation projects can involve Federal actions that necessitate the evaluation of both transportation conformity and general conformity requirements. These FAQs provide responses to common questions and scenarios where these two sets of regulations may intersect and to clarify how the requirements should be met.





## **TRANSPORTATION AND GENERAL CONFORMITY: FREQUENTLY ASKED QUESTIONS**

### **1. What is the statutory requirement of conformity?**

Conformity is required by Clean Air Act Section 176(c). This section requires that Federal agencies do not adopt, accept, approve or fund activities that are not consistent with State air quality goals. This section contains additional conformity requirements specifically addressing Federally-supported highway and transit projects.

### **2. Where does transportation conformity apply and what actions are subject to transportation conformity?**

Transportation conformity is required in areas designated nonattainment and maintenance by the U.S. Environmental Protection Agency (EPA) for the transportation-related criteria pollutants: ozone, particulate matter, nitrogen dioxide, and carbon monoxide. It applies to metropolitan transportation plan and transportation improvement program updates and amendments unless an amendment merely adds or deletes projects exempt from conformity (40 CFR 93.104(b) and (c)). Transportation conformity also applies to “FHWA/FTA projects”, which are defined in the transportation conformity rule as “any highway or transit project which is proposed to receive funding assistance and approval through the Federal Aid Highway program or the Federal mass transit program, or requires Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) approval for some aspect of the project, such as connection to an Interstate highway or deviation from applicable design standards on the interstate system.” (40 CFR 93.101)

### **3. Where does general conformity apply and what actions are subject to general conformity?**

General conformity applies to all Federal actions (e.g., funding, licensing, permitting or approving) that do not include FHWA/FTA projects as defined in 40 CFR 93.101 and that take place in nonattainment or maintenance areas for all criteria pollutants: ozone, particulate matter, nitrogen dioxide, carbon monoxide, lead, and sulfur dioxide.

General conformity also applies to Federal highway and transit projects that do not involve either Title 23 or 49 funding or FHWA or FTA approval such as connection to an Interstate highway or deviation from applicable design standards per 40 CFR 93.101. Additional examples are discussed in Question 8.

### **4. Can one project be subject to both general and transportation conformity requirements?**

Yes. If the project includes Federal actions on FHWA/FTA highway or transit elements as well as Federal actions on other elements of the project, both requirements may apply. For example, if an airport expansion project includes widening the airport access road using FHWA highway funds and runway extension which requires FAA approval, transportation conformity requirements would apply to the road widening action, and general conformity requirements would apply to the runway extension action.



**5. If FHWA or FTA is responsible for administering and/or implementing a non-highway or transit project in a nonattainment or maintenance area, does transportation conformity automatically apply?**

No. Transportation conformity requirements apply only to FHWA/FTA actions on highway and transit projects. Therefore, a project in a nonattainment or maintenance area that is not a FHWA/FTA project, as defined in 40 CFR 93.101, would be subject to general conformity, rather than transportation conformity. If FHWA or FTA approval is still necessary, a general conformity determination would be required for such a project.

**6. If a new non-highway/non-transit project is being initiated in a nonattainment or maintenance area and uses Congestion Mitigation and Air Quality Improvement (CMAQ) program funds for a portion of the project, which conformity requirements apply?**

If a portion of the non-highway/non-transit project uses CMAQ funds (such as road-to-rail transfer yards or the outright purchase or retrofit of “green” freight locomotives), then general conformity requirements would apply since the CMAQ funds are being used for non-road equipment.

For CMAQ-funded projects with a highway or transit element (e.g., a freight project that includes new or expanded highway links to a major maritime port), transportation conformity requirements would apply to the highway or transit portion of the project (see Question 4). The highway or transit portion of the project would be determined based on the elements of the project that meet the applicable definitions for “FHWA/FTA project,” “highway project,” “transit,” and “transit project,” per 93.101:

These documents provide more information regarding CMAQ-funded projects that may include non-highway/non-transit elements:

In October, 2008, FHWA issued “[Final Program Guidance for the Congestion Mitigation and Air Quality Improvement \(CMAQ\) Program](#)” under the SAFETEA-LU.

In January 2003, FHWA issued the “[Eligibility of Freight Projects and Diesel Engine Retrofit Programs](#)” guidance document to convey agency policy on freight projects and diesel engine retrofit programs.

In June 2006, EPA issued “[Diesel Retrofits: Quantifying and Using Their Benefits in SIPs and Conformity: Guidance for State and Local Air and Transportation Agencies](#)” to provide guidance<sup>1</sup> on quantifying and using emission reductions from highway and non-road diesel vehicles, engines, and equipment that have been retrofitted with emission reduction technology. This guidance addressed both transportation and general conformity determinations.

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<sup>1</sup> EPA indicated that they intend to update this guidance document primarily to describe how to use MOVES to calculate emissions reductions from retrofits of on-road vehicles.



## **7. If a non-highway/non-transit project requires the use of highway right-of-way, does this require either transportation or general conformity?**

If the transfer is temporary (e.g. for construction and staging activities) or if the transfer does not affect highway operations, then neither a transportation nor a general conformity determination from FHWA is required. For significant highway right-of-way transfer that may affect highway operations, please contact FHWA Office of Real Estate Services and Office of Natural Environment for further assistance.

## **8. Examples:**

### Scenario 1a: FHWA participates in the National Environmental Policy Act (NEPA) analysis and general conformity determination with the Department of the Interior (DOI):

The DOI is the lead agency for the environmental review process for a non-highway/non-transit project which does not use Title 23 (highway) or Title 49 (transit) funding. The DOI completed the NEPA document for the project, which also included a demonstration that all general conformity requirements for the various aspects of the project had been met, and all other Federal agencies involved in the project (including FHWA) joined in that document. The project is then transferred to FHWA for implementation. Subsequent FHWA project approvals (e.g. construction) do not require a transportation conformity determination because this project does not fall within the transportation conformity rule's definition of an FHWA/FTA project (40 CFR 93.101). Additionally, no new general conformity determination is required by FHWA because FHWA had already joined in the prior general conformity analysis provided in the NEPA document and that analysis had considered the emissions resulting from the FHWA approvals.

### Scenario 1b: FHWA does not participate in the NEPA analysis and general conformity determination with Federal Rail Administration (FRA):

The FRA is the lead agency for the environmental review process for a non-highway/non-transit project that does not use Title 23 (highway) or Title 49 (transit) funding. The NEPA document is completed and the general conformity requirements have been met before FHWA can sign onto the environmental review. The project is then transferred to FHWA for implementation. Subsequent FHWA project approvals (e.g. construction) do not require a transportation conformity determination because this project does not fall within the transportation conformity rule's definition of an FHWA/FTA project (40 CFR 93.101). Additionally, no new general conformity analysis would be needed; however, FHWA would have to fulfill the public notice and comment requirements of general conformity and publish its determination in the Federal Register.

### Scenario 2

The FHWA has entered into an agreement with another Federal agency for FHWA to be the lead agency for a new freight terminal (a non-highway/non-transit project with no Title 23 or 49 funding involved) that is in a nonattainment area. As part of this agreement, FHWA will sign the NEPA document for the project. The project is subject to general conformity because the project does not fall within the transportation conformity rule's definition of an FHWA/FTA project (40 CFR 93.101).

### Scenario 3

The FHWA is the lead agency for the development and implementation of a new intermodal freight facility. The new facility includes creating a new interchange at the Interstate with a new



road to the intermodal facility. The freight company is funding the new access road as well as the Interstate interchange. In this case, both general and transportation conformity apply. General conformity is required for the Federal actions associated with the non-highway portions of the project (e.g., increasing freight rail locomotive capacity at the facility). Transportation conformity is required for the new interchange and road because, while not Federally-funded, the new access road requires FHWA approval for Interstate access and thus qualifies as a FHWA/FTA project.

#### Scenario 4

The FHWA is the lead agency for the implementation of a project that includes high speed rail and a highway improvement project. Title 23 funds are being used to cover the highway improvement portions of the project. Both general and transportation conformity apply to this project. General conformity is required for the high speed rail portion of the project, which does not involve Title 23 funds or require approval by either FHWA or FTA. Transportation conformity applies to all portions of the project funded with Title 23 funds or approved by FHWA or FTA, per 40 CFR 93.101, which includes the highway improvement portion. In order to use Title 23 funds, and under transportation conformity, the portions of the project (highway improvement) that use Title 23 funds must satisfy the relevant transportation conformity requirements.

### **9. Who Can I Contact?**

Any questions on these FAQs or related to their application to a specific project should be directed to FHWA's Office of Natural Environment, Air Quality and Transportation Conformity Team ([TAQC@dot.gov](mailto:TAQC@dot.gov)) for further assistance.



## **Appendix G**

### **Hazardous Materials Assessment**



G.1 Hazardous Materials Assessment, October 14, 2015

G.2 Preliminary Geotechnical Evaluation, Pile Foundations, January 29, 2016

G.3 Addendum Letter – Hazardous Materials Assessment, June 29, 2016







## **G.1**

Hazardous Materials Assessment, October 14, 2015











**HAZARDOUS MATERIALS ASSESSMENT  
LANDSIDE ACCESS MODERNIZATION PROGRAM  
LOS ANGELES INTERNATIONAL AIRPORT  
LOS ANGELES, CALIFORNIA**

**PREPARED FOR:**

Ricondo & Associates, Inc.  
20 North Clark Street, Suite 1500  
Chicago, Illinois 60602

**PREPARED BY:**

Ninyo & Moore  
Geotechnical and Environmental Sciences Consultants  
475 Goddard, Suite 200  
Irvine, California 92618

October 14, 2015  
Project No. 209291003



October 14, 2015  
Project No. 209291003

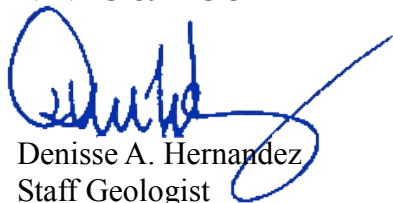
Mr. Stephen D. Culberson, Director  
Ricondo & Associates, Inc.  
20 North Clark Street, Suite 1500  
Chicago, Illinois 60602

Subject: Hazardous Materials Assessment  
Landside Access Modernization Program  
Los Angeles International Airport  
Los Angeles, California

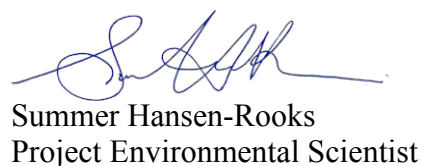
Dear Mr. Culberson:

In accordance with your authorization, Ninyo & Moore has completed a Hazardous Materials Assessment for the Landside Access Modernization Program at Los Angeles International Airport in the City of Los Angeles, California. The Preliminary HMA has been performed in accordance with Ninyo & Moore's proposal and cost estimate dated February 12, 2015. The report describes our findings, methodologies, and conclusions.

Sincerely,  
**NINYO & MOORE**



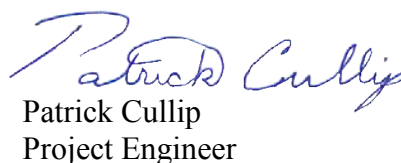
Denisse A. Hernandez  
Staff Geologist



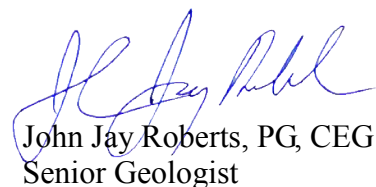
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## **1. INTRODUCTION**

Ricondo & Associates, Inc. (Ricondo, the Client) has authorized Ninyo & Moore to perform a Hazardous Materials Assessment (HMA) for incorporation into their Initial Study (IS) for the Landside Access Modernization Program Project (project) at Los Angeles International Airport (LAX) in the City of Los Angeles, California. The HMA was performed to identify, to the extent practical, contaminated or potentially contaminated areas and other hazardous materials issues within the project. Areas of the project are bounded by Tom Bradley International Terminal in the Central Terminal Area (CTA) on the west, Interstate 105 (I-105) on the south, Interstate 405 (I-405) on the east, and Westchester Parkway/West Arbor Vitae Street to the north (site, Figures 1 and 2).

The objectives of the project include: modernizing LAX by relieving traffic congestion within the CTA and on the surrounding street network; improve access options and the travel experience for passengers; and provide connection to the Los Angeles County Metropolitan Transportation Agency (MTA or Metro) rail system. The major project components include:

- Automated people mover system located inside and outside of the CTA
- Two intermodal transportation facilities (ITF west and ITF east)
- Consolidated rental car facility
- Roadway improvements
- Utilities improvements
- Construction laydown and staging areas
- Potential future related development

### **1.1. Purpose and Scope of Investigation**

The purpose of this HMA was to evaluate, in general accordance with the process described in ASTM International (ASTM) Practice E1527-13, recognized environmental conditions (RECs), which are defined by ASTM as “the presence or likely presence of any hazardous



substance or petroleum products in, on, or at a property: (1) due to a release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.”

As defined in ASTM E1527-13, de minimis conditions are not considered RECs. A de minimis condition is defined as “a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.”

Identification of RECs fall into three categories: existing RECs (as defined above); Historical RECs (HRECs); or Controlled RECs (CRECs).

- HREC – A HREC is defined as “a past release of any hazardous substance or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations [AULs], institutional controls, or engineering controls).”
- CREC – A CREC is defined as “recognized environmental conditions resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, AULs, institutional controls, or engineering controls).”

To evaluate the likelihood of encountering hazardous substances during construction activities, Ninyo & Moore performed a limited evaluation of the site and properties adjoining the site with regard to the potential presence of hazardous substances. A limited ASTM 2013 standard was used to evaluate the site, which did not include interviews or user questionnaires. A database radii search of 1/8-mile was used to assess potential impacts to the site.



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The likelihood of specific areas of the project being contaminated by hazardous materials was ranked as high, moderate, or low based on the following descriptions:

- **High** – Property with known or probable contamination within the area of the Project. An example of a property in this category would be a leaking underground storage tank (LUST) facility where remediation had not been started or was not yet finished.
- **Moderate** – Property with potential or suspected contamination within the area of the Project. Examples of properties in this category would be LUST facilities in final stages of remediation or in post-remediation monitoring. A second example would be a property with known use and storage of hazardous materials which had received violation notices from inspecting agency or where visual evidence of inadequate chemical and storage practices (such as significant staining) were observed but where no environmental assessments had occurred. Also included in this category are facilities where underground storage tanks (USTs) are likely present and/or facilities that have used significant quantities of hazardous materials, but appear to be abandoned by their former operators.
- **Low** – Property which uses or stores hazardous materials but with no significant violations, known releases, or evidence of inadequate chemical handling practices. Example properties would be UST or dry cleaning facilities with no documented releases or where remediation of previous releases had been completed.

As presented in this report, Ninyo & Moore has been retained to conduct an HMA, which will be incorporated into the IS within the project area outlined on Figure 1 to identify areas of the project where unauthorized releases of hazardous materials have occurred. The scope of this HMA included, but was not limited to, the following tasks:

- Conduct site visits to visually evaluate site characteristics for possible contaminated surface soil or surface water, improperly stored hazardous materials, possible sources of polychlorinated biphenyls (PCBs), and possible indications of site contamination from activities at the proposed site.
- Conduct site vicinity reconnaissance events to evaluate characteristics of adjacent properties for possible environmental influences on the site. Properties within and adjoining the site were visually evaluated from public rights-of-way only.
- Review available environmental reports for the site and for properties located within approximately  $\frac{1}{8}$  mile of the site, if provided by the client.



- Review a computerized database search of readily available government and regulatory agency environmental lists for the site and for properties located within approximately one-eighth mile of the site. The objective of the database search was to evaluate locations where hazardous materials may have been used or stored and their possible effects on the site. On-site listings of possible concern were further evaluated by requesting and reviewing readily available on-line environmental documents for the site from regulatory agencies. Locations of properties of concern are shown on maps of the site vicinity.
- Review of State of California, Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) oil-field maps and review information, if any, provided by the California State Fire Marshal regarding oil and natural gas pipelines in the site vicinity.
- Review of the City of Los Angeles methane zone and methane buffer zone maps.
- Review historical land use of the site and site vicinity to provide an overview of past uses that likely involved the use or storage of hazardous materials. Information used to review the site history included, but was not necessarily limited to, readily available historical aerial photographs, Sanborn Fire Insurance Rate Maps, and historic United States Geological Survey Topographic Maps. Ninyo & Moore attempted to note historical site uses involving the use or storage of hazardous materials from the time when the site was undeveloped or agricultural.
- Prepare this stand-alone HMA report.

## **1.2. Limitations**

This HMA has been prepared for use by Ricondo. The information presented in this report is based on the project scope of the HMA (Section 1.1). Ninyo & Moore has relied on information provided by others in our description of historical conditions and our review of regulatory databases and files. However, Ninyo & Moore makes no warranties or guarantees regarding the accuracy or completeness of the information provided or compiled by others. Ninyo & Moore observed the exterior of the properties during the site reconnaissance. Ninyo & Moore did not conduct interviews with individual tenants within the area of the site or site vicinity.

No HMA can completely eliminate uncertainty regarding the potential for hazardous materials conditions in connection with a property. Performance of this HMA is intended to



reduce, but not eliminate, uncertainty regarding the presence of hazardous materials conditions. The available data do not provide definitive information relative to past uses, operations, or incidents at the project or adjacent properties. The existence of contamination within the project area that was not identified during this HMA is possible and cannot be adequately assessed without additional research beyond the stated scope of the HMA. Further evaluation of these types of risks could include subsurface exploration, sampling, and/or other forms of testing.

In addition, some substances may be present within the project area or in the vicinity in quantities below those categorized as actionable by current environmental regulations. Ninyo & Moore cannot be responsible if regulatory standards are changed in the future in a manner that renders the current proposed Project conditions actionable.

## **2. SITE DESCRIPTION/SETTING**

The following sections provide a description of the land uses at the project site. Due to the size of the project, this report discusses the site in four geographic areas, Areas A, B, C, and D as discussed in the following sections (Figures 2 through 6).

### **2.1. Overview**

The project area consists of approximately 2,000 acres in Los Angeles, California. The project area is bounded by Tom Bradley International Terminal in the CTA on the west; LAX property, West Century Boulevard, West 106<sup>th</sup> Street, and I-105 on the south; Ocean Gate Avenue, South Ash Avenue, and I-405 on the east; and Westchester Parkway/West Arbor Vitae Street and Interceptor Street on the north. The project extends across LAX property, Los Angeles Metro facilities, private property, and various roadways. Current land uses in these areas include parking garages, surface parking lots, rental car facilities, hotels, Los Angeles County Metro facilities, residential areas, manufacturing facilities, and various roadways. The site vicinity is highly developed and urbanized with passenger terminals, hotels, office buildings, parking lots, rental car facilities, light industrial facilities, highways, and former residential areas.



## **2.2. Area A**

Area A is bounded to the north by LAX property and Westchester Parkway; to the east by Jenny Avenue and Avion Drive; to the south by LAX property and West Century Boulevard; and to the west by Tom Bradley International Terminal in the CTA (Figure 3).

## **2.3. Area B**

Area B is bounded to the north by Interceptor Street and West Arbor Vitae Street; to the east by Aviation Boulevard; to the south by West Century Boulevard; and to the west by Jenny Avenue and Avion Drive (Figure 4).

## **2.4. Area C**

Area C is bounded to the north by West Arbor Vitae Street; to the east by I-405, South Ash Avenue, and Ocean Gate Avenue; to the south by West 106<sup>th</sup> Street and West Century Boulevard; and to the west by Aviation Boulevard (Figure 5).

## **2.5. Area D**

Area D is bounded to the north by West 111<sup>th</sup> Street; to the east by various commercial facilities, and ProLogis distribution center; to the south by Imperial Highway; and to the west by Aviation Boulevard (Figure 6).

# **3. AREA GEOLOGY AND HYDROGEOLOGY**

The project site is located approximately 2 miles east of the Pacific Coast, within the Los Angeles Basin, which is bounded on the north by the Transverse Ranges geomorphic province. The Los Angeles Basin has been divided into four blocks, which are generally separated by prominent fault systems: the northwestern block, the southwestern block, the central block, and the northeastern block. The project area is located within the southwestern block, which is bounded on the east by the onshore segment of the Newport-Inglewood fault zone. The southwestern block includes anticlinal and synclinal structural features within the basement rocks that are overlain by younger sedimentary rocks and alluvium. The Los Angeles Basin is traversed by several major active faults. The Palos Verdes and Newport-Inglewood fault zones



are major active faults within the southwestern block of the Los Angeles Basin (Norris and Webb, 1990).

According to the Geologic map of the Venice and Inglewood Quadrangles, Los Angeles County, the site is generally underlain by alluvial soils consisting of gravel, sand, silt, and clay (Dibblee and Minch, 2007). A previous site investigation by Hatch Mott MacDonald in 2012 reportedly encountered: "...stiff to hard sandy lean clay to lean clay in the upper 10 to 20 feet. Approximately 20 feet of medium dense to very dense silty sand to poorly graded sand with silt underlies the upper clay unit. Underlying this to maximum depths explored are stiff to hard high plasticity fat clays interbedded with very stiff to hard low plasticity lean clays and silts".

Due to the size of the site, Ninyo & Moore reviewed reports on several facilities for an overall view of groundwater in the site vicinity. Groundwater data was collected from the following facilities:

- Former Honeywell Sepulveda Site at 9851 Sepulveda Boulevard, in the western portion of Area A (intersection of Sepulveda Boulevard and West Century Boulevard). Groundwater was measured in July 2014 and January 2015 at depths from 89.1 to 98.9 feet below ground surface (bgs), with groundwater flow generally to the east. Five perched water-bearing zones were also present on the facility at depths ranging from 40.2 to 97.8 feet bgs (Amec Foster Wheeler, 2015).
- Budget Car Rental of Southern California at 9775 Airport Boulevard, in the southern portion of Area B (intersection of Airport Boulevard and West 98<sup>th</sup> Street). Groundwater was measured in October 2014 at depths from 89.1 to 92.1 feet bgs, with groundwater flow generally to the south (L. Joseph Associates, LLC [LJA], 2015).
- Former National Car Rental System Facility at 9419 Airport Boulevard, in the western portion of Area B (intersection of Airport Boulevard and West 96<sup>th</sup> Street). Groundwater was measured in April 2009 at depths from 91.8 to 92.7 feet bgs, with groundwater flow generally to the east-southeast (Groundwater and Environmental Services, 2009).
- Former King Delivery, Inc. at 5600 West Arbor Vitae Street, in the northern portion of Area B (intersection of West Arbor Vitae Street and Portal Avenue). Groundwater was measured in December 2014 at depths from 91.2 to 94.4 feet bgs, with groundwater flow generally to the east (Arden Environmental Group, Inc., 2015).



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- Former Honeywell Aviation Site at 9225 Aviation Boulevard, in the northeast portion of Area B (intersection of West Arbor Vitae Street and Portal Avenue). Groundwater was measured in June 2014 at depths from 88.5 to 93.4 feet bgs, with groundwater flow generally to the southeast. A perched water zone was also present at the facility at depths from 58.5 to 61.2 feet bgs (AMEC, 2014).
  - Tesoro Station 97610-0003 (Former ARCO Station No. 0003) at 5201 West Century Boulevard, in the southeast portion of Area C (intersection of South La Cienega Boulevard and West Century Boulevard). Groundwater was measured in February 2015 at depths from 53.4 to 55.5 feet bgs, with groundwater flow generally to the north-northeast (Stantec Consulting Services, Inc., 2015).
  - Former Chevron Service Station No. 97795 at 5201 West Imperial Highway, approximately 0.27 mile east of the site. Groundwater was measured in April 2015 at depths ranging from 48.1 to 52.7 feet bgs, with groundwater flow generally to the northeast (AECOM, 2015).

Based on this information, groundwater in the site vicinity is estimated to range from approximately 40 to 99 feet bgs and is expected to be variable with directions to the east, south-southeast, northeast, and north-northeast.

#### **4. REVIEW OF HISTORICAL INFORMATION**

The following sections summarize the results of our review of historical sources including Sanborn Fire Insurance Rate maps, aerial photographs, topographic maps, and oil and gas maps, as provided by Environmental Data Resources, Inc. (EDR).

##### **4.1. Sanborn Fire Insurance Rate Maps**

Sanborn<sup>®</sup> Fire Insurance map coverage was available for the site vicinity for years of 1950 and 1969. A summary of information for the site and surrounding area in the Sanborn maps is discussed in the tables below and provided in Appendix A.



**Table 1 – Summary of Sanborn Fire Insurance Rate Maps – Area A**

Year	Property	Description
1950	General/Site	The site vicinity is characterized by industrial properties and an Aircraft School. Industrial properties include, a factory building, an aircraft parts manufacturer, a die casting shop, and a laboratory. Sepulveda Boulevard and West Century Boulevard are in their current configurations. Multiple dwellings are depicted on the west portion of Area A.
	North	Multiple dwellings and commercial structures are depicted north of the site including two gas and oil facilities. Sepulveda Boulevard, Sepulveda Eastway, Sepulveda Westway, and Pacific Coast Highway (Lincoln Boulevard) are in their current configuration.
	South	LAX.
	East	Area B.
	West	LAX.
1969	General/Site	Multiple dwellings are depicted on the north and west portions of Area A. The remainder of Area A is depicted with commercial and industrial properties including multiple private filling stations, a factory building, machine shops, parts storage, a hotel, a garage, a tech-college, a gas and oil station, and two auto repair stations. West 98 <sup>th</sup> Street, West Century Boulevard, and West 96 <sup>th</sup> Street are in their current configurations.
	North	Similar to the 1950 map.
	South	LAX.
	East	Area B.
	West	LAX.

**Table 2 – Summary of Sanborn Fire Insurance Rate Maps – Area B**

Year	Property	Description
1950	General/Site	The site vicinity is characterized by vacant lots and scattered industrial properties including two factories, a machine shop, a chrome furniture manufacturer, a sheet metal shop, multiple aircraft parts manufacturers. West 96 <sup>th</sup> Street, West Century Boulevard, and Bellanca Avenue are depicted in their current configurations.
	North	Not provided.
	South	Delta Airlines hangars and repair facilities. Century Boulevard, Avion Drive, and Airport Boulevard are depicted in their current configurations.
	East	Area C.
	West	Area A.
1969	General/Site	The site is characterized by residential, commercial, and industrial development, including a machine shop, aircraft parts manufacturing, a garage, a factory, a cosmetics lab, multiple hotels, and a private filling station. West 98 <sup>th</sup> Street and Aviation Boulevard are in their current configurations.
	North	Multiple dwellings, a Junior High School, commercial properties, a Frito Lay factory, and an electronics manufacturer. Portal Avenue, Ramsgate Avenue, Reading Avenue, Interceptor Street, and Morley Street are depicted in their current configurations.
	South	Delta Airlines hangar, aircraft maintenance, and associated facilities are depicted south of the site along with airport runways. One gasoline tank was depicted approximately 1,000 feet south of the site.
	East	Area C.
	West	Area A.



**Table 3 – Summary of Sanborn Fire Insurance Rate Maps – Area C**

Year	Property	Description
1950	General/Site	Not provided.
	North	Not provided.
	South	Not provided.
	East	Not provided.
	West	Not provided.
1969	General/Site	Not provided.
	North	Not provided.
	South	Multiple industrial properties including, aircraft parts manufacturing facilities, paint shops, electronic assemblies, processing plants, sheet metal shops, and machine shops. A filling station was depicted adjacent to the south of the site. West Century Boulevard, West 102 <sup>nd</sup> Street, and Glasgow Place are in their current configurations and railroad spurs are depicted approximately 800 feet south of the site.
	East	Not provided.
	West	Area B.

**Table 4 – Summary of Sanborn Fire Insurance Rate Maps – Area D**

Year	Property	Description
1950	General/Site	The site is characterized by industrial properties. The majority of land was owned by North American Aviation, Inc., which used the land as a parking lot.
	North	The northern side of the site was used as an auto repair shop, a storage yard, a recycling area, and a missile fuel test area. A 10,000 gallon gasoline UST is shown in a driveway near the storage yard. W. 111 <sup>th</sup> Street is in its current configuration
	South	The southern side of the site was used as a metal and construction material storage area.
	East	Not provided.
	West	Aviation Blvd. is depicted in its current configuration, but was formerly named Inglewood-Redondo Road.
1969	General/Site	The site is characterized by industrial properties. The majority of land was owned by North American Aviation, Inc., which used the land as a parking lot. Multiple fuel tanks, including a 10,000 gallon gasoline UST are shown.
	North	The northern side of the site was used as an auto repair shop, a storage yard, and a recycling area. A 10,000 gallon gasoline UST is shown in a driveway near the storage yard. 111 <sup>th</sup> Street is in its current configuration
	South	Not provided
	East	Not provided.
	West	Aviation Blvd. is depicted with its current configuration and name

The review of the Sanborn Fire Insurance Rate Maps did not reveal specific areas of concern, except for Area D. The former use of the northeastern section of Area D as a missile fuel testing area, the northwestern section as an auto repair and storage facility, and the presence of a 10,000-gallon gasoline UST represent potential environmental concerns (PECs) for the site.



#### 4.2. Aerial Photograph Review

Aerial photographs have been collected in some areas for the continental United States since the 1920s, with variable coverage and frequency (generally based on an area's importance to national defense). Aerial photographs offer an opportunity for direct observation of the site's conditions across a period of time. These observations may include the locations of tank pits, drums, pits, ponds, lagoons, stained/stressed vegetation, or other development features that can indicate potential contaminant sources.

**Table 5 – Historical Aerial Photo Review (Areas A, B, C, and D)**

Photograph Year	Area A	Area B	Area C	Area D
1923	Not provided			The site appears as vacant land and the vicinity is partially developed with agricultural and residential properties. Aviation Blvd and Imperial Highway appear in the current configurations
1928	The site appears as vacant land and the vicinity is partially developed with agricultural and residential properties.			The site appears similar to that observed in the 1923 aerial photograph
1938	The site appears similar to that observed in the 1928 aerial photograph.			
1947	The northeast corner of the site appears developed with residential and industrial properties. The remainder of the site appears vacant with the exception of multiple paved and unpaved roads. The vicinity appears vacant with the exception of the airport runway to the southwest.	The site appears partially developed with industrial structures. The remainder appears as vacant land. Century Boulevard is located at the south portion of the site. The vicinity appears developed with airport runways and associated structures, vacant land, and residential properties.	The site appears vacant and the vicinity is developed with airport runways and facilities and associated structures, residential properties, and vacant land. An unpaved road is located at the southern boundary of the site.	The site appears freshly developed with parking lots and some scattered industrial areas in the northern and southern sections of the property. W. 111 <sup>th</sup> Street appears in its current configuration. To the east, baseball fields appear. To the northwest, the LAX airfield appears. To the south, residential properties appear.
1952	The site appears similar to the 1947 photograph	The site appears similar to the 1947 photograph	The northern portion of the site appears developed with residential properties and the southern portion appears developed with industrial properties. The vicinity is heavily developed with residential and industrial properties, along with airport facilities and runways.	The site appears more populated with cars and buildings. The industrial areas in the north and south are more defined.



**Table 5 – Historical Aerial Photo Review (Areas A, B, C, and D)**

Photograph Year	Area A	Area B	Area C	Area D
1963	Not Provided			More industrial properties appear to the east of the site
1965	The site appears developed with airport facilities and industrial and residential properties. Pavement staining is noted adjacent to the north and south around the airport hangars at the western portion of the site. Sepulveda Boulevard is located in the central portion of the site.	The site appears developed with airport facilities and industrial and residential properties. Present day roads appear to be in their current configuration. The vicinity is heavily developed with airport facilities and residential and industrial properties.	The site appears similar to the 1952 photograph. Present day roads appear to be in their current configurations including I-405 adjacent to the east.	Not provided
1968	The site appears similar to the 1965 photograph.	The site appears similar to the 1965 photograph.	The site appears similar to the 1965 photograph.	Not provided
1972	Not Provided			More industrial properties appear to the north of the site
1976	The site appears similar to that observed in the 1968 aerial photograph, with the exception of the residential properties in the north portion of the site. These properties are no longer residential and the area appears to be a large parking lot. Present day roads appear to be in their current configuration.	The site appears similar to that observed in the 1968 aerial photograph, with the exception of the residential and industrial properties in the north portion of the site. These properties are no longer residential and the area appears to be a large parking lot.	Similar to the 1968 photograph.	Not provided
1977, 1981	Not provided			The site appears similar to the 1972 photograph
1989	The site appears to be in a similar configuration to the present.	The site appears to be in a similar configuration to the present.	The site appears to be in a similar configuration to the present.	The site appears as a dirt lot. To the south, the I-105 Freeway appears under construction.
1994	Not provided			The site appears similar to the 1989 photograph
2002	Not provided			Industrial properties replace athletic fields directly east of the property
2005	The site appears to be in a similar configuration to the present.	The site appears to be in a similar configuration to the present.	The site appears to be in a similar configuration to the present.	The site appears to be in a similar configuration to the present.
2009	Not provided			
2010 2012	The site appears to be in a similar configuration to the present.	The site appears to be in a similar configuration to the present.	The site appears to be in a similar configuration to the present.	



Aerial photographs of the site were provided by EDR. For this study, Ninyo & Moore reviewed aerial photographs taken in 1923, 1928, 1938, 1947, 1952, 1963, 1965, 1968, 1972, 1976, 1977, 1981, 1989, 1994, 2002, 2005, 2009, 2010, and 2012. The photographs reviewed varied in scale and clarity, and were taken from various altitudes. A copy of The EDR Aerial Photo Decade Package is provided in Appendix A.

The aerial photograph review served to verify information gained from other sources, and in some cases, served as the primary source of information. Information gathered from aerial photographs is summarized in Table 5. Since the proposed project includes a large area, the table includes limited data in the interest of brevity. The data is limited primarily to areas of potential concern as revealed by regulatory data or our site reconnaissance. Historical features of potential environmental concern noted which were not revealed by other sources are also described in the table below.

Based upon the aerial photographs, surface staining was noted on pavement at LAX terminals adjacent to the north and south of Area A from at least 1965 through 1989. Areas A, B, C, and D appeared to be heavily developed with industrial properties. Industrial use is considered a PEC.

### **4.3. Topographic Maps**

Ninyo & Moore obtained historical topographic maps from EDR, for the years 1896, 1901, 1924, 1930, 1948, 1950, 1964, 1964 photorevised, 1972, and 1964 photorevised 1981. USGS 7.5 Minute Series maps for Inglewood, Redondo, and Venice included the proposed project. A copy of the EDR Historical Topographic Map Report is provided in Appendix A. The following is a brief description of the proposed project based on review of the historical topographic maps.

#### **4.3.1. Area A**

The historical topographic map from 1896 shows undeveloped land in Area A.

The historical topographic map from 1901 does not show enough detail to determine the site use. The 1924 and 1930 historical topographic map shows undeveloped land in Area A.



The 1948 historical topographic map shows a few streets along with vacant land. The 1950 historical topographic map shows the airport expansion area and vacant land. The 1964 historical topographic map shows LAX completed with several large structures. The 1972 and 1981 historical topographic maps were similar to the 1964 map. Area A is generally flat and has an approximate elevation ranging from 103 to 126 feet above mean sea level (MSL), generally sloping to the southeast.

#### **4.3.2. Area B**

The historical topographic map from 1896 shows undeveloped land in Area B. The historical topographic map from 1901 does not show enough detail to determine the site use. The 1924 historical topographic map shows a railroad track running north and south through Area B. The 1930 historical topographic map shows the Mines Aviation Field and a few large structures. The 1948 historical topographic map shows a small circular structure in the northern portion of LAX, and Imperial Highway appears. The 1950 historical topographic map shows more streets, large structures, and oil tanks adjacent to LAX on the southeast side (adjacent to Area D). The 1964 historical topographic map shows additional streets and large structures. The 1972 and 1981 historical topographic maps were similar to the 1964 map. Area B is generally flat and has an approximate elevation ranging from 103 to 128 feet above MSL, generally sloping to the southeast.

#### **4.3.3. Area C**

The historical topographic map from 1896 shows vacant land in Area C. The historical topographic map from 1901 does not show enough detail to determine the site use. The 1924 and 1930 historical topographic maps show vacant land in Area C. The 1948 historical topographic map shows a few streets along with vacant land. The 1950 historical topographic map shows more streets and vacant land. The 1964 historical topographic map shows several streets and the 98<sup>th</sup> Street School. The 1972 and 1981 historical topographic maps were similar to the 1964 map. Area C is generally flat and



has an approximate elevation ranging from 88 to 103 feet above MSL, generally sloping to the southeast.

#### **4.3.4. Area D**

The historical topographic map from 1896 shows vacant land in Area D. The historical topographic map from 1901 does not show enough detail to determine the site use. The 1924, 1930, and 1948 historical topographic maps show vacant land in Area D. The 1950 historical topographic map shows a building at the northwest corner of Area D, and oil tanks adjacent and north of the site. The 1964 historical topographic map shows buildings at the northeast, northwest, and southwest corners of the property. The 1972 and 1981 historical topographic maps were similar to the 1964 map, except that no building appears in the south. Area D is generally flat and has an approximate elevation ranging from 85 to 95 feet above MSL, generally sloping to the southeast.

The review of historical topographic maps did not reveal specific areas of concern, except for Area D where oil tanks were present adjacent to the site in the 1950s, and beyond those noted or revealed in the database review (Section 5.0), aerial photographs (Section 4.1), interviews (Section 4.6), and site reconnaissance (Section 6.0).

#### **4.4. Oil and Gas Maps and Methane**

According to the DOGGR, Well Finder website (DOGGR, 2015), the site does not lie within the administrative boundaries of an oil field. The Hyperion oil field lies approximately 0.80 mile west-southwest of the site, and the Potrero oil field (abandoned) lies approximately 0.81 mile northeast of the site. One plugged and inactive oil well, Union Oil Company of California 1, lies within the site boundary of Area A, near the intersection of Avion Drive and West Century Boulevard. According to the Zone Information, and Map Access System (Zimas), the site is not located within a methane or methane buffer zone (Zimas, 2015).

#### **4.5. Previous Reports**

The following previous reports were provided to Ninyo & Moore by Los Angeles World Airports (LAWA) (Appendix B).



### Previous Reports

Date	Report	Site	Area	Author
12/21/1992	UTAHS Program Review of Subsurface Investigation Report and Remedial Action Plan for Ogden Aviation Services, 6221 W. 96th Street, LAX.	6221 W. 96th Street	A	CDM
02/18/1993	Letter - Facility at 9851 Sepulveda Boulevard, Los Angeles, CA- Review of Soil Assessment and Remediation	9851 Sepulveda Boulevard	A	RWQCB-LAR
11/06/1995	Report, Underground Tank Removal, Budget Rent a Car, 9775 Airport Boulevard, Los Angeles, California	9775 Airport Boulevard	B	MJA Consulting Inc.
04/25/1996	Memo: LAX - Lot C Possible Underground Contamination from Park One Property	Lot C	A	LAWA
06/26/1996	UST Case Closure, Federal Aviation Administration, LAX Air Traffic Control Tower, 1 World Way, Los Angeles, CA (ID #900450270).	1 World Way	A	RWQCB-LAR
07/29/1998	Phase II ESA Report, USPS Worldway Retail Unit, 9029 Airport Boulevard, Los Angeles, California 90045	9029 Airport Boulevard	B	Tetra Tech
12/21/1998	Letter: Releases of Contaminants Affecting LAX.	9775 Airport Boulevard	B	LAWA
02/11/1999	Phase I ESA Report, 9418 Belford Avenue, Los Angeles, California	9418 Belford Avenue	B	CDM
02/11/1999	UTAHS Program Findings of Environmental Database Search and Site History Review, 2050 West 84th Street, Los Angeles, California	2050 West 84th Street	N/A	CDM
02/19/1999	Memo: LAX - 2050 West 84th Street - Site Assessment Reports	2050 West 84th Street	N/A	LAWA
04/09/1999	Groundwater Monitoring Well Sampling and Gradient Assessment, First Quarter 1999, Budget Car Rental of Southern California, 9775 Airport Boulevard, Los Angeles, California	9775 Airport Boulevard	B	C. James & Associates
4/29/1999	Phase I ESA Report, Single Family Residences and Apartments- Manchester Square Area, Los Angeles, California	Manchester Square Area	C	Ninyo & Moore
04/30/1999	Phase I ESA 5860-5880 West 93rd Street & 9301-9401 Belford Avenue, Westchester, California	5860-5880 West 93rd Street & 9301-9401 Belford Avenue	B	CTL
01/03/2003	Fourth Quarter 2002 Groundwater Monitoring and Remediation System Evaluation Report, Budget Car Rental of Southern California, 9775 Airport Boulevard, Los Angeles, CA ID #900450125	9775 Airport Boulevard	B	C. James & Associates



### Previous Reports

Date	Report	Site	Area	Author
04/02/2007	Memo: LAX - Phase I Report Review - 9800 South Sepulveda Blvd., Los Angeles, California 90045.	9800 South Sepulveda Boulevard	A	LAWA
07/20/2010	Memo: LAX - Vacant Lot Located on the Northeast Corner of Jenny Ave. and Westchester Parkway - Environmental Site Evaluation	Northeast Corner of Jenny Avenue and Westchester Parkway	A	LAWA
08/16/2010	Dual Phase Extraction Interim Remedial Action Report, Budget Car Rental, 9775 Airport Boulevard	9775 Airport Boulevard	B	L. Joseph & Associates, LLC
11/17/2010	Memo: LAX - Demolition Service for Residential Structure - Transmittal of Asbestos, Lead, and Hazardous Materials Survey - 5842 West 95th Street, Los Angeles, CA, 90045.	5842 West 95th Street	B	LAWA
02/15/2011	Phase I ESA - Former Hertz Rent A Car Site- 9029 Airport Boulevard, Los Angeles International Airport, Los Angeles, California 90045	9029 Airport Boulevard	B	LAWA
03/10/2011	Approval for Soil Vapor Sampling and Intermittent Soil Vapor Extraction (SVE) Operation - Former Honeywell Sepulveda Site, 9851 South Sepulveda Boulevard, Los Angeles, California (SCP #0346, Site ID #1841000)	9851 South Sepulveda Boulevard	A	RWQCB-LAR
08/11/2011	Memo: LAX - Phase I ESA Review-Airport Century Inn (BFN1968), 5535 and 5547 West Century Boulevard, Los Angeles, California 90045	5535 and 5547 West Century Boulevard	C	LAWA
12/09/2011	Letter – UST Program - Directive to Take Corrective Action in Response to Unauthorized UST Release- Health and Safety Code Section 25296.10 and Title 23, Chapter 16, California Code of Regulations, Section 2720-2727. Budget Rent-A-Car (Priority D-1 Site), 9775 Airport Boulevard, Westchester (Case No. 900450125)	9775 Airport Boulevard	B	RWQCB-LAR
02/09/2012	Memo: LAX - Former Hertz Rent-A-Car Facility- Supplemental Site Characterization and Hazardous Materials Survey - 9029 Airport Boulevard, Los Angeles, CA 90045	9029 Airport Boulevard	B	LAWA
03/30/2012	Soil and Groundwater Investigation Report- Northwest Quadrant, Former Honeywell Sepulveda Site	9851 Sepulveda Boulevard	A	AMEC
09/28/2012	UST - Case Closure, Avis Rent A Car Facility, 9217 Airport Boulevard, Los Angeles (File No. 900450343)	9217 Airport Boulevard	B	RWQCB-LAR



### Previous Reports

Date	Report	Site	Area	Author
04/15/2014	2014 Annual Groundwater Monitoring Report, Former Honeywell Sepulveda Site, Los Angeles, California	9851 Sepulveda Boulevard	A	AMEC
10/14/2014	Memo: LAX- Phase I ESA Review-Burger King Restaurant (Lease LAA-6187A), 9601 Airport Boulevard, Los Angeles 90045	9601 Airport Boulevard	B	LAWA
03/30/2015	Letter: Work Plan for Aquifer Testing and Pilot Testing of Groundwater Treatment Technologies, Former Honeywell Sepulveda Site, 9851 Sepulveda Boulevard, Los Angeles, California, SLIC File No. 0346	9851 Sepulveda Boulevard	A	AMEC
Not Listed	Solid Resources Management Plan (17 Residential Properties)	Various	N/A	Unknown
Not Listed	Manchester Square and Belford Demolition Program = Phase II, Attachment "A"	Various	C	LAWA
<b>Notes:</b> CDM – Camp Dresser & McKee Inc. CTL – CTL Environmental Services ESA – Environmental Site Assessment LAX – Los Angeles International Airport RWQCB-LAR – Regional Water Quality Control Board, Los Angeles Region SLIC – Spills, Leaks, Investigations, and Cleanups Program USPS – United States Postal Service UST – Underground Storage Tank UTAH – Underground Tanks and Hazardous Substances				

The following sections summarize the contents of the reports which pertain to this HMA.

#### **4.5.1. Camp Dresser & McKee Inc. (CDM), 1992, Underground Tanks and Hazardous Substances (UTAHS) Program Review of Subsurface Investigation Report and Remedial Action Plan for Ogden Aviation Services, 6221 West 96th Street, Los Angeles International Airport (LAX), dated December 21.**

This report presents review comments by CDM regarding a subsurface investigation report and remedial action plan prepared by Toxguard Systems, Inc. (TSI) for the Ogden Aviation Services site at 6221 W. 96th Street, Los Angeles, California (Area A). The report includes the following items:

- Contaminated soils at this property were identified in June of 1992 during removal of three USTs at the site. To assess the extent of contamination, a site assessment was performed by TSI in August of 1992.



- Soil samples analyzed detected concentrations of total petroleum hydrocarbons (TPHs) in the gasoline and diesel ranges, and benzene, toluene, ethylbenzene, and xylenes (BTEX).
- Investigation results indicated that soil contamination extended to a maximum depth of 20 feet bgs and was generally confined to a localized area beneath the center of the former tank excavation. Based on review of the site investigation report, CDM felt that the subject site was adequately characterized and that further subsurface investigation was not required.

**4.5.2. Regional Water Quality Control Board, Los Angeles Region (RWQCB-LAR), 1993, Letter - Facility at 9851 Sepulveda Boulevard, Los Angeles, CA - Review of Soil Assessment and Remediation, dated February 18.**

This letter states the RWQCB-LAR has reviewed documents related to the former Honeywell Sepulveda site at 9851 Sepulveda Boulevard, Los Angeles, California (Area A). The letter includes the following:

- The documentation of the cleanup demonstrates that environmental contamination was identified during the site investigation has been adequately addressed, with the exception of the northwest quadrant (NWQ). Soil contamination in the NWQ is expected to be remediated as part of the groundwater cleanup.
- Upon review, documents revealed that the majority of fuels, oils, PCBs, and heavy metals were found in shallow soils at approximately 0 to 5 feet bgs. These contaminants were removed by excavation. The excavated soil was either hauled to a landfill or treated on-site. The primary contaminants found below 5 feet bgs were volatile organic compounds (VOCs). VOC-impacted soil was removed by soil vapor extraction (SVE), excavation and hauling, or treated by land farming and bioremediation techniques.

**4.5.3. MJA Consulting Inc., 1995, Report, Underground Tank Removal, Budget Rent a Car, 9775 Airport Boulevard, Los Angeles, California, dated November 6.**

This report presents the results of an environmental investigation performed by MJA Consulting, Inc. in conjunction with removal of six USTs at the Budget Rent a Car at 9775 Airport Boulevard, Los Angeles, California (Area B). The report includes the following items:



- The car rental yard is used for storing, fueling, washing, and maintaining a fleet of rental cars. The site consists of an asphalt/concrete parking lot, rental office building, wash area, fuel dispenser islands, and vehicle service area. Concentrations of TPH and BTEX were detected.
- In April 1995, a portion of the dispenser island was removed. Three of the existing five fuel dispensers were removed, and the piping was exposed. Soil samples were collected from beneath the exposed piping and from a nearby planter.
- In June 1995, four 12,000-gallon, single-walled, steel, USTs and two 50,000-gallon, single-walled, steel, USTs were removed from the site. Soil analyses of samples obtained from beneath the 12,000-gallon and 50,000-gallon tanks indicate elevated levels of TPH and BTEX. The petroleum hydrocarbon impacted soil excavated during the tank removal operations was backfilled into the excavation and covered with clean backfill.
- Soil samples were analyzed for TPH, BTEX, and total lead. Laboratory test results of the soil samples collected from the 12,000-gallon UST and 50,000 gallon UST excavations indicate TPH and BTEX were above allowable concentrations.

**4.5.4. LAWA, 1996, Memo: LAX - Lot C Possible Underground Contamination from Park One Property, dated April 25.**

This report presents a suggested procedure for evaluating whether prior activities, which resulted in soil contamination on the Park One 20-acre site (formerly Allied Signal) (Area A), have migrated easterly and possibly contaminated soil or groundwater under Lot C. The suggestions include establishing an inventory of pollutants formerly used at Allied, reviewing monitoring data from existing monitoring wells east of the Park, determining if contamination is originating off-site, and installing monitoring wells.

**4.5.5. RWQCB-LAR, 1996, UST Closure, Federal Aviation Administration, LAX Air Traffic Control Tower, 1 World Way, Los Angeles, California (ID #900450270), dated June 26.**

This letter states that site investigation and remedial action for USTs has been performed at the LAX Air Traffic Control Tower site located at 1 World Way, Los Angeles, California (Area A), and that no further action related to the UST release is required.



**4.5.6. Tetra Tech, 1998, Phase II ESA, United States Postal Service (USPS) Worldway Retail Unit, 9029 Airport Boulevard, Los Angeles, California 90045, dated July 29.**

This report presents the results of a Phase II ESA performed by Tetra Tech at 9029 Airport Boulevard, Los Angeles, California (Area B). The report includes the following items:

- According to a limited record search conducted by Environmental Management Bureau (EMB), this property was originally used for residential purposes. In the early 1970s, the residences were removed, and in the early 1980s, the property was redeveloped for use by rental car agencies. Hertz previously utilized the larger northern portion of the property as a car rental lot. A strip at the south end was used by several car rental agencies for vehicle storage. A portion of the Site was also utilized by LAX as a compressed natural gas/liquefied natural gas fueling area.
- Structures currently on the property include a main building, waiting shelters, remnant dispenser islands and car service areas, a generator shed, a guard booth, and three large carports. The Site is covered by asphalt, concrete, or dirt. Portions of the site and the property are used for vehicle parking.
- According to a previous site assessment report by Terra Vac (1995), USTs, dispensers, and associated piping were removed in December 1992. Soils excavated during the tank removal activities were returned to the excavation as backfill. The environmental site inspection conducted by EMB suggested that the soils at the former Tank Cluster “A” may be contaminated and, therefore, recommendations were made for further site investigation. According to EMB, this property is listed on the LUST Information System and the RWQCB’s list of LUST sites. Following these recommendations, the Los Angeles City Fire Department has requested supplemental subsurface investigation at former Tank Cluster “A”.
- Tetra Tech conducted drilling and sampling operations in July 1998. Selected samples were logged and submitted to the laboratory for chemical analysis.
- Laboratory analytical results indicate that minor concentrations of hydrocarbons exist in soils at the site near the surface and down to 20 feet bgs, most likely as a result of past fueling operations. The soil contamination appears to be limited to the area of former Tank Cluster “A”. Concentrations of contaminants decreased significantly down to 35 feet bgs.
- Total lead and other metal concentrations were found to be within normal ranges, and the occurrence of slightly elevated lead is common in high traffic areas (such as where the site is located) and can be attributed, in part, to past vehicle emissions.



**4.5.7. LAWA, 1998, Letter: Releases of Contaminants Affecting LAX, dated December 21.**

This letter conveys notice to Budget Rental Car that LAWA is aware of various contaminant releases from 9775 Airport Boulevard, Los Angeles, California (Area B). Contaminants mentioned in the letter include waste oil, fuel, and/or halogenated solvents which were suspected to have been released onto the soil and/or into groundwater.

**4.5.8. CDM, 1999, Phase I ESA Report, 9418 Belford Avenue, Los Angeles, California, dated February 11.**

This report presents the findings of a Phase I ESA performed by Ninyo & Moore under the direction of CDM for the 6-unit apartment building at 9418 Belford Avenue, Los Angeles, California (Area B). The report includes the following items:

- Based on the information provided in the EDR report and a review of documents on file at the Los Angeles Fire Department (LAFD), there are two off-site LUST facilities which may have had a negative environmental impact on the site. National Car Rental and Budget Rent-A-Car are located up-gradient from the subject property and have groundwater contamination. In addition, groundwater contamination was reported at Neutrogena Corporation, which adjoins the subject property to the east (down-gradient); although the RWQCB-LAR has closed their case for this facility.
- Fourteen samples of suspect friable asbestos-containing materials (ACMs) were collected from the site. Asbestos was not detected in these samples.
- Two paint samples were collected from the site. The samples contained less than 0.06 percent lead by weight.

**4.5.9. CDM, 1999, UTAHS Program, Findings of Environmental Database Search and Site History Review, 2050 West 84th Street, Los Angeles, California (site), CDM Project No. 2232-111.84th, dated February 11.**

This report presents the findings of an environmental database search and site history review by CDM regarding the site at 2050 West 84th Street, Los Angeles, California. The report includes the following items:



- This property consists of a 6,120 square-foot lot occupied by a one story, 1,458 square-foot single family dwelling with a 304 square-foot detached garage. The two bedroom residence was constructed in approximately 1950.
- CDM reports the following conclusions: (1) based on historical site usage as a residential dwelling, there is a low likelihood that the historical use of the site has had a negative impact to the subject property; and (2) based on the downgradient locations of the three off-site LUST facilities and the fact that each facility has a site assessment or remedial action underway, there is a low likelihood that these facilities have had a negative impact on the subject property.

The facility address of 2050 West 84<sup>th</sup> Street is approximately 3.1 miles east-northeast of the site.

**4.5.10. LAWA, 1999, Memo: LAX- 2050 West 84th Street – Site Assessment Reports, dated February 19.**

This report states that EMB staff has reviewed the Environmental Database Search and Site History Review dated February 11, 1999, and prepared by CDM, and conducted a walk through evaluation of the property and a border zone survey of the surrounding neighborhood. This report includes the following items:

- CDM's report demonstrated that the site and immediate surroundings have been in residential use for more than 60 years. No environmental hazards were identified.
- CDM's report identified USTs and LUSTs along Manchester Boulevard. Due to the USTs distance and the groundwater flow direction in the area, these USTs are not likely to have an impact on the referenced property.
- Lead-based paint (LBP) is likely present in underlying painted surfaces on site. Painted surfaces are generally in good condition. Asbestos was identified in transite furnace and heater vent pipes and may also be present in heater insulation and vinyl flooring. Asbestos is sometimes found in other construction materials such as drywall mud. These materials are generally in good condition.



**4.5.11. C. James & Associates, 1999, Groundwater-Monitoring Well Sampling and Gradient Assessment, First Quarter 1999, Budget Car Rental of Southern California, 9775 Airport Boulevard, Los Angeles, California, dated April 9.**

This report presents the results of the First Quarter 1999 Groundwater-Monitoring Well Sampling and Gradient Assessment Activities performed by C. James & Associates at the Budget Car Rental of Southern California site at 9775 Airport Boulevard, Los Angeles, California (Area B). The report includes the following items:

- Jirsa Environmental Services (JIRSA) conducted an environmental investigation at the subject site in 1988 in conjunction with the removal of a 4,000-gallon diesel UST. Based on the results of the soil analyses, the LAFD granted site closure following the removal of the 4,000-gallon UST.
- JIRSA conducted an environmental investigation in 1989 near the refueling facility to assess the integrity of 10 existing USTs. The 10 existing tanks have subsequently been removed. Elevated levels of petroleum hydrocarbons were detected in deeper borings.
- In 1989, previous consultants CH2M Hill investigation detected petroleum hydrocarbons, with high concentrations in the 45 to 60-foot depth interval. Groundwater samples contained elevated levels of BTEX.
- In 1990, Groundwater Technology drilled three soil borings in the vicinity of the UST locations. Elevated levels of petroleum hydrocarbons were detected at various depths in the borings.
- In 1990, Budget Rent-a-Car contracted Markham Equipment Company to remove four USTs. Soil samples collected at the time of the tank removal indicated the presence of elevated levels of petroleum hydrocarbons between 20 and 30 feet bgs.
- In 1991, four soil borings were drilled in the vicinity of four 12,000-gallon USTs. Total recoverable petroleum hydrocarbons, jet fuels, and gasoline were detected in the upper 65 feet. Aviation fuel was detected in groundwater samples.
- In 1995, four new USTs were installed southeast of the car wash facility. CET also installed new product piping and dispensers at this time. In addition, four 12,000-gallon USTs, and two 50,000 gallon USTs located north of the dispenser islands were removed in 1995.
- In 1999, C. James & Associates conducted groundwater monitoring activities, which detected TPH as gasoline (TPHg), benzene, and methyl tertiary butyl ether



(MTBE). Free product was observed in some of the monitoring wells. Approximately 15,881 gallons of free product had been removed at the site.

**4.5.12. Ninyo & Moore, 1999, Phase I ESA Report, Single Family Residences and Apartments- Manchester Square Area, Los Angeles, California, dated April 29.**

This report presents the results of a Phase I ESA performed by Ninyo & Moore at the single family residences and apartments in the Manchester Square Area in Los Angeles, California (Area C). The Phase I ESA discovered the following:

- The property is comprised of 519 residential properties, and covers approximately 123 acres of land, north of LAX.
- The property was undeveloped prior to the construction current improvements in the late 1940s and early 1950s.
- Based on a visual inspection and dates of construction, it is likely that some on-site buildings contain ACM, and or LBP.

Based on the findings, Ninyo & Moore recommended a comprehensive asbestos and LBP survey prior or demolition or renovation activities, and additional file review of off-site sources, if required.

**4.5.13. CTL Environmental Services (CTL), 1999, Phase I ESA, 5860-5880 West 93rd Street & 9301-9401 Belford Avenue, Westchester, California, dated April 30.**

This report presents the findings of a Phase I ESA performed by CTL Environmental Services for the properties at 5860-5880 West 93<sup>rd</sup> Street and 9301-9401 Belford Avenue, Westchester, California (Area B). The report includes the following items:

- The property is occupied by the Westchester Plaza Apartments, a ten-building apartment complex with five covered carports. Historical review indicates that the site was undeveloped until approximately 1952, when the structures were constructed.
- CTL's site inspection revealed small quantities of paints, spray oils, roof patch, and roof cement in the maintenance room. These materials are used by the resident maintenance man for minor apartment repairs. Evidence of the release of these materials was not observed by CTL.



- Historical usage of hazardous materials, including aboveground and USTs was not found through any agency contacted by CTL. There are several off-site facilities at which hazardous materials are present or had been released. Based on the status and/or distance of these facilities, they are unlikely to impact this property.
- Based on CTL's investigation, this assessment revealed no evidence of RECs in connection with this property.

**4.5.14. CTL, 1999, Phase I ESA, 9410-9440 Airport Boulevard, Westchester, California, dated April 30.**

This report presents the findings of a Phase I ESA performed by CTL Environmental Services for the for the property at 9410-9440 Airport Boulevard, Westchester, California (Area B). The report includes the following items:

- This property is occupied by the Airport Boulevard Apartments, a four-building apartment complex. Open asphalt parking areas flank the east and north sides of the property. Historical review indicates that the property was undeveloped until 1951/1952, when the existing site structures were constructed.
- CTL's inspection revealed small quantities of paints and spray oils in the maintenance room. These materials are used by the resident managers for minor apartment repairs. Evidence of the release of any materials was not observed by CTL.
- Historical usage of hazardous materials, including aboveground and underground tanks was not found through any agency contacted by CTL. There are several off-site facilities at which hazardous materials are present or had been released. Based on the status and/or distance of these facilities, they are unlikely to impact the site.

**4.5.15. C. James & Associates Inc., 2003, Fourth Quarter 2002 Groundwater Monitoring and Remediation System Evaluation Report, Budget Car Rental of Southern California, 9775 Airport Boulevard, Los Angeles, California ID #900450125, dated January 3.**

This report presents the results of Fourth Quarter 2002 Groundwater Monitoring and Remediation System Evaluation activities performed by C. James & Associates at the Budget Car Rental of Southern California site at 9775 Airport Boulevard, Los Angeles, California (Area B). The report includes the following items:



- Approximately 30,712 gallons of free product have been recovered to date at this property.
- TPHg was detected in groundwater samples collected from groundwater monitoring wells. Benzene was detected in groundwater samples collected from the groundwater monitoring wells, except for one. MTBE was detected in the groundwater samples collected from eight monitoring wells.
- Based on analytical reports total volatile petroleum hydrocarbons (TVPH), benzene, and MTBE were detected in soil vapor samples.

**4.5.16. LAWA, 2007, Memo: LAX - Phase I Report Review - 9800 South Sepulveda Boulevard, Los Angeles, California 90045, dated April 2.**

This report states Environmental Management Division (EMD) is transmitting the results of the Phase I ESA for the property at 9800 South Sepulveda Boulevard, Los Angeles, California (Area A). This report includes the following items:

- Groundwater was impacted with chlorinated solvents from a release at the Allied Signal property located across the street to the west of this property. This impacted groundwater has migrated beneath the 9800 South Sepulveda Boulevard property.
- It is possible that ACMs, LBPs, PCB containing fluorescent light ballasts and transformers, mercury-containing fluorescent light tubes and switches, and oil-containing equipment may be located on this property.

**4.5.17. LAWA, 2010, Memo: LAX- Vacant Lot Located on the Northeast Corner of Jenny Ave. and Westchester Parkway - Environmental Site Evaluation, dated July 20.**

This report presents the findings of a preliminary environmental site evaluation performed by Environmental Services Division (ESD) staff for the vacant lot on the northeast corner of Jenny Avenue and Westchester Parkway, Los Angeles, California (Area A). This report includes the following items:

- Most of this property is covered with overgrown vegetation on loose gravel surface, and the remnants of earlier asphalt paving. There were no significant environmental problems detected from the property's previous use as over flow parking. Several piles of wood chips and a large mound of construction/demolition concrete debris and sand were observed on the northeast end of the property.



- Previous environmental investigations on the former Hertz facility, an area of over 23 acres which included this vacant lot, found two clusters of petroleum hydrocarbon contamination from LUSTs from Hertz's former fuel dispensing facilities. The two fuel islands, one located on the current USPS leasehold and one on the current Hertz leasehold, were subjects of further investigation and remedial actions. Despite having the LUST case closed by the LAFD, which acted as lead regulatory agency, impacted soil and perched groundwater were still believed to be present beneath the former Hertz leasehold in the area of the two UST's clusters.

**4.5.18. L. Joseph & Associates, LLC, 2010, Dual Phase Extraction Interim Remedial Action Report, Budget Car Rental, 9775 Airport Boulevard, dated August 16.**

This report presents the results of the Dual Phase Extraction (DPE) Interim Remedial Action activities performed at the Budget Car Rental of Southern California site at 9775 Airport Boulevard, Los Angeles, California (Area B). The report includes the following items:

- This property contained several USTs and product dispensers for diesel and gasoline storage and delivery as part of normal business operations.
- Since 2006, the site has been under review for closure after several years of vapor extraction remediation, and low residual amounts of hydrocarbons remaining near the subsurface.

**4.5.19. LAWA, 2010, Memo: LAX - Demolition Service for Residential Structure - Transmittal of Asbestos, Lead, and Hazardous Materials Survey - 5842 West 95th Street, Los Angeles, California, 90045, dated November 17.**

This memo presents the results of a hazardous materials survey performed by Tetra Tech, Inc. for the presence of ACM, LBP, and other hazardous materials at the two-story, six-unit former apartment building at 5842 West 95th Street, Los Angeles, California (Area B). The memo includes the following items:

- Beige linoleum flooring in the bathrooms of two units and black roof penetration mastic were found to contain concentrations of asbestos greater than 1 percent and are considered to be ACM.
- Transite pipe flues inside the building are assumed to be ACM.



- Plaster walls and ceilings in the laundry room and all six of the apartment units were found to contain trace concentrations of asbestos (less than 1 percent) and are considered to be construction related ACMs.
- LBP was identified in ceramic tile counters, ceramic wall tile, and ceramic floor tile in each of the six apartment units.
- Areas of suspect mold growth were identified throughout the building, specifically on the wood electric meter box on the southeast corner of the building exterior. Additionally, several areas of water-stained and damaged plaster were found throughout the building.
- Staining was present on the flooring around the toilets of each apartment unit.

**4.5.20. LAWA, 2011, LAX - Phase I ESA - Former Hertz Rent A Car Site - 9029 Airport Boulevard, Los Angeles International Airport, Los Angeles, California 90045, dated February 15.**

This report presents the findings of a Phase I ESA performed by URS Corporation (URS) for the former Hertz Corporation Rent-A-Car facility (Hertz) at 9029 Airport Boulevard, Los Angeles, California (Area B). This report includes the following items:

- The 18.9086-acre property was undeveloped prior to construction of single-family residences from the mid-1940s to the mid-1970s. Hertz redeveloped the property during the early 1980s as a vehicle rental, storage, fueling, and maintenance facility. Development included vehicle fueling and maintenance facilities at the northwestern and southern portions of the property, a two-story office building in the central portion of the property, shade canopies in various areas of the property, and paved parking lots. Hertz operated the site until approximately 1995.
- Hertz demolished the maintenance facility that was previously located on a southern portion of this property adjacent to the intersection of Manchester Parkway and Airport Boulevard, removed the associated USTs, and remediated shallow soil contamination during the late 1990s.
- The northern maintenance facility formerly consisted of 16 service bays, four 20,000-gallon USTs, one 2,000-gallon waste oil UST, one three-stage clarifier and sump, hydraulic lifts, and car wash racks. Hertz removed the USTs in late 1992 and used soils impacted by low concentrations of hydrocarbons to backfill the tank excavations. The LAFD issued a "No Further Action" letter on December 2, 1998. The former UST case constitutes a HREC.



- Remaining features of the former northern maintenance facility include the clarifier, sump, and hydraulic auto lifts. The clarifier and sump contained liquid at the time of the Phase I ESA inspection. No record of soil sampling in the area of the hydraulic lifts is known.
- LAWA performed a hazardous materials survey of structures to be demolished or renovated. The survey found ACM, LBP, lead-containing paint (LCP), and other hazardous materials in components of the two-story office building. ACM, LBP, and LCP are present in the vehicle maintenance building and three of the canopy structures.

URS made the following recommendations:

- As a result of the UST case closure, the property can be used for continued parking of vehicles. Existing monitoring wells can be properly abandoned if use is discontinued.
- LAWA should remove the hydraulic lifts, clarifiers and sumps. Testing of the soil in the hydraulic lift and clarifier areas should be conducted to determine possible hydrocarbon impact.

**4.5.21. RWQCB-LAR, 2011, Approval for Soil Vapor Sampling and Intermittent SVE Operation - Former Honeywell Sepulveda Site, 9851 South Sepulveda Boulevard, Los Angeles, California (SCP #0346, Site ID #1841000), dated March 10.**

This letter states the RWQCB-LAR reviewed a 2011 Soil Vapor Sampling and Intermittent SVE System Operation Work plan prepared by MACTEC Engineering and Consulting, Inc. related to the former Honeywell Sepulveda property at 9851 Sepulveda Boulevard, Los Angeles, California (Area A). The letter includes the following:

- This property is a paved parking facility adjacent to LAX and owned by LAWA.
- Soil, perched water, and groundwater are impacted with halogenated VOCs and 1,4-dioxane beneath the property from former aerospace manufacturing operations.
- VOC impacted soil on this property has been subjected to two major SVE operations: Site-wide SVE and Northwest Quadrant (NWQSVE). Site-wide SVE occurred from 1990-1991 and removed approximately 100,000 pounds of VOCs. The NWQSVE system operated intermittently from 2000-2010 and has removed approximately 32,800 pounds of VOCs.



- On March 30, 2010, the NWQSVE was shut down due to asymptotic VOC removal trends. Prior to shutdown, Honeywell conducted soil vapor sampling at 21 locations from depths greater than 65 feet bgs. Honeywell recommended SVE system optimization to improve cost effectiveness of removal of residual VOCs.
- The NWQSVE system has remained shut down since March 30, 2010 pending approval of a February 15, 2008 Soil Boring Work Plan - Northwest Quadrant, which proposed soil borings and SVE wells in a suspected hot spot area that may help to optimize the system and focus remediation efforts.

**4.5.22. LAWA, 2011, Memo: LAX - Phase I ESA Review-Airport Century Inn (BFN-1968), 5535 and 5547 West Century Boulevard, Los Angeles, California 90045, dated August 11.**

This report presents the findings of a Phase I ESA review performed by LAWA ESD for the Denny's restaurant and the Travel Lodge motel at 5535 and 5547 West Century Boulevard, Los Angeles, California (Area C), respectively. This report includes the following items:

- The property is approximately 145,320 square feet, with a one-story 7,347 square-foot restaurant, a two-story 63,595 square-foot hotel, and asphalt-paved parking area.
- The property was undeveloped until construction of a restaurant in 1952. The Travel Lodge was constructed in 1953 and a used car lot existed for a period of time around 1955. The original restaurant was demolished and the present-day Denny's was constructed in the early 1980s. LAWA acquired the properties in August 2000.
- Coffey Environments (Coffey, formerly CTL Environmental Services [CTL]) conducted a Phase I ESA and a limited hazardous materials survey at the time of acquisition by LAWA. Coffey found ACM in areas of the hotel, including; the paint storage room, acoustical ceiling material of the guest rooms, floor tile of the linen closet in Building "E," the roof core and roof penetration mastic in Building E, and the roof penetration mastic in Building A. Additionally, LBP was found in the exterior door and window frames, joists, railings, and louvers of the hotel.
- In January 2010, the ESD personnel conducted an inspection. General cleaners, degreasers, and paints are present in each facility. Substances related to swimming pool maintenance such as chlorine, conditioners, and acids are stored appropriately at the hotel. ESD staff also observed unlabeled drums of waste cooking oil with no secondary containment outside the kitchen of the Denny's restaurant and thermal



surface insulation, which may contain asbestos is present at the outside of the Travel Lodge hotel.

**4.5.23. RWQCB-LAR, 2011, Letter - UST Program - Directive to Take Corrective Action in Response to Unauthorized UST Release- Health and Safety Code Section 25296.10 and Title 23, Chapter 16, California Code of Regulations, Section 2720-2727. Budget Rent-A-Car (Priority D-1 Site), 9775 Airport Boulevard, Westchester (Case No. 900450125), dated December 9.**

This letter informs Budget Car Rental of Southern California that it is required to take corrective action related to the site at 9775 Airport Boulevard, Westchester, California (Area B). The letter includes the following:

- According to the Monitoring Report prepared by LJA, the data from the most recent sampling event (March, 2011) indicated a maximum concentration of TPHg at 34,000 µg/L, benzene 6,600 µg/L, and MTBE 1,200 µg/L in the monitoring wells. Depth to groundwater was measured at approximately 88 feet bgs and groundwater flow direction was toward the east.
- Several remedial activities have been conducted at the site, including free product removal, SVE with air sparging and DPE. According to the Remediation Report, DPE activities were conducted on well MW-R between June and July, 2010. A total of 2,150 gallons of groundwater were extracted and 0.6 pounds of hydrocarbons were removed. Based on test results, LJA concluded that continued remediation efforts could not be justified and the site should be considered for closure.
- A letter from the RWQCB-LAR, dated April 1, 2010, indicated that low risk case closure could not be granted. The RWQCB-LAR required Budget Car Rental to submit a site characterization work plan to delineate the extent of the dissolved phase groundwater petroleum hydrocarbon plume downgradient from wells MW-T and MW-U.

**4.5.24. LAWA, 2012, Memo: LAX - Former Hertz Rent-A-Car Facility - Supplemental Site Characterization and Hazardous Materials Survey - 9029 Airport Boulevard, Los Angeles, CA 90045, dated February 9.**

This report presents the findings of a supplemental site characterization and hazardous materials survey performed by URS for the former Hertz Rent-A-Car facility at 9029 Airport Boulevard, Los Angeles, California (Area B). This report includes the following items:



- URS observed that three sumps were present in the former maintenance area. TPH and VOCs were not detected in the soil samples collected from the sump areas, with the exception of one minor m,p-xylene detection (4.1 micrograms per kilogram [ $\mu\text{g/kg}$ ]) in the Sump No. 3 sample.
- Low TPH concentrations were detected in two of the three stockpile samples; the maximum TPH concentration was 69 milligrams per kilogram (mg/kg). In addition, m,p-xylenes were detected in two of the three samples at a maximum concentration of 2.5  $\mu\text{g/kg}$ .
- Asbestos was detected at a concentration of less than 0.10 percent in one stockpile at 2.5 feet below the stockpile surface, which suggests that the construction debris within the stockpile may contain asbestos material within regulatory thresholds. ACMs, defined as containing greater than 1 percent asbestos (by particle count), were found in Shade Structures 2 and 3, the Office, and the Guard Booth.
- LBP, defined as containing greater than 5,000 parts per million (ppm) and LCP, defined as containing less than 5,000 ppm, were identified throughout the structures. Many of the interior and exterior paint surfaces are in loose and peeling condition.
- Other identified or potential hazardous materials include fluorescent lighting tubes and thermostats (mercury), high-intensity light fixtures (sodium, mercury, or other metals), lighting ballasts (PCBs), and heating, ventilating, and air conditioning equipment (chlorofluorocarbons). Bio-hazards such as mold and fungi, animals, and animal waste are present and are considered potential bio-hazards to workers.

#### **4.5.25. AMEC, 2012, Soil and Groundwater Investigation Report - Northwest Quadrant, dated March 30.**

This report presents the results of a Soil and Groundwater Investigation performed by AMEC at the former Honeywell Sepulveda property at 9851 Sepulveda Boulevard, Los Angeles, California (Area A). The investigation discovered items including the following:

- The property has been 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.”



- Numerous soil and groundwater investigations between 1989 and 2011 indicate impacts to soil and groundwater on and off-site. The principal chemicals of concern in soil and groundwater at this property are 1,1-dichloroethene (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), and 1,4-dioxane. SVE at this property is estimated to have removed more than 100,000 pounds of VOCs between 1990 and 2011. Soil closure has been obtained for all the portions of this property except the NWQ. On and off-site groundwater impacts with the same chemicals are present.
- Remediation work has been performed at this property, including excavations of impacted soil and removals of numerous USTs.

**4.5.26. RWQCB-LAR, 2012, UST Program - Case Closure, Avis Rent A Car Facility, 9217 Airport Boulevard, Los Angeles (File No. 900450343), dated September 28.**

This letter informs Avis Budget Car Rental, LLC of completion of a site investigation and corrective action for the USTs related to the site located at, 9217 Airport Boulevard, Los Angeles, California (Area B). The letter includes the following:

- The RWQCB-LAR finds that the site investigation and corrective action carried out at this property is in compliance with the requirements of subdivisions (a) and (b) of Section 25296.10 of the Health and Safety Code (HSC) and with corrective action regulations adopted pursuant to Section 25299.3 of the HSC.
- No further action related to the petroleum release(s) at this property is required.

**4.5.27. AMEC, 2014, 2014 Annual Groundwater Monitoring Report, Former Honeywell Sepulveda Site, Los Angeles, California, dated April 15.**

This report presents the results of the 2014 Annual Groundwater Monitoring activities performed by AMEC at the former Honeywell Sepulveda Site at 9851 Sepulveda Boulevard, Los Angeles, California (Area A). The investigation discovered items including the following:

- Soil, perched water, and groundwater at this property have been impacted with VOCs—primarily 1,1,1-TCA, trichloroethene (TCE), and 1,1-DCE, and semi-volatile organic compound, 1,4-dioxane.
- In addition, the following VOCs were detected at or above their respective reporting limits: 1,1,2-trichloroethane (1,1,2-TCA), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), 1,2,3-Trichloropropane (1,2,3-TCP), 1,3,5-



trimethylbenzene, 2-butanone, acetone, bromodichloromethane, carbon tetrachloride, cis-1,2-dichloroethylene (cis-1,2-DCE), and tetrachloroethene (PCE).

**4.5.28. LAWA, 2014, Memo: LAX- Phase I ESA Review-Burger King Restaurant (Lease LAA-6187A), 9601 Airport Boulevard, Los Angeles 90045, dated October 14.**

This report presents the results of an Environmental Site Review for the Burger King Restaurant (Burger King) facility at 9601 Airport Boulevard, Los Angeles, California (Area B). The report includes the following items:

- According to aerial photos and Property Information data provided by the Commercial Development Group, the restaurant was constructed in 1991 and Burger King has occupied the property since that time. The property and vicinity had previously been used for residential purposes.
- Hazardous substances on-site are limited to degreasers and cleansers. There are no fuel storage structures, clarifiers, or sumps on the property. One waste disposal unit is behind the kitchen, and one "dry" transformer (containing no PCBs) is in a landscaped area outside the building. Hydrocarbon staining is present in some parking areas. The storm water drain located near the 96th Street entrance appears to be clogged with a small accumulation of run-off.

**4.5.29. AMEC, 2015, Work Plan for Aquifer Testing and Pilot Testing of Groundwater Treatment Technologies, Former Honeywell Sepulveda Site, 9851 Sepulveda Boulevard, Los Angeles, California, Spills, Leaks, Investigations, and Cleanups Program (SLIC) File No. 0346, dated March 30.**

This report presents a Work Plan for Aquifer Testing and Pilot Testing of Groundwater Treatment Technologies at the former Honeywell Sepulveda Site at 9851 Sepulveda Boulevard, Los Angeles, California (Area A). The work plan includes the following:

- This property is a 20-acre paved commercial parking facility adjacent to LAX and is owned by LAWA.
- Soil, soil vapor, and groundwater at this property have been impacted with halogenated VOCs and 1,4-dioxane.
- A SVE system is being operated as an interim remedial measure (IRM) to mitigate VOC-impacted vadose zone soils and perched groundwater from approximately 65 to 100 feet bgs within the northwestern portion of this property. Impacted



groundwater has been delineated, and groundwater monitoring is conducted routinely.

- Previous and ongoing remedial efforts (e.g., the ongoing SVE program) have reduced impact on groundwater. To further reduce the potential for ongoing impact to off-site groundwater, an IRM along the eastern boundary is being considered. Aquifer testing and pilot testing of treatment technologies will aid in developing and refining an effective approach for IRM.

## 5. ENVIRONMENTAL DATABASE REVIEW

Ninyo & Moore obtained and reviewed the database search report for the proposed Project. EDR performed a computerized environmental information database search dated June 4, 2015. The EDR report included federal, state, and local databases. The following sections describe the databases that contain noted properties of environmental concern, and include a discussion of the regulatory status of the facilities and potential environmental impact to the subject site. The EDR Radius Map Report is provided in Appendix B. Based on hydrologic information summarized in Section 3, the depth to groundwater within the site vicinity ranges from approximately 40 to 99 feet bgs. The groundwater flows generally to the east, although it has been noted to flow north-northeast and south as well.

### 5.1. Area A

Table 6 summarizes the number of facilities listed in the environmental database search within the specified search radii for Area A.

**Table 6 – Environmental Database Search – Area A**

Database(s)	Description	Facilities Listed*
<b>Federal Databases</b>		
NPL	The NPL is the EPA's database of uncontrolled or abandoned hazardous waste facilities that have been listed for priority remedial actions under the Superfund Program. Updated quarterly.	0
CERCLIS/ NFRAP	The CERCLIS database is a compilation of facilities which the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances pursuant to the CERCLA of 1980. NFRAP refers to facilities that have been removed and archived from its inventory of CERCLA sites.	0
Institutional Control/Engineering Control	Superfund sites that have either an engineering or an institutional control. The data includes the control and the media contaminated.	0



**Table 6 – Environmental Database Search – Area A**

Database(s)	Description	Facilities Listed*
RCRA CORRACTS/ TSD	The EPA maintains a database of RCRA facilities associated with TSD of hazardous materials that are undergoing “corrective action.” A “Corrective action” order is issued when there has been a release of hazardous waste or constituents into the environment from a RCRA facility.	0
RCRA Non-CORRACTS/ TSD	The RCRA Non-CORRACTS/TSD Database is a compilation by the EPA of facilities that report storage, transportation, treatment, or disposal of hazardous waste. Unlike the RCRA CORRACTS/TSD database, the RCRA Non-CORRACTS/TSD database does not include RCRA facilities where corrective action is required.	0
RCRA Generators	The RCRA Generators database, maintained by the EPA, lists facilities that generate hazardous waste as part of their normal business practices. Generators are listed as large, small, or conditionally exempt. LQGs produce at least 1,000 kg/month of non-acutely hazardous waste or 1 kg/month of acutely hazardous waste. SQGs produce 100 to 1,000 kg/month of non-acutely hazardous waste. CESQGs are those that generate less than 100 kg/month of non-acutely hazardous waste.	10
ERNS	ERNS records and stores information on reported releases of oil and hazardous substances.	19
<b>State Databases</b>		
Cal Sites	The Cal Sites database is maintained by the Cal-EPA, DTSC. This database contains information on AWP, and both known and potentially contaminated properties. Two-thirds of these properties have been classified, based on available information, as needing NFA by the DTSC. The remaining properties are in various stages of review and remediation to determine if a problem exists.	0
EnviroStor	DTSC electronic database system with information about sites that are known to be contaminated with hazardous substances as well as information about sites that are known to be contaminated with hazardous substances as well as information on uncharacterized properties where further studies may reveal problems.	1
SLIC	The SLIC database is maintained by the RWQCB.	4
SWF/LF	The SWF/LF database consists of open and closed solid waste disposal facilities and transfer stations. The data comes from the IWMB’s SWIS database.	0
LUST	Databases of the LUST information system are maintained by the SWRCB and RWQCB.	7
UST/AST	The UST Information System and AST database are maintained by the SWRCB, which may include the owner and location of the USTs/ASTs.	11
VCP	The VCP database is a Cal-EPA listing of properties involved in the voluntary remediation program	0
Brownfields	This database is a DTSC tracking system of California Brownfields sites.	0
Indian Reservation	USGS map layer portrays Indian administered land within the United States with an area equal to or greater than 640 acres.	0
Indian LUST	This is a database maintained by the EPA of LUSTs on Indian land in Arizona, California, New Mexico, and Nevada.	0
Indian UST	This is a database maintained by the EPA of USTs on Indian land.	0
<b>Non-ASTM Databases</b>		
HAZNET	The HAZNET database contains facility and manifest data.	50+
Hist UST	The Hist UST database lists historical registered USTs.	15
CA FID USTs	The FID UST contains active and inactive UST locations and is maintained by the SWRCB.	22
SWEEPS USTs	This UST listing was updated and maintained by a company contracted by the SWRCB in the early 1990s. The listing is no longer updated or maintained.	23
CHMIRS	The CHMIRS contains information on hazardous materials reporting.	11
WMUDS/SWAT	The WMUDS/SWAT is used for program tracking and inventory of waste management units. The system is maintained by the SWRCB.	0



**Table 6 – Environmental Database Search – Area A**

Database(s)	Description	Facilities Listed*
Hist CORTESE	The Hist CORTESE database is designated by the SWRCB LUST, IWB SWF/LF, and the DTSC Cal Sites. This listing is no longer updated by the state agency.	0
CA Drycleaners	The CA Drycleaners is a list of drycleaner related facilities that have an EPA ID number.	0
EDR US Hist Auto Stat	The EDR US Hist Auto Stat database is a list of potential gasoline service stations available to EDR researchers.	5
EDR US Hist Cleaners	The EDR US Hist Cleaners database is a list of potential drycleaner sites available to EDR researchers	1
<b>Notes:</b> AST – Aboveground Storage Tank Auto stat – Auto Station AWP – Annual Work plan Properties CA – California CA FID – California Facility Inventory Database Cal-EPA – California Environmental Protection Agency CERCLA – Comprehensive Environmental Response, Compensation and Liability Act CERCLIS – Comprehensive Environmental Response, Compensation, and Liability Information System CESQG – Conditionally Exempt Small Quantity Generators CHMIRS – California Hazardous Materials Information Reporting System CORRACTS – Corrective Action Report CORTESE – “Cortese” Hazardous Waste & Substances Sites List DTSC – Department of Toxic Substances Control EDR – Environmental Data Resources, Inc. EPA – United States Environmental Protection Agency ERNS – Emergency Response Notification System HAZNET – Facility and Manifest Data His – historical IWMB – Integrated Waste Management Board kg – kilograms LQG – Large Quantity Generator LUST – Leaking Underground Storage Tanks NFA – No Further Action NFRAP – No Further Remedial Action Planned NPL – National Priorities List RCRA – Resource Conservation and the Recovery Act RWQCB – Regional Water Quality Control Board SLIC – Spills, Leaks, Investigations, and Cleanups Program SQG – Small Quantity Generators SWEEPS – Statewide Environmental Evaluation and Planning System SWF/LF – Solid Waste Facility/Landfill SWIS – Solid Waste Information System SWRCB – State Water Resources Control Board TSD – Treatment, Storage, and Disposal US – United States USGS – United States Geological Survey UST – Underground Storage Tank VCP – Voluntary Cleanup Program WMUDS/SWAT – Waste Management Unit Database System/Solid Waste Assessment Test *Some facilities have multiple listings under a single database.		

### 5.1.1. Federal Databases – Area A

Facilities within the project area were not listed on the National Priorities List (NPL), Comprehensive Environmental Response, Compensation, and Liability Information System/No Further Remedial Action Planned (CERCLIS/NFRAP), Institutional Control, Engineering Control, Resource Conservation and Recovery Act (RCRA)



Corrective Action Report/Treatment Storage and Disposal (CORRACTS/TSD), or the RCRA Non-CORRACTS/TSD databases.

Ten facilities within Area A were listed on the RCRA Generator database as large quantity generators (LQGs) or small quantity generators (SQGs). Inclusion on these lists is for permitting purposes and is not indicative of a release. Violations were not reported for these facilities and are not considered an environmental concern to the project.

The following 19 facilities under 20 listings were listed on the Emergency Response Notification System (ERNS) database within the searched distance:

Facility and Address	Date	Release	Remedial Action	Environmental Concern (Y/N)
Not reported 6221 W 96 <sup>th</sup> St	7/19/10	655 gal of raw sewage to storm drain from sewer pipe blockage	Catch basin cleaned, 555 gallons of sewage recovered	N
	12/21/01	5,792 gal of sewage to storm drain from sewer pipe blockage	Removed blockage, 4,706 gallons recovered	
Not reported 9851 Sepulveda Blvd	1/28/88	4 pounds mercury from manometers	Cleaned up with mercury vacuum	N
Not reported Area 10 Hanger/Delta LAX	5/26/87	4,000 gal of foam suppressant to storm drain from equipment failure	Flushed with water and cleaned up small quantity at storm drain	N
Not reported Gate 123 LAX Airport	2/26/93	30 gal jet fuel from refueling incident	LAX to clean up	N
Not reported LAX, Satellite-3, Gate 34	5/6/87	40 gal jet fuel from fuel gage malfunction	Absorbed and drummed, placed in on-site disposal tank	N
Not reported Runway 25 Right at LAX	9/18/91	60 gal sodium bisulfate from overflow	Cleanup by "CODOH"	N
Not reported Taxiway A2 Spot 6 LAX	11/26/99	150 gal jet fuel to storm drain from aircraft overflow	Absorbents used in area, no action taken in the storm drain	N
Not reported Gate 105 at LAX	12/11/98	1 gal hydraulic oil on ground from fallen box	Cleaned up with absorbents	N
Not reported LAX Airport, Gate 123	2/26/93	30 gal jet fuel to storm drain from 747 jet venting operation	Unknown	N
Not reported Federal Express LAX Hub	11/5/90	7 sealed source capsules; cesium	No contamination	N
Not reported Gate 119-LAX	10/16/93	20 gal jet fuel to storm drain from truck operator error	Airport maintenance crew to clean up	N
Not reported ICC Spot Ten LAX	10/30/99	20 gal jet fuel to pavement, unknown reason	Covered with sorbent materials	N
Not reported LAX Service Rd Post 2	10/27/90	Thallium 201 canister fell out on roadway	Contained, cleaned up by DuPont	N



Facility and Address	Date	Release	Remedial Action	Environmental Concern (Y/N)
Not reported Eastern Refueling Area at LAX	8/1/87	30 gal jet fuel to land from tank overflow	Cleaned up by responsible party	N
Not reported LAX Airport/Taxiway K32	4/30/87	1,000 gal jet fuel to storm drain from aircraft overflow	Extracted fuel from basin, cleaned up	N
Not reported One World Way	1/21/10	Unknown amount of jet fuel into storm drain	Not reported	N
Not reported 300 World Way	11/12/14	15 gal jet fuel to storm drain	Clean up underway	N
Not reported 800 World Way	6/25/14	200 gal jet fuel to subsurface containment pit from equipment failure	System repaired, vacuum truck used to clean spill	N
Not reported 700 World Way LAX Terminal 7	9/8/94	400 gal jet fuel to storm drain from broken pipeline during excavation	Cleaned up by LAX Fuel	N
<b>Notes:</b> CODOH – County Department of Health gal – gallons LAX – Los Angeles International Airport N – No N/A – Not Applicable Y – Yes				

Based on the location, quantities, and/or remedial action, the listings do not represent potential environmental concerns for the project.

#### 5.1.2. State Databases – Area A

Facilities within the proposed Project area were not listed on the Response (Cal Sites) database.

Facilities within Area A were not listed on the EnviroStor database. LAX Taxi lane D 10 Improvements Area at 1 World Way, adjacent to the north of the site, was listed on the database. According to the database, soil beneath the facility was potentially impacted with diesel. The facility received case closure in 1996. Based on the regulatory status and media affected, the facility is not considered an environmental concern.

The following four facilities under five listings were listed on the SLIC database within the searched distance for Area A:



Facility and Address	Distance/ Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Regulatory Status	Date of Last Action	Environ- mental Concern (Y/N)
<b>Honeywell International Inc. (Sepulveda) 9851 S Sepulveda Blvd</b>	<b>On-site</b>	<b>N/A</b>	<b>Open - Remediation</b>	<b>10/30/14</b>	<b>Y</b>
Hyatt LAX 6225 W Century Blvd.	On-site	N/A	Case Closed	8/17/99	N
LAWA Terminal Two Fuel Hydrant Facility 200 World Way	Adjacent to the north	Cross-gradient	Open – Site Assessment	9/28/12	N
Terminal 6 LAX 600 World Way	Adjacent to the south	Cross-gradient	Open - Inactive	10/27/14	N
<b>Notes:</b> Blvd. – Boulevard LAX – Los Angeles International Airport LAWA – Los Angeles World Airport N – No N/A – Not Applicable Y – Yes					

Honeywell International Inc. (Sepulveda) at 9851 South Sepulveda Boulevard was listed with petroleum hydrocarbons and halogenated VOCs such as TCE and PCE affecting groundwater and soil vapor. The facility (currently a parking area) was formerly used for aerospace manufacturing from 1941 to 1988 with 13 USTs containing petroleum products, waste oil, and spent solvents. Environmental investigations were conducted in the 1990s to determine the nature and extent of soil and groundwater contamination, including soil excavation, groundwater monitoring, and SVE. Most of the contamination was identified in the NWQ of the facility. A site-wide SVE system operated from 1990 to 1991 and removed approximately 100,000 pounds of VOCs. A SVE system operated intermittently in the NWQ from 2000 to 2010, removing approximately 32,800 pounds of VOCs. Currently, the SVE system is offline while soil vapor is periodically monitored and groundwater remediation methods are evaluated. According to the database, “groundwater characterization within the perched zones and Gage aquifer beneath the site is essentially complete,” but the lateral and vertical extent of VOCs and 1,4-dioxane in groundwater down-gradient of the facility has not been fully delineated. Based on this information, this facility is considered REC. Based on



the regulatory agency status and/or direction to Area A, the remaining facilities do not represent RECs or PECs for the site.

Facilities within the Area A were not listed on the Solid Waste Facility/Landfill (SWF/LF) database.

The following seven facilities under nine listings were listed on the LUST database within the searched distance:

Facility, Address	Distance/ Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Case Number	Regulatory Status	Closure Date (if applicable)	Environ- mental Concern (Y/N)
Avon Rent-A-Car 9220 Sepulveda Blvd.	0.07 mile northwest	Up to cross- gradient	T0603701032	Case Closed	12/12/88	N
<b>Allied-Signal Inc. (Park One) 9851 Sepulveda Blvd.</b>	<b>On-site</b>	<b>N/A</b>	<b>T0603701048</b>	<b>Remedial Action Underway</b>	<b>N/A</b>	<b>Y</b>
FAA LAX Control Tower/LAX Taxi lane D 10 Improvements Area 1 World Way	Adjacent to the north	Cross-gradient	T0603701050	Case Closed	6/26/96	N
Terminal #1 LAX 100 World Way	Adjacent to the north	Cross-gradient	T0603701075	Preliminary Site Assessment	N/A	N
LAX Terminal 2 200 World Way	Adjacent to the north	Cross-gradient	T0603701076	Case Closed	11/3/08	N
LAWA 380 World Way West	Adjacent to the west	Up-gradient	T10000000483	Case Closed	6/20/07	N
Terminal 6 LAX 600 World Way	Adjacent to the south	Cross-gradient	T0603701077	Open - Inactive	N/A	N
<b>Notes:</b> Blvd. – Boulevard FAA – Federal Aviation Administration LAX – Los Angeles International Airport LAWA – Los Angeles World Airport N – No N/A – Not Applicable Y – Yes						

Allied-Signal Inc. (Park One) at 9851 Sepulveda Boulevard had a LUST regulatory status of “Remedial Action Underway” and is therefore considered a REC to the project. This facility is further discussed in Section 5.1.3. Based on the regulatory status, distance, and/or direction, the remaining facilities do not represent RECS or PECs for the site.



Eleven facilities were listed on the UST database within the searched distance for Area A. The following seven facilities were listed within Area A:

- Allied Aviation Service Co at 6401 West 96<sup>th</sup> Street.
- LAX West Terminal Fuel Corp at 6320 West 96<sup>th</sup> Street.
- Airport College Center at 9700 South Sepulveda Boulevard.
- Hyatt Hotel LAX at 6225 West Century Boulevard.
- Carlberg LAX Center at 6171 West Century Boulevard.
- Sheraton Plaza La Reina Hotel at 6101 West Century Boulevard.
- United Airlines at 800 World Way.

Information in this database included a facility identification number, permitting agency, and latitude and longitude coordinates. None of the facilities on the UST database were listed on the LUST database. Therefore, these facilities would not be considered environmental concerns to the project.

Facilities within Area A were not listed on the AST database.

Facilities within Area A were not listed on the Voluntary Cleanup Program (VCP), Brownfields, Indian Reservation, Indian LUST, or Indian UST databases.

#### **5.1.3. Non-ASTM Databases – Area A**

Multiple facilities were listed on the HAZNET database. Based on the location, groundwater gradient with respect to the site, absence of listing on additional facilities, and/or quantities manifested, the listings do not represent potential environmental concerns for the project.

Fifteen facilities were listed on the Historic UST database within the distance searched for Area A. The following eight facilities were listed within Area A:

- Avis Rent A Car at 9217 Airport Boulevard – eight USTs ranging from 2,000 to 12,000 gallons, containing waste oil, gasoline, and diesel and installed in 1981



- National Car Sales at 9204 Airport Boulevard – two gasoline USTs (capacities not reported)
- Allied Aviation Service Co. at 6501 West 96<sup>th</sup> Street – three USTs ranging from 600 to 10,000 gallons, containing waste oil and gasoline
- Airport College Center at 9700 South Sepulveda Boulevard – two 6,000-gallon gasoline USTs, installed in 1980
- Thrifty Rent A Car Inc. at 6151 West 98<sup>th</sup> Street – one 10,000-gallon gasoline UST
- Honeywell International Inc. (Sepulveda) at 9851 South Sepulveda Boulevard – 12 USTs ranging from 280 to 5,000 gallons, containing waste oil, gasoline, and diesel
- Sheraton Plaza La Reina Hotel at 6101 West Century Boulevard – two 10,000-gallon gasoline USTs, installed in 1980
- LAX at 6141 West Century Boulevard – two 10,000-gallon gasoline USTs, installed in 1978

Information regarding releases or subsurface contamination was not provided. The facilities were not listed on the LUST database, and would not be considered an environmental concern to the proposed project.

Multiple facilities were listed in the CA FID UST database within the searched distance for Area A. According to the LUST database the following five facilities have cases related to LUSTs:

Facility and Address	Distance/ Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Status	Environ- mental Concern (Y/N)
Avon Rent-A-Car 9220 Sepulveda Blvd.	0.07 mile northwest	Up to cross-gradient	Active	N
<b>Allied-Signal Aerospace 9851 Sepulveda Blvd.</b>	<b>On-site</b>	<b>N/A</b>	<b>Inactive</b>	<b>Y</b>
LAX Air Traffic Control Tower 1 World Way	On-site	N/A	Inactive	N
America West Airline 100 World Way	On-site	N/A	Active	N
LAX Two Corporation 200 World Way	Adjacent to the north	Cross-gradient	Active	N



Facility and Address	Distance/ Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Status	Environ- mental Concern (Y/N)
<b>Notes:</b> Blvd. – Boulevard LAX – Los Angeles International Airport N – No N/A – Not Applicable Y – Yes				

Avon Rent-A-Car (9220 Sepulveda Blvd), LAX Air Traffic Control Tower (1 World Way), and LAX Two Corporation (200 World Way) have closed unauthorized release cases. America West Airline (100 World Way) is not listed on the LUST database; however, Terminal #1 LAX is listed under the same address. According to the LUST database the facility is under preliminary site assessment for a release affecting soil. The Allied Aviation Service Co. facility (6501 West 96<sup>th</sup> Street) has three USTs ranging from 600 to 10,000 gallons, containing waste oil and gasoline and an open unauthorized release case affecting soil and groundwater. Based on the case status this facility is considered a REC to the project. Based on the regulatory status, distance, and/or direction, and absence of reported leaks, the remaining facilities do not represent RECS or PECs for the site.

Twenty-three facilities were listed on the Statewide Environmental Evaluation and Planning System (SWEEPS) UST database. A Unified School District located at 8920 Sepulveda Boulevard and LA City Department of Airports at 500 World Way were listed as active facilities. The information provided in the database for the facilities included the number of USTs, UST capacities, and UST contents. Information regarding releases or subsurface contamination was not provided; however five facilities were listed on the LUST database for cases associated with LUSTs and are discussed in the LUST database section of Section 5.1.2. The remaining listings do not represent RECs or PECs for the site.



The following 11 facilities under 14 listings were listed on the California Hazardous Materials Information Reporting System (CHMIRS) database within the searched distance:

Facility and Address	Date	Substance	Description	Environmental Concern (Y/N)
Not reported 9150 S Sepulveda Blvd.	8/7/06	Motor Oil	Rental car lot is dumping substance into storm drains	N
Not reported 6221 W 96 <sup>th</sup> St.	7/19/10	655 gal sewage	Sewer main overflowed due to grease blockage	N
	12/22/01	5,792 gal sewage	Main line sewer was blocked by grease release material	
Not reported One World Way	9/11/13	10 gal jet fuel	Spill due to aircraft overfill. Released to tarmac and cleaned up.	N
LAX Taxi lane D 10 Improvements Area 1 World Way	3/8/15	500 gal jet fuel	Release from fuel line, cause unknown. Fuel line shut down for repairs.	N
FAA LAX Control Tower 1 World Way	1/21/10	Unknown amount of jet fuel	Released to storm drain, cause unknown. Absorbents applied.	N
	10/28/98	350 gallons diesel	Release from underground pipeline at central plant. Fuel went to secondary containment but wasn't secure, allowing fuel to release to soil. Cleanup being determined.	
Terminal 3 Gate 31 Alpha 300 World Way	11/12/14	15 gal jet fuel	15 gal vented from aircraft wing, with one gal going into storm drain	N
LAX 300 World Way	11/8/10	Unknown amount of jet fuel	Fuel leaked to soil from wing of aircraft, Spill cleaned up.	N
LAX Terminal 7 700 World Way	9/8/94	400 gal jet fuel	Pipeline broke during excavation, releasing to soil and pavement.	N
	2/12/14	60 gal jet fuel	Release from aircraft fueling onto ground. Release contained and cleaned up.	
LA World Airports 500 World Way	4/9/15	150 gal sewage	Sewer main overflowed to road, fan room, and U.S. Inspection Area. Roadway closed by police.	N
LAX Terminal 6 600 World Way	5/2/08	15 gal jet fuel	Fuel filter on refueling truck was loose and caused release.	N
<b>Notes:</b> Blvd. – Boulevard FAA – Federal Aviation Administration gal – gallons LAX – Los Angeles International Airport LAWA – Los Angeles World Airport N – No N/A – Not Applicable St. – Street U.S. – United States Y – Yes				



Based on the location, quantities, and/or remedial action, the listings do not represent potential environmental concerns for the project.

One facility, LAX with an address of “Along Sepulveda” was listed on the WMUDS/SWAT database. According to the database, the facility has a SWAT program. Additional information was not provided. Based on this information, the facility is not considered an environmental concern to the proposed project.

Six facilities within the search distance for Area A were listed on the Historic Cortese database. Additional information was not provided; however, the facilities are listed and described in the LUST, SLIC, and/or UST databases.

Facilities within Area A were not listed on the California Drycleaners database.

Further discussion of areas of concern for Area A can be found in Section 7.

## 5.2. Area B

Table 7 summarizes the number of facilities listed in the environmental database search within the specified search radii for Area B.

**Table 7 – Environmental Database Search Results – Area B**

Database(s)	Description	Facilities Listed
<b>Federal Databases</b>		
NPL	The NPL is the EPA’s database of uncontrolled or abandoned hazardous waste facilities that have been listed for priority remedial actions under the Superfund Program. Updated quarterly.	0
CERCLIS/ NFRAP	The CERCLIS database is a compilation of facilities which the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances pursuant to the CERCLA of 1980. NFRAP refers to facilities that have been removed and archived from its inventory of CERCLA sites.	1
Institutional Control/Engineering Control	Superfund sites that have either an engineering or an institutional control. The data includes the control and the media contaminated.	0
RCRA CORRACTS/TSD	The EPA maintains a database of RCRA facilities associated with TSD of hazardous materials that are undergoing “corrective action.” A “Corrective action” order is issued when there has been a release of hazardous waste or constituents into the environment from a RCRA facility.	0
RCRA Non- CORRACTS/TSD	The RCRA Non-CORRACTS/TSD Database is a compilation by the EPA of facilities that report storage, transportation, treatment, or disposal of hazardous waste. Unlike the RCRA CORRACTS/TSD database, the RCRA Non-CORRACTS/TSD database does not include RCRA facilities where corrective action is required.	0



**Table 7 – Environmental Database Search Results – Area B**

Database(s)	Description	Facilities Listed*
RCRA Generators	The RCRA Generators database, maintained by the EPA, lists facilities that generate hazardous waste as part of their normal business practices. Generators are listed as large, small, or conditionally exempt. LQGs produce at least 1,000 kg/month of non-acutely hazardous waste or 1 kg/month of acutely hazardous waste. SQGs produce 100 to 1,000 kg/month of non-acutely hazardous waste. CESQGs are those that generate less than 100 kg/month of non-acutely hazardous waste.	19
ERNS	ERNS records and stores information on reported releases of oil and hazardous substances.	2
<b>State Databases</b>		
Cal Sites	The Cal Sites database is maintained by the Cal-EPA, DTSC. This database contains information on AWP, and both known and potentially contaminated properties. Two-thirds of these properties have been classified, based on available information, as needing NFA by the DTSC. The remaining properties are in various stages of review and remediation to determine if a problem exists.	0
EnviroStor	DTSC electronic database system with information about sites that are known to be contaminated with hazardous substances as well as information about sites that are known to be contaminated with hazardous substances as well as information on uncharacterized properties where further studies may reveal problems.	2
SLIC	The SLIC database is maintained by the RWQCB.	6
SWF/LF	The SWF/LF database consists of open and closed solid waste disposal facilities and transfer stations. The data come from the Integrated Waste Management Board's SWIS database.	0
LUST	Databases of the LUST information system are maintained by the SWRCB and RWQCB.	16
UST/AST	The UST Information System and AST database are maintained by the SWRCB, which may include the owner and location of the USTs/ASTs.	21
VCP	The VCP database is a Cal-EPA listing of properties involved in the voluntary remediation program	0
Brownfields	This database is a DTSC tracking system of California Brownfields sites.	0
Indian Reservation	USGS map layer portrays Indian administered land within the United States with an area equal to or greater than 640 acres.	0
Indian LUST	This is a database maintained by the EPA of LUSTs on Indian land in Arizona, California, New Mexico, and Nevada.	0
Indian UST	This is a database maintained by the EPA of USTs on Indian land.	0
<b>Non-ASTM Databases</b>		
HAZNET	The HAZNET database contains facility and manifest data.	50 +
Hist UST	The Hist UST database lists historical registered USTs.	22
CA FID USTs	The FID UST contains active and inactive UST locations and is maintained by the SWRCB.	39
SWEEPS USTs	This UST listing was updated and maintained by a company contracted by the SWRCB in the early 1990s. The listing is no longer updated or maintained.	44
CHMIRS	The CHMIRS contains information on hazardous materials reporting.	12
WMUDS/SWAT	The WMUDS/SWAT is used for program tracking and inventory of waste management units. The system is maintained by the SWRCB.	0
Hist CORTESE	The Hist CORTESE database is designated by the SWRCB LUST, IWB SWF/LF, and the DTSC Cal Sites. This listing is no longer updated by the state agency.	9
CA Drycleaners	The CA Drycleaners is a list of drycleaner related facilities that have an EPA ID number.	0
EDR US Hist Auto Stat	The EDR US Hist Auto Stat database is a list of potential gasoline service stations available to EDR researchers.	8
EDR US Hist Cleaners	The EDR US Hist Cleaners database is a list of potential drycleaner sites available to EDR researchers	1



**Table 7 – Environmental Database Search Results – Area B**

Database(s)	Description	Facilities Listed*
<b>Notes:</b> AST – Aboveground Storage Tank Auto Stat – Auto Station AWP – Annual Work plan Properties CA – California CA FID – California Facility Inventory Database Cal-EPA – California Environmental Protection Agency CERCLA – Comprehensive Environmental Response, Compensation and Liability Act CERCLIS – Comprehensive Environmental Response, Compensation, and Liability Information System CESQG – Conditionally Exempt Small Quantity Generators CHMIRS – California Hazardous Materials Information Reporting System CORRACTS – Corrective Action Report CORTESE – “Cortese” Hazardous Waste & Substances Sites List DTSC – Department of Toxic Substances Control EDR – Environmental Data Resources, Inc. EPA – United States Environmental Protection Agency ERNS – Emergency Response Notification System HAZNET – Facility and Manifest Data Hist – Historical IWMB – Integrated Waste Management Board kg – kilograms LQG – Large Quantity Generator LUST – Leaking Underground Storage Tanks NFA – No Further Action NFRAP – No Further Remedial Action Planned NPL – National Priorities List RCRA – Resource Conservation and the Recovery Act RWQCB – Regional Water Quality Control Board SLIC – Spills, Leaks, Investigations, and Cleanups Program SQG – Small Quantity Generators SWEEPS – Statewide Environmental Evaluation and Planning System SWF/LF – Solid Waste Facility/Landfill SWIS – Solid Waste Information System SWRCB – State Water Resources Control Board TSD – Treatment, Storage, and Disposal US – United States USGS – United States Geological Survey UST – Underground Storage Tank VCP – Voluntary Cleanup Program WMUDS/SWAT – Waste Management Unit Database System/Solid Waste Assessment Test *Some facilities have multiple listings under a single database.		

### 5.2.1. Federal Databases – Area B

Facilities within Area B were not listed on the NPL database.

One facility within Area B was listed on the CERCLIS/NFRAP database. This listing did not contain address. There is no information indicative of an environmental concern.

Facilities within Area B were not listed on the Institutional Control or Engineering Control databases.



Facilities within Area B were not listed on the RCRA CORRACTS/TSD or the RCRA Non-CORRACTS/TSD databases.

Nineteen facilities within Area B were listed on the RCRA Generators database, one facility reported violations. Neutrogena at 5760 West 96<sup>th</sup> Street received six compliance evaluation inspections, one in 2006, one in 2009 and four in 2010; three written “informal” violations in 2010, all of which received compliance. These facilities are not indicative of unauthorized releases of hazardous materials and are therefore not considered environmental concerns to the site.

The following two facilities under 25 listings were listed on the ERNS database within the searched distance:

Facility and Address	Date	Release	Remedial Action	Environ- mental Concern (Y/N)
Not reported 5630 Arbor Vitae St.	4/21/07	10 gal of motor oil were released from a broken hose from a storage tank	Cleaned up with spill kit	N
Not reported 9755 Airport Blvd.	4/5/08	50 gal of oil diesel were released from a fuel truck	Cleaned with absorbents and pressured washed.	N
<b>Notes:</b> Blvd. – Boulevard gal - gallons N – No St. – Street Y – Yes				

Based on the location, quantities, and/or remedial action, the listings do not represent potential environmental concerns for the project.

#### 5.2.2. State Databases – Area B

Facilities within Area B were not listed on the Response (Cal Sites) database.

One facility within Area B was listed on the EnviroStor database, the Los Angeles AFS Anne (no address was listed). According to the database, the Los Angeles AFS Anne is an inactive case with pending evaluation. Additional information was not provided.



Based on the information provided, this facility is not considered an environmental concern. United Airlines Inc. at 6020 Avion Drive was listed on this database, and the address is geo-located north of West Century Boulevard, within Area B. However, the United Airlines Maintenance hangar (listed on several databases) is located south of West Century Boulevard and approximately 0.11 mile south and cross-gradient of the site.

The following seven facilities were listed on the SLIC database within the searched distance for Area B:

Facility and Address	Distance/ Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Regulatory Status	Date of Last Action	Environ- mental Concern (Y/N)
Union Bank/Estate of Joseph Collins 9007-9121 Aviation Blvd.	Adjacent to the north	Cross-gradient	Open – Site Assessment	1/20/2015	Y
Bodycote Hinderliter 9121 Aviation	Adjacent to the north	Cross-gradient	Open – Site Assessment	N/A	Y
Princeland Property 1237 Arbor Vitae	On-Site	N/A	Open – Site Assessment	1/21/2015	Y
Honeywell International 9225 Aviation Blvd.	On-Site	N/A	Open - Remediation	10/22/2014	Y
Delta Airlines 6150 Century Blvd.	Adjacent to the south	Cross-gradient	Case Closed	9/11/1999	N
Delta Airlines 6060 Avion Drive	On-site	N/A	Case Closed	7/9/1999	N
United Airlines Maintenance Operations Center 6020 Avion Drive	On-site	N/A	Open-Site Assessment	5/6/2014	N
<b>Notes:</b> Blvd. – Boulevard N – No N/A – Not Applicable Y – Yes					

Both cases associated with Delta Airlines at 6150 Century Boulevard and 6060 Avion Drive are closed. Union Bank (9007-9121 Aviation Blvd) was listed for a release of diesel and gasoline related constituents affecting soil, groundwater and soil vapor. According the database, the facility was historically a metal treating facility from 1954



to 1970 and is currently used as a rental parking lot. According to documents found on GeoTracker, a 1,000-gallon gasoline UST was removed from the property in 1991. Multiple groundwater monitoring wells, soil borings, and soil vapor probes have been installed and sampled at the property between 1991 and 2015. Results of groundwater, soil, and soil gas samples indicate the property is heavily impacted with VOCs and investigations are ongoing.

The property Bodycote Hinderliter (9121 Aviation Boulevard) is located on the Union Bank property which is previously discussed.

According to documents found on GeoTracker, Princeland Property (1237 Arbor Vitae Street) was formerly used for degreasing operations, plastic extrusion, and furniture distribution. This facility has undergone extensive soil and soil vapor investigations between 1991 and 1998, and again in 1997 and 1998, when a groundwater monitoring well was also installed in connection with the removal of two USTs. Groundwater, soil, and soil vapor samples indicated elevated levels of VOCs at the property. The most recent document available on GeoTracker was an approved work plan for additional groundwater and soil vapor sampling. The property is currently used as a parking lot for rental vehicles.

According to the database, Honeywell International (9225 Aviation Boulevard) has been under environmental investigation since 1989 and was previously used for aerospace manufacturing and included; USTs, clarifiers, and degreasers. Multiple soil, soil vapor, and groundwater investigations have been performed at the site between 1990 and the present, the results indicate that all three media have been impacted by VOCs. The most recent document available on GeoTracker, dated April 2015, indicates additional groundwater monitoring wells were installed at the property and a groundwater plume is not fully delineated which appears to originate from multiple sources in the vicinity. These facilities represent RECs to the site based on the case status and nature of the



releases and/or direction to Area B. The remaining facilities do not represent RECs or PECs for the site.

Facilities within Area B were not listed on the SWF/LF database.

The following 16 facilities were listed on the LUST database within the searched distance:

Facility, Address	Distance/ Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Case Number	Regulatory Status	Closure Date (if applicable)	Environ- mental Concern (Y/N)
Merle Norman 9130 Bellanca Ave.	Adjacent to the north	Up-gradient	T0603701062	Case Closed	3/24/1997	N
Hertz Corporation 9000 Airport Blvd.	On-site	N/A	T0603732721	Case Closed	9/24/2013	N
Hertz Rent-A-Car 9029 Airport Blvd.	On-site	N/A	T0603701052	Case Closed	12/2/1998	N
Collins Trust 9121 Aviation Blvd.	Adjacent to the north	Up-gradient	T0603705393	Case Closed	1/28/1997	N
Collins Trust Properties 9117 Aviation Blvd.	Adjacent to the north	Up-gradient	T0603705392	Preliminary Site Assessment	N/A	N
Freight Forwarders 9107 S. Aviation Blvd.	Adjacent to the north	Up-gradient	T0603793015	Case Closed	1/22/2004	N
Harry's Airport Garage 9131 S. Aviation Blvd.	Adjacent to the north	Up-gradient	T0603704863	Case Closed	9/27/2012	N
<b>King Delivery, Inc. 5600 Arbor Vitae St.</b>	<b>On-site</b>	<b>N/A</b>	<b>T0603701040</b>	<b>Assessment &amp; Interim Remedial Action</b>	<b>N/A</b>	<b>Y</b>
Neutrogena Facility 5800 Arbor Vitae Ave.	On-site	N/A	T0603701056	Case Closed	1/14/1997	N
AVIS Rent-A-Car 9217 Airport Blvd.	On-site	N/A	T0603701057	Case Closed	9/28/2012	N
<b>National Car Sales 9200 Airport Blvd.</b>	<b>On-site</b>	<b>N/A</b>	<b>T0603776617</b>	<b>Open-Site Assessment</b>	<b>N/A</b>	<b>Y</b>
<b>National Car Rental 9419 Airport Blvd.</b>	<b>On-site</b>	<b>N/A</b>	<b>T0603701065</b>	<b>Verification Monitoring</b>	<b>N/A</b>	<b>Y</b>
<b>Budget Rent-A-Car 9775 Airport Blvd.</b>	<b>On-site</b>	<b>N/A</b>	<b>T0603701038</b>	<b>Open- Remediation</b>	<b>N/A</b>	<b>Y</b>
Delta Airlines 6150 Century Blvd. West	Adjacent to the south	Down to cross- gradient	T0603700113	Post Remedial Action Monitoring	N/A	N
LAFD – Fire Station 10010 South International Road	Adjacent to the south	Down to cross- gradient	T063794280	Case Closed	12/17/2013	N
United Airlines 6020 Avion Dr.	0.11 mile south	Cross-gradient	T0603701063	Leak being confirmed	N/A	N



Facility, Address	Distance/ Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Case Number	Regulatory Status	Closure Date (if applicable)	Environ- mental Concern (Y/N)
<b>Notes:</b> Ave. – Avenue Blvd. – Boulevard Dr. – Drive LAFD – Los Angeles Fire Department N – No N/A – Not Applicable St. – Street S. – South Y – Yes						

Collins Trust Properties at 9117 Aviation Boulevard was listed in the LUST database with a Preliminary Site Assessment status; however, according to GeoTracker the case has been closed since February 15, 2011.

Five facilities on the LUST database have open regulatory cases: Delta Airlines (6150 Century Boulevard) has a status of “Post Remedial Action Monitoring”, however, the facility is down-gradient from the site and an open case is not found on GeoTracker or EnviroStor databases; King Delivery, Inc. (5600 Arbor Vitae Street) had a LUST regulatory status of “Assessment and Interim Remedial Action”. National Car Sales (9200 Airport Boulevard) has a regulatory status of “Open Site-Assessment”. National Car Rental (9419 Airport Boulevard) has a regulatory status of “Verification Monitoring. Budget Rent-A-Car (9775 Airport Boulevard) has a status of “Open Remediation”. Due to the status of these cases, these five facilities are considered RECs to the project and are discussed further in Section 5.2.3. Based on the regulatory status, distance, and/or direction, the remaining facilities do not represent RECS or PECs for the site.

Seventeen facilities were listed on the UST database within the searched distance for Area B. The following 13 facilities were listed within Area B:

- Hertz Rent A Car at 9000 Airport Boulevard.
- Dollar Rent-A-Car at 5630 Arbor Vitae Street.



- Avis Rent A Car at 9217 Airport Boulevard.
- National Car Rental 9419 Airport Boulevard.
- Western Federal Credit Union at 9323 Bellanca Avenue.
- Renaissance Hotel at 9620 Airport Boulevard.
- Wally Park at 9700 Bellanca Avenue.
- Budget Rent-A-Car-LA at 9775 Airport Boulevard.
- Marriot Hotel at 5855 W Century Boulevard.
- Skyview Center at 6033 W Century Boulevard.
- Crown Plaza Hotel at 5985 W Century Boulevard.
- Tishman Management at 5933 W Century Boulevard.
- Century Centre Partners 5711 W Century Boulevard.

Information in this database included a facility identification number, permitting agency, and latitude and longitude coordinates. Four of the facilities on the UST database were also listed on the LUST database. Two of the facilities, Avis Rent A Car and Hertz Rent a Car have closed cases and the remaining two, National Car Rental and Budget Rent-A-Car have open cases and represent a REC to the project. The remaining facilities are not considered environmental concerns to the project.

One facility was listed in the aboveground storage tank (AST) database. According to the database Hertz Corporation at 9225 Aviation Road owns one 3,200-gallon AST of unknown material. According to the GeoTracker database the address corresponds to Honeywell International Corp, which has an open cleanup case. This facility is further discussed in Section 5.2.3.

Facilities within the proposed Project area were not listed on the VCP, Brownfields, Indian Reservation, Indian LUST, or Indian UST databases.



### **5.2.3. Non-ASTM Databases – Area B**

Multiple facilities were listed on the HAZNET database. Based on the location, groundwater gradient with respect to the site, absence of listing on additional facilities, and/or quantities manifested, the listings do not represent potential environmental concerns for the project.

Twenty-eight facilities were listed on the Historic UST database within the searched distance for Area A. The following 22 facilities were listed within Area B:

- Hertz Corporation at 9000 Airport Boulevard – nine USTs ranging from 2,000 to 10,000 gallons, containing waste oil, gasoline, diesel, and unknown substance, and were installed in 1981.
- Hertz Rent-A-Car at 9029 Airport Boulevard – 10 20,000-gallon gasoline and unknown USTs installed in 1981.
- Harry's Airport Garage at 9131 Aviation Boulevard – three USTs ranging from 5,000 to 10,000 gallons, containing gasoline and diesel.
- King Delivery, Inc. at 5600 Arbor Vitae Street – four USTs ranging from 2,000 to 10,000 gallons, containing gasoline, diesel, and waste oil, installed in 1969.
- Garrett Aire Search at 9225 Aviation Boulevard – one 1,000-gallon waste oil UST.
- Honeywell International Inc. at 9225 Aviation Boulevard – four USTs ranging from 80 to 2,000 gallons, containing waste oil.
- National Car Rental at 9419 Airport Boulevard – nine USTs ranging from 2,000 to 10,000 gallons, containing gasoline, diesel, and waste oil, installed in 1981.
- Henry Soss & Company at 5716 W 96<sup>th</sup> Street – two USTs ranging from 20,000 to 30,000 gallons, containing diesel and gasoline.
- Grand Rent A Car at 5721 W 96<sup>th</sup> Street – two USTs ranging from 550 to 12,000 gallons, containing waste oil and gasoline.
- Neutrogena Corporation at 5760 W 96<sup>th</sup> Street – two USTs, 10,000 gallons and one unknown capacity, containing waste oil and gasoline.
- Soss Henry & Company at 5716 W 96<sup>th</sup> Street – two USTs, of 1,000 and 1,500 gallon capacity, containing gasoline and diesel.



- Airborne Express/Airborne Freight Corporation at 5651 W 96<sup>th</sup> Street – three gasoline USTs ranging from 8,000 to 10,000 gallons, installed in 1979.
- Emory Worldwide/Emory Air Freight at 5705 W 98<sup>th</sup> Street – four USTs ranging from 5000 to 10,000 gallons, containing waste oil, gasoline and diesel, installed in 1979.
- Budget Rent-A-Car-LA at 9775 Airport Boulevard – 11 USTs ranging from 4,000 to 50,000 gallons, containing gasoline and diesel.
- Marriot Corporation at 5855 West Century Boulevard – two 12,000-gallon diesel USTs, installed in 1972.
- The Equitable Airport at 5933 Century Boulevard – one 20,087-gallon diesel UST, installed in 1983.
- Los Angeles Airport Hilton at 5711 West Century Boulevard – one 1,000-gallon waste oil UST, installed in 1982.
- Air Freight Facility at 5740 Avion Drive – One 200-gallon waste oil UST, installed in 1964.

Information regarding releases or subsurface contamination was not provided. Six facilities were listed on the LUST database and three of the facilities, Hertz Corporation, Hertz Rent a Car, and Harry's Airport Garage, have closed cases. National Car Rental, King Delivery, Inc., and Budget Rent-A-Car have open cases and represent a REC to the project. The remaining facilities are not considered environmental concerns to the project.

Multiple facilities were listed in the CA FID UST database within the searched distance for Area B. According to the LUST database the following 12 facilities have cases related to LUSTs:

Facility and Address	Distance/Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Status	Environmental Concern (Y/N)
Merle Norman Cosmetics 9130 Bellanca Ave.	Adjacent to the north	Up to cross-gradient	Active	N
The Hertz Corporation 9000 Airport Blvd.	On-site	N/A	Active	N



Facility and Address	Distance/Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Status	Environmental Concern (Y/N)
Hertz Rent-A-Car 9029 Airport Blvd.	On-site	N/A	Active	N
Harry's Airport Arco 9131 Aviation Blvd.	Adjacent to the north	Up to cross-gradient	Active	N
<b>King Delivery Inc. 5600 Arbor Vitae St.</b>	<b>On-site</b>	<b>N/A</b>	<b>Active</b>	<b>Y</b>
<b>National Car Rental 9419 Airport Blvd.</b>	<b>On-site</b>	<b>N/A</b>	<b>Active</b>	<b>Y</b>
Avis Rent A Car 9217 Airport Blvd.	On-site	N/A	Active	N
<b>Budget Rent-A-Car 9775 Airport Blvd.</b>	<b>On-site</b>	<b>N/A</b>	<b>Active</b>	<b>Y</b>
Delta Airlines 6150 W Century Blvd.	Adjacent to the south	Cross-gradient	Active	N
Fire Station 95 10010 International Rd.	Adjacent to the south	Cross-gradient	Inactive	N
United Airlines 6020 Avion Dr.	0.11 mile south	Cross-gradient	Active	N
<b>Notes:</b> Ave. – Avenue Blvd. – Boulevard Dr. – Drive N – No N/A – Not Applicable Rd. – Road St. – Street Y – Yes				

King Delivery Inc. (5600 Arbor Vitae Street) has four USTs ranging from 2,000 to 10,000 gallons, containing gasoline, diesel, and waste oil, National Car Rental (9419 Airport Boulevard) has nine USTs ranging from 2,000 to 10,000 gallons, containing gasoline, diesel, and waste oil, and Budget Rent-A-Car (9775 Airport Boulevard) has 11 USTs ranging from 4,000 to 50,000 gallons, containing gasoline and diesel. All three facilities have open unauthorized release cases affecting soil and groundwater. Based on their case status, these facilities are considered RECs to the project.

Merle Norman Cosmetics (9131 Bellanca Avenue), Hertz Corporation (9000 Airport Boulevard), Hertz Rent-A-Car (9029 Airport Boulevard), Harry's Airport Garage (9131 S Aviation Blvd), Avis Rent A Car (9217 Airport Boulevard), Delta Airlines (6150 W Century Boulevard), and Fire Station 95 (10010 S International Road) all have closed



LUST cases. Based on the regulatory status, distance, and/or direction, and absence of reported leaks, the remaining facilities do not represent Recs or PECs for the site.

Forty-four facilities were listed on the SWEEPS UST database in the search radius for Area B. The information provided in the database for the facilities included the number of USTs, UST capacities, and UST contents. Information regarding releases or subsurface contamination was not provided; however, 13 facilities are also listed on the LUST database related to LUSTs. The facilities are discussed in the LUST database section of Section 5.2.2. The remaining listings do not represent RECs or PECs for the site.

The following 11 facilities under 13 listings were listed on the CHMIRS database within the searched distance:

Facility and Address	Date	Substance	Description	Environmental Concern (Y/N)
Hertz Rent-A-Car 9000 Airport Blvd.	8/2/1995	50 gallon - motor oil	Emergency shut-off valve malfunctioned on fueling nozzle	N
	7/19/2013	Hydraulic fluid	Hydraulic lift ruptured	N
Not reported 5630 Arbor Vitae St.	4/21/2007	10 gallons - oil	Broken hose on oil storage tank	N
Not reported 9419 Airport Blvd.	8/26/2002	Gasoline vapor	A UST was releasing vapors and was stopped immediately	N
Not reported 5760 W 96 <sup>th</sup> St.	9/22/2008	42,300 gallons - water	12-inch fire sprinkler pipe broke, water went into the storm drain	N
Not reported 5735 96 <sup>th</sup> St.	4/25/1997	20 gallons - Coal tar	Drums on a truck leaked substance onto roadway	N
	4/13/2004	5 gallons – Viking 3 percent firefighting foam	Substance was released due to a drain valve being opened on the outside of the system to relieve the pressure.	
Not reported 5755 96 <sup>th</sup> St.	4/3/1995	1000 gallons – soap sludge	Broken water pipe into storage tank caused overflow of soap sludge into street. Less than one gallon entered storm drain.	N
Not reported 9620 S Airport Blvd.	12/13/1994	Unknown amount of gasoline	Received report of odor, investigated and discovered spill.	N
Budget Rent-A-Car 9775 Airport Blvd.	4/5/2008	50 gallons – Diesel Fuel	Mechanical failure of fuel port caused a separation of the fuel line which caused a release into a catch basin and was recovered. No release into waterway.	N
Not reported 5900 W 98 <sup>th</sup> St.	9/8/1999	Unknown quantity of unknown substance	Irritant in the air reported, 3 hospitalized and fire department did not detect anything.	N
Not reported LAX 5720 Avion Dr.	6/26/2014	Unknown quantity of aviation fuel	Fuel leak discovered during an inspection	N



Facility and Address	Date	Substance	Description	Environmental Concern (Y/N)
Not reported 5930 Avion Dr.	6/18/2004	200 pounds of R22	A valve on an air-conditioning unit lifted and release substance	N
<b>Notes:</b> Blvd – Boulevard Dr. – Drive LAX – Los Angeles International Airport N – No N/A – Not Applicable St. – Street UST – Underground Storage Tank Y – Yes				

Based on the location, quantities, and/or remedial action, the listings do not represent potential environmental concerns for the project.

Facilities were not listed on the CA WMUDS/SWAT list in Area B.

Thirteen facilities within the search distance for Area B were listed on the Historic Cortese database. Additional information was not provided; however, the facilities are listed and described in the LUST, SLIC, and/or UST databases.

Facilities within Area B were not listed on the California Drycleaners database.

Further discussion of areas of concern for Area B can be found in Section 7.

### 5.3. Area C

Table 8 summarizes the number of facilities listed in the environmental database search within the specified search radii for Area C.

**Table 8 – Environmental Database Search Results – Area C**

Database(s)	Description	Facilities Listed*
<b>Federal Databases</b>		
NPL	The NPL is the EPA's database of uncontrolled or abandoned hazardous waste facilities that have been listed for priority remedial actions under the Superfund Program. Updated quarterly.	0
CERCLIS/ NFRAP	The CERCLIS database is a compilation of facilities which the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances pursuant to the CERCLA of 1980. NFRAP refers to facilities that have been removed and archived from its inventory of CERCLA sites.	4



**Table 8 – Environmental Database Search Results – Area C**

Database(s)	Description	Facilities Listed*
Institutional Control/Engineering Control	Superfund sites that have either an engineering or an institutional control. The data includes the control and the media contaminated.	0
RCRA CORRACTS/TSD	The EPA maintains a database of RCRA facilities associated with TSD of hazardous materials that are undergoing “corrective action.” A “Corrective action” order is issued when there has been a release of hazardous waste or constituents into the environment from a RCRA facility.	3
RCRA Non-CORRACTS/TSD	The RCRA Non-CORRACTS/TSD Database is a compilation by the EPA of facilities that report storage, transportation, treatment, or disposal of hazardous waste. Unlike the RCRA CORRACTS/TSD database, the RCRA Non-CORRACTS/TSD database does not include RCRA facilities where corrective action is required.	0
RCRA Generators	The RCRA Generators database, maintained by the EPA, lists facilities that generate hazardous waste as part of their normal business practices. Generators are listed as large, small, or conditionally exempt. LQGs produce at least 1,000 kg/month of non-acutely hazardous waste or 1 kg/month of acutely hazardous waste. SQGs produce 100 to 1,000 kg/month of non-acutely hazardous waste. CESQGs are those that generate less than 100 kg/month of non-acutely hazardous waste.	17
ERNS	ERNS records and stores information on reported releases of oil and hazardous substances.	2
<b>State Databases</b>		
Cal Sites	The Cal Sites database is maintained by the Cal-EPA, DTSC. This database contains information on AWP, and both known and potentially contaminated properties. Two-thirds of these properties have been classified, based on available information, as needing NFA by the DTSC. The remaining properties are in various stages of review and remediation to determine if a problem exists.	0
EnviroStor	DTSC electronic database system with information about sites that are known to be contaminated with hazardous substances as well as information about sites that are known to be contaminated with hazardous substances as well as information on uncharacterized properties where further studies may reveal problems.	3
SLIC	The SLIC database is maintained by the RWQCB.	2
SWF/LF	The SWF/LF database consists of open and closed solid waste disposal facilities and transfer stations. The data come from the Integrated Waste Management Board’s SWIS database.	1
LUST	Databases of the LUST information system are maintained by the SWRCB and RWQCB.	11
UST/AST	The UST Information System and AST database are maintained by the SWRCB, which may include the owner and location of the USTs/ASTs.	8
VCP	The VCP database is a Cal-EPA listing of properties involved in the voluntary remediation program	0
Brownfields	This database is a DTSC tracking system of California Brownfields sites.	0
Indian Reservation	USGS map layer portrays Indian administered land within the United States with an area equal to or greater than 640 acres.	0
Indian LUST	This is a database maintained by the EPA of LUSTs on Indian land in Arizona, California, New Mexico, and Nevada.	0
Indian UST	This is a database maintained by the EPA of USTs on Indian land.	0
<b>Non-ASTM Databases</b>		
HAZNET	The HAZNET database contains facility and manifest data.	50+
Hist UST	The Hist UST database lists historical registered USTs.	11
CA FID USTs	The FID UST contains active and inactive UST locations and is maintained by the SWRCB.	17
SWEEPS USTs	This UST listing was updated and maintained by a company contracted by the SWRCB in the early 1990s. The listing is no longer updated or maintained.	21
CHMIRS	The CHMIRS contains information on hazardous materials reporting.	6
WMUDS/SWAT	The WMUDS/SWAT is used for program tracking and inventory of waste management units. The system is maintained by the SWRCB.	0
CA Drycleaners	The CA Drycleaners is a list of drycleaner related facilities that have an EPA ID number.	2



**Table 8 – Environmental Database Search Results – Area C**

Database(s)	Description	Facilities Listed*
EDR US Hist Auto Stat	The EDR US Hist Auto Stat database is a list of potential gasoline service stations available to EDR researchers.	14
EDR US Hist Cleaners	The EDR US Hist Cleaners database is a list of potential drycleaner sites available to EDR researchers	7
Hist CORTESE	The Hist CORTESE database is designated by the SWRCB LUST, IWB SWF/LF, and the DTSC Cal Sites. This listing is no longer updated by the state agency.	0
<b>Notes:</b> AST – Aboveground Storage Tank Auto Stat – Auto Station AWP – Annual Workplan Properties CA – California CA FID – California Facility Inventory Database Cal-EPA – California Environmental Protection Agency CERCLA – Comprehensive Environmental Response, Compensation and Liability Act CERCLIS – Comprehensive Environmental Response, Compensation, and Liability Information System CESQG – Conditionally Exempt Small Quantity Generators CHMIRS – California Hazardous Materials Information Reporting System CORRACTS – Corrective Action Report CORTESE – “Cortese” Hazardous Waste & Substances Sites List DTSC – Department of Toxic Substances Control EDR – Environmental Data Resources, Inc. EPA – United States Environmental Protection Agency ERNS – Emergency Response Notification System HAZNET – Facility and Manifest Data Hist – Historical IWMB – Integrated Waste Management Board kg – kilograms LQG – Large Quantity Generator LUST – Leaking Underground Storage Tanks NFA – No Further Action NFRAP – No Further Remedial Action Planned NPL – National Priorities List RCRA – Resource Conservation and the Recovery Act RWQCB – Regional Water Quality Control Board SLIC – Spills, Leaks, Investigations and Cleanups Program SQG – Small Quantity Generators SWEEPS – Statewide Environmental Evaluation and Planning System SWF/LF – Solid Waste Facility/Landfill SWIS – Solid Waste Information System SWRCB – State Water Resources Control Board TSD – Treatment, Storage, and Disposal US – United States USGS – United States Geological Survey UST – Underground Storage Tank VCP – Voluntary Cleanup Program WMUDS/SWAT – Waste Management Unit Database System/Solid Waste Assessment Test *Some facilities have multiple listings under a single database.		

### 5.3.1. Federal Databases – Area C

Facilities within Area C were not listed on the NPL database.

Four facilities within Area C were listed on the CERCLIS/NFRAP database.  
Information indicating an environmental concern was not listed.



Two facilities were listed within Area C on the RCRA CORRACTS/TSD database and there is no information indicative of an environmental concern.

The following two listings for three facilities were listed on the ERNS database within the searched distance:

Facility and Address	Date	Release	Remedial Action	Environmental Concern (Y/N)
Not reported 901 Arbor Vitae St	7/31/1987	5 gallons of Polane resin split from a truck trailer onto land	Disposed	N
Not reported 5156 West Century Blvd	5/20/2013	3 gallons of gasoline was reported to be leaking from a vehicle	Spill was contained with absorbent material	N
<b>Notes:</b> Blvd. – Boulevard N – No St. – Street Y – Yes				

Based on the location, quantities, and/or remedial action, the listings do not represent potential environmental concerns for the project.

### 5.3.2. State Databases – Area C

Facilities within Area C were not listed on the Response (Cal Sites) database.

Three facilities within Area C were listed on the EnviroStor database: the Douglas Aircraft Co. (no address provided), Fansteel Inc. at 5235 West 104<sup>th</sup> Street, and Tetra Graphics Site, at 10310 Glasgow Place. According to the database, the Douglas Aircraft Co. and Fansteel Inc. are inactive cases with pending evaluation. Tetra Graphics has been referred to another agency. An AST and machine shops were present and chemicals used in the past included halogenated solvents and unspecified solvent mixtures. Based on the information provided, Tetra Graphics is considered a PEC.

The following three facilities under four listings were listed on the SLIC database within the searched distance for Area C:



Facility and Address	Distance/ Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Regulatory Status	Date of Last Action	Environ- mental Concern (Y/N)
Lynden Air Freight 5220 102 <sup>nd</sup> St.	0.11 mile south	Cross-gradient	Inactive	N/A	N
<b>Former Tetra Graphic 10311 La Cienega</b>	<b>On-Site</b>	<b>N/A</b>	<b>Open – Site Assessment</b>	<b>N/A</b>	<b>Y</b>
Fan Steel/Precision (Precision Sheet Metal 5235 W 104 <sup>th</sup> St.	0.15 mile south	Cross-gradient	Open – Site Assessment	3/2/1998	N
<b>Notes:</b> N – No N/A – Not Applicable St. – Street W. – West Y – Yes					

Lynden Air Freight (5220 102<sup>nd</sup> Street) has a regulatory status of closed does not represent a PEC for the site. Former Tetra Graphic (10311 La Cienega Boulevard) was listed for a release of VOCs into groundwater and soil vapor. According to the database the facility was formerly used to manufacture aircraft parts between 1951 and 1966. Fan Steel/Precision Sheet Metal (5235 W 104<sup>th</sup> Street) was also listed for a release of VOCs into groundwater and soil vapor and a Remedial Action Plan dated April 2014, is available on GeoTracker. As of the date of the report the site was undergoing remedial measures for VOCs in soil vapor. These facilities represent a REC to the site based on the case status and nature of the releases and/or direction to Area C.

One closed facility was listed on the SWF/LF database. The 106<sup>th</sup> Street Dump (5126 West 106<sup>th</sup> Street) is located approximately 0.10 miles south of Area C. According to the database the property was formerly used as a Municipal Solid Waste Landfill and is currently a landing approach for LAX. Based on the distance and direction, this facility would not be considered an environmental concern.

The following 11 listings for 12 facilities were listed on the LUST database within the searched distance:



Facility, Address	Distance/ Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Case Number	Regulatory Status	Closure Date (if applicable)	Environ- mental Concern (Y/N)
Alamo Rent-A-Car 9020 Aviation Blvd.	Adjacent to the north	Up to cross- gradient	T0603788512	Case Closed	11/13/2008	N
Barnes Wholesale Inc. 740 S Glasgow Ave.	Adjacent to the north	Up to cross- gradient	T0000000193	Case Closed	2/10/2014	N
Texaco Service Station 5551 W Century Blvd.	On-site	N/A	T0603701069	Case Closed	9/20/1996	N
Arco #0003 5201 Century Blvd.	On-site	N/A	T0603701053	Open – Eligible for Closure	N/A	N
Inglewood Transmission 4919 W Century Blvd.	0.19 mile east	Down-gradient	T0603767752	Case Closed	8/6/2010	N
Dombrowski's Flowers 4940 Century Blvd.	0.18 mile east	Down-gradient	T0603703445	Case Closed	7/6/1998	N
<b>Thrifty Car Rental 5440 W Century Blvd.</b>	<b>Adjacent to the south</b>	<b>Cross-gradient</b>	<b>T0603701068</b>	<b>Open - Remediation</b>	<b>N/A</b>	<b>Y</b>
Chevron #9-7240 5156 W Century Blvd.	On-site	N/A	T0603704582	Case Closed	7/24/1996	N
76 Products Station 5552 W Century Blvd.	Adjacent to the south	Cross-gradient	T0603701061	Case Closed	11/12/2009	N
Fansteel Inc. 5235 104 <sup>th</sup> St W.	0.16 mile south	Cross-gradient	T0603701029	Case Closed	9/23/1988	N
National Technical S. 5320 104 <sup>th</sup> St.	0.20 mile south	Cross-gradient	T1000000111 2	Case Closed	12/17/2013	N
<b>Notes:</b> Ave. – Avenue Blvd. – Boulevard N – No N/A – Not Applicable St. – Street S. – South W. – West Y – Yes						

Thrifty Car Rental, located adjacent to the south (5440 West Century Boulevard) has an open remediation case. According to the database, the facility has an unauthorized release of aviation fuel affecting soil and groundwater. Due to the case status, this facility is considered a REC to the project and is discussed further in Section 5.3.3. Based on the regulatory status, distance, and/or direction, the remaining facilities do not represent Recs or PECs for the site.

Eight facilities were listed on the UST database within the searched distance for Area C. The following four facilities were listed within Area C:



- Airport Arco at 9200 Aviation Boulevard.
- LAX Texaco Station at 5551 West Century Boulevard.
- Chevron USA at 5156 West Century Boulevard.
- Arco Service Station at 5201 West Century Boulevard.

Information in this database included a facility identification number, permitting agency, and latitude and longitude coordinates. One of the facilities on the UST database was also listed on the LUST database. LAX Texaco Station has a closed case and is not considered an environmental concern to the project.

Facilities were not listed on the AST database in Area C or the search distance.

Facilities within the proposed Project area were not listed on the VCP, Brownfields, Indian Reservation, Indian LUST, or Indian UST databases.

#### **5.3.3. Non-ASTM Databases – Area C**

Multiple facilities were listed on the HAZNET database. Based on the location, groundwater gradient with respect to the site, absence of listing on additional facilities, and/or quantities manifested, the listings do not represent potential environmental concerns for the project.

Eleven facilities were listed on the Historic UST database within the searched distance for Area C. The following seven facilities were listed within Area C:

- Ron's Auto at 9200 Airport Boulevard – four USTs of unknown capacity, containing waste oil, gasoline, and diesel – date unknown.
- Bor-Air Freight Company at 901 West Arbor Vitae Street – One 10,000-gallon gasoline UST, installed in 1974.
- Trizec Airport Building at 9800 South La Cienega Boulevard – One 2,000-gallon diesel UST, installed in 1982.



- Texaco Service Station at 5551 West Century Boulevard – five USTs ranging from 550 to 10,000 gallons, containing gasoline, diesel, and waste oil, installed in 1969 and 1978.
- Apex Rent A Car at 5307 West Century Boulevard – two 10,000-gallon UST of unknown substance, installed in 1969.
- 97240 at 5156 West Century Boulevard – one 5,000-gallon UST, containing gasoline.
- Prestige Stations at 5201 West Century Boulevard – three 12,000-gallon USTs, containing gasoline, installed in 1983.

Information regarding releases or subsurface contamination was not provided. Two facilities were listed on the LUST database. Texaco Service Station (5551 West Century Boulevard) is listed with a closed regulatory status, and Prestige Stations is listed under the name Arco #0003 with a regulatory status of “Eligible for Closure”. Due to their case status these facilities do not present a PEC for the site. The remaining facilities are not considered environmental concern to the project.

Multiple facilities were listed in the CA FID UST database within the searched distance for Area C. According to the LUST database the following six facilities have cases related to LUSTs:

Facility and Address	Distance/ Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Status	Environ- mental Concern (Y/N)
Arco SS #3 5201 Century Blvd.	On-site	N/A	Open-Eligible for Closure	N
<b>Kam Cars of America</b> <b>5440 W Century Blvd.</b>	<b>On-site</b>	<b>N/A</b>	<b>Active</b>	<b>Y</b>
Airport Union Service 5552 W Century Blvd.	Adjacent to the south	Cross-gradient	Active	N
Texaco Service Station 5551 W Century Blvd.	On-site	N/A	Active	N
Inglewood Transmission 4919 W Century Blvd.	0.19 mile east	Down-gradient	Active	N
National Technical S. 5320 104 <sup>th</sup> St.	0.20 mile south	Cross-gradient	Inactive	N



Facility and Address	Distance/ Direction from Site	Groundwater Gradient (General for Vicinity Flow)	Status	Environ- mental Concern (Y/N)
<b>Notes:</b> Blvd. – Boulevard N – No N/A – Not Applicable S. – South St. – Street W. – West Y – Yes				

Kam Cars of America is listed as Thrifty Car Rental (5440 W Century Boulevard) on the LUST database. The facility has one UST of unknown capacity and open an unauthorized release case of aviation fuel affecting soil and groundwater. Based on the case status the facility is considered a REC to the project. Based on the regulatory status, distance, and/or direction, and absence of reported leaks, the remaining facilities do not represent RECS or PECs for the site.

Twenty-one facilities were listed on the SWEEPS UST database in the search radius for Area C. The information provided in the database for the facilities included the number of USTs, UST capacities, and UST contents. Information regarding releases or subsurface contamination was not provided; however, 10 facilities are also listed on the LUST database related to LUSTs. The facilities are discussed in the LUST database section of Section 5.3.2. The remaining listings do not represent RECS or PECs for the site.

The following six facilities were listed on the CHMIRS database within the searched distance:

Facility and Address	Date	Substance	Description	Environ- mental Concern (Y/N)
Not reported 1155 Arbor Vitae St.	2/6/2013	335 gallons – mineral oil	Vandalism to a pad mounted transformer.	N
Not reported 911 S Ash St.	8/15/1999	unknown	Strong smell causing headaches.	N



Facility and Address	Date	Substance	Description	Environmental Concern (Y/N)
Chevron 97240 5156 W Century Blvd.	5/20/2013	3 gallons – gasoline	Vehicle leaking gasoline as driving away from station. Release absorbed with pads.	N
#3272 5552 W Century Blvd.	6/21/1994	Unreported quantity – petroleum hydrocarbons	Soil samples indicated contamination during construction.	N
Not reported 5510 W 102 <sup>nd</sup> St.	10/13/1989	Unknown	No details available	N
Pro-Tech Design MFG 5220 West 104 <sup>th</sup> St.	4/28/1990	Unknown	No details available	N
<b>Notes:</b> Blvd. – Boulevard N – No N/A – Not Applicable S. – South St. – Street W. – West Y – Yes				

Based on the location, quantities, and/or remedial action, the listings do not represent potential environmental concerns for the project.

Facilities were not listed on the CA WMUDS/SWAT list in Area C.

Seven facilities within the search distance for Area C were listed on the Historic Cortese database. Additional information was not provided; however, the facilities are listed and described in the LUST, SLIC, and/or UST databases.

Two facilities within the searched distance were listed on the California Drycleaners database. Cosmopolitan Cleaners at 5000 West Century Boulevard, approximately 0.10 mile east and down-gradient of the site, has been inactive since 2006. Pro-Tech Design and MFG at 5220 West 104<sup>th</sup> Street, adjacent to the west and up-gradient of the southern portion of Area C has been inactive since 2004. Based on the distance and direction, Pro-Tech Design and MFG represent a PEC.

Further discussion of areas of concern for Area C can be found in Section 7.



#### 5.4. Area D

Table 9 summarizes the number of facilities listed in the environmental database search within the specified search radii for Area D. Area D was not listed on the searched environmental databases.

**Table 9 – Environmental Database Search Results – Area D**

Database(s)	Description	Facilities Listed*
<b>Federal Databases</b>		
NPL	The NPL is the EPA's database of uncontrolled or abandoned hazardous waste facilities that have been listed for priority remedial actions under the Superfund Program. Updated quarterly.	0
CERCLIS/ NFRAP	The CERCLIS database is a compilation of facilities which the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances pursuant to the CERCLA of 1980. NFRAP refers to facilities that have been removed and archived from its inventory of CERCLA sites.	0
Institutional Control/Engineering Control	Superfund sites that have either an engineering or an institutional control. The data includes the control and the media contaminated.	0
RCRA CORRACTS/TSD	The EPA maintains a database of RCRA facilities associated with TSD of hazardous materials that are undergoing "corrective action." A "Corrective action" order is issued when there has been a release of hazardous waste or constituents into the environment from a RCRA facility.	0
RCRA Non- CORRACTS/TSD	The RCRA Non-CORRACTS/TSD Database is a compilation by the EPA of facilities that report storage, transportation, treatment, or disposal of hazardous waste. Unlike the RCRA CORRACTS/TSD database, the RCRA Non-CORRACTS/TSD database does not include RCRA facilities where corrective action is required.	0
RCRA Generators	The RCRA Generators database, maintained by the EPA, lists facilities that generate hazardous waste as part of their normal business practices. Generators are listed as large, small, or conditionally exempt. LQGs produce at least 1,000 kg/month of non-acutely hazardous waste or 1 kg/month of acutely hazardous waste. SQGs produce 100 to 1,000 kg/month of non-acutely hazardous waste. CESQGs are those that generate less than 100 kg/month of non-acutely hazardous waste.	3
ERNS	ERNS records and stores information on reported releases of oil and hazardous substances.	2
<b>State Databases</b>		
Cal Sites	The Cal Sites database is maintained by the Cal-EPA, DTSC. This database contains information on AWP, and both known and potentially contaminated properties. Two-thirds of these properties have been classified, based on available information, as needing NFA by the DTSC. The remaining properties are in various stages of review and remediation to determine if a problem exists.	0
EnviroStor	DTSC electronic database system with information about sites that are known to be contaminated with hazardous substances as well as information about sites that are known to be contaminated with hazardous substances as well as information on uncharacterized properties where further studies may reveal problems.	0
SLIC	The SLIC database is maintained by the RWQCB.	0
SWF/LF	The SWF/LF database consists of open and closed solid waste disposal facilities and transfer stations. The data come from the Integrated Waste Management Board's SWIS database.	0
LUST	Databases of the LUST information system are maintained by the SWRCB and RWQCB.	0
UST/AST	The UST Information System and AST database are maintained by the SWRCB, which may include the owner and location of the USTs/ASTs.	1
VCP	The VCP database is a Cal-EPA listing of properties involved in the voluntary remediation program	0



**Table 9 – Environmental Database Search Results – Area D**

Database(s)	Description	Facilities Listed*
Brownfields	This database is a DTSC tracking system of California Brownfields sites.	0
Indian Reservation	USGS map layer portrays Indian administered land within the United States with an area equal to or greater than 640 acres.	0
Indian LUST	This is a database maintained by the EPA of LUSTs on Indian land in Arizona, California, New Mexico, and Nevada.	0
Indian UST	This is a database maintained by the EPA of USTs on Indian land.	0
<b>Non-ASTM Databases</b>		
HAZNET	The HAZNET database contains facility and manifest data.	0
Hist UST	The Hist UST database lists historical registered USTs.	0
CA FID USTs	The FID UST contains active and inactive UST locations and is maintained by the SWRCB.	0
SWEEPS USTs	This UST listing was updated and maintained by a company contracted by the SWRCB in the early 1990s. The listing is no longer updated or maintained.	0
CHMIRS	The CHMIRS contains information on hazardous materials reporting.	1
WMUDS/SWAT	The WMUDS/SWAT is used for program tracking and inventory of waste management units. The system is maintained by the SWRCB.	0
Hist CORTESE	The Hist CORTESE database is designated by the SWRCB LUST, IWB SWF/LF, and the DTSC Cal Sites. This listing is no longer updated by the state agency.	0
CA Drycleaners	The CA Drycleaners is a list of drycleaner related facilities that have an EPA ID number.	0
EDR US Hist Auto Stat	The EDR US Hist Auto Stat database is a list of potential gasoline service stations available to EDR researchers.	0
EDR US Hist Cleaners	The EDR US Hist Cleaners database is a list of potential drycleaner sites available to EDR researchers	0
<b>Notes:</b> AST – Aboveground Storage Tank Auto Stat – Auto Station AWP – Annual Work plan Properties CA – California CA FID – California Facility Inventory Database Cal-EPA – California Environmental Protection Agency CERCLA – Comprehensive Environmental Response, Compensation and Liability Act CERCLIS – Comprehensive Environmental Response, Compensation, and Liability Information System CESQG – Conditionally Exempt Small Quantity Generators CHMIRS – California Hazardous Materials Information Reporting System CORRACTS – Corrective Action Report CORTESE – “Cortese” Hazardous Waste & Substances Sites List DTSC – Department of Toxic Substances Control EDR – Environmental Data Resources, Inc. EPA – United States Environmental Protection Agency ERNS – Emergency Response Notification System HAZNET – Facility and Manifest Data Hist – Historical IWMB – Integrated Waste Management Board kg – kilograms LQG – Large Quantity Generator LUST – Leaking Underground Storage Tanks NFA – No Further Action NFRAP – No Further Remedial Action Planned NPL – National Priorities List RCRA – Resource Conservation and the Recovery Act RWQCB – Regional Water Quality Control Board SLIC – Spills, Leaks, Investigations, and Cleanups Program SQG – Small Quantity Generators SWEEPS – Statewide Environmental Evaluation and Planning System SWF/LF – Solid Waste Facility/Landfill SWIS – Solid Waste Information System SWRCB – State Water Resources Control Board TSD – Treatment, Storage, and Disposal US – United States USGS – United States Geological Survey UST – Underground Storage Tank VCP – Voluntary Cleanup Program WMUDS/SWAT – Waste Management Unit Database System/Solid Waste Assessment Test *Some facilities have multiple listings under a single database.		



#### 5.4.1. Federal Databases – Area D

Three facilities were listed on the RCRA Generators database within the searched distance. Violations were not reported for these facilities, and are therefore not considered an environmental concern to the project.

The following two facilities were listed on the ERNS database within the searched distance.

Facility and Address	Date	Release	Remedial Action	Environmental Concern (Y/N)
Not reported Aviation Blvd & Imperial Hwy	12/11/1991	20 gallons of transformer oil leaked from the transformer on a flatbed trailer	Cleanup by Crosby & Overton	N
Not reported 11101 S Aviation Blvd	6/19/1992	2 pounds of methylene dianiline (P,P1-Diaminodiphenyl Methane) spilled when a fork lift punctured a cardboard drum	Cleanup by Los Angeles County Department of Public Health	N
<b>Notes:</b> Blvd. – Boulevard Hwy – Highway N – No St. – Street Y – Yes				

#### 5.4.2. State Databases – Area D

One facility was listed on the UST database within the searched distance for Area D; Westchester Maintenance Yard, 0.1 mile northeast and cross gradient of the site. Information in this database included a facility identification number, permitting agency, and latitude and longitude coordinates. Violations were not reported for the facility, and it is therefore not an environmental concern to the project.

#### 5.4.3. Non-ASTM Databases – Area D

One facility was listed on the CHMIRS database within the searched distance; 11101 South Aviation Blvd, 0.01 mile northwest and crossgradient of the site. On 9/8/1997, 5 pounds of benzoquinone was released after packing was ruptured while unloading from



a truck. Based on the time of release, quantity, and proximity to the site, this facility is not considered an environmental concern to the project.

### 5.5. Summary of Properties of Concern

Table 10 presents a brief summary of properties of concern revealed by the review of the database reports.

**Table 10 – Summary of Properties of Concern from the EDR Database Report**

Business Name and Address	Case Summary
<b>Area A</b>	
Allied-Signal Inc./Park One/ Honeywell International Inc. 9851 Sepulveda Blvd.	Listed on the SLIC database as “Open - Remediation” with petroleum hydrocarbons and halogenated volatile organic compounds affecting groundwater and soil vapor. The facility is also listed on the Historic UST database, and on the LUST database as “Remedial Action Underway”.
Allied Aviation Service Co. facility 6501 West 96 <sup>th</sup> St.	Listed on the CA FID UST database as “inactive” has three USTs ranging from 600 to 10,000 gallons, containing waste oil and gasoline and an open unauthorized release case affecting soil and groundwater. The facility is also listed on the Historic UST database.
<b>Area B</b>	
King Delivery, Inc. 5600 Arbor Vitae St.	Listed on the LUST database as “Assessment and Interim Remedial Action”. The facility is also listed on the Historic UST database.
National Car Sales 9200 Airport Blvd.	Listed on the LUST database as “Open Site-Assessment”.
National Car Rental 9419 Airport Blvd.	Listed on the LUST database as “Verification Monitoring”. The facility is also listed on the Historic UST database.
Budget Rent-A-Car 9775 Airport Blvd.	Listed on the LUST database as “Open Remediation” The facility is also listed on the Historic UST database.
Hertz Corporation 9225 Aviation Road owns	Listed on the AST database as an open cleanup case. According to the GeoTracker database the address corresponds to Honeywell International Corporation.
Union Bank/Estate of Joseph Collins 9007-9121 Aviation Blvd.	Listed on the SLIC database as “Open – Site Assessment”
Princeland Property 1237 Arbor Vitae	Listed on the SLIC database as “Open – Site Assessment”
Honeywell International 9225 Aviation Blvd	Listed on the SLIC database as “Open – Remediation”
<b>Area C</b>	
Tetra Graphics Site 10310 Glasgow	Listed on the SLIC database as “Open – Site Assessment” for a release of VOCs into groundwater and soil vapor. The facility is also listed on the EnviroStor database.
Thrifty Car Rental 5440 West Century Boulevard	Listed on the LUST database as “Open – Remediation” for an unauthorized release of aviation fuel affecting soil and groundwater.



**Table 10 – Summary of Properties of Concern from the EDR Database Report**

<b>Business Name and Address</b>	<b>Case Summary</b>
Fan Steel/Precision Sheet Metal 5235 West 104 <sup>th</sup> Street	Listed on the SLIC database as “Open – Site Assessment” for a release of VOCs into groundwater and soil vapor
Pro-Tech Design MFG 5220 West 104 <sup>th</sup> Street	Listed on the California Drycleaners database as “inactive”
<b>Notes:</b> AST – Above Ground Storage Tank Blvd. – Boulevard CA FID UST – California Facility Inventory Database of Underground Storage Tanks LUST – Leaking Underground Storage Tank SLIC – Spills, Leaks, Investigations, and Cleanups Program UST – Underground Storage Tank VOCs – volatile organic compounds	

## **6. SITE RECONNAISSANCE**

A site reconnaissance was conducted by Ninyo & Moore to provide, current information about the proposed project area that is not obtainable through an environmental records review or historical information review. Ninyo & Moore performed site reconnaissance of the proposed Project areas on July 22 and October 7, 2015. Properties were observed from public thoroughfares. The visits included a limited reconnaissance of the proposed Project areas. Photographs of the proposed project area are presented in Appendix C.

During the site reconnaissance, Ninyo & Moore looked for several indicators of potential environmental impacts to the project areas including, but not limited to, significant staining or degraded pavement, USTs, ASTs, storage of hazardous materials and wastes, groundwater monitoring wells and remediation systems, transformers, industrial facilities, current or historic fuel stations, stressed vegetation, and the presence of pits, ponds, or lagoons. The presence of features such as ASTs, USTs, or chemical storage areas alone is not cause to classify a property as Moderate or High with regard to risk.

The following sections summarize observations at properties where environmental risk indicators were noted by the field personnel. Table 11 contains an observation checklist for the properties of concern.



**Table 11 – Site Reconnaissance (Areas A, B, and C)**

Area	Address/General Location	Business Name	Site Use	Chemical Storage Areas	Dumped, Burned Material	Hydraulic Equipment (Lifts)	Bermed, Recessed, or Diked Areas	Chemical/Pesticide Mixing Areas	Sumps, Pits, Ponds, Lagoons, Clarifiers	Discharges/Disposal Areas	Groundwater Monitoring Wells or Other Wells	Remediation Equipment/Evidence or Remediation	Discolored or Polluted Water	Storage Tanks (Underground or Aboveground)	Drums	Stressed Vegetation	Discolored/Stained Soils	Degraded/Heavy Stained Pavement
A	9851 South Sepulveda	Park One	Parking Lot	N	N	N	N	N	N	N	Y	Y	N	N	N	N	N	N
B	9419 Airport Boulevard	National	Parking Lot	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N
	9225 Aviation Boulevard	Garret Lot	Parking Lot/Auto Repair/Car Wash	N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N
C	5552 Century Boulevard	76 Station	Gasoline Station	N	N	N	N	N	N	N	Y	N	N	N	N	N	N	N
	9150 Aviation Boulevard	Dollar Rent a Car	Car Rental	N	N	N	N	N	N	N	N	N	N	Y	N	N	N	N
<b>Notes:</b> N – No N/A – Not Applicable Y – Yes The existence of, for example, tanks or chemical storage areas alone is generally not cause to classify a property as moderate or high with regard to risk. Evidence of a release, such as significant staining, groundwater monitoring wells or remediation equipment, would be cause to classify a property as Moderate or High.																		

## 6.1. Area A

The following sections describe the observations of the site reconnaissance for Area A.

### 6.1.1. Chemical Storage Areas

Use and storage of chemicals were not observed during the site reconnaissance.

### 6.1.2. Groundwater Monitoring Wells or Other Wells

Several groundwater wells were observed during the site reconnaissance at Park One, at 9851 South Sepulveda. A SVE system was observed on the northwest corner of the Park One parking lot. The presence of a remedial system represents a REC for the site.



#### **6.1.3. Storage Tanks (USTs and ASTs)**

Evidence of USTs (e.g., fill pipes, vent pipes, and emergency power generators) or ASTs was not observed on the boundaries of Area A during the site during the site reconnaissance.

#### **6.1.4. PCBs**

Historically PCBs, a group of hazardous substances and suspected human carcinogens, were widely used as an additive in cooling oils for electrical components. The manufacture of PCB containing equipment was discontinued in 1979. Typical sources of PCBs include electrical transformers. One pole mounted transformer was observed on the western portion of the Park One parking lot during the site reconnaissance. No leaks or staining were noted on or beneath the transformer. One additional pad mounted transformer was observed adjacent to the lot to the northeast. These transformers do not represent a REC for the site.

#### **6.1.5. Degraded/Heavy Stained Pavement**

No signs of degraded or heavy stained pavement were observed.

#### **6.1.6. Other Environmental Issues**

No other environmental issues were noted on Area A during our reconnaissance.

### **6.2. Area B**

The following sections describe the observations of the site reconnaissance for Area B.

#### **6.2.1. Chemical Storage Areas**

Use and storage of chemicals were not observed during the site reconnaissance.

Further discussion of chemical storage for Area B is in Sections 6.2.3.

#### **6.2.2. Groundwater Monitoring Wells or Other Wells**

Groundwater wells were not observed during the site reconnaissance.



#### **6.2.3. Storage Tanks (USTs and ASTs)**

ASTs were observed in the western portion of the National parking lot at 9419 Airport Boulevard. Capacities and contents were not able to be determined during the site reconnaissance. Staining or evidence of release from the ASTs was not observed at the time of the site reconnaissance.

#### **6.2.4. PCBs**

Various pole mounted transformers were observed along West 96<sup>th</sup> Street adjacent to Siemens Healthcare facility at 5700 West 96<sup>th</sup> Street during the site reconnaissance. No leaks or staining were noted on or beneath the transformers. Two additional pad mounted transformers were observed at the Clean Energy Station at 9620 Aviation Boulevard, and at the Carl's Jr. Restaurant at 5625 West Century Boulevard. These transformers do not represent a REC for the site.

A hydraulic lift was observed at 9225 Aviation Boulevard. No indications of leaks or reported incidents were identified at the time of the reconnaissance. Based on the site observations, Ninyo & Moore concluded the hydraulic lift does not represent a REC for the site.

#### **6.2.5. Degraded/Heavy Stained Pavement**

No signs of degraded or heavy stained pavement were observed.

#### **6.2.6. Other Environmental Issues**

No other environmental issues were noted on Area B during our reconnaissance.

### **6.3. Area C**

The following sections describe the observations of the site reconnaissance for Area C.

#### **6.3.1. Chemical Storage Areas**

Use and storage of chemicals were not observed during the site reconnaissance.

Further discussion of chemical storage for Area C is in Section 6.3.3.



#### **6.3.2. Groundwater Monitoring Wells or Other Wells**

Abandoned monitoring wells were observed at the Shell gasoline station at 5551 West Century Boulevard and at the ARCO gasoline station at 5201 West Century Boulevard during the site reconnaissance. These abandoned monitoring wells were not determined to represent a REC for the site. Monitoring wells were also observed outside the project limits of Area C to the south at the 76 Station at 5552 Century Boulevard.

#### **6.3.3. Storage Tanks (USTs and ASTs)**

Two 10,000-gallon ASTs were observed at the Dollar Car Rental Lot outside of the project boundaries of Area C to the north. Staining or evidence of release from the ASTs was not observed at the time of the site reconnaissance. Therefore, the ASTs do not represent an environmental concern for the proposed Project.

#### **6.3.4. PCBs**

Several pole mounted transformers were observed along Arbor Vitae Street, La Cienega Boulevard, Isis Avenue, Glasgow Place, 98<sup>th</sup> Street and along alleyways of Area C. No leaks or staining were noted on or beneath the transformers. These transformers do not represent a REC for the site.

#### **6.3.5. Degraded/Heavy Stained Pavement**

No signs of degraded or heavy stained pavement were observed.

#### **6.3.6. Other Environmental Issues**

No other environmental issues were noted on Area C during our reconnaissance.

### **6.4. Area D**

The following sections describe the observations of the site reconnaissance for Area D.

#### **6.4.1. Chemical Storage Areas**

Multiple containers (approximately five-gallons each) of concrete polymer were observed in an outdoor construction materials storage area. One group of containers



contained toluene diisocyanate, a toxic substance. Empty, unlabeled 55-gallon drums were observed nearby.

#### **6.4.2. Groundwater Monitoring Wells or Other Wells**

Groundwater monitoring wells and other well types were not observed at Area D during site reconnaissance

#### **6.4.3. Storage Tanks (USTs and ASTs)**

Storage tanks were not observed at Area D during site reconnaissance.

#### **6.4.4. PCBs**

The Department of Water & Power's Distribution Station No. 47 was observed in the southern portion of Area D. The station contains many electric conduits and transformers that are fenced off from the public. Aerial photographs indicate that the structure has been present since at least 1938. Because of the age of transformers within the station, PCBs may have been released. Therefore, this electrical distribution station represents a REC for the site.

#### **6.4.5. Degraded/Heavy Stained Pavement**

Signs of degraded or heavy stained pavement were not observed.

#### **6.4.6. Other Environmental Issues**

Other environmental issues were not noted in Area D during our reconnaissance.

### **7. PROPERTIES OF CONCERN**

Based on the results of our historical research, review of the environmental database, regulatory agency inquiries, and our site reconnaissance, properties were evaluated and classified as High, Moderate, or Low with regard to the potential for detrimental impacts during construction activities for the proposed Project. Specific properties of High or Moderate risk are presented in Table 12. Properties categorized as High or Moderate risk in Table 10 were evaluated based on the information obtained and the likelihood that hazardous materials might impact soil and/or



groundwater likely to be disturbed during construction. Properties of concern and properties with LAWA-provided reports are shown on Figures 3 through 6.

**Table 12 – Identified Specific Properties of Concern**

Area	Property Name/Address	Site Operations - Reason for Risk Class (1)	Data Source (2)	Risk Class (3)	Within Proposed Project Area	Applicable HMI/ Mitigation Measure
A	Allied-Signal Inc./Park One/ Honeywell International Inc. 9851 Sepulveda Blvd.	Former aerospace manufacturer: TPH and VOCs affecting groundwater. USTs, SVE system. Listed on the SLIC and LUST databases.	D, R	H	Y	2,3,4
	Allied Aviation Service Co. facility 6501 West 96 <sup>th</sup> St.	Fuel storage: listed on the LUST database, unauthorized release affecting soil and groundwater.	D	H	Y	2,3,4
B	King Delivery, Inc. 5600 Arbor Vitae St.	Fuel storage: listed on the LUST database, USTs.	D, R	M	Y	2,3,4
	National Car Sales 9200 Airport Blvd.	Fuel storage: listed on the LUST database, USTs.	D, R	M	Y	2,3,4
	National Car Rental 9419 Airport Blvd.	Fuel storage: listed on the LUST database, USTs.	D, R	M	Y	2,3,4
	Budget Rent-A-Car 9775 Airport Blvd.	Fuel storage: listed on the LUST database, USTs. Unauthorized release affecting soil and groundwater.	D, R	H	Y	2,3,4
	Hertz Corporation/ Honeywell International 9225 Aviation Road	Former aerospace manufacturer: USTs, clarifiers, and degreasers	D,R	H	Y	1,2,3,4
	Union Bank/Estate of Joseph Collins 9007-9121 Aviation Blvd.	Former metal treating facility: unauthorized release of TPH and VOCs affecting soil and groundwater	D	H	Y	1,2,3,4
	Princeland Property 1237 Arbor Vitae	Former degreasing operations, plastic extrusion, and furniture distribution facility: Elevated levels of VOCs in soil and groundwater.	D	H	Y	1,2,3,4
C	Tetra Graphics Site 10310 Glasgow	Former aircraft manufacturer: unauthorized release of VOCs in groundwater and soil vapor.	D, R	H	Y	1,2,3,4
	Thrifty Car Rental 5440 West Century Blvd.	Unauthorized release of aviation fuel affecting soil and groundwater	D, R	H	N	1,2,3,4
	Fan Steel/Precision Sheet Metal 5235 West 104 <sup>th</sup> St.	Unauthorized release of VOCs in groundwater and soil vapor.	D	H	Y	2,3,4
	Dollar Car Rental 9150 Aviation Blvd.	ASTs	R	M	N	2,3,4
	Pro-Tech Design MFG 5220 West 104 <sup>th</sup> St.	Drycleaner	D	M	N	2,3,4
D	Los Angeles Department of Water and Power Distribution Station No. 47	Electrical transformers used at distribution facility since at least 1938.	R, H	H	Y	1,2,3,4
<b>Notes:</b> AE – American Eagle ASTs – Above ground Storage Tanks Blvd. Boulevard GSE – ground support equipment HMI – Hazardous Material Impact						



**Table 12 – Identified Specific Properties of Concern**

Area	Property Name/Address	Site Operations - Reason for Risk Class (1)	Data Source (2)	Risk Class (3)	Within Proposed Project Area	Applicable HMI/ Mitigation Measure
LUST – Leaking Underground Storage Tank N – No N/A – Not Applicable SLIC – Spills, Leaks, Investigations, and Cleanups Program St. – Street SVE – soil vapor extraction TPH – total petroleum hydrocarbon USTs – Underground Storage Tanks VOC – volatile organic compound USCG – United States Coast Guard Y – Yes (1) Description of site operations/primary reasons for risk class (2) Indicates primary information sources for listing: R=Reconnaissance, D=Database, H=Historical Documentation, I= Interviews with LAX staff (3) Risk Class H = high, M = moderate, L = low						

## 8. NON-SPECIFIC AREAS OF CONCERN

The following are non-specific concerns within the proposed Project areas. These concerns include widespread (throughout the noted areas) industrial-type operations that occurred in the noted areas over several decades.

- **Area A** – varied historical industrial uses including aircraft manufacturers, a die casting shop, gas and oil stations, auto repair shops, factory buildings machine shops, and parts storage.
- **Area B** – varied historical industrial uses including aircraft hangars and maintenance, factories, a machine shop, a chrome furniture manufacturer, a sheet metal shop, various aircraft parts manufacturers, cosmetics laboratories, and electronics manufacturers.
- **Area C** – varied historical industrial uses including aircraft hangars and maintenance, paint shops, electronic assemblies, processing plants, sheet metal shops, and machine shops.
- **Area D** – varied historical uses including an auto repair shop, missile fuel testing area, recycling yard, one 10,000-gallon gasoline UST present from at least 1950 through 1969 (northern portion), and an electrical station.

## 9. HAZARDOUS MATERIALS IMPACTS

Based on the results of this HMA, Ninyo & Moore has developed Hazardous Materials Impacts (HMI) for the project area; some of the HMIs apply to all areas of the project and some are specific to certain areas of concern noted in Table 12.



- **HMI-1** – Demolition of structures built prior to 1980 may result in the exposure of the public and/or the environment to ACMs and/or LBP.
- **HMI-2** – Construction activities may encounter previously unidentified USTs, hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes and may result in the exposure of the public and/or the environment to hazardous materials.
- **HMI-3** – Construction activities, including demolition, may encounter or generate hazardous or solid wastes and debris and may result in the exposure of the public and/or the environment to hazardous materials.
- **HMI-4** – Construction activities may result in exposure of the public and/or the environment to contaminated soil at the specified properties listed in Table 12.

## 10. MITIGATION MEASURES

The following preliminary mitigation measures are proposed measures for each HMI:

- **HMI-1** – Prior to construction activities, LAWA, or its contractors, will conduct an evaluation of all buildings (built prior to 1980) to be demolished to evaluate the presence of ACMs and LBP. Remediation will be implemented in accordance with the recommendations of these evaluations.
- **HMI-2** – LAWA or its contractors will prepare a hazardous materials contingency plan addressing the potential for discovery of unidentified USTs, hazardous materials, petroleum hydrocarbons, or hazardous or solid wastes encountered during construction. The contingency plan will address UST decommissioning, field screening and materials testing methods, contaminant management requirements, and health and safety requirements.
- **HMI-3** – Construction contractors will dispose of all hazardous or solid wastes and debris encountered or generated during construction and demolition activities in accordance with all federal, state, and local laws and regulations
- **HMI-4** – LAWA or its contractor will prepare a soil management plan prior to construction and will implement it during all phases of construction. Disturbed soils will be monitored for visual evidence of contamination (e.g., staining or discoloration). Soil will also be monitored for the presence of VOCs using appropriate field instruments such as organic vapor measurement with photoionization detectors or flame ionization detectors in accordance with South Coast Air Quality Management District Rule 1166. If the monitoring procedures indicate the possible presence of contaminated soil, a contaminated soil contingency plan will be implemented and will include procedures for segregation, sampling, and chemical analysis of soil. Contaminated soil will be profiled for disposal and will be transported to an appropriate hazardous or non-hazardous waste or recycling facility licensed to accept and treat the type of waste indicated by the profiling process. The contaminated soil contingency



plan will be developed and in place during all construction activities. If these processes generate any contaminated groundwater that must be disposed of outside of the dewatering/National Pollutant Discharge Elimination System process, the groundwater will be profiled, manifested, hauled, and disposed of in the same manner.

With implementation of the proposed mitigation measures, impacts related to potential hazardous materials are anticipated to be less than significant.



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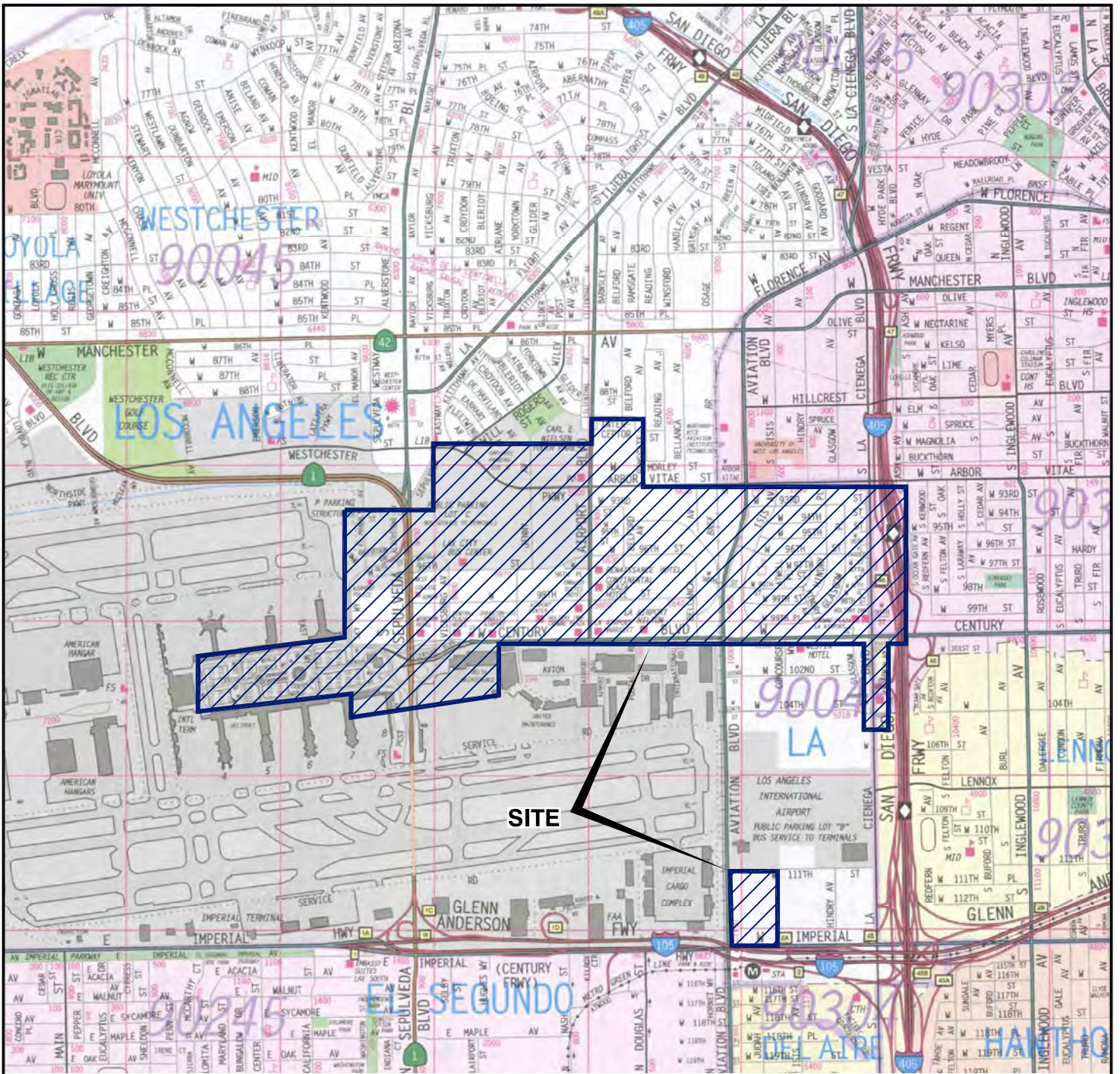
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United States Geological Survey, 1964 photorevised 1981, 7.5-Minute Topographic Quadrangle Map Series, Venice, California.

Zone Information, and Map Access System 2015, <http://zimas.lacity.org/>.

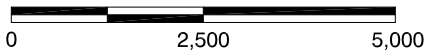




REFERENCE: 52ND EDITION, THOMAS GUIDE FOR LOS ANGELES/ORANGE COUNTIES, STREET GUIDE AND DIRECTORY.



SCALE IN FEET



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

**Ninyo & Moore**

## SITE LOCATION

FIGURE

**1**

PROJECT NO.

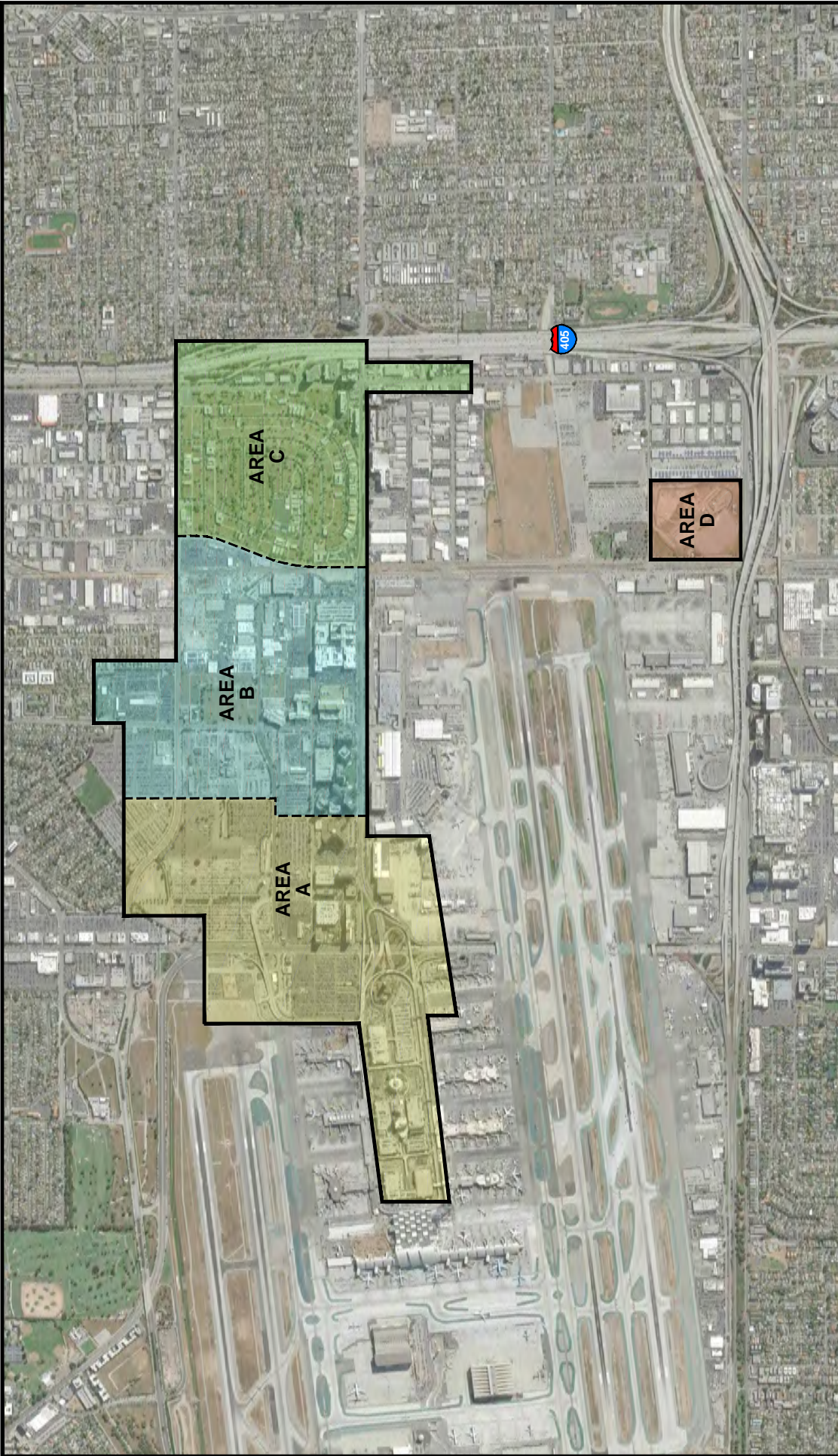
DATE

LANDSIDE ACCESS MODERNIZATION PROGRAM  
LOS ANGELES INTERNATIONAL AIRPORT  
LOS ANGELES, CALIFORNIA

209291003

10/15





REFERENCE: GOOGLE EARTH IMAGERY, 2015.

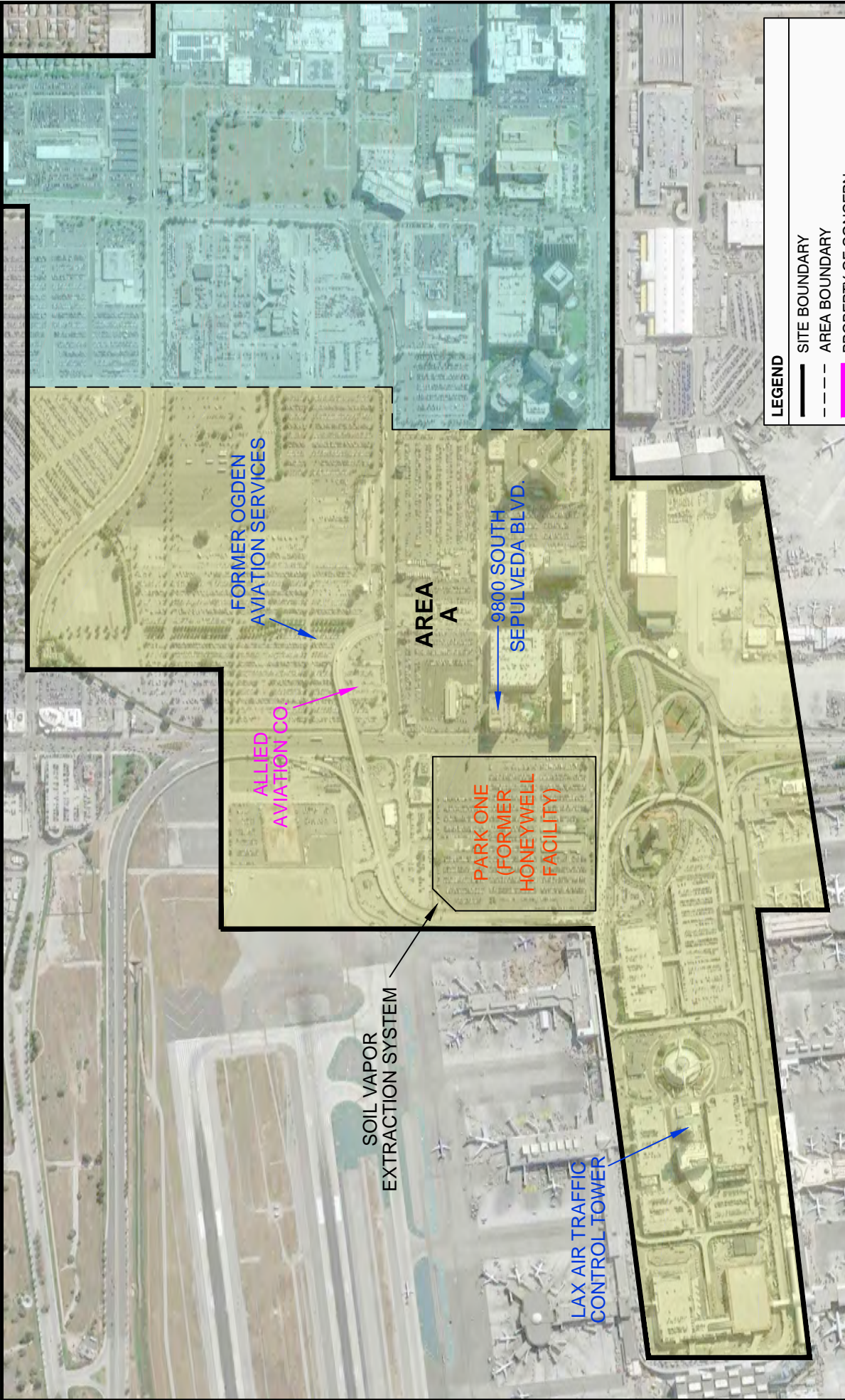


NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

LEGEND	
	SITE BOUNDARY
	AREA BOUNDARY

<i>Ninyo &amp; Moore</i>			SITE PLAN		FIGURE  <b>2</b>
PROJECT NO.		DATE		LANDSIDE ACCESS MODERNIZATION PROGRAM LOS ANGELES INTERNATIONAL AIRPORT LOS ANGELES, CALIFORNIA	
209291003		10/15			





REFERENCE: GOOGLE EARTH IMAGERY, 2015.



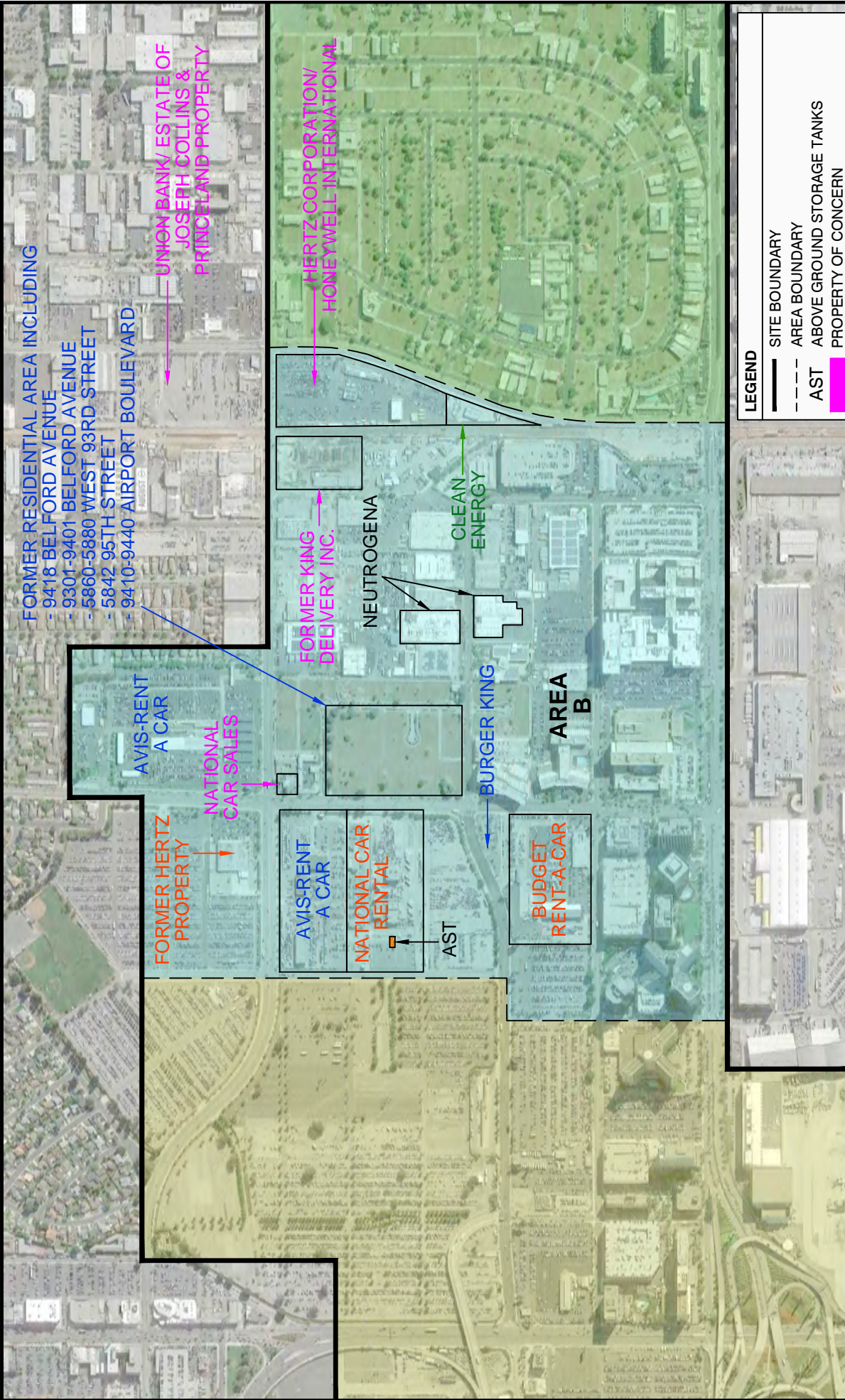
SCALE IN FEET



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

<b><i>Ninyo &amp; Moore</i></b>		<b>AREA A</b>	FIGURE  <b>3</b>
PROJECT NO.	DATE		
209291003	10/15		
		LANDSIDE ACCESS MODERNIZATION PROGRAM LOS ANGELES INTERNATIONAL AIRPORT LOS ANGELES, CALIFORNIA	





REFERENCE: GOOGLE EARTH IMAGERY, 2015.



SCALE IN FEET

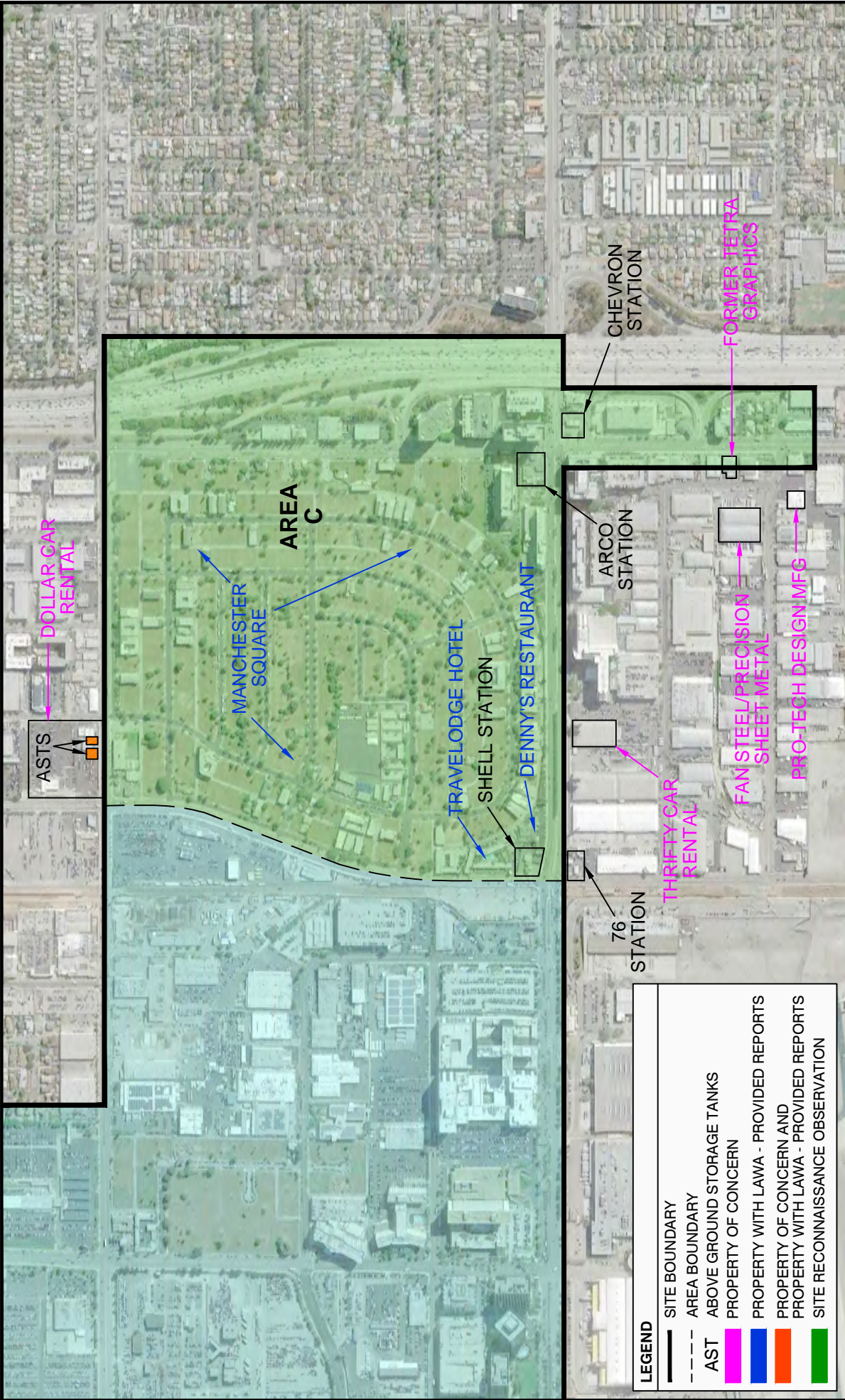


NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

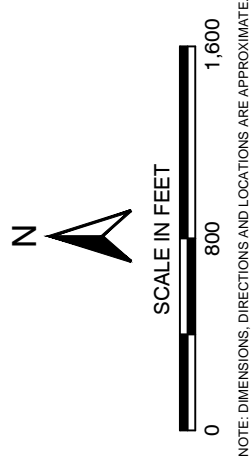
LEGEND	
	SITE BOUNDARY
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	PROPERTY WITH LAWA - PROVIDED REPORTS
	PROPERTY OF CONCERN AND PROPERTY WITH LAWA - PROVIDED REPORTS
	SITE RECONNAISSANCE OBSERVATION

<b><i>Ninyo &amp; Moore</i></b>		<b>AREA B</b>	FIGURE
PROJECT NO.	DATE		
209291003	10/15		
		LANDSIDE ACCESS MODERNIZATION PROGRAM LOS ANGELES INTERNATIONAL AIRPORT LOS ANGELES, CALIFORNIA	<b>4</b>



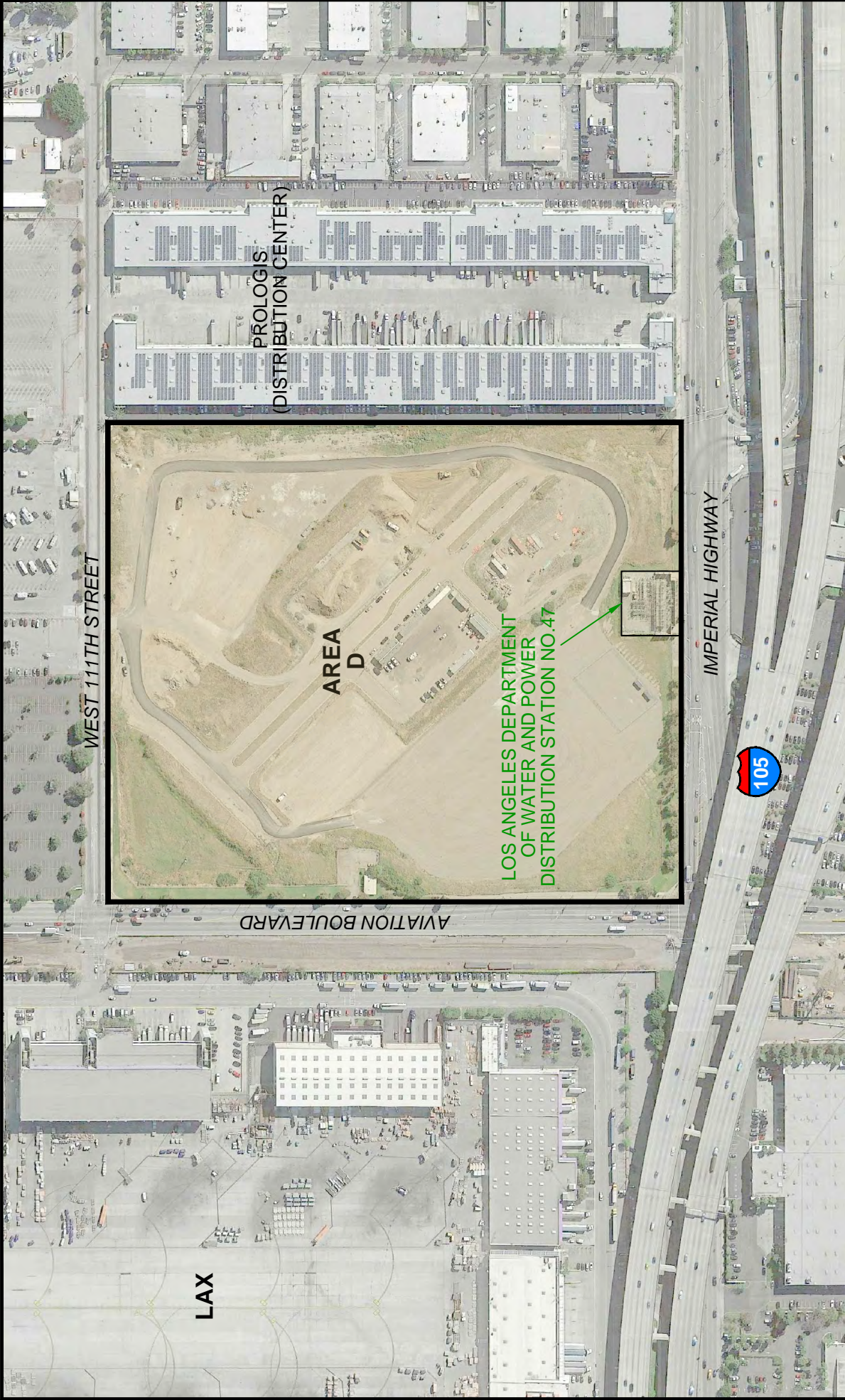


5 209291003-AC.dwg, Oct 09, 2015, 2:08pm, SN



<b><i>Ninyo &amp; Moore</i></b>		<b>AREA C</b>	<b>FIGURE</b>  <b>5</b>
PROJECT NO.	DATE	LANDSIDE ACCESS MODERNIZATION PROGRAM LOS ANGELES INTERNATIONAL AIRPORT LOS ANGELES, CALIFORNIA	
209291003	10/15		





REFERENCE: GOOGLE EARTH IMAGERY, 2015.

6 209291003-AD.dwg, Oct 09, 2015, 2:09pm, SN

LEGEND

SITE BOUNDARY

SITE RECONNAISSANCE OBSERVATION



SCALE IN FEET



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

**Ninyo & Moore**

FIGURE

AREA D

LANDSIDE ACCESS MODERNIZATION PROGRAM  
LOS ANGELES INTERNATIONAL AIRPORT  
LOS ANGELES, CALIFORNIA

PROJECT NO.  
209291003

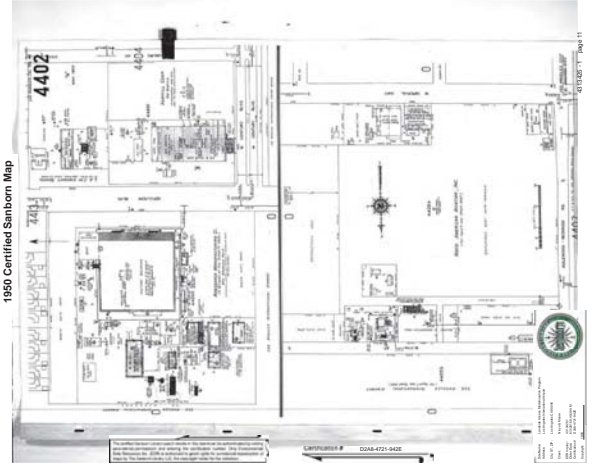
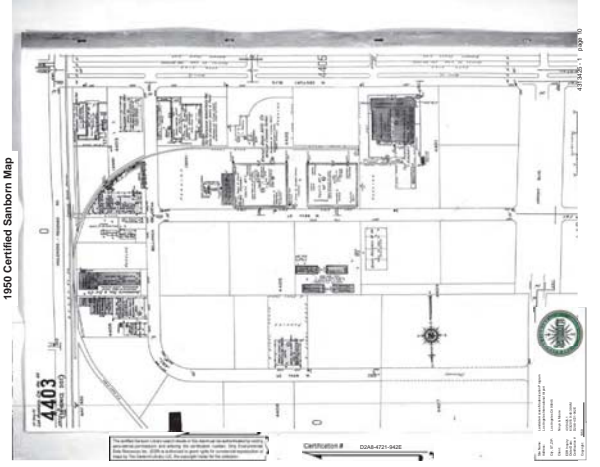
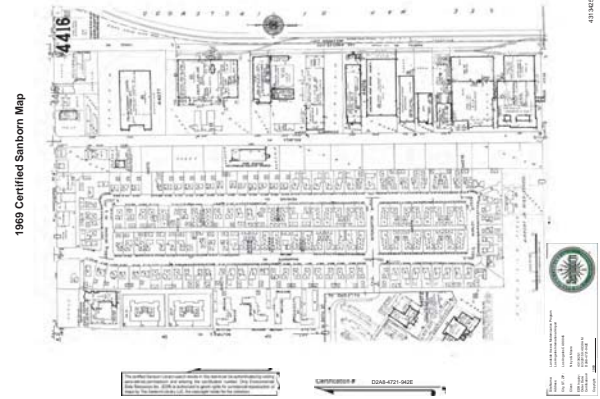
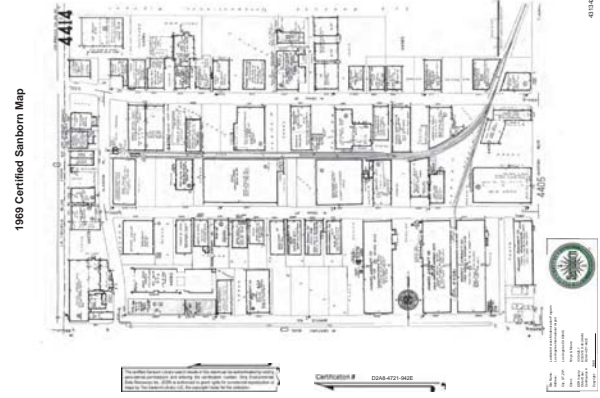
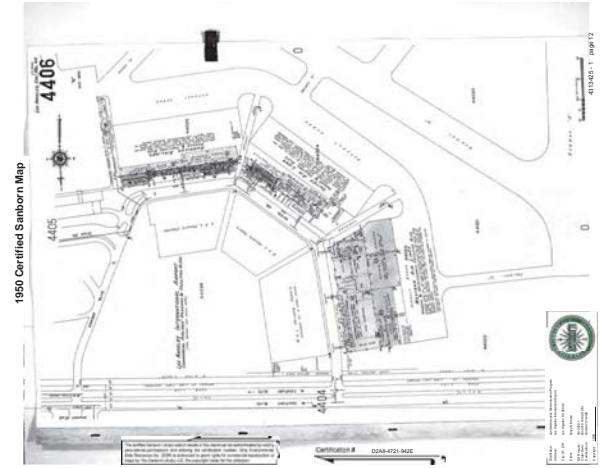
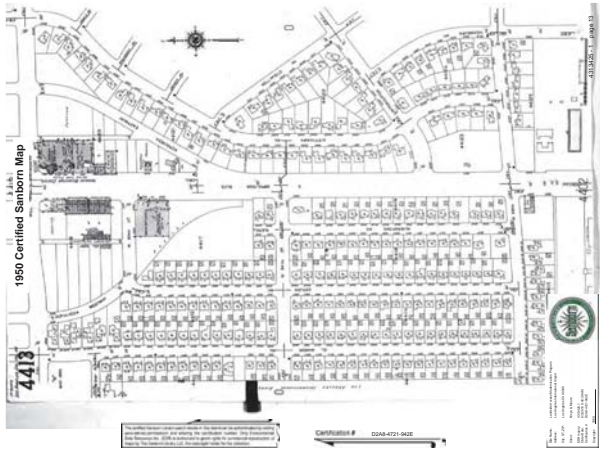
DATE  
10/15

6







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**Landside Access Modernization Program**  
Los Angeles International Airport  
Los Angeles, CA 90045

inquiry Number: 4312866.8  
June 08, 2015

## The EDR Aerial Photo Decade Package

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 Shelton, Connecticut 06484  
 Toll Free: 800.352.0000  
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## Date EDR Searched Historical Sources:

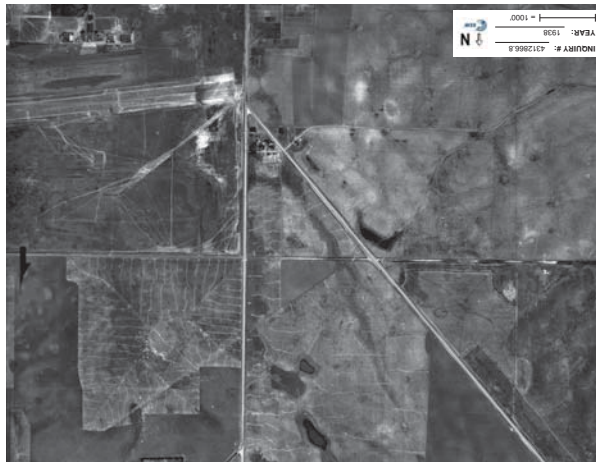
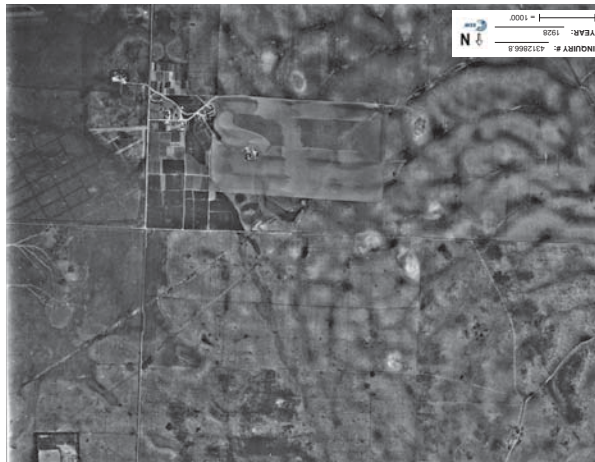
**Target Property:**  
Los Angeles International Airport  
Los Angeles, CA 90045

Year	Score	Rank	Category	Notes
2019	925	1st	Football	Scored 3 touchdowns in the final game.
2018	910	2nd	Football	Improved defense, lost key player.
2017	895	3rd	Football	Strong offensive performance.
2016	880	4th	Football	Consistent performance throughout the season.
2015	865	5th	Football	Struggled in the early part of the season.
2014	850	6th	Football	Key player injured, team struggled.
2013	835	7th	Football	Strong defensive line.
2012	820	8th	Football	Improved offensive strategy.
2011	805	9th	Football	Struggled in the early part of the season.
2010	790	10th	Football	Key player injured, team struggled.
2009	775	11th	Football	Struggled in the early part of the season.
2008	760	12th	Football	Struggled in the early part of the season.
2007	745	13th	Football	Struggled in the early part of the season.
2006	730	14th	Football	Struggled in the early part of the season.
2005	715	15th	Football	Struggled in the early part of the season.
2004	700	16th	Football	Struggled in the early part of the season.
2003	685	17th	Football	Struggled in the early part of the season.
2002	670	18th	Football	Struggled in the early part of the season.
2001	655	19th	Football	Struggled in the early part of the season.
2000	640	20th	Football	Struggled in the early part of the season.
1999	625	21st	Football	Struggled in the early part of the season.
1998	610	22nd	Football	Struggled in the early part of the season.
1997	595	23rd	Football	Struggled in the early part of the season.
1996	580	24th	Football	Struggled in the early part of the season.
1995	565	25th	Football	Struggled in the early part of the season.
1994	550	26th	Football	Struggled in the early part of the season.
1993	535	27th	Football	Struggled in the early part of the season.
1992	520	28th	Football	Struggled in the early part of the season.
1991	505	29th	Football	Struggled in the early part of the season.
1990	490	30th	Football	Struggled in the early part of the season.
1989	475	31st	Football	Struggled in the early part of the season.
1988	460	32nd	Football	Struggled in the early part of the season.
1987	445	33rd	Football	Struggled in the early part of the season.
1986	430	34th	Football	Struggled in the early part of the season.
1985	415	35th	Football	Struggled in the early part of the season.
1984	400	36th	Football	Struggled in the early part of the season.
1983	385	37th	Football	Struggled in the early part of the season.
1982	370	38th	Football	Struggled in the early part of the season.
1981	355	39th	Football	Struggled in the early part of the season.
1980	340	40th	Football	Struggled in the early part of the season.
1979	325	41st	Football	Struggled in the early part of the season.
1978	310	42nd	Football	Struggled in the early part of the season.
1977	295	43rd	Football	Struggled in the early part of the season.
1976	280	44th	Football	Struggled in the early part of the season.
1975	265	45th	Football	Struggled in the early part of the season.
1974	250	46th	Football	Struggled in the early part of the season.
1973	235	47th	Football	Struggled in the early part of the season.
1972	220	48th	Football	Struggled in the early part of the season.
1971	205	49th	Football	Struggled in the early part of the season.
1970	190	50th	Football	Struggled in the early part of the season.
1969	175	51st	Football	Struggled in the early part of the season.
1968	160	52nd	Football	Struggled in the early part of the season.
1967	145	53rd	Football	Struggled in the early part of the season.
1966	130	54th	Football	Struggled in the early part of the season.
1965	115	55th	Football	Struggled in the early part of the season.
1964	100	56th	Football	Struggled in the early part of the season.
1963	85	57th	Football	Struggled in the early part of the season.
1962	70	58th	Football	Struggled in the early part of the season.
1961	55	59th	Football	Struggled in the early part of the season.
1960	40	60th	Football	Struggled in the early part of the season.
1959	25	61st	Football	Struggled in the early part of the season.
1958	10	62nd	Football	Struggled in the early part of the season.
1957	-5	63rd	Football	Struggled in the early part of the season.
1956	-20	64th	Football	Struggled in the early part of the season.
1955	-35	65th	Football	Struggled in the early part of the season.
1954	-50	66th	Football	Struggled in the early part of the season.
1953	-65	67th	Football	Struggled in the early part of the season.
1952	-80	68th	Football	Struggled in the early part of the season.
1951	-95	69th	Football	Struggled in the early part of the season.
1950	-110	70th	Football	Struggled in the early part of the season.

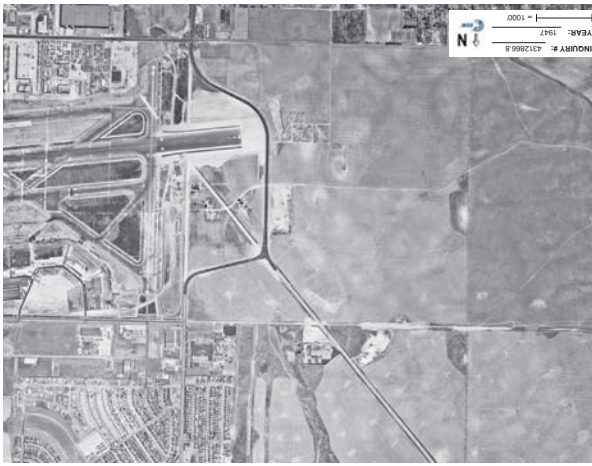
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1312866.8

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9	Avoid the negative, Scale: 1' -1000'	17 High Year: 2009	15.05
9	Avoid the negative, Scale: 1' -1000'	17 High Year: 2009	15.05
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0	Avoid the negative, Scale: 1' -1000'	17 High Year: 2003	15.05
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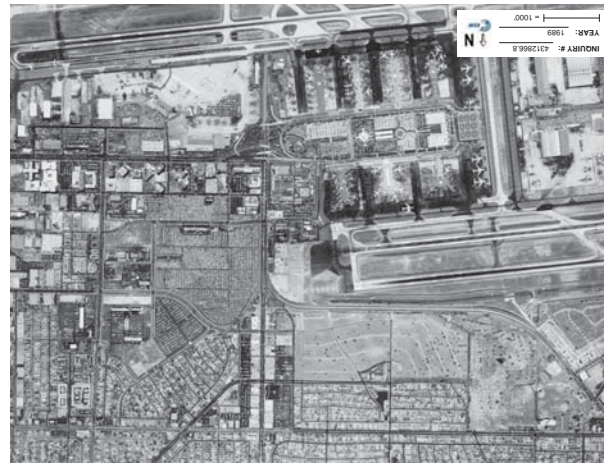
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1312866.8















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Landside Access Modernization Program

5300 W 111th St  
Los Angeles, CA 90045

Inquiry Number: 4423743.5

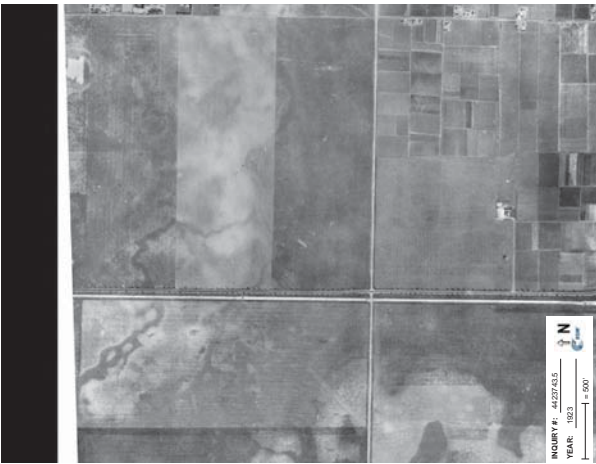
September 30, 2015

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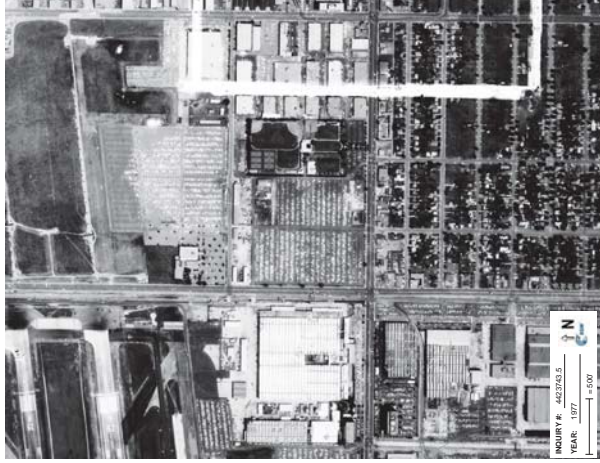
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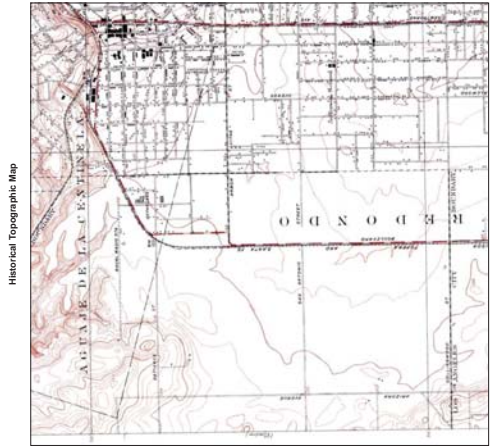








<b>TARGET QUAD</b> MAP YEAR: 1901 SERIES: 60 SCALE: 1:50,000	<b>SITE NAME</b> Los Angeles International Airport ADDRESS: Los Angeles, CA 90045 LAT/LONG: 33.9407 / -118.3089	<b>CLIENT</b> Reynolds & Moore INQUIRY #: 4312866.5 RESEARCH DATE: 06/02/2015
---	--	--



<b>TARGET QUAD</b> MAP YEAR: 1904 SERIES: 6 SCALE: 1:50,000	<b>SITE NAME</b> Los Angeles International Airport ADDRESS: Los Angeles, CA 90045 LAT/LONG: 33.9407 / -118.3089	<b>CLIENT</b> Reynolds & Moore INQUIRY #: 4312866.5 RESEARCH DATE: 06/02/2015
--	--	--



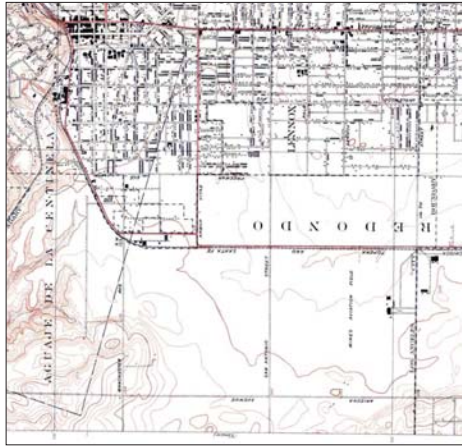
Landside Access Modernization Program  
Los Angeles International Airport  
Los Angeles, CA 90045  
Inquiry Number: 4312866.5  
June 02, 2015



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Los Angeles, CA 90045  
Tel: 310.352.0888  
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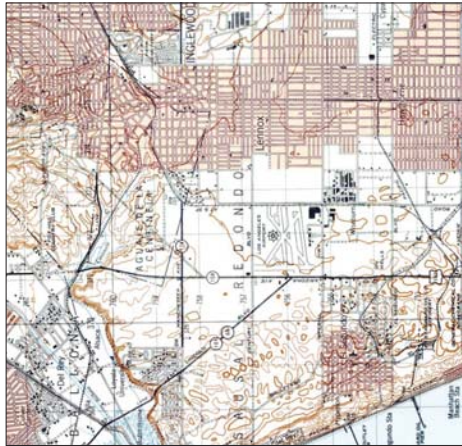
## EDR Historical Topographic Map Report

Historical Topographic Map



<b>TARGET QUAD</b> MAP YEAR: 1901 SERIES: 60 SCALE: 1:50,000	<b>SITE NAME</b> Los Angeles International Airport ADDRESS: Los Angeles, CA 90045 LAT/LONG: 33.9407 / -118.3089	<b>CLIENT</b> Reynolds & Moore INQUIRY #: 4312866.5 RESEARCH DATE: 06/02/2015
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Historical Topographic Map



<b>TARGET QUAD</b> MAP YEAR: 1904 SERIES: 6 SCALE: 1:50,000	<b>SITE NAME</b> Los Angeles International Airport ADDRESS: Los Angeles, CA 90045 LAT/LONG: 33.9407 / -118.3089	<b>CLIENT</b> Reynolds & Moore INQUIRY #: 4312866.5 RESEARCH DATE: 06/02/2015
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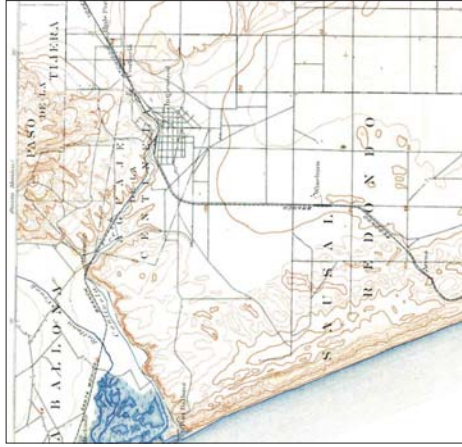
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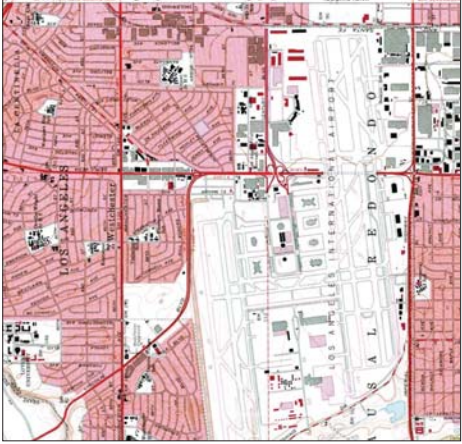
Historical Topographic Map



<b>TARGET QUAD</b> MAP YEAR: 1906 SERIES: 15 SCALE: 1:50,000	<b>SITE NAME</b> Los Angeles International Airport ADDRESS: Los Angeles, CA 90045 LAT/LONG: 33.9407 / -118.3089	<b>CLIENT</b> Reynolds & Moore INQUIRY #: 4312866.5 RESEARCH DATE: 06/02/2015
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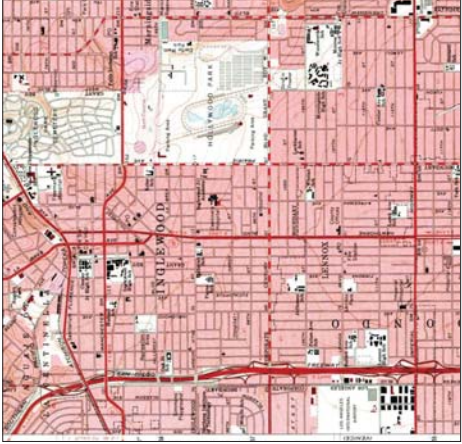


Historical Topographic Map



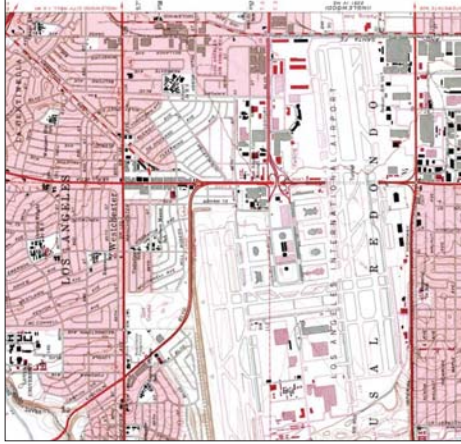
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Historical Topographic Map



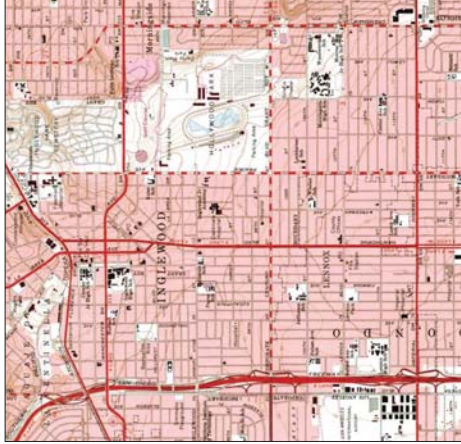
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Historical Topographic Map



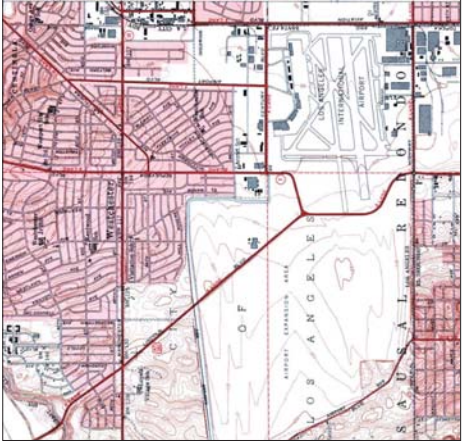
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Historical Topographic Map



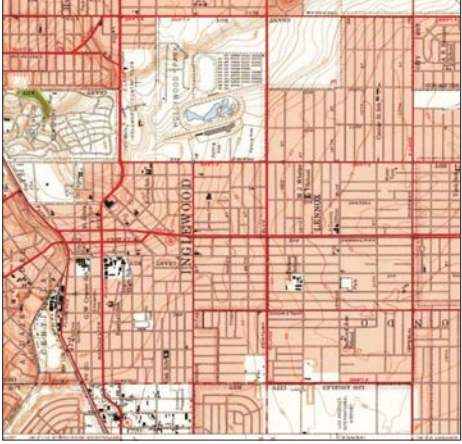
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Historical Topographic Map



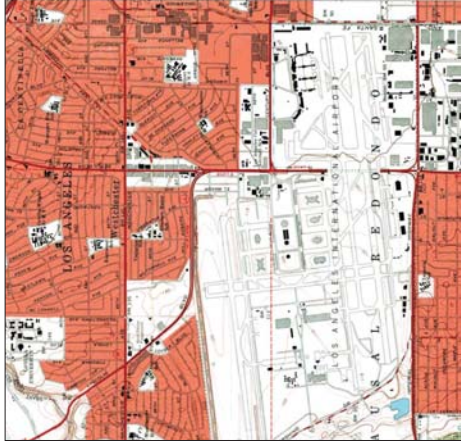
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Historical Topographic Map



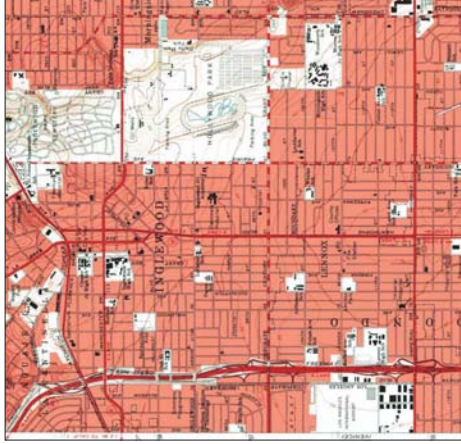
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Historical Topographic Map



N ↑	T	TARGET QUAD MAP YEAR: 1994 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: Los Angeles International Airport ADDRESS: Los Angeles, CA 90045 LAT/LONG: 33.940° / 118.308°	CLIENT: Rayco & Moore CONTACT: PROJECT INQUIRY: 4323986.5 REFERENCE DATE: 06/20/2015

Historical Topographic Map



N ↑	T	TARGET QUAD MAP YEAR: 1994 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: Los Angeles International Airport ADDRESS: Los Angeles, CA 90045 LAT/LONG: 33.940° / 118.308°	CLIENT: Rayco & Moore CONTACT: PROJECT INQUIRY: 4323986.5 REFERENCE DATE: 06/20/2015







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TC4349762.16 EXECUTIVE SUMMARY 10

EXECUTIVE SUMMARY[illegible]

Site	Address	Maid to	Page
8801 W. PARKWAY WEST	8801 W. PARKWAY WEST	3	21
8771 BELLANCIA AVE	8771 BELLANCIA AVE	3	21
8771 BELLANCIA AVE	8771 BELLANCIA AVE	3	21
425 35TH AVENUE	425 35TH AVENUE	7	187
8530 ARBORET BLVD	8530 ARBORET BLVD	7	187
8621 S. DISPLAY RD	8621 S. DISPLAY RD	9	229
8571 ARBORET BLVD	8571 ARBORET BLVD	19	281

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EXECUTIVE SUMMARY[illegible]

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Page 47	Map ID 47	Page 47	Map ID 47
Page 47	Map ID 47	Page 47	Map ID 47
Page 47	Map ID 47	Page 47	Map ID 47
Page 47	Map ID 47	Page 47	Map ID 47
Page 47	Map ID 47	Page 47	Map ID 47
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Page 47	Map ID 47	Page 47	Map ID 47

TC4349702.16 EXECUTIVE SUMMARY 6

EXECUTIVE SUMMARY[illegible][illegible]

TC43497102.16 EXECUTIVE SUMMARY 7

EXECUTIVE SUMMARY[illegible][illegible]

TECHNICAL EXECUTIVE SUMMARY 12

EXECUTIVE SUMMARY

Site	Address	Mag ID	Pos
NATIONAL CAR RENTAL 30330 RD Strasburg, PA 17575	8419 AMPORT BLVD	46	476
ATV RENT CAR 30330 RD Strasburg, PA 17575	9217 AMPORT BLVD	46	494
AMMO RENT 30330 RD Strasburg, PA 17575	9254 AMPORT BLVD	46	499
FLORIDA BASKETBALL 30330 RD Strasburg, PA 17575	9425 BELLINCA AVE	53	525
WESTERN FEDERAL CREDIT 30330 RD Strasburg, PA 17575	9323 BELLINCA ST	53	527
BLANCO AIR FREIGHT L 30330 RD Strasburg, PA 17575	9307 BELLINCA ST	53	539
BLANCO AIR FREIGHT L 30330 RD Strasburg, PA 17575	9323 BELLINCA AVE	53	539
POWERWELL INTL LTD 30330 RD Strasburg, PA 17575	9227 AMPORT BLVD	54	539
AMMO RENT 30330 RD Strasburg, PA 17575	1703 BELLINCA AVE	60	508
AMMO RENT 30330 RD Strasburg, PA 17575	2703 BELLINCA AVE	60	542

60	50	50
820 BELLANCA AVE SANTA MONICA CA 90401-1701	60	50
5700 W 9TH ST SANTA ANA CA 92705-1001	60	50
560 N 9TH ST ALHAMBRA CA 91801-3001	60	50
2710 W 9TH ST SANTA ANA CA 92705-1001	60	50
572 N 9TH ST SANTA ANA CA 92705-1001	60	50
5700 W 9TH ST SANTA ANA CA 92705-1001	60	612
622 N 9TH ST SANTA ANA CA 92705-1001	64	620

TABLE 2: EXECUTIVE SUMMARY 13

EXECUTIVE SUMMARY

Site	Map ID	Pct
AVON RENT-A-CAR Status: Controlled - Cash Client	9025 BIRLA AVE	28
AVON RENT-A-CAR Status: Controlled - Cash Client	9025 BIRLA AVE BLVD	28
BARNES BOOKSELLER INC Status: Controlled - Cash Client	740 S GLADSON AVE	34
BELLE FARMAN CORP RTI Status: Controlled - Cash Client	910 BELLEVILLE AVE	35
NORMA AMTLE Status: Controlled - Cash Client	F10 BELLEVILLE AVE	38
HONEY COMB Status: Controlled - Cash Client	9005 AIRPORT BLVD	38
AVON RENT-A-CAR #22 Status: Controlled - Cash Client	9005 AIRPORT BLVD	38
AVON RENT-A-CAR #22 Status: Phuture Client - Cash Client	9025 AIRPORT BLVD	38

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TOC\o "Table of Contents" \n EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Site	Map ID	Part
NEIGHBORING FACILITY 5000 ANSON VINE AVE 38	479	
5000 ANSON VINE AVE 41	440	
5000 ANSON VINE ST 42	440	
5000 ANSON VINE ST 43	440	
5000 ANSON VINE ST 44	440	
5000 ANSON VINE ST 45	440	
5000 ANSON VINE ST 46	440	
5000 ANSON VINE ST 47	440	
5000 ANSON VINE ST 48	440	
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5000 ANSON VINE ST 97	440	
5000 ANSON VINE ST 98	440	
5000 ANSON VINE ST 99	440	
5000 ANSON VINE ST 100	440	

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Count: 1500 records		CRIPMAN SUMMARY		
City	EDS ID	Site Name	Site Address	Zip (Database)
LOS ANGELES	151482828	SERRA HWY & AVE E	3720S SERRA HWY	CA RGA LIST
LOS ANGELES	151475722	ARCOT HWY	2640S SERRA HWY	CA RGA LIST
LOS ANGELES	151482380	HENRY BOLINA	4300S SERRA HWY	CA RGA LIST
LOS ANGELES	151488488	PETROL LOCK INC	3800S SERRA HWY N	CA RGA LIST
LOS ANGELES	151423289	FARMER UNCLAS SS W/RTS	4400S SERRA HWY N	CA RGA LIST
LOS ANGELES	151488878	C. LANGRISSEN COMPANY	1707S SERRA HWY	CA RGA LIST
LOS ANGELES	151483006	CITY OF LANCASTER	4472S SERRA HWY N	CA RGA LIST
LOS ANGELES	151475641	TOSCO S E HWY	3807 SERRA HWY N	CA RGA LIST
LOS ANGELES	151480217	CIRCLE S STORE #508	3640S SERRA HWY N	CA RGA LIST
LOS ANGELES	151486488	SPRINGS MANUFACTURING CORPN	777S SERRA HWY	CA RGA LIST
LOS ANGELES	151483171	CITY OF PALMDALE COMPANY	3600S SERRA HWY	CA RGA LIST
LOS ANGELES	151486883	W & C ALTERNATIVE	1800S SERRA HWY	CA RGA LIST
LOS ANGELES	151481031	UNCLAS HWY	2000S SERRA HWY	CA RGA LIST
LOS ANGELES	15148478	LARRY KUBER MARIET	1710S SERRA HWY	CA RGA LIST
LOS ANGELES	151486664	71 N HWY27	4401S SERRA HWY	CA RGA LIST
LOS ANGELES	151487027	TR PRODUCT FACILITY #108	3640S SERRA HWY	CA RGA LIST
LOS ANGELES	151488255	PACIFIC HILL	3013 SERRA HWY	CA RGA LIST
LOS ANGELES	151470584	UNCLAS HWY25	4400S SERRA HWY	CA RGA LIST
LOS ANGELES	151483709	GAS CO HIGH RESIST STR 40	2802S SERRA HWY	CA RGA LIST
LOS ANGELES	151483482	LA S ROLICITY	3800S SERRA HWY	CA RGA LIST
LOS ANGELES	151483674	UNCLAS HWY 107 PALMDALE	3802S SERRA HWY	CA RGA LIST
LOS ANGELES	151482674	GORROND TRACIO	4300S SERRA HWY N	CA RGA LIST
LOS ANGELES	151486781	IN HUNTER RD, DRYSDALE DD	1 SPACE PRK DR	CA RGA LIST
LOS ANGELES	151482145	HDDC KWS	2802S SERRA HWY N	CA RGA LIST
LOS ANGELES	151486220	LANCASTER FORD CO	4401S SERRA HWY	CA RGA LIST
LOS ANGELES	151481461	SERRA VIEW APARTMENTS	3902S SERRA HWY	CA RGA LIST
LOS ANGELES	151482029	WINTER WINDS CAR WASH	2797 SERRA HWY N	CA RGA LIST
LOS ANGELES	151482442	FRENCHY VALLEY AUTO CENTER	2640S SERRA HWY	CA RGA LIST
LOS ANGELES	151482187	FORMER CHRYSLER FACILITY	4010S SERRA HWY AVE1	CA RGA LIST
LOS ANGELES	151470715	TRW BUILDING RM	1 SPACE PRK DR	CA RGA LIST
LOS ANGELES	151470212	TRW MAIN FACILITY	1 SPACE PRK DR	CA RGA LIST
LOS ANGELES	151486789	BROWNWOOD SUB STATION	25 SPRUCK CT	CA RGA LIST
LOS ANGELES	151472086	ARCOT HWY	3004 MID ST EAST	CA RGA LIST
LOS ANGELES	151477647	RINCON STATION BUILDING HOCH	514R ROUTE 1	CA RGA LIST
LOS ANGELES	151480401	LAKESIDE MEDICAL CENTER	1100 STATE ST E	CA RGA LIST
LOS ANGELES	151480410	LA UNIVERSITY SCHOOL DISTRICT	7624 STATE ST	CA RGA LIST
LOS ANGELES	151484188	LA COLUMB MEDICAL CTR	1100 STATE ST E	CA RGA LIST
LOS ANGELES	151484818	OFFSHORE AUTO SALES	8000R STATE ST	CA RGA LIST
LOS ANGELES	151484818	OFFSHORE AUTO SALES	1500 STATE STREETA	CA RGA LIST
LOS ANGELES	151488822	SOUTHERN CA GAS CO	151 STEWARD ST	CA RGA LIST
LOS ANGELES	151475209	THE GORDON FARM	1015 ESCANDAR AVE	CA RGA LIST
LOS ANGELES	151485155	MOLK RICHARDSON COMPANY	91 STEWARD AVE N	CA RGA LIST
LOS ANGELES	151485155	MOLK RICHARDSON COMPANY	81 ESCANDAR AVE	CA RGA LIST
LOS ANGELES	151482638	BURNHAM PROPRIETARY INC	471 S TERRERA BLVD	8000R CA HAZNET
LOS ANGELES	151474918	ARCOT HWY	7201A TERRERA	CA RGA LIST
LOS ANGELES	151475667	ARCOS S E 45101	7701A TERRERA	CA RGA LIST
LOS ANGELES	151482179	WALLER BRANDS INC	85 TOWNE CENTER DR	CA RGA LIST

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Count: 1300 records			OFFHOURS SUMMARY			
City	EDR ID	Power Name	Site Address		Zip	Dates/Notes
LOS ANGELES	511474134	SPRNG SWX UNCLD, #4627	11842 WASHINGTON BLVD W		CA	RGSA LIST
LOS ANGELES	511470006	TELECOM SERVICE STATION	3004 WASHINGTON BLVD W		CA	RGSA LIST
LOS ANGELES	511470608	UNION PACIFIC RAILROAD	7351 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511470030	UNITED PACIFIC SERVICE	3004 WASHINGTON BLVD W		CA	RGSA LIST
LOS ANGELES	511470601	NORTHROP GRUMMAN CORP/ELG	8000 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511468602	SMITH LON-HASBRO	6240 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511468588	SPRINT	2110 WASHINGTON BLVD W		CA	RGSA LIST
LOS ANGELES	511468072	SPOON HUNTER CORPORATION	1070 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511472324	ALCO #146	11842 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511469725	CHRYSLER #17979 FORMER	6027 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511469718	CHRYSLER #3803	6050 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511469303	CLAYTON CITY AUTO BODY	10233 WASHINGTON BLVD W		CA	RGSA LIST
LOS ANGELES	511469304	CLAYTON CITY INCLD	1000 WASHINGTON BLVD W		CA	RGSA LIST
LOS ANGELES	511469300	CLAYTON CITY SUBURBU	8000 WASHINGTON BLVD W		CA	RGSA LIST
LOS ANGELES	511469402	CTE	1071 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511468114	GOODYEAR H&E	6806 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511468056	GOODYEAR PACIFIC RAILROAD BRL	1071 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511470509	GOODYEAR GAS STATION	124 W WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511468144	GOODYEAR H&E	104 W WASHINGTON BLVD, WHEEL		CA	RGSA LIST
LOS ANGELES	511468145	GOODYEAR H&E	104 W WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511468046	FIRESTONE TIRE & RUBBER	6300 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511468047	GOODYEAR TIRE & RUBBER	6300 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511461315	EAST SIDE DEV. /SARGRA OIL	5706 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511468048	GOV. HUGHES	1071 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511468478	MARINA SUITE	12973 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511468479	MANAGERY SUITE	12973 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511468277	GLASSERS AUTO BODY	8700 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511468278	GLASSERS (POWER TRUSTED)	8700 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511465567	CHRYSLER #9-1231	811 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511465568	CHRYSLER #9-1231	811 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511465569	CHRYSLER #9-1231	811 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511467226	SPRER S&L COMMODITIES	11655 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511465400	MOORE & P. PRODUCTS	1000 WASHINGTON BLVD W		CA	RGSA LIST
LOS ANGELES	511466261	SMITH LON-401-405	5533 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511466020	TRONIC LAND	1200 WASHINGTON BLVD W		CA	RGSA LIST
LOS ANGELES	511466263	PALM TRAM COMPANY	11530 WASHINGTON BLVD W		CA	RGSA LIST
LOS ANGELES	511466264	AT&T	800 WASHINGTON BLVD W		CA	RGSA LIST
LOS ANGELES	511466265	MARINA TIRE TRANSFER	12870 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511466266	POWER PICTURES STATION	12870 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511466103	SOUTHERN CREDIT	1184 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511466042	CHRYSLER #17979	1184 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511470682	7000 - 7E STATION #9753	1000 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511470683	7000 - 7E STATION #9753	1000 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511469498	G. M. & CO. CHRYSLER STATION	11770 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511467226	PRO-REPAIR TRADING	11770 WASHINGTON BLVD		CA	RGSA LIST
LOS ANGELES	511469498	G. M. & CO. CHRYSLER STATION	4421 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511469498	G. M. & CO. CHRYSLER STATION	4421 WASHINGTON BLVD E		CA	RGSA LIST
LOS ANGELES	511469498	G. M. & CO. CHRYSLER STATION	4421 WASHINGTON BLVD E		CA	RGSA LIST

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Count: 1500 records		OFFICIAL SUMMARY			
City	EDR ID	Site Name	Site Address	Zip	Comments
LOS ANGELES	151205896	PRC INC	17025 1705 TRILBO AVE		CA HAZNET
LOS ANGELES	151205935	WOLF-PALANG ASSURANCE	10026 1026 TRILBO AVE	90064	CA HAZNET
LOS ANGELES	151205935	ZELLERBACH	4000 UNDER PACIFIC AVE E		CA RGA LIST
LOS ANGELES	151205936	WESTERN AUTOMOTIVE	3905 UNDER PACIFIC AVE E		CA RGA LIST
LOS ANGELES	151205936	ZELLERBACH	4000 UNDER PACIFIC AVE E		CA RGA LIST
LOS ANGELES	151205938	PAID AND FIRM	4300 UNDER PACIFIC AVE E		CA RGA LIST
LOS ANGELES	151205954	ANCO LA	105 VALLEY BLVD E		CA RGA LIST
LOS ANGELES	151205974	ARCO WEST	104 N VALLEY BLVD E		CA RGA LIST
LOS ANGELES	151206033	HOLLY ACCESS INTERIOR INC	15914 VAL BLVD E		CA RGA LIST
LOS ANGELES	151206035	KACORP FERRAMENTA	3030 VALLEY BLVD E		CA RGA LIST
LOS ANGELES	151206035	VERNON PAVED CONCRETE REPS	254 WALNUT ST W		CA RGA LIST
LOS ANGELES	151206037	SIGNAL HILL VACANT SITE	2077 WALNUT ST		CA RGA LIST
LOS ANGELES	151206126	EMPIRE CONTAINER CORP	1161 WALNUT ST E		CA RGA LIST
LOS ANGELES	151206271	UNION FIB	4405 WALNUT ST E		CA RGA LIST
LOS ANGELES	151206485	PACIFIC VALVES	3001 WALNUT AVE		CA RGA LIST
LOS ANGELES	151206502	SCIENTIFICHA FERRON CORP	2244 WALNUT GROVE AVE		CA RGA LIST
LOS ANGELES	151206609	JEFFREY LANE B FARMING	3003 WALNUT OCEANVIEW RD		CA RGA LIST
LOS ANGELES	151206646	DESBERT RETAIL/WHOLESALE	720 WALNUT ST E		CA RGA LIST
LOS ANGELES	151206823	SHUTTLE LINE STORE #107	1400 WALNUT ST E		CA RGA LIST
LOS ANGELES	151206875	180 ASSOCIATES	1605 WALNUT ST E		CA RGA LIST
LOS ANGELES	151207757	BOOM MAINTENANCE #117	18805 WALNUT CDR E		CA RGA LIST
LOS ANGELES	151207820	CTE C COMPANY TRUCKS	301 WALNUT GROVE AVE		CA RGA LIST
LOS ANGELES	151207834	PREMIER PROPERTIES	1520 WALNUT ST W		CA RGA LIST
LOS ANGELES	151207834	PREMIER PROPERTIES	1515 WALNUT GROVE		CA RGA LIST
LOS ANGELES	151207837	NORTHROP GRUMMAN CORPORATION	8000 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151208404	LEE CAR WASH	8411 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151208612	EXAKS INC #1-207	4100 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151208642	WESTERN UNION 11075 WASH	11107 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151208643	HANLEY CAR WASH	15851 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151208646	SEA-LOC LOGISTICS SERVICE	4340 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151208649	SHELL P	2106 WASHINGTON BLVD W		CA RGA LIST
LOS ANGELES	151208882	SHELL OIL COMPANY SERVICE STATION	5544 WASHINGTON BLVD W		CA RGA LIST
LOS ANGELES	151209120	WASHINGTON KINETIC CENTER	12101 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151209294	UNITED FRANCHISE SERVICE	2501 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151209305	MOBILE #1 FCO	1100 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151209408	SOUTHLAND SCOUTS & BOYS	4100 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151209525	MOBILE #1 FCO	4190 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151209541	HYDRA-CHEMICAL CORP	4190 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151209261	BROWN TRANSPORT COMPANY	1225 WASHINGTON BLVD W		CA RGA LIST
LOS ANGELES	151209135	FAST EASE DEVELOPMENT CORP	5707 WASHINGTON AVE E		CA RGA LIST
LOS ANGELES	151209148	UNICAL GROUP	11800 WASHINGTON AVE E		CA RGA LIST
LOS ANGELES	151209178	WESTERN BICYCLE CO COATINGS	4400 WASHINGTON BLVD E		CA RGA LIST
LOS ANGELES	151208887	SHELL OIL COMPANY SERVICE STATION	5164 WASHINGTON		CA RGA LIST
LOS ANGELES	151209461	SHEDS & ETCO	811 WASHINGTON BLVD		CA RGA LIST

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Photograph 15: View of Manchester Square in Area C.



Photograph 16: View of former Terra Graphics in Area C (10310 Glasgow Place).

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Photograph 17: View of LA Department of Water and Power Distribution Station No. 741 in the center of Area D.



Photograph 18: View of concrete polymer containers, which contain toluene diisocyanate, in Area D.

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Photograph 19: View of construction activities in the center of Area D.



Photograph 20: View of construction activities in the center of Area D.

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Photograph 7: View of the Budget Rent-A-Car facility in Area B (9775 Airport Boulevard).



Photograph 8: View of the Neutrogena facility on 96th Street in Area B.

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Photograph 9: View of the Chan Energy Station on Aviation Street in Area B.



Photograph 10: View of Stella Middle Charter Academy in Area C.

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Photograph 11: View of the Aero Station in Century Boulevard in Area C (5201 West Century Boulevard).



Photograph 12: View of the northern portion of the 76 Station in Area C (5552 West Century Boulevard).

2020-03-11 AM

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Photograph 13: View of AC's at Dollar Car Rental in Area C (9150 Aviation Boulevard).



Photograph 14: View of typical residence in Area C.

2020-03-11 AM

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## **G.2**

### Preliminary Geotechnical Evaluation, Pile Foundations

January 29, 2016









**PRELIMINARY GEOTECHNICAL EVALUATION  
PILE FOUNDATIONS  
LANDSIDE ACCESS MODERNIZATION PROGRAM  
LOS ANGELES INTERNATIONAL AIRPORT  
LOS ANGELES, CALIFORNIA**

**PREPARED FOR:**

Ricondo & Associates, Inc.  
20 North Clark Street, Suite 1500  
Chicago, Illinois 60602

**PREPARED BY:**

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January 29, 2016  
Project No. 209291004



January 29, 2016  
Project No. 209291004

Mr. Stephen D. Culberson, Director  
Ricondo & Associates, Inc.  
20 North Clark Street, Suite 1500  
Chicago, Illinois 60602

Subject: Preliminary Geotechnical Evaluation  
Pile Foundations  
Landside Access Modernization Program  
Los Angeles International Airport  
Los Angeles, California

Dear Mr. Culberson:

In accordance with your request and authorization, Ninyo & Moore has performed a preliminary geotechnical evaluation regarding the use of pile foundations for the Landside Access Modernization Program at Los Angeles International Airport in the City of Los Angeles, California. The preliminary geotechnical evaluation has been performed in accordance with Ninyo & Moore's proposal dated October 21, 2015. This report presents our findings and conclusions regarding the subject project.

Sincerely,  
**NINYO & MOORE**



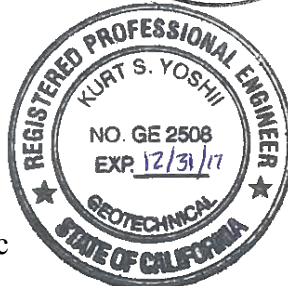
Michael Rogers, PG, CEG  
Senior Geologist



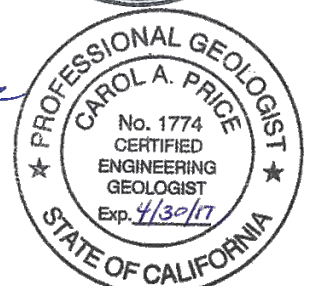
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### **Figures**

Figure 1 – Site Location

Figure 2 – Site Plan

Figure 3 – Regional Geology

Figure 4 – Schematic Profile Section A-A”



## **1. INTRODUCTION**

In accordance with your request and authorization, Ninyo & Moore has performed a preliminary geotechnical evaluation regarding the use of pile foundations for the proposed major structures associated with the Landside Access Modernization Program (LAMP) at Los Angeles International Airport (LAX) in the City of Los Angeles, California (Figures 1 and 2). We have previously evaluated the general geologic and seismic impacts in the project area for input to the preparation of the Geology and Soils chapter of the Initial Study (IS) for the project.

Ninyo & Moore has previously performed a Hazardous Materials Assessment (HMA) in support of the IS to evaluate contaminated or potentially contaminated areas within the project boundaries. The results of the HMA were presented in our referenced report dated October 14, 2015. Ninyo & Moore has also conducted various geotechnical and environmental projects within the site boundaries in the past, unrelated to the LAMP project. Relevant findings from our previous evaluations in the project area and our recent HMA for the subject project were utilized in the preparation of this report.

The HMA noted several properties within the project site where contaminated soil and/or groundwater were previously encountered during explorations by others. In particular, the Park One parking lot (former Honeywell facility) at 9851 South Sepulveda Boulevard (Figure 2) has an extensive record of site contamination and clean-up activities dating back to the late 1980s. Contamination from the Park One site has been detected in groundwater samples east of the property in areas of planned structures for the subject project (Amec Foster Wheeler [AMEC], 2015b).

We understand that, due to the presence of contaminated soil/groundwater at the project site, the use of driven pile foundations may be considered as an alternative for the major project structures to mitigate the environmental concerns of excavating contaminated materials. The purpose of our study was to evaluate the potential impacts of using pile foundations for the project relative to the presence of soil and groundwater contamination. Our study included characterization of the general soil and groundwater conditions at the site and evaluation of the



potential impacts of using pile foundations for the project relative to the reported site contamination. We understand that the results of our preliminary geotechnical evaluation will be utilized in the preparation of the environmental impact report (EIR) for the project. Accordingly, our evaluation and the development of our conclusions regarding the potential impacts of using pile foundations were conducted in general accordance with the California Environmental Quality Act (CEQA). Where appropriate, recommendations to mitigate potential geologic hazards, as noted in this report, have been provided.

Our geotechnical evaluation was based on review of readily available geologic and environmental data and published geotechnical literature pertinent to the project site. Our evaluation did not include subsurface exploration and associated laboratory testing. The results of our evaluation are intended for preliminary planning purposes. During detailed project design, subsurface exploration should be conducted by the project environmental and geotechnical consultants at the location of proposed site improvements to evaluate the site-specific environmental and geotechnical conditions and provide appropriate recommendations for foundations in conjunction with the project structural engineer.

## **2. SCOPE OF SERVICES**

Ninyo & Moore's geotechnical scope of services for this evaluation has included the following:

- Review of readily available topographic and geologic maps, published geotechnical literature, geologic data, groundwater data, and aerial photographs of the project area
- Review of in-house information related to our previous work in the LAX area.
- Review of the pertinent findings from our HMA report dated October 14, 1015.
- Review of geotechnical and environmental reports and preliminary project plans relative to the project area provided to us by Ricondo and Los Angeles World Airports (LAWA) that included subsurface geologic and groundwater data, and data regarding site contamination.
- Research and review of readily available geotechnical reports at the City of Los Angeles Department of Building & Safety and at the State of California GeoTracker (2016) website for properties in the project area that included subsurface geotechnical data relative to the subject evaluation.
- Assessment of the potential environmental impacts associated with installation of pile foundations relative to the reported site contamination.



- Preparation of this report presenting our conclusions regarding the potential impacts of using pile foundations for the project and recommendations to address the impacts to be included in the EIR.

### **3. SITE DESCRIPTION**

The LAMP project site consists of approximately 2,000 acres generally bounded by Tom Bradley International Terminal in the Central Terminal Area (CTA) on the west, West Century Boulevard and the CTA area on the south, Interstate-405 (I-405) on the east, and Westchester Parkway and West Arbor Vitae Street on the north (Figure 1). The study area for our geotechnical evaluation included the portions of the project area that contain the major project structures, as shown on Figure 2.

The project extends across LAX property including airline passenger terminals, Los Angeles Metropolitan Transportation Agency (MTA or Metro) facilities, private properties, and various public roadways. Current land uses in these areas include parking garages, surface parking lots, rental car facilities, hotels, Metro maintenance facilities, residential areas, commercial and manufacturing facilities, and airport services.

### **4. PROJECT DESCRIPTION**

The LAMP project involves modernization of the LAX transportation system with the objectives of relieving traffic congestion within the CTA and on the surrounding street network, improving access options and the travel experience for passengers, and providing connection to the MTA or Metro rail system. The project components are shown on Figure 2 and include:

- An automated people mover (APM) system located on an elevated guideway inside and outside of the CTA.
- Six APM stations.
- Two intermodal transportation facilities (ITF west and ITF east).
- Consolidated rental car facility (CONRAC).
- Roadway improvements.



Based on information from the project design team, we understand that the anticipated depths of pile foundations for the major project structures are as follows:

- APM guideway – 100 feet deep.
- APM stations – 80 feet deep.
- Parking garages (including CONRAC, West ITF and East ITF) – 60 feet deep.
- Vertical cores (terminal buildings and parking garages) – 80 feet.

## **5. GEOLOGY**

### **5.1. Regional Geology**

The LAMP project site is located in the Los Angeles Basin, which is situated at the northwest end of the Peninsular Ranges geomorphic province of southern California (Norris and Webb, 1990). The Los Angeles Basin has been divided into four structural blocks, which are generally bounded by prominent northwest-trending fault systems: the northwestern, southwestern, central, and northeastern blocks. The project site is located in the southwestern block, which is bounded by the Newport-Inglewood fault zone to the northeast and the Palos Verdes fault to the southwest, the Santa Monica-Hollywood-Raymond fault system to the northwest, and the Pacific Ocean to the southwest. The block is underlain by up to approximately 20,000 feet of Miocene to Pleistocene age marine sedimentary rock over basement rock consisting of the Mesozoic age Catalina Schist. Variable thicknesses of late Pleistocene to Holocene age alluvial deposits associated with the ancestral Los Angeles and San Gabriel River systems overlie the sedimentary rock in the southwestern block (Norris and Webb, 1990). Marine sediments and coastal dune deposits of variable thickness overlie the older alluvium along the coastal margin in the vicinity of the project site (California Department of Conservation, Division of Mines and Geology [CDMG], 1998a, 1998b).



## **5.2. Site Geology**

The LAMP site is located on a broad coastal terrace approximately 2 to 4 ½ miles east of the Pacific Ocean. Topographic gradients of the terrace in the site vicinity slope gently down toward the southeast, ranging in elevation from approximately 100 to 125 feet above mean sea level. The terrace is generally underlain by older alluvial deposits in the eastern part of the LAMP project area that inter-finger with older, near-shore marine sediments in the western part of the LAMP site (CDMG, 1998b). The older alluvial deposits are generally comprised of medium dense to very dense, sand, silty sand, clayey sand and silt, and very stiff, clay (CDMG, 1998a). The older marine deposits are generally comprised of dense to very dense, sand and silty sand (CDMG, 1998b). Near the coast and in the western part of the project area, the older alluvium and marine deposits are overlain by eolian (dune) deposits generally comprised of wind-blown sand and silt (CDMG, 1998a; CDMG 1998b; Dibblee, 1993). Fill soils related to previous site grading activities and development are anticipated within the project boundaries. A regional geologic map is shown on Figure 3.

Logs of subsurface exploratory borings performed by Ninyo & Moore and others were reviewed as part of our evaluation, to characterize the general subsurface geology at the project site. The locations of the borings utilized for subsurface geologic data are shown on Figure 2. A profile section line (Schematic Profile Section A-A'') was drawn across the site near the alignment of the APM guideway to illustrate the general subsurface conditions beneath the major structures. The illustration is based on the data from the logs of borings that were projected to the section line and regional geologic data. The proposed APM stations, ITFs, and CONRAC facility have been projected to the section line on Figure 4 to show the general nature of the subsurface conditions beneath the structure locations.

The profile section is schematic, based on widely spaced and distal projected borings, and is intended for illustrative purposes and not for project design. Additional soil layers at differing elevations and of variable grain size, including clay, sand and gravel, should be anticipated during project construction.



The subsurface geologic interpretation illustrated on the profile section on Figure 4 shows that the general trend of the data from subsurface explorations at the site correlates with the regional geologic mapping discussed above. In general, coarse-grained, sandy soils were encountered in explorations in the western part of the site (where sandy marine and dune deposits are mapped). Explorations in the central and eastern parts of the site generally encountered interbedded sandy and fine-grained, silt and clay soil layers (where alluvium with interbedded coarse-grained and fine-grained deposits are mapped). The general trend of the subsurface data on Figure 4 shows that fine-grained silt and clay alluvial soil layers increase in thickness toward the east and coarse-grained sandy marine and dune deposits predominate in the western part of the site.

## **6. GROUNDWATER**

Groundwater monitoring well data from the State of California Water Resources Control Board's GeoTracker website (2016) were reviewed for wells in the vicinity of the major project improvements at the site. In addition, groundwater data from previous subsurface borings at the site were reviewed. The data from monitoring wells and borings located in the project study area indicate that the depth to groundwater in the area of the major project components ranges from approximately 55 to 100 feet below the ground surface. For much of the project area in the central and western portions of the site, the data show that the groundwater generally ranges from approximately 88 to 100 feet deep. In the eastern portion of the site in the vicinity of the proposed CONRAC facility, the data show that the groundwater is shallower, ranging from approximately 56 feet to 88 feet below the ground surface.

The groundwater level interpreted from the data is shown on the profile section on Figure 4. The profile section illustrates an interpretation of the groundwater level beneath the major structures, based on the data from the monitoring wells and boring logs. As shown on Figure 4, the groundwater data show that the pile depths anticipated for the project will be embedded near the groundwater level. More detailed groundwater data are presented in our referenced HMA report dated October 14, 2015.



Perched groundwater was encountered and reported on various logs of borings at the project site, and will be encountered during excavations for project construction at elevations higher than the groundwater level shown on Figure 4. Due to the relatively less permeable nature of fine-grained (silt and clay) soils, perched groundwater is generally associated with fine-grained zones in the subsurface, but may also be present in coarse-grained materials at the site. It should be noted that fluctuations in the level of groundwater at the site may occur due to variations in ground surface topography, subsurface stratification, rainfall, irrigation practices, and other factors which may not have been evident at the time of our evaluation.

## **7. CONTAMINATED PROPERTIES**

The results of our October 14, 2015, HMA report found that, based on the presence of hazardous materials that could impact soil and/or groundwater during construction, certain properties within the project boundaries have the potential for detrimental impacts during construction activities for the proposed project. Specific properties of concern were presented in Table 12 and shown on Figures 3 through 6 of our October 14, 2015, HMA report. Properties designated with the potential concern for the presence of hazardous materials that are nearby to the proposed major project structures are shown on Figure 4 and include the following:

- The Park One (former Honeywell/Allied Signal) facility at 9851 South Sepulveda Boulevard
- National Car Rental at 9419 Airport Boulevard
- Budget Car Rental at 9775 Airport Boulevard
- Hertz Corporation (former Honeywell Aviation) at 9225 Aviation Boulevard

The Park One site was a former aerospace manufacturing facility from 1941 to 1988 and has been under environmental investigation and clean-up since 1989. The site has an extensive record of contamination and clean-up activities. Contamination from the Park One site has been detected in groundwater samples east of the site in monitoring wells along Vicksburg Avenue (MW-117, 118 and 121 on Figure 2) and in lesser concentrations as far east as Airport Boulevard, in areas of planned improvements for the subject project (AMEC, 2015b).



The approximate locations of the contaminated properties that are nearby to the proposed major project structures are projected to the Schematic Profile Section A-A” on Figure 4. Monitoring wells for the Park One site have been installed at off-site locations on streets and properties surrounding the contaminated site. To illustrate the extent where soil and/or groundwater contamination related to the Park One site has been found, the “Contamination Monitoring Area” for the Park One site is shown on Figure 4. It should be noted that soil and or groundwater contamination may be encountered at other locations at the site during project construction.

## **8. PILE FOUNDATION TYPES AND POTENTIAL IMPACTS**

Deep pile foundation systems are typically utilized in geotechnical design to found structures in competent subsurface bearing materials beneath zones of unsuitable materials. Common pile types include Cast-In-Drilled-Hole (CIDH) piles and driven piles. Where feasible, each is a suitable and commonly used deep foundation alternative. Generally, CIDH piles involve drilling and removal of soils and construction of a cast-in-place, reinforced concrete pile within the open borehole. Driven piles involve in-place installation of a concrete or steel pile with a pile-driving hammer, and do not involve removal of materials from the ground. Driven pile installations typically generate noise and vibrations.

To reduce the construction impacts of vibrations and noise in the vicinity of the CTA and adjacent to other properties near the project structures, CIDH piles would be a preferable alternative for deep pile foundations. However, due to the possibility of encountering contaminated soils at the site, driven piles may be considered for the major project structures, to avoid the excavation and handling of contaminated site materials that may be involved in CIDH pile construction. The use of driven piles could be appropriate in locations where the impacts of vibrations and noise would not adversely affect surrounding properties. Based on information from the project design team, we understand that the anticipated depths of driven pile foundations for the major project structures are as follows:

- APM guideway – 100 feet deep.
- APM stations – 80 feet deep.



- Parking garages (including CONRAC, West ITF and East ITF) – 60 feet deep.
- Vertical cores (terminal buildings and parking garages) – 80 feet.

The anticipated depth of embedment of the piles for the various structures, based on the input from the design team, is illustrated on the Schematic Profile Section on Figure 4. Discussion of the general construction methodology of CIDH and driven piles are provided in the following sections. During detailed project design, subsurface exploration should be conducted by the project geotechnical consultant at the location of proposed site improvements to evaluate the site-specific geotechnical conditions and provide appropriate recommendations for foundations in conjunction with the project structural engineer.

### **8.1. CIDH Piles**

CIDH pile construction involves boring of a shaft utilizing an auger drilling rig. Materials are removed from the borehole and the foundation pile is constructed by placing a steel reinforcing cage and concrete in the shaft. As cuttings are generated from the CIDH shaft drilling, contaminated soil and groundwater that may be encountered would be brought to the surface. Bringing contaminated materials to the ground surface during CIDH pile construction could have potential impacts resulting in exposure of the public and/or the environment to hazardous materials without appropriate mitigation.

Based on the groundwater data illustrated on Figure 4, groundwater would be encountered in the drilled shafts for the CIDH pile at the pile depths anticipated for the project. Groundwater can result in instability of the shafts. Additionally, the presence of coarse-grained sandy soils may cause caving. Contractors should be prepared to take appropriate measures during construction to reduce the potential for caving of the drilled holes, including the use of casing and/or drilling mud.

CIDH pile construction does not typically involve excessive vibrations (relative to driven pile installation) and can generally be performed in proximity to existing structures without concern of causing damage from vibrations.



## **8.2. Driven Piles**

Driven pile construction typically involves installation of pre-cast, reinforced concrete or steel piles utilizing a pile-driving rig. Soil is not removed from the ground during driven pile installation. Rather, the soil around the tip and sides of the pile is displaced as the pile is driven into the ground. The presence of very dense layers of sand or gravel in the subsurface can present difficulties where driven concrete piles encounter refusal within these materials. In these cases, consideration can be given to pre-drilling the pile locations through the sand and clay layers with an auger having a diameter 2 inches smaller than the width of the pile. Alternatively, the use of driven, steel H-piles may be considered as a deep foundation alternative, to facilitate pile penetration through dense layers. However, steel H-piles are subject to corrosion due to naturally corrosive soils and possible soil contamination. Site-specific testing should be conducted prior to selection and design of pile foundations to check for the presence of contamination and/or corrosive soils that could adversely impact the piles.

Our evaluation included review of studies that have been performed to evaluate the different types of mechanisms for potential contamination by driven piles. Direct transfer is a mechanism in which contaminants are transported directly from the pile driving process. As a pile is driven below the ground surface, it displaces the soil below the pile tip. Soil bearing capacity theory indicates that a conical soil plug is formed below the pile tip during pile driving. If a pile is being driven through contaminated soil, there is a possibility that the contaminants could be carried down in the soil plug with the pile. However, the studies by Hayman, et al. (1993) and Boutwell, et al. (2004) indicate that contamination by direct transfer is generally negligible except for highly contaminated sites. A majority of potential contaminants present in a soil plug would be lost due to friction during pile driving, especially at the interfaces between soil layers that have varying stiffness. Contamination by direct transfer can also be reduced by using a conical pile tip rather than a flat pile tip due to the fact that conical pile tips do not result in as large of a soil plug.



Conduit formation (another possible mechanism of contaminant transport) involves the transportation of contaminants along the soil zone disturbed by pile driving, often at the soil-pile interface. There is a potential for a void to be created between the pile and the surrounding soil during pile driving through which contaminants could flow. However, driven piles generally form a tight bond between the soil-pile interface that inhibits significant contaminant transport (Hayman, et al., 1993). The surrounding soil is often densified during pile driving, which in turn decreases the permeability of the surrounding soil at the interface of the pile. Certain piles produce a better bond with the surrounding soil than other piles. Closed-section piles, such as a typical concrete pile, produce a tighter bond compared to open-section piles because they displace a larger volume of soil. Concrete piles produce a tighter bond at the soil-pile interface in comparison with steel H-piles that do not become fully plugged.

Wicking is the transfer of contaminants through the pile itself, and is generally not anticipated to occur when the pile material (concrete) is denser and less permeable than the surrounding soil.

The installation of driven piles involves construction vibrations, which can result in disturbance to people, damage to nearby buildings and improvements, and/or ground settlement. Due to nearby site improvements and adjacent business activities, vibration caused during the installation of driven piles may adversely affect existing nearby improvements or be otherwise unacceptable to people. Sensitive receptors (people and structures) located within approximately 50 to 100 feet of the project could be impacted by vibrations and ground settlement. However, the impacts of vibrations and ground settlement to surrounding improvements due to construction activities at the project site can be reduced with incorporation of mitigation techniques.



## **9. IMPACT CONCLUSIONS AND MITIGATION**

### **9.1. CIDH Piles**

The studies reviewed for our evaluation and our geotechnical experience indicate that the potential impact of exposing the public and/or the environment to hazardous materials during construction of CIDH piles within contaminated areas at the LAMP project site are considered less than significant, with the incorporation of mitigation techniques discussed below and presented in our October 14, 2015, HMA report.

Contaminated soil and/or groundwater may be encountered during pile construction and should be anticipated by the contractor. Project plans and specifications should include provisions to monitor, handle, treat and dispose of possible contaminated soil and groundwater generated during CIDH pile construction. A soil and groundwater management plan should be developed for project construction. Excavated soils should be monitored for visual evidence of contamination and also be monitored for the presence of volatile organic compounds during construction using appropriate field instruments in accordance with South Coast Air Quality Management District Rule 1166. If the monitoring procedures indicate the possible presence of contaminated soil, a contaminated soil contingency plan should be implemented, including procedures for vapor suppression, segregation, sampling, and chemical analysis of soil. Contaminated soil should be profiled for disposal and transported to an appropriate hazardous or non-hazardous waste or recycling facility licensed to accept and treat the type of waste indicated by the profiling process.

A bentonite-based drilling mud can be used in the CIDH shafts during construction to reduce the transport of contaminated materials in the subsurface during the temporary open condition of the shaft. After construction of the CIDH pile, the interface of the concrete pile would be anticipated to have a tight bond with the soil surrounding the pile, and would not be anticipated to act as a conduit for transport of contamination.



## **9.2. Driven Piles**

The studies reviewed for our evaluation and our geotechnical experience indicate that the potential impact of exposing the public and/or the environment to hazardous materials during installation of driven piles within contaminated areas at the LAMP project site are considered less than significant.

To mitigate potentially significant impacts of vibrations due to driven pile installation, sensitive structures within approximately 50 to 100 feet of the project would be evaluated with regard to potential vibration-related impacts. Vibrations should be monitored during construction by using seismographs. If vibrations would impact the structures, mitigation techniques shall be implemented at that time. Mitigation techniques to reduce the impacts of vibrations to less than significant levels include avoiding vibratory types of construction, limiting vibratory types of construction to specified distances from sensitive off-site receptors, monitoring vibration and settlement during construction, and/or protecting sensitive improvements from excessive settlement by ground stabilization or foundation underpinning.

Monitoring methods include installation of ground survey points around the outside of excavations to monitor settlement and/or placing monitoring points on nearby structures or surfaces to monitor performance of the structures. If monitored movement is unacceptable to surrounding improvements during the course of construction, the work should stop and the contractor's methods should be reviewed and changes made, as appropriate; and alternative methods of settlement reduction should be implemented by the contractor.

To limit vibrations generated by typical pile driving operations, an alternative deep foundation, such as the proprietary Tubex Grout Injection Piles, may also be considered by the project structural engineer provided the allowable capacity could be achieved. The Tubex pile involves in-situ pile construction without removal of materials from the ground and does not produce vibrations that are damaging to surrounding structures. Such deep



foundation systems would have to be designed by the manufacturer due to the patent restrictions.

With implementation of these proposed mitigation alternatives, impacts of pile installation related to potential vibrations are anticipated to be less than significant.

## **10. LIMITATIONS**

The purpose of this preliminary evaluation was to assess the potential geologic impacts related to pile foundations for preparation of environmental planning documents for the project. The geotechnical analyses presented in this report have been conducted in accordance with current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No other warranty, implied or expressed, is made regarding the conclusions, recommendations, and professional opinions expressed in this report. Our conclusions and recommendations are based on a review of readily available geotechnical literature, geologic and seismic data, our referenced report, and an analysis of the observed and reported conditions. Variations may exist and conditions not observed or described in this report may be encountered.



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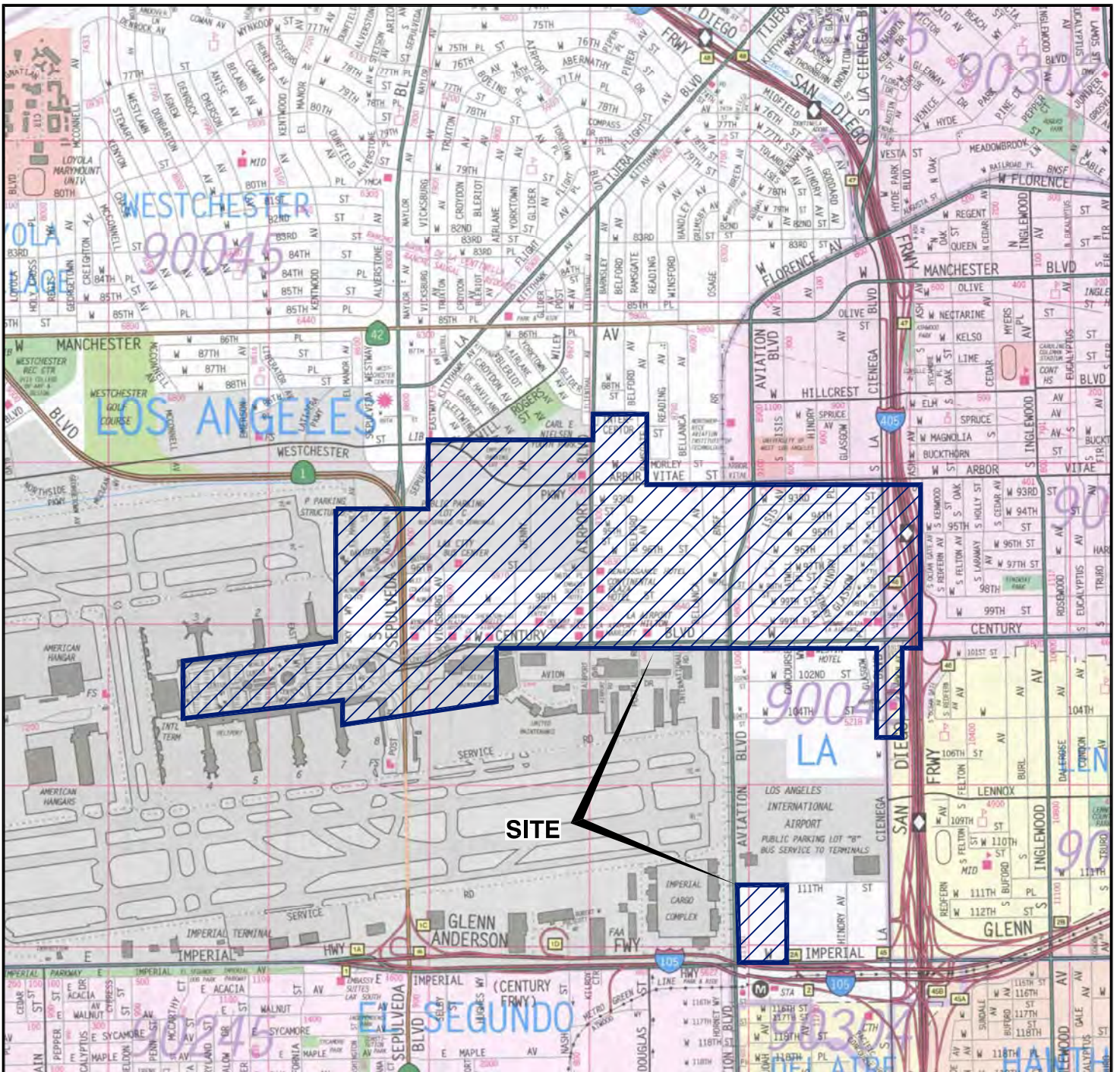


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SCALE IN FEET

0 2,400 4,800

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

**Ninyo & Moore**

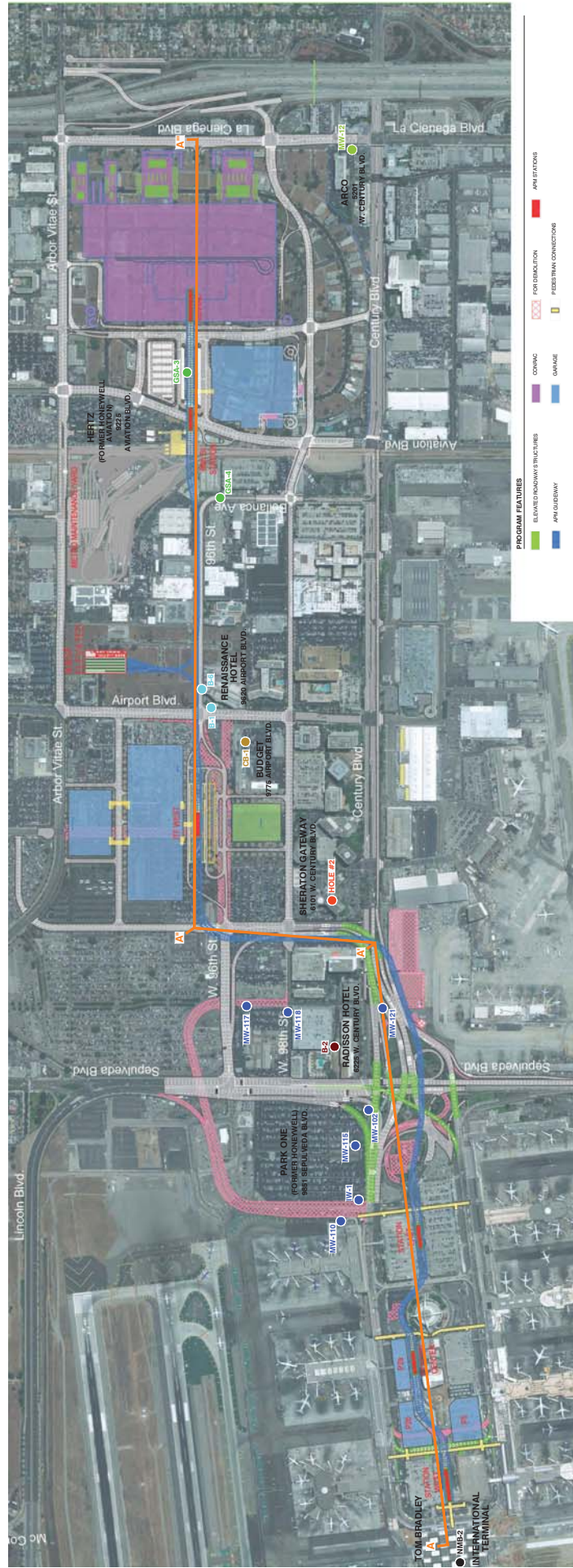
## SITE LOCATION

FIGURE

**1**


LANDSIDE ACCESS MODERNIZATION PROGRAM  
LOS ANGELES INTERNATIONAL AIRPORT  
LOS ANGELES, CALIFORNIA



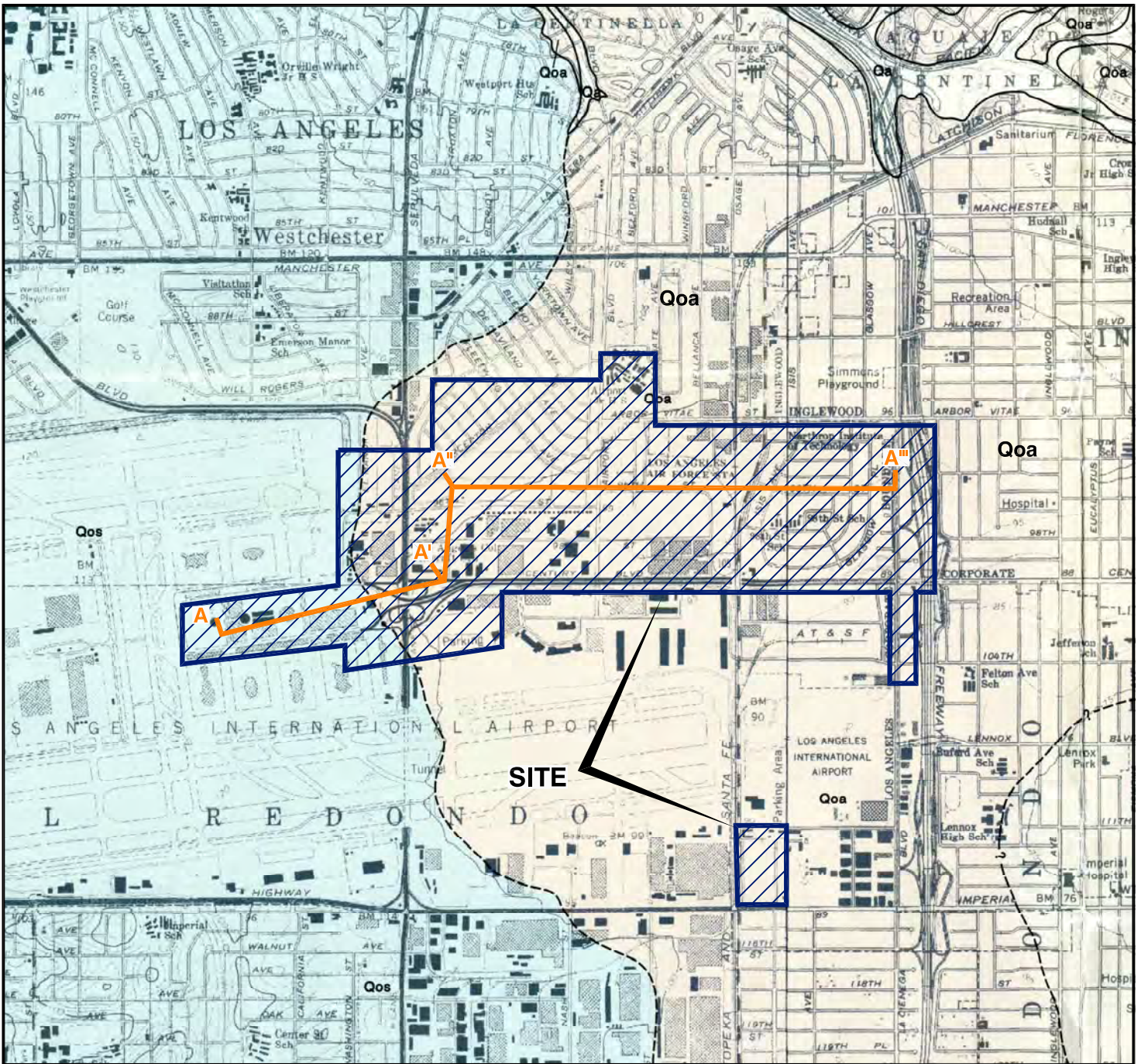


REFERENCE: LOS ANGELES WORLD AIRPORTS, 2015, LANDSLIDE ACCESS MODERNIZATION PROGRAM, OVERALL PROGRAM LAYOUT, DATED JUNE 2015.

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

	SITE PLAN		FIGURE 2
	PROJECT NO. 20201104	DATE 1/16	





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LEGEND	
	YOUNGER ALLUVIUM
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	GEOLOGIC CONTACT
	CHEMATIC PROFILE SECTION

**Ninyo & Moore**

## REGIONAL GEOLOGY

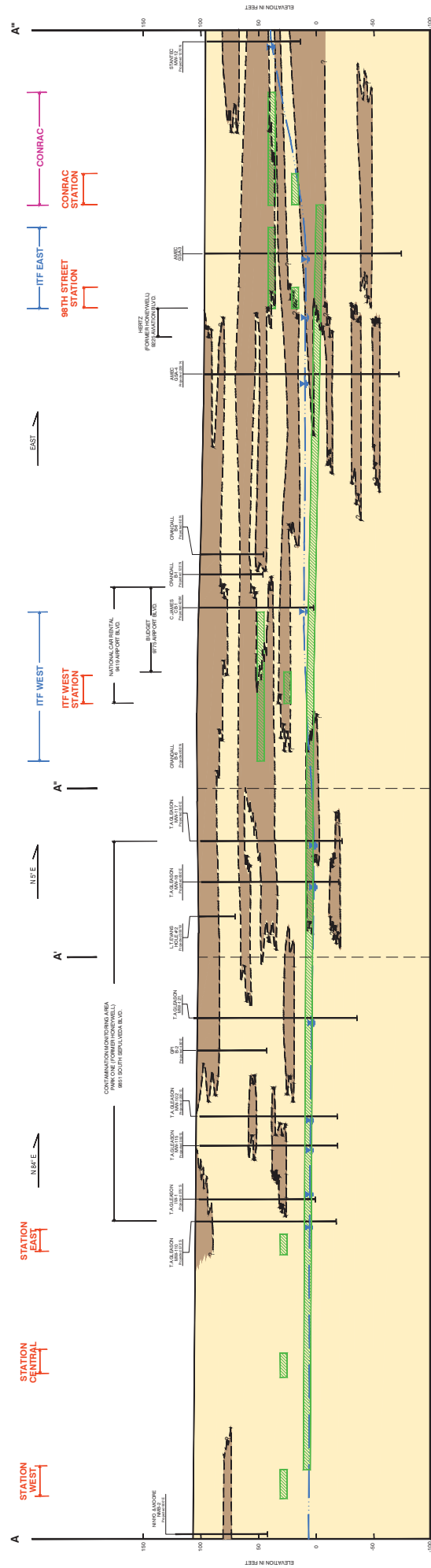
FIGURE

PROJECT NO.	DATE
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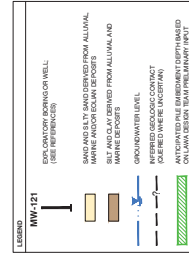
LANDSIDE ACCESS MODERNIZATION PROGRAM  
LOS ANGELES INTERNATIONAL AIRPORT  
LOS ANGELES, CALIFORNIA

**3**





NOTES: THIS SCHEMATIC PROFILE IS INTENDED FOR ILLUSTRATIVE PURPOSES AND NOT FOR DESIGN PURPOSES. THE INTERPRETED GEOLOGIC CONTACTS ARE BASED ON WIDELY SPACED AND DISTAL PROJECTED BORINGS. VARIABLE MATERIALS AT DIFFERING ELEVATIONS WILL BE ENCOUNTERED DURING PROJECT CONSTRUCTION. PERCHED GROUNDWATER SHOULD BE ANTICIPATED AT HIGHER ELEVATIONS DURING PROJECT CONSTRUCTION.

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NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

REFERENCE: LOS ANGELES WORLD AIRPORTS, 2015, LANDSLIDE ACCESS MODERNIZATION PROGRAM, OVERALL PROGRAM LAYOUT, DATE JUNE 28,



**SCHEMATIC PROFILE SECTION A-A"**



**G.3**

Addendum Letter

Hazardous Materials Assessment, June 29, 2016









June 29, 2016  
Project No. 209291003

Mr. Stephen D. Culberson, Director  
Ricondo & Associates, Inc.  
20 North Clark Street, Suite 1500  
Chicago, Illinois 60602

Subject: Addendum Letter – Hazardous Materials Assessment  
Landside Access Modernization Program  
Los Angeles International Airport  
Los Angeles, California

References: Amec Foster Wheeler, 2016a, Second Off-Site Groundwater Assessment Progress Report and Work Plan, Former Honeywell Sepulveda Site, 9851 South Sepulveda Boulevard, Los Angeles, California, SCP# 0346, Site ID# 1841000, dated April.

Amec Foster Wheeler, 2016b, In Situ Chemical Oxidation Pilot Test Work Plan, Former Honeywell Sepulveda Site, 9851 South Sepulveda Boulevard, Los Angeles, California, SCP# 0346, Site ID# 1841000, dated June.

Ninyo & Moore, 2015, Hazardous Materials Assessment, Landside Access Modernization Program, Los Angeles International Airport, Los Angeles, California, dated October 14.

Dear Mr. Culberson:

Ninyo & Moore conducted a Hazardous Materials Assessment (HMA) for the Landside Access Modernization Program (project) at Los Angeles International Airport (LAX) in the City of Los Angeles, California (site) in 2015. The HMA was performed to identify, to the extent practical, contaminated or potentially contaminated areas and other hazardous materials issues within the project. The project area consists of approximately 2,000 acres in Los Angeles, California. The project area is bounded by Tom Bradley International Terminal in the Central Terminal Area on the west; LAX property, West Century Boulevard, West 106<sup>th</sup> Street, and Interstate 105 on the south; Ocean Gate Avenue, South Ash Avenue, and I-405 on the east; and Westchester Parkway/West Arbor Vitae Street and Interceptor Street on the north. Due to the size of the project, the site was divided into four geographic areas (Areas A, B, C, and D), as presented in the referenced HMA. Based on the results of the HMA, several properties were identified as properties of concern, including the Allied-Signal Inc./Park One/Honeywell International Inc.



property at 9851 Sepulveda Boulevard (Honeywell Sepulveda property) in Area A and the Hertz Corporation/Honeywell International Inc. property at 9225 Aviation Road (Honeywell Aviation property) in Area B.

This addendum letter summarizes and discusses two reports prepared by others submitted after the issuance of the HMA: an off-site groundwater assessment progress report and work plan concerning properties near the Honeywell Aviation property, and an in-situ chemical oxidation pilot test work plan for the Honeywell Sepulveda property. A summary of these reports is presented below.

## **SECOND OFF-SITE GROUNDWATER ASSESSMENT PROGRESS REPORT AND WORK PLAN**

In December 2015, Amec Foster Wheeler (Amec) drilled two borings, approximately 1,300 feet south (GSS5) and 950 feet southeast (GSS6) of the Honeywell Aviation property. Boring GSS5 is located in the southeast portion of Area B, and boring GSS6 is located in the Manchester Square area of Area C. The objective of the assessment was to provide additional information on hydrostratigraphic conditions (depth, thickness, and composition of the Gage aquifer, El Segundo aquitard, and the Lynwood aquifer), and to provide data to assess the lateral and vertical extent of impact by volatile organic compounds (VOCs) and 1,4-dioxane in groundwater east and southeast of the Honeywell Sepulveda property. Borings GGS5 and GGS6 were advanced to total depths of 194 and 294 feet below ground surface (bgs), respectively. Due to perched aquifers, groundwater samples were collected from depths ranging from 94 to 194 feet bgs for GSS5 and 110 to 239 feet bgs for GGS6. Groundwater samples were analyzed for VOCs and 1,4-dioxane. Several VOCs and 1,4-dioxane were detected in the groundwater samples analyzed. Other than 1,1-dichloroethene (1,1-DCE), Amec determined that VOCs detected in groundwater samples (such as methyl-tert butyl ether, tetrachloroethene, etc.) were from non-Honeywell sites. Based on the analytical results, Amec included a work plan as part of the report to further define the lateral and vertical extents of 1,1-DCE and 1,4-dioxane in groundwater, as well as the hydrostratigraphic conditions in areas south and east of borings GSS5 and GSS6. Amec



recommended advancing one boring to approximately 250 feet bgs in the southeast portion of Manchester Square in Area C and collect groundwater screening samples. Based on the analytical results, Amec may advance a second boring either in the southeast portion of Area C (southeast of the South La Cienega Boulevard/West Century Boulevard intersection) or south of Area C (near West 102<sup>nd</sup> Street). Groundwater samples will be analyzed for VOCs and 1,4-dioxane.

### **IN SITU CHEMICAL OXIDATION PILOT TEST WORK PLAN**

Amec prepared a work plan to evaluate the efficiency and effectiveness of the selected in situ chemical oxidation reagent to be used in a pilot test to reduce the mass of 1,4-dioxane and VOCs in groundwater flowing across the eastern boundary of the Honeywell Sepulveda property. Amec will use the results of the pilot test to support ongoing development, evaluation, and selection of an interim remedial measure for the contaminated groundwater beneath the site. Amec will install three injection wells and seven performance monitoring wells in the saturated zone of the Gage aquifer on the eastern property boundary. The three injection wells will be installed perpendicular to groundwater flow and spaced 20 feet apart. The injection wells will target the upper sand, gravel, and lower sand layers of the Gage aquifer, which extends from approximately 95 to 145 feet bgs in the area of planned pilot test activities. Three up-gradient and four down-gradient monitoring wells will be installed and screened in Gage aquifer at shallow, intermediate, and deep intervals that approximately match the screened intervals of the injection wells. Soil samples will be collected at various depths and analyzed for grain size, total organic carbon, and/or natural oxidant demand (NOD).

Sodium permanganate will be injected into the target treatment zone (up to three events) to reduce NOD in soil, and then reduce the mass of 1,4-dioxane and VOCs in groundwater. Sodium permanganate was selected as the chemical oxidant based on recently completed bench-scale treatability testing at the site. Following the sodium permanganate injection(s), groundwater will be monitored to evaluate the effectiveness of the oxidant, possible changes in water quality, and the need for additional injection events.



During pilot test activities, Amec will communicate with and submit WDR reports to the Los Angeles Regional Water Quality Control Board (RWQCB). At the conclusion of the pilot test activities, Amec will prepare and submit a summary report to the RWQCB. According to Amec, well installation and aquifer testing are planned for the fall of 2016, injection events are planned from winter 2016 through 2017, and the pilot test report is planned for late 2017 or 2018.

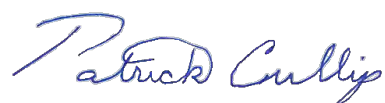
## CONCLUSIONS AND RECOMMENDATIONS

Based on the above reports, Ninyo & Moore recommends the following:

- Due to the detection of VOCs and 1,4-dioxane in groundwater in the southeast portion of Area B and the Manchester Square section of Area C, the Honeywell Sepulveda property would be considered an identified specific property of concern for Areas B and C. The Honeywell Sepulveda property was previously identified as a property of concern for Area A in Ninyo & Moore's 2015 HMA report. Based on the non-specific areas of concern identified in HMA report for Areas B and C, this information would not alter the Hazardous Materials Impacts (HMIs) and preliminary mitigation measures of our HMA.
- Due to the on-going environmental investigations associated with the Honeywell properties, Ninyo & Moore recommends performing quarterly updates on activities that may alter the HMIs or preliminary mitigation measures of our HMA.

We appreciate the opportunity to be of service to you. If you have any questions, please contact the undersigned at your convenience at 949-753-7070.

Sincerely,  
**NINYO & MOORE**



Patrick Cullip  
Project Engineer

PJC/JJR/sc

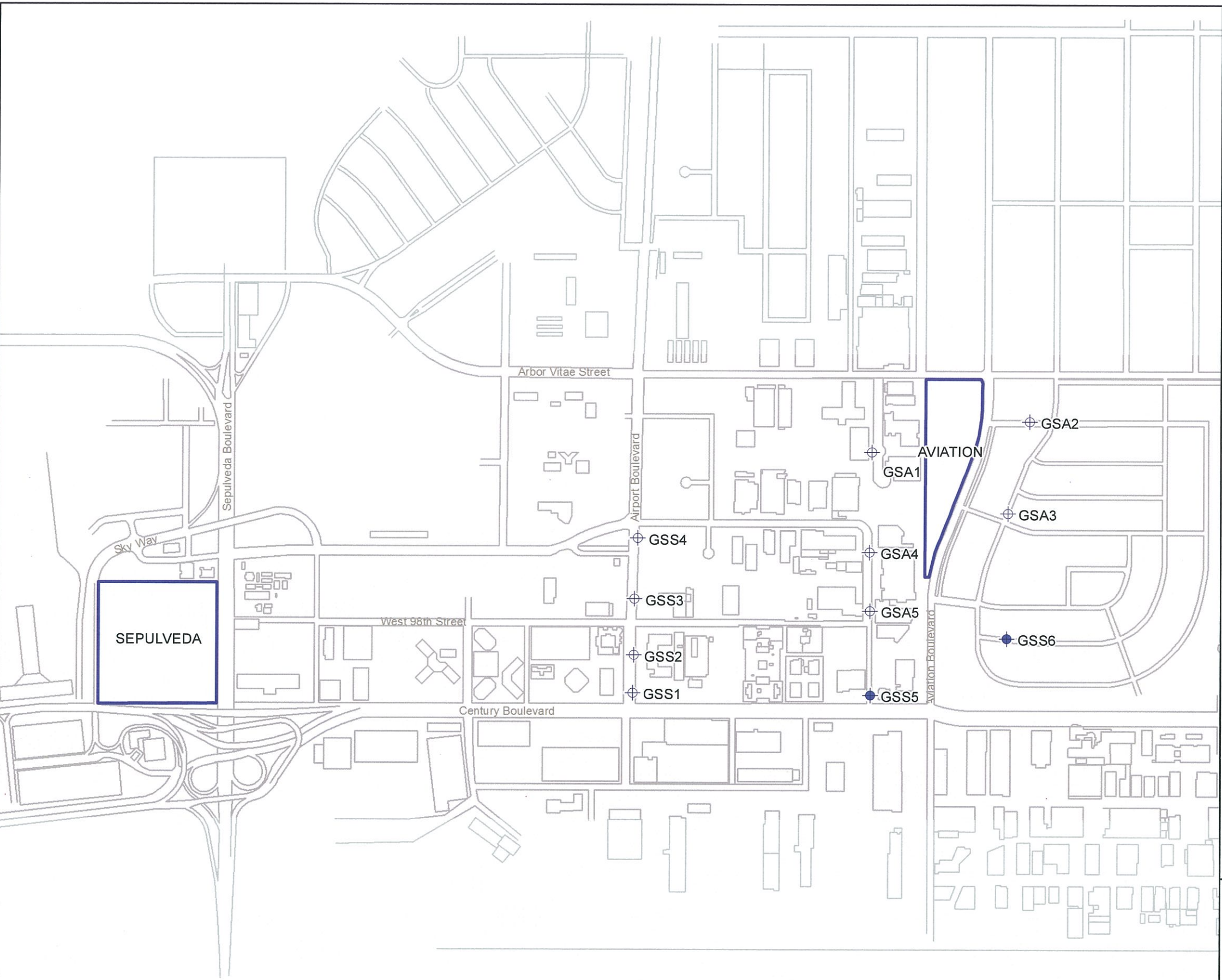
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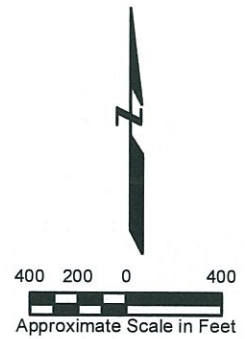
John Jay Roberts, PG, CEG  
Principal Geologist



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- Explanation**
-  2015 off-site boring location
  -  Previous off-site boring location
  -  Approximate former Honeywell site boundary



Basemap a combination of lines digitized from aerial photographs, Honeywell Sepulveda site ACAD drawings, and Honeywell Aviation site ACAD drawings.

**2015 OFF-SITE BORING LOCATIONS**  
Former Honeywell Sepulveda Site  
9851 South Sepulveda Boulevard  
Los Angeles, California



Date: 01/25/2015	Project No.: IR15165970
Submitted By: djd	Drawn By: mww



