1. Purpose and Need

1.1 Introduction

The City of Los Angeles, through its aviation department, Los Angeles World Airports (LAWA), proposes to construct improvements to the Runway Safety Area (RSA) to Runway 6R-24L on the north airfield of Los Angeles International Airport (LAX) in order to comply with the requirements of the *Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), November 30, 2005. This Act requires that not later than December 31, 2015, the owner or operator of an airport certificated under Title 14, Code of Federal Regulations (CFR), Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*, shall improve the airport's runway safety areas to comply with Federal Aviation Administration (FAA) design standards.[1]

LAWA completed an Environmental Assessment (EA) in June 2014 examining proposed improvements to bring the Runway 6L-24R RSA into compliance with FAA design standards; that EA also examined RSA improvements to Runway 6R-24L, but these improvements did not bring the Runway 6R-24L RSA into full compliance with FAA design standards.[2] As noted in the Final EA for that project:

> LAWA is developing alternatives to address these RSA issues but due to complexities with interactions for aircraft operating on the two runways, additional analysis and coordination with FAA needs to occur before LAWA can identify an alternative that will address all RSA deficiencies for Runway 6R-24L. The alternatives to address the remaining deficiencies in the Runway 6R-24L RSA are currently in stages of development and are not ready for evaluation under NEPA. Once these alternatives have been adequately developed and analyzed, any additional improvements to the Runway 6R-24L RSA would undergo a separate NEPA evaluation. Future improvements that LAWA is considering to the Runway 6R-24L RSAs would be implemented after the December 31, 2015 deadline specified in P.L. 109-115.

This EA addresses those additional RSA improvements to bring the Runway 6R-24L RSA into compliance with FAA design standards.

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1 U.S. National Archives and Records Administration. *Code of Federal Regulations*, Title 14, Part 139, Certification and Operations: Land Airports Serving Certain Air Carriers, January 1, 2002.

2 Los Angeles World Airports and U.S. Department of Transportation, Federal Aviation Administration, *Final Environmental Assessment, Runway 6L-24R and Runway 6R-24L Runway Safety Area and Associated Improvements Project*, June 26, 2014.

This Draft EA has been prepared by LAWA pursuant to the requirements of Section (§) 102(2)(c) of the *National Environmental Policy Act of 1969* (NEPA, 42 United States Code [U.S.C.] 4321-4370h), and § 509(b)(5) of the *Airport and Airway Improvement Act of 1982*, as amended. The FAA is the lead federal agency to ensure compliance with NEPA for airport development actions. This Draft EA has also been prepared in accordance with FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures, Change 1*[3] and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.[4]

NEPA requires federal agencies to prepare environmental documentation that discloses to decision-makers and the interested public a clear, accurate description of potential environmental effects resulting from proposed federal actions and reasonable alternatives to those actions. Through NEPA, the U.S. Congress directed federal agencies to integrate environmental factors in their planning and decision-making processes and to encourage and facilitate public involvement in decisions that affect the quality of the human environment. Federal agencies are required to consider the environmental effects of a proposed action, alternatives to the proposed action, and a no action alternative (assessing the potential environmental effects of not undertaking the proposed action). This section includes a brief description of LAX; a description of the Proposed Action; the purpose of and need for the Proposed Action; a description of the requested federal actions; and a description and format of this Draft EA.

1.2 Background Information

1.2.1 DESCRIPTION OF EXISTING AIRPORT

The City of Los Angeles through its aviation department, LAWA, owns and operates three airports in Southern California: LAX, Ontario International Airport (ONT), and Van Nuys Regional Airport (VNY); the latter is a general aviation airport. LAX is the largest commercial service airport in southern California, and the third busiest airport in the United States. The FAA's Terminal Area Forecast (TAF)[5] shows that LAX handled 633,367 aircraft operations in 2014 (where an aircraft operation is defined as a landing or a takeoff).[6] Passenger enplanements at LAX in 2014 were 33,438,234. In addition to passenger service, LAX is also a major center for international air cargo. In 2013, 1,744,101 metric tons of air cargo were handled at LAX.[7] Located within the City of Los Angeles, LAX is classified as a large-hub commercial service airport in the National Plan of Integrated Airport Systems (NPIAS). Hub classifications are based on the number of passengers enplaned at the Airport, and a "large hub" classification means that the airport accommodates at least one percent of total

[3] U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1E, *Environmental Impacts: Policies and Procedures*, June 8, 2004, Change 1, effective March 20, 2006.

[4] 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.

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

[6] U.S. Department of Transportation, Federal Aviation Administration, *APO Terminal Area Forecast Detail Report – Los Angeles International Airport*, January 2015.

[7] Airports Council International-North America, "2013 North American Airport Traffic Summary (Top 50 Airports – Cargo)", http://www.aci-na.org/content/airport-traffic-reports, accessed June 25, 2014.

U.S. passenger enplanements.[8] The airport serves as a hub for Alaska Airlines, American Airlines, Great Lakes Airlines, Horizon Air, and United Airlines.

LAX is located on the western side of the Los Angeles Basin and is generally bounded on the north by Lincoln Boulevard, Westchester Parkway, and the communities of Westchester and Playa del Rey; on the east by La Cienega Boulevard, Aviation Boulevard, and the City of Inglewood; on the south by Imperial Highway and the City of El Segundo; and on the west by the Pacific Ocean. The land area west of Pershing Drive is the former Surfridge neighborhood in the LAX/El Segundo Dunes. This area currently serves as a habitat preserve for the federally-listed El Segundo Blue butterfly. **Exhibit 1-1** depicts the general site location of the Airport.

1.2.2 EXISTING RUNWAYS AND RUNWAY SAFETY AREAS

As illustrated in **Exhibit 1-2**, LAX has four parallel runways oriented in an east-west direction. Two runways, 6L-24R and 6R-24L, are north of the passenger terminal area also known as the central terminal area (CTA) and are generally referred to as the north airfield. The other runways, 7L-25R and 7R-25L, are south of the CTA, and are generally referred to as the south airfield. All runways are equipped with an approach lighting system (ALS), High Intensity Runway Lights (HIRL), and a non-visual Instrument Landing System (ILS). Runway 6R-24L is 10,285 feet long by 150 feet wide and is primarily used for departures (aircraft taking off from LAX on the north side).

As detailed in FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*, an RSA is "a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway."[9] The RSA has dimensional requirements as well as clearing, grading, and drainage requirements. An additional safety-related function is to provide greater accessibility for firefighting and emergency rescue vehicles during such incidents.

Certification under 14 CFR Part 139 is required for all airports that serve any scheduled or unscheduled passenger operation of an air carrier conducted with aircraft having seating capacities of more than 9 passengers. LAX currently holds a 14 CFR Part 139 Certificate and must comply with the requirements of the 14 CFR Part 139 regulations. Under these regulations, each certificate holder is required to provide and maintain safety areas for runways and taxiways. FAA Order 5200.8, *Runway Safety Area Program*, establishes procedures to ensure that all RSAs at federally obligated airports and Part 139 certificated airports conform to the standards in FAA AC 150/5300-13, *Airport Design*, to the extent practicable.[10] In addition, Public Law 109-115 requires airport sponsors that hold a certificate under 14 CFR Part 139 to improve runway safety areas to comply with FAA design standards for RSAs.[11]

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8 U.S. Department of Transportation, Federal Aviation Administration, *Report to Congress: National Plan of Integrated Airport Systems (NPIAS), 2013-2017,* September 27, 2012.

9 U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.

10 U.S. Department of Transportation, Federal Aviation Administration, Order 5200.8, *Runway Safety Area Program*, effective date: October 1, 1999.

11 *Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006*, Pub. L. No. 109-115, 109th Cong., 1st Sess. (November 30, 2005).

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[Draft]

SOURCES: Los Angeles County, 2010, 2011 (city boundary, streets); LAX Airport Layout Plan, Ricondo & Associates, Inc., 2010 (runways, taxiways, terminal area, ariport property boundary).
National Geographic World Map, ESRI Database, 2011.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

EXHIBIT 1-1

NORTH 0 4,000 ft.

General Location and Vicinity Map

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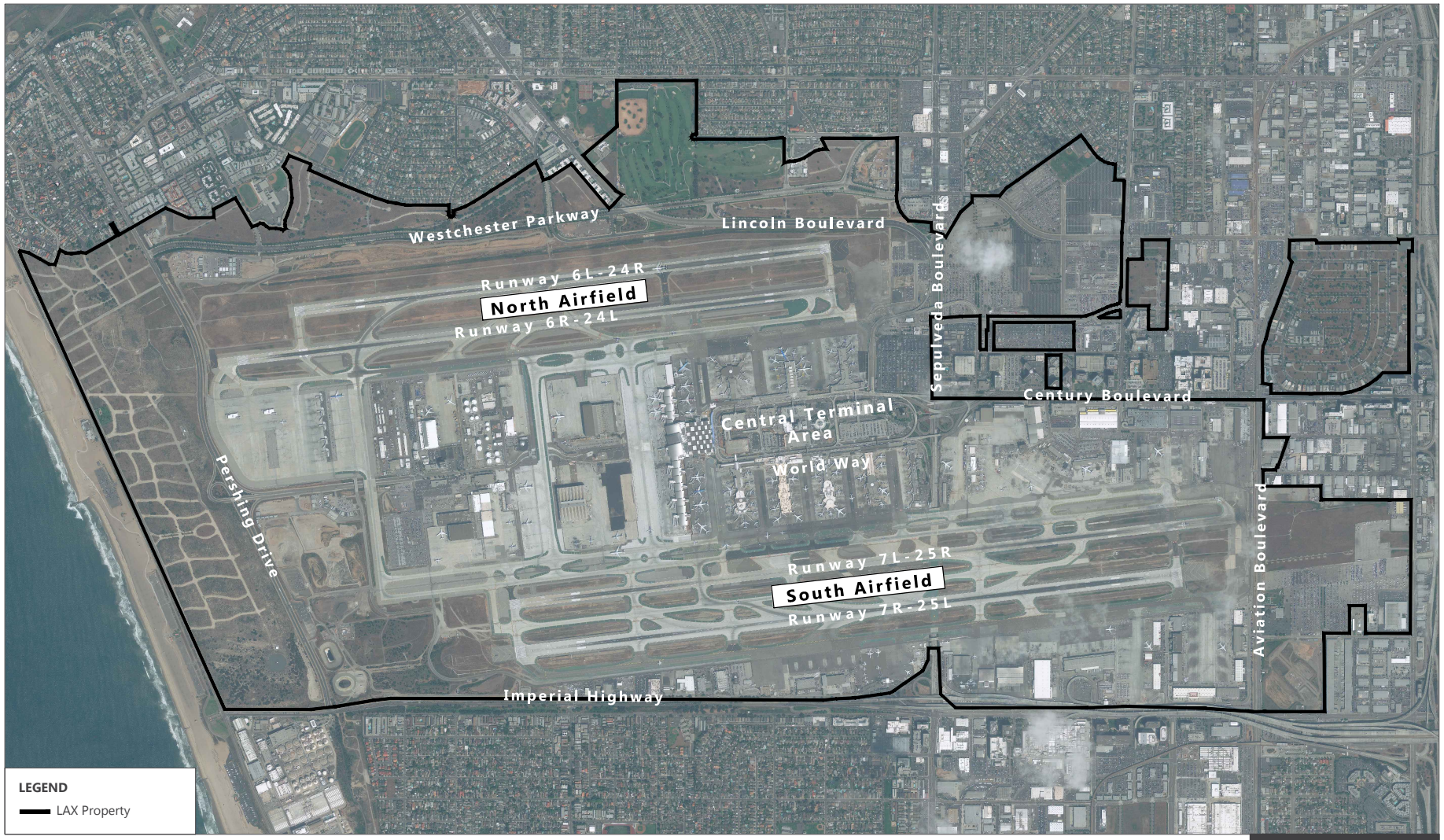
[Draft]



SOURCE: Landrum & Brown, *Los Angeles International Airport, Airport Layout Plan,* 2005; Los Angeles World Airports, April 2013 (aerial photography).
PREPARED BY: Ricondo & Associates, Inc., March 2015.

EXHIBIT 1-2

NORTH 0 2,500 ft.

Existing Airfield Configuration

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The dimensional requirements for an RSA are based on the aircraft the runway is designed to accommodate. The Airport Reference Code (ARC) is a coding system used to relate airport design criteria to the operational and physical characteristics of the aircraft intended to operate on a particular runway. **Table 1-1** lists the FAA ARC and corresponding restrictions. The first part of a runway's ARC is a letter that represents the Aircraft Approach Category (AAC) and relates to the aircraft approach speed (operational characteristics). The second component of the ARC, depicted by a Roman numeral, is the Airplane Design Group (ADG) and relates to either the aircraft wingspan or tail height (physical characteristics), whichever is most restrictive to an aircraft's safe movement on the airport. The ADG and the AAC together are the basis for establishing RSA dimensions.

Table 1-1: FAA Airport Reference Code Classifications

AIRCRAFT APPROACH CATEGORY	AIRCRAFT APPROACH SPEED	AIRPLANE DESIGN GROUP	AIRCRAFT WINGSPAN
A	Up to 91 knots	**I**	Up to 49 feet
B	Greater than or equal to 91 knots but less than 121 knots	**II**	Greater than or equal to 49 feet but less than 79 feet
C	Greater than or equal to 121 knots but less than 141 knots	**III**	Greater than or equal to 79 feet but less than 118 feet
D	Greater than or equal to 141 knots but less than 166 knots	**IV**	Greater than or equal to 118 feet but less than 171 feet
E	Greater than or equal to 166 knots	**V**	Greater than or equal to 171 feet but less than 214 feet
		VI	Greater than or equal to 214 feet but less than 262 feet

SOURCE: U.S. Department of Transportation, Federal Aviation Administration, AC 150/5300-13A, *Airport Design*, February 26, 2014.
PREPARED BY: Ricondo & Associates, Inc., June 2014.

Runway 6R-24L has an ARC designation of D-V. ARC D-V aircraft generally consist of wide-body aircraft, such as the Boeing 747, Airbus A340, and Airbus A350. The appropriate RSA dimensions for D-V aircraft are outlined in **Table 1-2**.

In addition to dimensional requirements, the FAA has established specific design standards for RSAs[12] which include:

- Areas shall be cleared and graded with no potentially hazardous ruts, humps, depressions, or other surface variations;
- RSA grading must allow adequate drainage to prevent the accumulation of water. The installation of storm sewers is permissible within the RSA, but the elevation of the storm water inlets may not vary more than three inches from the surrounding surface elevation. The RSA limits for longitudinal and transverse grading are also outlined in Table 1-2.

[12] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.

Table 1-2: RSA Dimensional Requirements for Runway Design Code D-V Aircraft

RUNWAY SAFETY AREA (RSA) DIMENSIONS AND GRADE LIMITATIONS	REQUIREMENT
RSA Width	500 feet
RSA Length Prior to Landing	600 feet
RSA Length Beyond the Runway	1,000 feet

DISTANCE BEYOND RUNWAY END	TRANSVERSE GRADING
Initial 200 feet	1.5% to 5% grade, no positive
Beyond 200 feet 1/	Maximum ± 5%

NOTE:
1/ No penetration of approach surface permitted.

SOURCE: U.S. Department of Transportation, Federal Aviation Administration, AC 150/5300-13A, *Airport Design*, February 26, 2014.
PREPARED BY: Ricondo & Associates, Inc., June 2014.

- Capable, under dry conditions, of supporting snow removal equipment, Aircraft Rescue and Fire Fighting (ARFF) equipment, and the occasional passage of aircraft without causing damage to the aircraft; and
- Free of objects, except for objects that need to be located in the runway safety area because of their function.

In accordance with FAA AC 150/5300-13A, a standard RSA must have a minimum of 1,000 feet beyond the runway end for departures and 600 feet prior to the runway threshold for arrivals.[13] The function of the RSA is to create a buffer between the runway pavement and non-movement areas. Takeoffs and landings are generally regarded as the most critical phases of flight: during these segments, aircraft are subject to a variety of controls and operational factors including a runway's usable operating dimensions. A growing list of RSA-related accidents has contributed to the concern that airports do not provide adequate safety areas to reduce injury to persons and property. As a result, state and federal legislation was enacted in an effort to standardize safety area requirements. The FAA coordinated a study in 1990 which identified airports currently not in compliance with RSA design requirements. Recognizing the significant safety enhancement afforded by RSA improvements, the FAA issued Order 5200.8, *Runway Safety Area Program*, in an effort to guide the improvement process by identifying potential alternatives to the traditional cleared and graded safety areas.

In accordance with Order 5200.8, the FAA made a determination in 2006 for Runway 6R-24L that "the existing RSA does not meet standards but is practicable to improve." Based on the requirements of Public Law 109-115, the FAA requested that LAWA evaluate and determine whether the runways at LAX meet current FAA RSA design standards. In 2010, LAWA prepared an RSA Practicability Study for Runway 6R-24L that included evaluation of RSA alternatives.[14] For this effort, LAWA established an RSA Study Working Group to provide

13 U.S. Department of Transportation, Federal Aviation Administration, AC 150/5300-13A, *Airport Design*, February 26, 2014.

14 Ricondo and Associates, Inc., *Runway 6L-24R & 6R-24L Safety Area (RSA) Practicability Study for Los Angeles International Airport*, April 9, 2010.

input, evaluate the various RSA alternatives, and to ensure that the needs of the various airport users were considered. The RSA Study Working Group was comprised of representatives from various divisions within LAWA, FAA, and airlines operating at LAX. The study concluded that Runway 6R-24L does not meet applicable FAA RSA design standards.[15]

The existing RSA for Runway 6R-24L is 500 feet wide for the full length of the runway; it extends 165 feet from the west end of the runway and 885 feet from the east end as shown in **Exhibit 1-3**. The existing RSA at the west end is 835 feet short of meeting the RSA standard beyond the runway end for Runway 24L arrivals and departures. Runway 6R also has a displaced threshold of 331 feet. A displaced threshold is a threshold that is located at a point on the runway beyond the beginning of the runway.[16] It is in place due to obstructions off the end of Runway 6R (namely dunes) that penetrate the 14 CFR Part 77 approach surface[17] that begins at the end of Runway 6R. With the existing 331-foot displaced threshold, the 14 CFR Part 77 approach surface clears these obstructions. With this displaced threshold, the RSA 600-foot length requirement prior to the Runway 6R arrival threshold is 104 feet short of meeting the FAA standard. The existing RSA meets the 600-foot RSA length prior to the Runway 24L arrival threshold for landings. LAWA will implement declared distances to provide the 1,000-foot length requirement beyond the runway end for Runway 6R arrivals and departures, which was approved as part of the Runway 6L-24R and Runway 6R-24L Runway Safety Area and Associated Improvements Project EA.[18]

Exhibit 1-4 depicts the areas of non-compliance for Runway 6R-24L. Areas of non-compliance for Runway 6R-24L include:

- At the west end of the runway, objects that are located within the standard RSA dimensions (1,000 by 500 feet) include, but are not limited to, a jet blast fence, a service road, a perimeter fence, a public roadway (Pershing Drive), and the LAX/El Segundo Dunes;
- At the east end of the runway, objects that are located within the standard RSA dimension (1,000 by 500 feet) include, but are not limited to, the Runway 6R ILS localizer, portions of a service road and parking lot, and perimeter fencing; and
- Portions of a service road north of the runway are located within the RSA dimensions.[19]

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15 Evaluation of the RSAs associated with Runways 7L-25R and 7R-25L (the south runway complex) were performed as a separate study. RSA improvements associated with Runway 7L-25R underwent separate environmental evaluation; Runway 7R-25L was brought into compliance with RSA standards as part of the South Airfield Improvement Project.

16 U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.

17 14 CFR Part 77 (Federal Aviation Regulation [FAR] Part 77) establishes the standards for determining obstructions to navigable airspace through the establishment of imaginary surfaces that need to be protected for the safe and efficient operation of aircraft.

18 Los Angeles World Airports and U.S. Department of Transportation, Federal Aviation Administration, *Final Environmental Assessment, Runway 6L-24R and Runway 6R-24L Runway Safety Area and Associated Improvements Project*, June 26, 2014.

19 Relocation of the service road north of Runway 6R-24L was a component of the Runway 6L-24R and Runway 6R-24L Runway Safety Area and Associated Improvements Project Environmental Assessment, which received FAA approval of a Finding of No Significant Impact/Record of Decision in July 2014.

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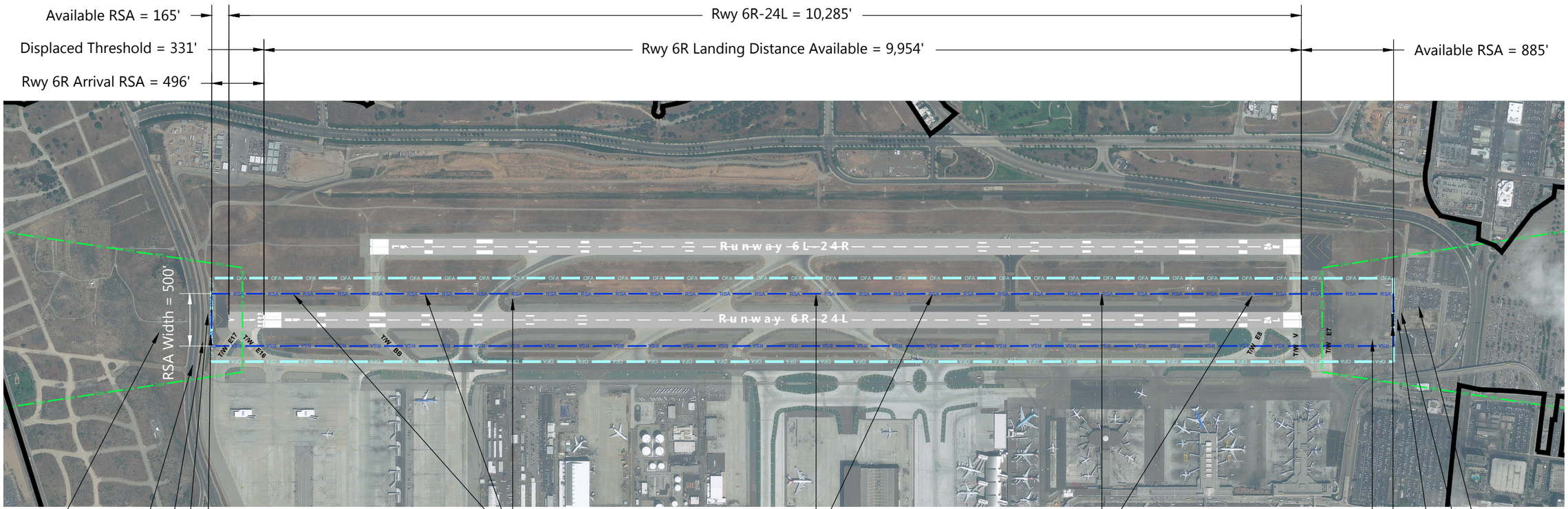

NOTE: * These features are being closed and/or relocated as part of the Runway 6L-24R and Runway 6R-24L RSA and Associated Improvements Project.
SOURCE: Federal Aviation Administration, *Advisory Circular 150/5300-13A, Airport Design* , September 28, 2012; Landrum & Brown, *Los Angeles International Airport, Airport Layout Plan* , 2005; Los Angeles World Airports, April 2013 (aerial photography); Ricondo & Associates, Inc., June 2014.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

EXHIBIT 1-3

Runway 6R-24L
Existing Conditions

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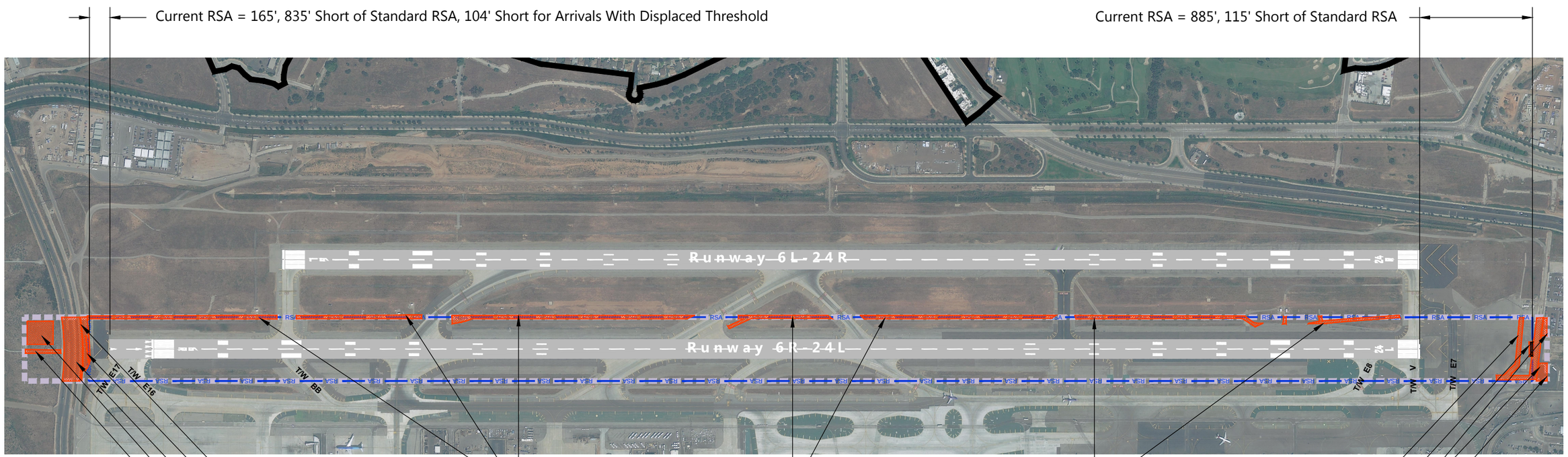

NOTE: * These features are being closed and/or relocated as part of the Runway 6L-24R and Runway 6R-24L RSA and Associated Improvements Project.
SOURCE: Federal Aviation Administration, *Advisory Circular 150/5300-13A, Airport Design* , September 28, 2012; Landrum & Brown, *Los Angeles International Airport, Airport Layout Plan* , 2005; Los Angeles World Airports, April 2013 (aerial photography); Ricondo & Associates, Inc., June 2014.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

NORTH 0 800 ft.

EXHIBIT 1-4

Runway 6R-24L
Areas of Non-Compliance

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1.3 Description of the Proposed Action

The Los Angeles World Airports is proposing the following improvements in accordance with Public Law 109-115 that requires all 14 CFR Part 139 certificated airports to improve the airport's RSA to comply with FAA design standards.[20] In order to meet the requirements of Public Law 109-115, LAWA is proposing to implement declared distances to Runway 6R-24L by December 31, 2015 that would provide the required RSA dimensions during construction while LAWA implements the proposed improvements (see Section 1.6 for additional details). Physical improvements to the RSA, as described below, would not be completed until late 2016. Once operational, the Proposed Action would maintain declared distances on Runway 6R-24L, as further described in Section 1.3.3.

The components of the Proposed Action are depicted on **Exhibit 1-5**. The description of the Proposed Action that follows is subject to verification through final design and FAA approvals. The primary components of the RSA improvements include:

- Runway 6R (West End)
  - Construction of the Proposed Action would require the physical end of Runway 6R be shifted about 200 feet to the east. The Proposed Action also requires shifting of the existing displaced threshold for Runway 6R an additional 420 feet to the east as well. The existing Runway 6R end has a displaced threshold of 331-feet.
    - The resulting 420-foot eastward shift of the 6R Runway displaced threshold would provide a new displaced threshold of about 550 feet.
    - This shift in the displaced threshold requires a corresponding shift in navigational aids at the 6R runway end. The 6R end would shift 200 feet east, plus the needed 550 foot threshold means the new threshold would be 750 feet from the current runway end. If you subtract the existing threshold distance of 331 feet from the current runway end, you have a net threshold change of 420 feet.
  - Construct a blast pad 400 feet long and 280 feet wide;
  - Construct retaining wall and add fill graded to RSA standards;
  - Shift existing connector Taxiways E16 and E17 to the east;
  - Construct new and rehabilitate existing runway and taxiway pavement, as needed in the areas of the improvements identified above, and modify airfield signage, lighting, and markings;
  - Relocate navigation aids, including the glide slope antenna, and Precision Approach Path Indicators (PAPI);

[20] The figures presented in this document are intended to describe the overall nature and intent of the Proposed Action, other alternatives, and technical information of environmental impacts. Figures show project elements at a planning level of detail. Final design project refinement may result in requirements that vary slightly from those shown herein.

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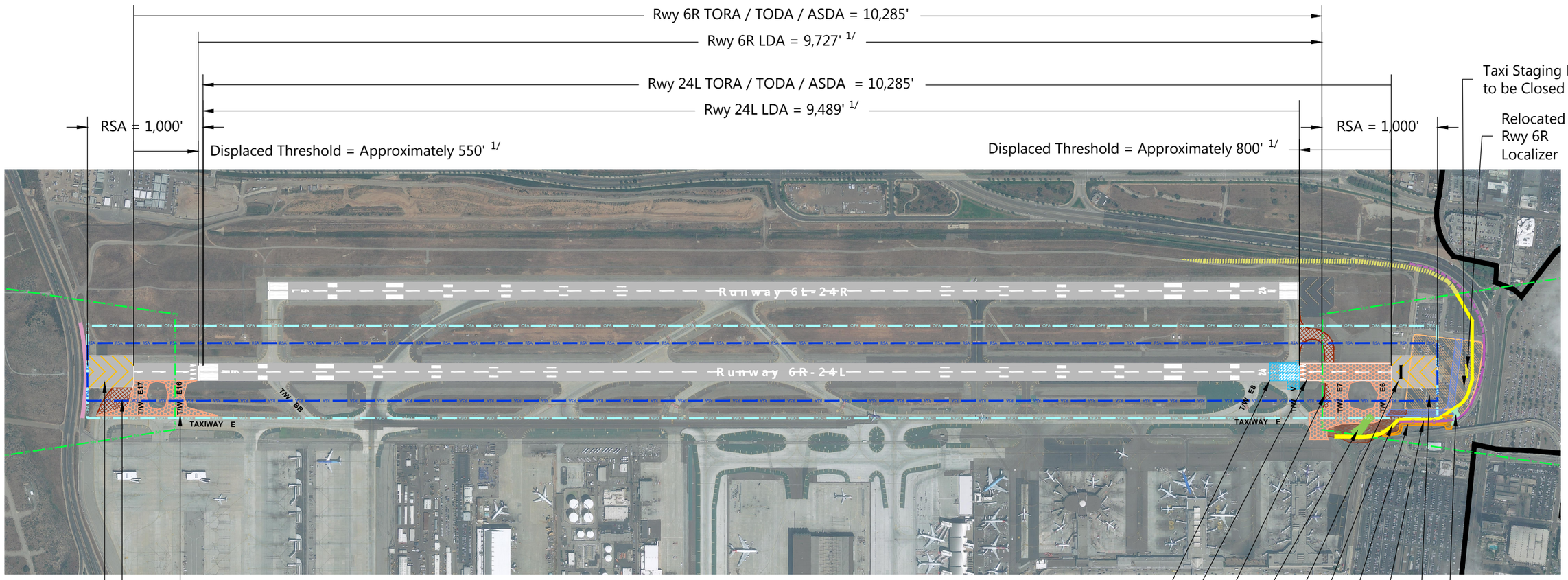

LEGEND

- LAX Property Boundary
- RSA Runway Safety Area
- OFA Runway Object Free Area
- RPZ Runway Protection Zone
- Relocated Service Road
- Relocated AOA Fence
- Retaining Wall to be Built
- Blast Pad to be Built
- Relocated Service Road as Part of Previous Project 2/
- Relocated AOA Fence as Part of Previous Project 2/
- SAAP #3 Demolition/Relocation
- Davidson Drive Realignment
- Runway/Taxiway Pavement to be Demolished
- Runway/Taxiway Pavement to be Built
- Area to be Graded
- Roadways to be Closed
- Existing Paved Areas within the RSA may be Removed and Graded to RSA Standards and Paved with Erosion Control Pavement
- Runway/Taxiway to be Rehabilitated

NOTES

Acronyms:

TORA	Take-Off Run Available
TODA	Take-Off Distance Available
ASDA	Accelerate-Stop Distance Available
LDA	Landing Distance Available
AOA	Air Operations Area
SAAP	Secure Area Access Post

NOTE: 1/ These measurements may be subject to refinement.
2/ These features are being closed and/or relocated as part of the Runway 6L-24R and Runway 6R-24L RSA and Associated Improvements Project.

SOURCE: Federal Aviation Administration, *Advisory Circular 150/5300-13A, Airport Design* , September 28, 2012; Landrum & Brown, *Los Angeles International Airport, Airport Layout Plan* , 2005; Los Angeles World Airports, April 2013 (aerial photography); Ricondo & Associates, Inc., June 2014.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

NORTH 0 900 ft.

EXHIBIT 1-5

Proposed Action

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- Installation of in-pavement Approach Lights in proposed pavement east of Pershing Drive and proposed retaining wall;
- Remove two approach light system (MALSR) stations and shift of light stations to the east coincident with existing light station locations to accommodate the proposed relocated runway end and approximate 550-foot displaced threshold;
    - The two western-most stations including concrete pads would be removed. Towers, lights, and equipment control boxes and concrete pads would be removed. Concrete pads would be excavated and areas would be restored to pre-project conditions;
    - Relocate the "1,000-foot light bar" (supported by three separate towers) to a location immediately east of Pershing Drive (outside of the coastal zone). The northern and southern concrete pads which currently support the "1,000-foot light bar" would be excavated, removed, and restored to pre-project conditions. The central pad would be retained in order to support a new single-pole light station tower at this location; and
    - Pending funding approval, FAA will replace the entire approach light system (towers, lights and equipment control boxes) for Runway 6R. To the extent possible, FAA will utilize the existing concrete pads. However, FAA will need to replace the existing concrete support pads at three light stations. One of the existing five-light steady burning stations would change to a single flasher light station. This change requires removal of the existing footing and five poles supporting each light and replacing it with a single pole and foundation along with a foundation for the power and controller boxes for the flasher station. The total amount of square footage at that station is expected to increase by one square foot. The overall amount of concrete footing in the California Coastal Zone will be reduced as a result of the proposed project.

- Runway 24L (East End)
    - Shift Runway 24L endpoint by constructing approximately 800 feet of new runway pavement to the east. The landing threshold would remain in current location and pavement marked as a displaced threshold;
        - Shift Taxiway E endpoint approximately 500 feet to the east with 400-foot separation from the Runway;
        - Remove existing Taxiway E7 including the existing loop westbound that joins Taxiway V between Runways 24L and 24R;
        - Construct new connector Taxiways E7 and E6;
        - Construct new and rehabilitate existing runway and taxiway pavement, as needed in the areas of the improvements identified above, and modify airfield signage, lighting, and markings; A detailed visual survey was conducted for the first 1,000 feet of each end of Runway 6R-24L and Taxiway V between Taxiway E and the Runway 24L end. The visual inspection found the pavement at the Runway 24L end is in poor condition because of the high number of departures from this end of the runway. There are significant load-related distresses in the 75-foot wide keel area of the runway and at the Taxiway V intersection. Therefore, several

fatigue-cracked panels (the first 250 feet of 24L), would be replaced. Additionally, nine fatigue-cracked panels on Taxiway V immediately adjacent to the south edge of the runway, and two panels on Taxiway V directly adjacent to the northern edge of the runway, will also be replaced (approximately 6,875 square feet).

  - Relocate the existing ILS Runway 6R Localizer Antenna to the east;
  - Demolish and relocate existing Secure Area Access Post (SAAP) #3;
  - Protect in place existing storm sewer and utilities;
  - Relocate Air Operations Area (AOA) fence;
  - Construct 400-foot long jet blast pad;
  - Relocate taxicab holding/staging area and associated buildings;
- Implement declared distances;
- Extend and realign existing vehicle service road(s) south of Taxiway E, which will require closure of Alverstone Avenue and Davidson Drive as well as the adjacent parking lot (all of which are on airport property and currently closed to the public). Existing paved areas within the RSA may be removed and graded to RSA standards and paved with erosion control pavement; and
- Realign a portion of Davidson Drive to accommodate authorized vehicle access.

1.3.1 SHIFT RUNWAY 6R END

Construction of the Proposed Action would require a shift of the Runway 6R end by approximately 200 feet to the east. The Proposed Action also requires shifting of the existing displaced threshold[21] for Runway 6R an additional 420 feet to the east as well. The existing Runway 6R end has a displaced threshold of 331-feet. The resulting 420-foot eastward shift of the 6R Runway displaced threshold would provide a new displaced threshold of about 550 feet. This shift in the displaced threshold requires a corresponding shift in navigational aids at the 6R runway end. The 6R end would shift 200 feet east, plus the needed 550 foot threshold means the new threshold would be 750 feet from the current runway end. If you subtract the existing threshold distance of 331 feet from the current runway end, you have a net threshold change of 420 feet.

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[21] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, Airport Design, September 2012.: *"Threshold. The threshold is ideally located at the beginning of the runway. The threshold is located to provide proper clearance for landing aircraft over existing obstacles while on approach to landing. When an object beyond the airport owner's power to remove, relocate, or lower obstructs the airspace required for aircraft to land at the beginning of the runway for takeoff, the threshold may be located farther down the runway. Such a threshold is called a "displaced threshold." Thresholds can also be displaced to provide:*

(a) A means for obtaining additional RSA prior to the threshold. See paragraph 307.

(b) A means for obtaining additional Runway Object Free Area (ROFA) prior to the threshold. See paragraph 309.

(c) A means for locating the Runway Protection Zone (RPZ) to mitigate unacceptable incompatible land uses. See paragraph 310.

(d) Mitigation of environmental impacts, including noise impacts.

Displacement of a threshold reduces the length of runway available for landings. The portion of the runway behind a displaced threshold may be available for takeoffs and, depending on the reason for displacement, may be available for takeoffs and landings from the opposite direction. Refer to paragraph 323 for additional information."

The shift of the runway also requires a shift to Taxiways E17 and E16 to allow aircraft to enter and exit the runway, and shifts to air navigation aids that are fixed by function in relation to the runway threshold. As a result of the runway shift, LAWA proposes to remove existing Taxiway E16 and E17 north of Taxiway E that provide access to the existing end of Runway 6R and construct new Taxiway connectors E16 and E17 to provide access to the shifted end of Runway 6R (see **Exhibit 1-6**). The runway and taxiway lightings and markings associated with the end of Runway 6R will need to be modified to reflect the shift in the Runway 6R threshold.

Runway 6R is equipped with an instrument landing system (ILS) for Category (CAT) I approaches and a Medium Intensity Approach Light System with Runway Alignment Indicator Lights (MALSR). This equipment provides electronic vertical and horizontal guidance to aircraft approaching and landing on this runway using radio signals and a high-intensity lighting array to enable a safe landing when the visibility is reduced (fog or rain). The shift in the Runway 6R threshold will require the relocation of portions of the ILS and approach lighting system, namely the glide slope antenna and Precision Approach Path Indicators (PAPI), and MALSR. The glide slope antenna provides vertical guidance information indicating aircraft position above, below, or along the proper descent angle to the runway touchdown point. It is optimally positioned in relation to the runway threshold to provide a 3 degree glide slope with a specified threshold crossing height for landing aircraft. The PAPI system provides visual approach slope information along the desired descent path to the touchdown point.

The PAPI system consists of two parts: (1) a single horizontal bar with four sharp transition multilamp units, referred to as lamp housing assemblies (LHA's), equally spaced, and (2) a power and control unit (PCU). The LHA's are located on a line perpendicular to the runway centerline, at a distance from the threshold chosen to provide the proper threshold crossing height and obstacle clearance.[22] Exhibit 1-6 shows the existing and proposed MALSR system, PAPI, and glide slope.

The Medium Intensity Approach Light System (MALS) portion of the MALSR consists of a threshold light bar and seven five-light bars located on the extended runway centerline. The light bar stations are typically spaced 200 feet apart, with a tolerance expressed as "+feet/-feet". The first light bar is located 200 feet (+100 feet/-0 feet) from the runway threshold and the remaining bars at each 200-foot interval (+/- 20 feet) out to 1,400 feet from the threshold. Two additional five-light bars are located (one on each side of the centerline bar) 1,000 feet from the runway threshold forming a crossbar 66 feet long. The spacing between individual lights in all bars is approximately 2½ feet. All lights are aimed into the approach to the runway and away from the runway threshold. All lights in the system are white, except for the green threshold lights. The threshold lights are a row of lights on 10-foot centers located coincident with and within the runway edge lights near the threshold, and extend across the runway threshold. **Exhibit 1-7** depicts some of the MALS light stations located off the end of the Runway 6R.

[22] U.S. Department of Transportation, Federal Aviation Administration, Order JO 6850.2B, *Visual Guidance Lighting Systems*, August 20, 2010.

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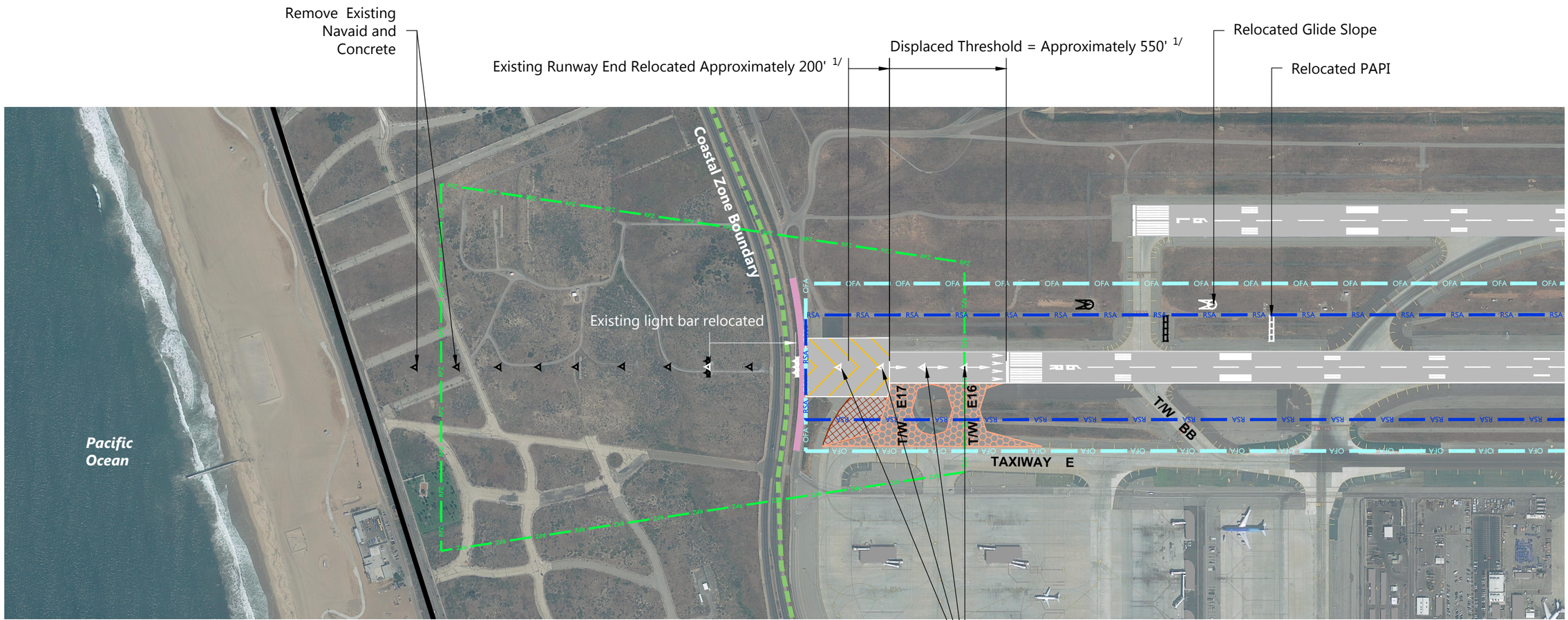

LEGEND

- LAX Property Boundary
- Runway Safety Area
- Runway Object Free Area
- Runway Protection Zone
- Runway/Taxiway Pavement to be Demolished
- Runway/Taxiway Pavement to be Built
- Coastal Zone Boundary
- Blast Pad to be Built
- Retaining Wall to be Built
- Existing / Replaced Navigational Aid
- Existing / Relocated Precision Approach Path Indicator
- Existing / Relocated Glide Slope Antenna

NOTE: 1/ These measurements may be subject to refinement.
SOURCE: Landrum & Brown, *Los Angeles International Airport, Airport Layout Plan,* 2005; Los Angeles World Airports, April 2013 (aerial photography).
PREPARED BY: Ricondo & Associates, Inc., March 2015.

NORTH 0 500 ft.

EXHIBIT 1-6

Proposed Action, Runway 6R Detail

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1. View of MALSR Station facing west.

2. View of flashing Station facing east.

3. View of 1,000-foot light bar facing north/northeast.

SOURCE: Photo Credit: Kessler, David, Federal Aviation Administration, August 2014.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

EXHIBIT 1-7

MALSR Station Photographs

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The Runway Alignment Indicator Lights (RAIL) portion of the MALSR consists of five sequenced flashers located on the extended runway centerline. The first is located 200 feet (+/- 20 feet) beyond the approach end of the MALSR with successive units located at each 200-foot interval (+/- 20 feet) out to 2,400 feet (+100 feet/-0 feet) from the runway threshold. These single white lights flash in sequence toward the threshold at the rate of twice per second. All lights are aimed into the approach to the runway and away from the runway threshold. The Runway 6R threshold is planned to be displaced approximately 550 feet to the east from the proposed runway end, which will require modification of the MALSR system as well as relocation of the Runway 6R glide slope. Modification of the MALSR will involve shifting light bars approximately 400 feet to the east to accommodate the new threshold location. This essentially reduces the westerly extent of the MALSR west of the airport. This requires the removal of the two westernmost light stations (i.e., the light stations closest to the Pacific Ocean), and the relocation of light stations onto either existing platforms or onto runway or blast pad pavement. Additionally, pending funding approval, FAA would replace the entire ALS system for Runway 6R, as the existing equipment has reached the end of its design life. Concrete pads for the two westernmost stations and outer pads of the shifted 1,000-foot light bar station would be excavated, removed, and restored to pre-project conditions. For the remaining stations, concrete pads would be reused to the extent possible; lights, towers and equipment control boxes would be replaced. FAA has determined that three of the existing concrete support pads will need to be replaced. One of the existing five-light steady burning stations would change to a single flasher light station (see **Exhibit 1-8**). This change requires removal of the existing footing and five poles supporting each light and replacing it with a single pole and foundation along with a foundation for the power and controller boxes for the flasher station. The total amount of square footage at that station is expected to increase by one square foot. The overall amount of concrete footing in the California Coastal Zone will be reduced as a result of the proposed project.

1.3.2 SHIFT RUNWAY 24L END

To maintain the existing runway length for departures (10,285 feet), LAWA proposes to shift the Runway 24L end by approximately 800 feet to the east, but in order to maintain the existing touchdown point on Runway 24L in the existing location, LAWA will also implement a displaced threshold of approximately 800 feet.[23] The shift of the runway end requires a shift of taxiways allowing aircraft to enter and exit the runway, and to shift air navigation aids that are fixed by function in relation to the runway threshold. The endpoint of Taxiway E will also be shifted approximately 500 feet to the east. LAWA proposes to remove existing Taxiway E7 located east of the existing end of Runway 24L and construct new connector Taxiways E7 and E6 (see **Exhibit 1-9**). The taxiway lightings and markings associated with the end of Runway 24L will need to be modified to reflect the shift in the Runway 24L threshold. The shift in Taxiway E would impact the existing Secure Area Access Post (SAAP) #3, which would fall within the Taxiway Object Free Area (TOFA). This will require the relocation of SAAP #3 and the corresponding realignment of a segment of Davidson Drive.

[23] See Footnote 21, Section 1.3.1, regarding displaced thresholds.

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1. View of five-light steady burning station facing north.

2. View of single-pole flashing station facing northeast. [1/]

3. View of single-pole flashing station facing southeast.

NOTE: [1/] The Localizer Array in the background of this photograph will not be relocated or modified.
SOURCE: Photo Credit: Kessler, David, Federal Aviation Administration, February 2015.
PREPARED BY: Ricondo & Associates, Inc., March 2015.

EXHIBIT 1-8

MALSR Single Flasher Station Photographs

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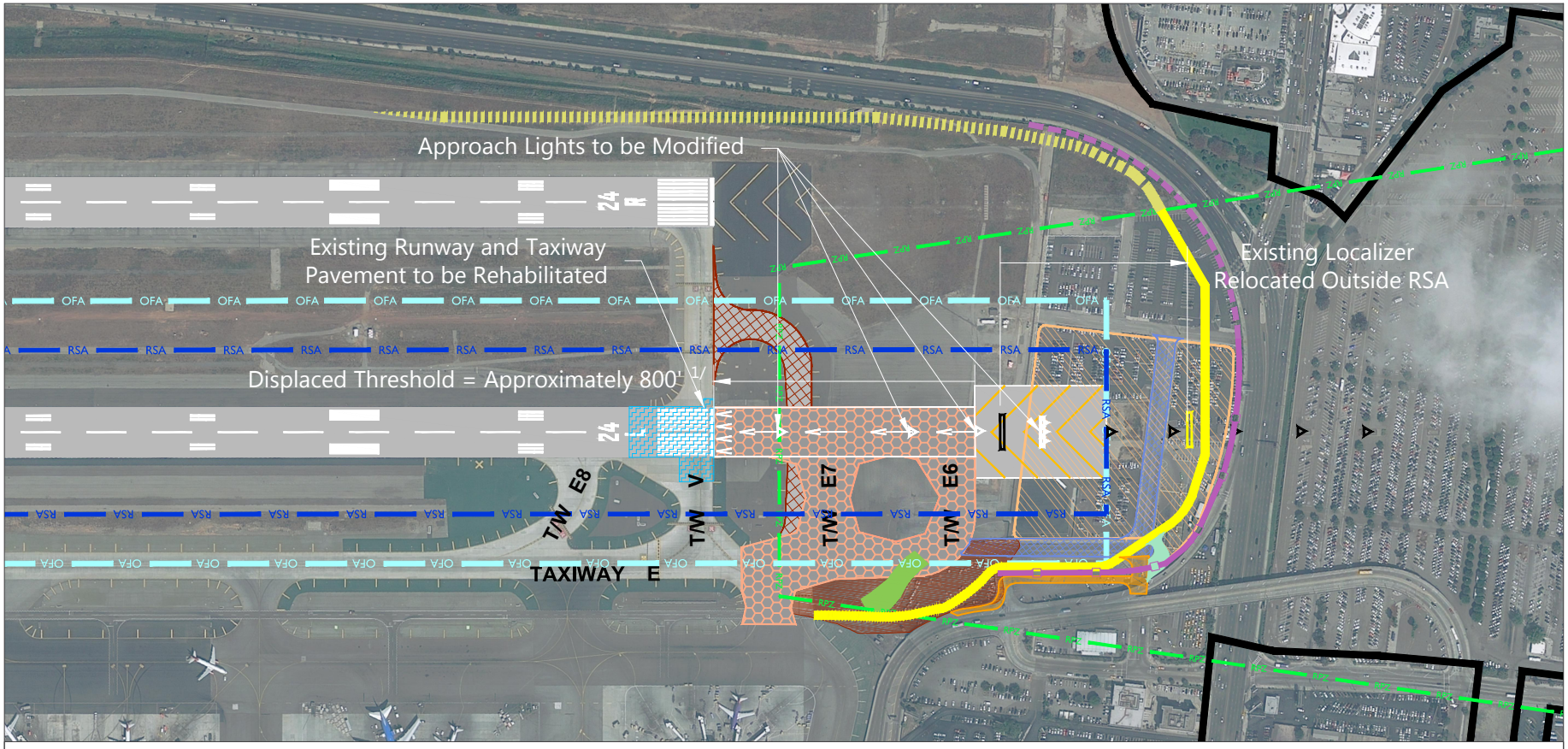
[Draft]



LEGEND

- LAX Property Boundary
- Runway Safety Area
- Runway Object Free Area
- Runway Protection Zone
- Relocated AOA Fence
- Relocated Service Road
- SAAP #3 Demolition/Relocation
- Area to be Graded
- Relocated AOA Fence as Part of Previous Project 2/
- Relocated Service Road as Part of Previous Project 2/
- Runway/Taxiway Pavement to be Demolished
- Runway/Taxiway Pavement to be Built
- Roadways to be Closed
- Existing / Proposed Navigational Aid
- Blast Pad to be Built
- Davidson Drive Realignment
- Existing Paved Areas within the RSA may be Removed and Graded to RSA Standards and Paved with Erosion Control Pavement
- Runway/Taxiway to be Rehabilitated

NOTE: 1/ This measurement may be subject to refinement.
2/ These features are being closed and/or relocated as part of the Runway 6L-24R and Runway 6R-24L RSA and Associated Improvements Project.
SOURCE: Landrum & Brown, *Los Angeles International Airport, Airport Layout Plan,* 2005; Los Angeles World Airports, April 2013 (aerial photography).
PREPARED BY: Ricondo & Associates, Inc., March 2015.

NORTH 0 500 ft.

EXHIBIT 1-9

Proposed Action, Runway 24L Detail

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A detailed visual survey was conducted for the first 1,000 feet of each end of Runway 6R-24L and Taxiway V between Taxiway E and the Runway 24L end. The visual inspection found the pavement at the Runway 24L end is in poor condition because of the high number of departures from this end of the runway. There are significant load-related distresses in the 75-foot wide keel area of the runway and at the Taxiway V intersection. Therefore, in addition to the new runway pavement construction, several fatigue-cracked panels (the first 250 feet of 24L), would be replaced. Additionally, nine fatigue-cracked panels on Taxiway V immediately adjacent to the south edge of the runway, and two panels on Taxiway V directly adjacent to the northern edge of the runway, will also be replaced (approximately 6,875 square feet).

Part of the existing ILS system for Runway 6R approaches is the ILS localizer, located east of the Runway 24L end. The ILS localizer provides lateral guidance information to the aircraft to indicate whether it is to the right, left, or aligned with the approach course line (usually the extended runway centerline). The ILS localizer consists of an antenna array, electronic equipment, and an equipment shelter, and is typically located near the stop end of the runway, outside of the RSA if required graded and cleared areas are available.[24] With the eastern shift in the Runway 24L end and associated RSA, the Runway 6R ILS localizer also needs to be shifted to the east.

The approach light system for Runway 24L will also require modification because of the runway shift. Some of the approach light bars will be in-pavement fixtures due to the displaced threshold, while others will be elevated fixtures, the heights of which would be determined during final design.

1.3.3 DECLARED DISTANCES

Declared distances are "the distances the airport operator declares available and suitable for satisfying an aircraft's takeoff run, take-off distance, accelerate-stop distance, and landing distance requirements."[25] The FAA defines four types of declared distances: the Take-Off Run Available (TORA), the Take-Off Distance Available (TODA), the Accelerate-Stop Distance Available (ASDA), and the Landing Distance Available (LDA).[26] Aircraft operators use these declared distances, along with weather data, aircraft performance characteristics, and market segments for flight planning, including the determination of payload and range restrictions. Pilots and airplane operators' performance engineers need this information for calculating their allowable takeoff and landing weights and speeds.[27] Essentially, declared distances represent the maximum runway distances available to safely takeoff or reject a takeoff (TORA, TODA, and ASDA), or to land (LDA). Shortening the usable runway length would allow for the full RSA dimensions to be available in the event of an aircraft's excursion from the runway during an overrun, undershoot or veer-off.

Declared distances to be implemented as part of the Proposed Action are presented in **Table 1-3**.

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[24] U.S. Department of Transportation, Federal Aviation Administration, Order 6750.16E, *Siting Criteria for Instrument Landing Systems*, April 10, 2014.

[25] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.

[26] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.

[27] U.S. Department of Transportation, Federal Aviation Administration, CERTALERT, *Reporting Declared Distances to Aeronautical Information Services*, March 6, 2009.

Table 1-3: Runway 6R-24L Declared Distances

	DECLARED DISTANCES RUNWAY 6R	DECLARED DISTANCES RUNWAY 24L
Runway Length	10,885′	10,885′
TORA = Take-off Run Available	10,285′	10,285′
TODA = Take-Off Distance Available	10,285′	10,285′
ASDA = Accelerate-Stop Distance Available	10,285′	10,285′
LDA = Landing Distance Available	9,727′	9,489′

SOURCE: LAWA Airport Development Group, Preliminary Design Analysis (URS), November, 2014.
PREPARED BY: Ricondo & Associates, Inc., November 2014.

While the Proposed Action would increase the existing Runway 6R-24L overall length by 600 feet, from 10,285 feet to 10,885 feet, this increase in length would only provide safety areas necessary to satisfy FAA design standards. The declared distances and shift in Runway 6R threshold, described above, would limit the usable runway length to the existing 10,285 feet. TORA, TODA, ASDA and LDA would each remain at a maximum distance of 10,285 feet and no increase in capacity or operations would occur. Therefore, no increase in usable runway length or capacity would occur from the Proposed Action.

1.3.4 SERVICE ROADS

Portions of service roads currently located within the Runway 6R-24L RSA would be relocated or realigned in order to meet RSA standards and to ensure that service vehicles operate outside of the RSA. An existing vehicle service road located southeast of Taxiway E would be relocated and realigned east around the shifted RSA. This would require closure of LAWA-owned Alverstone Avenue and Davidson Drive (which are on airport property and closed to the public) and a portion of Davidson Drive to be realigned to accommodate authorized vehicle access. The realigned service road would also require shifting the police overflow parking to the existing taxicab staging lot, and relocation of the taxicab staging lot. Some of the existing pavement located within the shifted RSA may need to be demolished and the area graded to meet RSA grading standards. This area would be repaved with erosion control pavement. The AOA fence would need to be relocated along the southeastern portion of the north runway complex in order to accommodate the realigned service roads described above. The AOA fence realignment is depicted in Exhibit 1-9.

The realignment of service roads and the AOA fence outside the RSA along the eastern side of the north runway complex, together with the relocated Runway 6R ILS Localizer, would make it necessary to close the taxi and shuttle staging area, located east of Runway 6R-24L. This parking area is located inside the LAX property boundary, east of Alverstone Avenue, and is used for taxi and shuttle staging; it is not open to the public. This parking area totals approximately 95,500 square feet in area and contains paved surface parking; the portion of the pavement that would not be converted to a jet blast pad would be demolished and graded to RSA standards (see Exhibit 1-9). The taxicab holding lot would be relocated to an existing LAWA-owned parking lot located between West 96th Street and West 98th Street, approximately 200 feet east of Vicksburg Avenue (see **Exhibit 1-10**).

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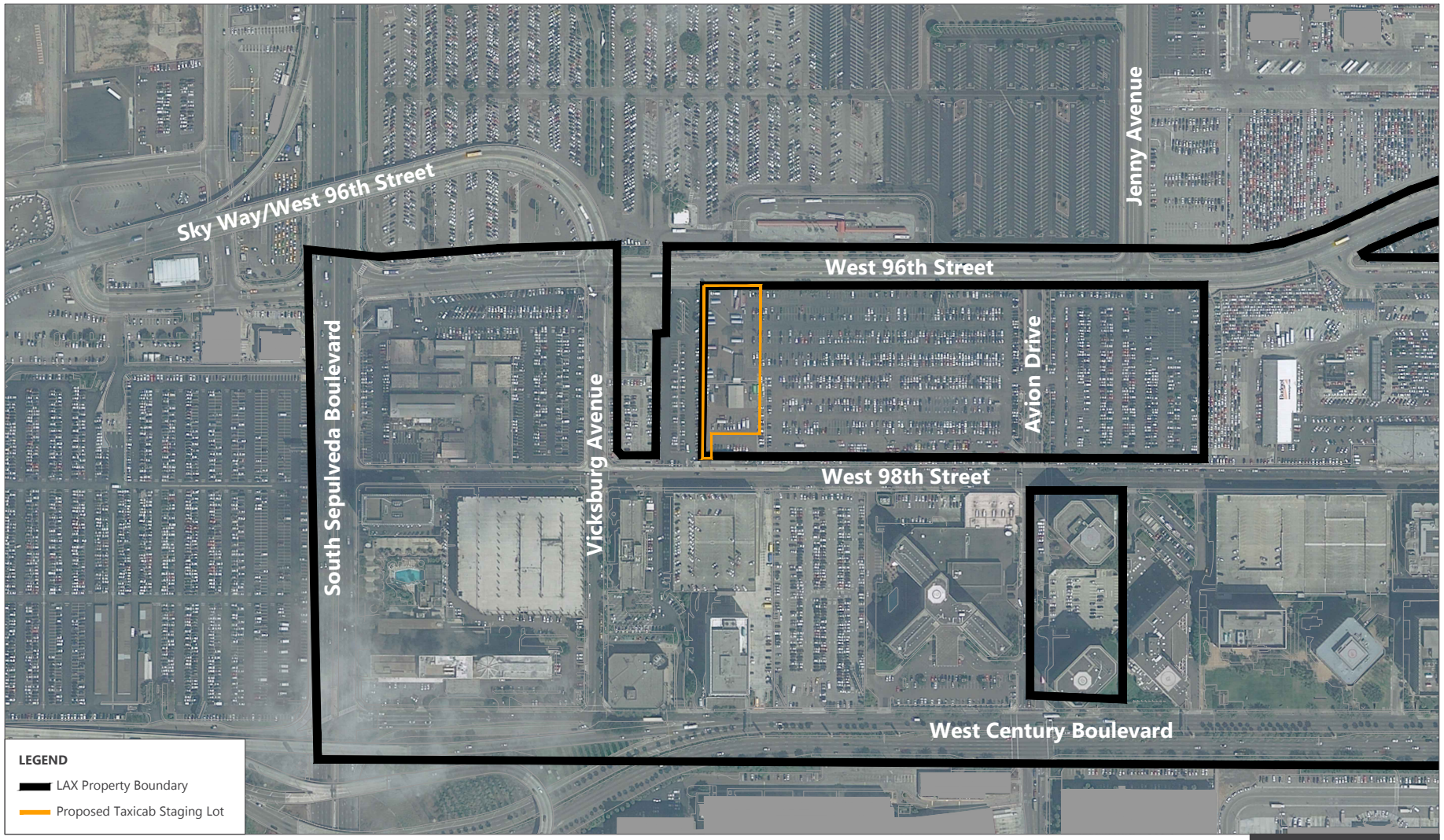

SOURCE: Landrum & Brown, *Los Angeles International Airport, Airport Layout Plan,* 2005; Los Angeles World Airports, April 2013 (aerial photography).
PREPARED BY: Ricondo & Associates, Inc., March 2015.

EXHIBIT 1-10

Taxicab Staging Lot Detail

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This lot is currently being used as a holding lot for airport shuttle parking; the shuttles currently using this lot would be relocated to the adjoining lot east of the proposed taxicab staging lot. Taxicabs would enter the lot from West 96th Street, flow south through the lot, then exit onto West 98th Street when it is their turn to proceed to the CTA to pick up passengers. The taxicabs would turn right onto West 98th Street, turn north or south onto Vicksburg Avenue, and then proceed to the CTA either via the 96th Street/Sky Way overpass to the north or east onto Century Boulevard to the south.

1.3.5 CONSTRUCTION STAGING AREAS

Construction staging areas would be necessary due to the limited space available for storage of materials and equipment within the airfield area. Locations of the potential construction staging areas for this project are illustrated in **Exhibit 1-11**. Only a portion of these construction staging areas would be used during construction of the Proposed Action. However, a specific construction staging area(s) for this project has not been determined at the present time, therefore, to provide a conservative analysis, all potential staging areas are being considered in the analysis for this EA. The potential construction staging areas consist of sites that have been previously disturbed/improved as construction staging and laydown areas for earlier or current construction projects at LAX; hence, there would be minimal, if any, new ground disturbance or additional improvements required.

1.4 Purpose and Need

Pursuant to NEPA and FAA Orders 1050.1E and 5050.4B, an EA must include a description of the purpose of a proposed action and why it is needed. Identification of the purpose and need for a proposed action provides the rationale and forms the foundation for identification of reasonable alternatives that can meet the purpose for the action and, therefore, address the need or problem. The purpose of and the need for the proposed action are discussed in this section.

1.4.1 PURPOSE OF THE PROPOSED ACTION

The purpose of the Proposed Action is to comply with the *Transportation, Treasury, Housing and Urban Development, the Judiciary, The District of Columbia, and Independent Agencies Appropriations Act* (Public Law 109-115)[28], which states that not later than December 31, 2015, the owner or operator of an airport certificated under 14 CFR Part 139 shall improve the airport's RSAs to comply with FAA design standards.

[28] *The Transportation, Treasury, Housing and Urban Development, the Judiciary, the District of Columbia, and Independent Agencies Appropriations Act, 2006* (Public Law [P.L.] 109-115), November 30, 2005.

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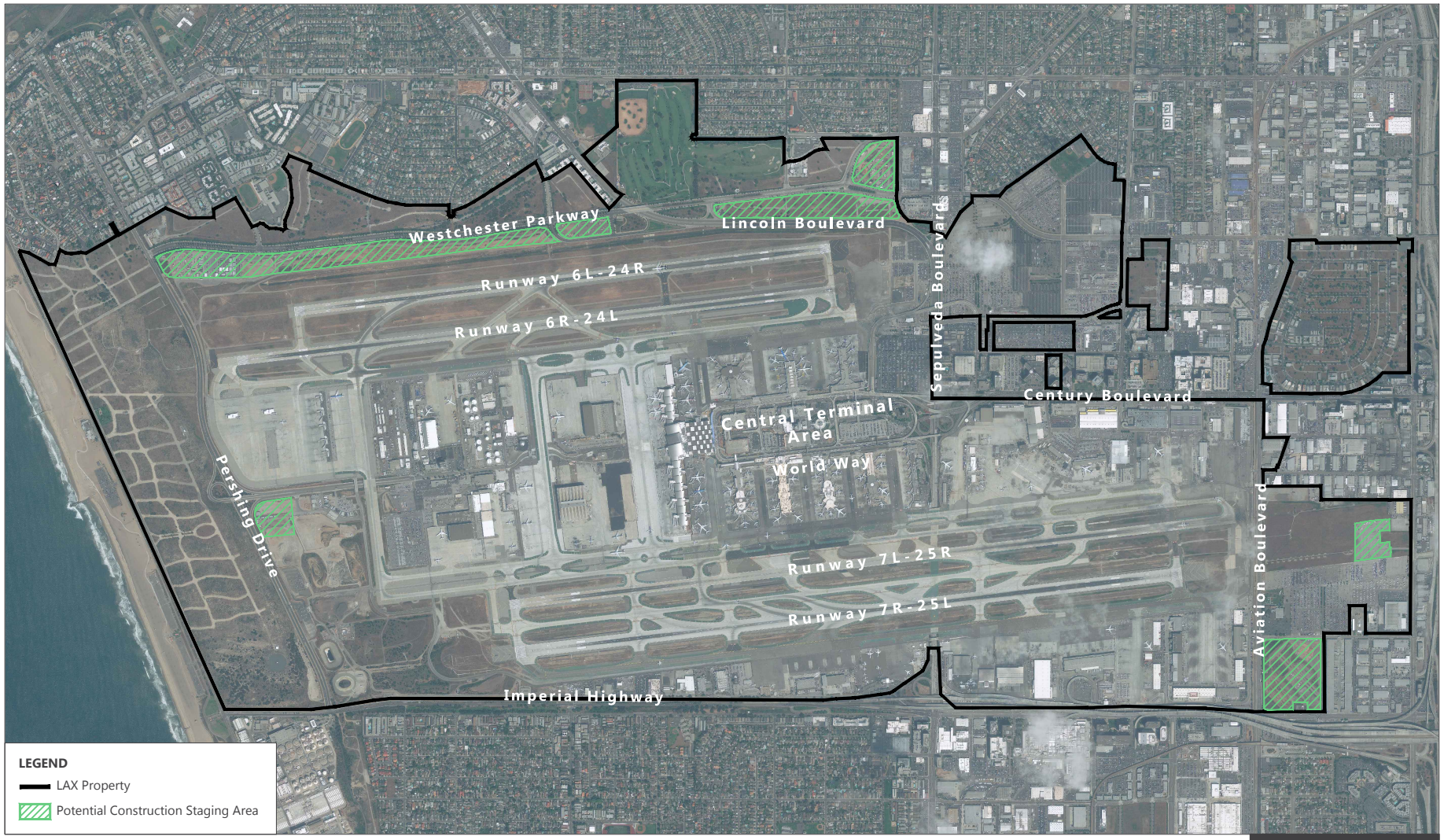

SOURCE: Landrum & Brown, *Los Angeles International Airport, Airport Layout Plan,* 2005; Los Angeles World Airports, April 2013 (aerial photography).
PREPARED BY: Ricondo & Associates, Inc., March 2015.

EXHIBIT 1-11

NORTH 0 2,500 ft.

Proposed Construction Staging Areas

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1.4.2 NEED FOR THE PROPOSED ACTION

In accordance with FAA AC 150/5300-13A, a standard RSA must be 500 feet wide, have a minimum of 1,000 feet beyond the runway end for departures and 600 feet prior to the runway threshold for arrivals.[29] This AC states that the RSA is "A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway."[30] The RSA at the west end of Runway 6R-24L is 835 feet short of meeting the RSA standard beyond the runway end for Runway 24L arrivals and departures. The RSA 600-foot length requirement prior to the Runway 6R arrival threshold is 104 feet short of meeting the FAA standard. The need for the project is to allow LAWA to improve the Runway 6R-24L RSA to comply with FAA design standards as required by P.L. 109-115. The proposed declared distances in combination with the runway end shifts, as described in Section 1.3, would maintain the existing runway length of 10,285 feet while providing standard RSA distances and conditions.

1.4.3 FAA PURPOSE AND NEED

The FAA's statutory mission is to ensure the safe and efficient use of navigable airspace in the United States. Under FAA Order 5200.8, *Runway Safety Area Program*, the FAA is directed to implement the RSA Program, which is intended to provide enhanced safety through the establishment of RSAs at all public use airports. Implementation of the proposed improvements to the RSA for Runway 6R-24L would bring it in compliance with the design standards set forth in FAA A/C 150/5300-13A.

1.5 Requested Federal Action

The federal actions being requested of the FAA by the Sponsor include:

- Unconditional approval of the Airport Layout Plan (ALP) for the Airport depicting the proposed improvements pursuant to 49 U.S.C. 40103(b), 44718, and 47107(a)(16); 14 Code of Federal Regulations (CFR) Part 77, Objects Affecting Navigable Airspace; and 14 CFR Part 157, Notice of Construction, Alteration, Activation, and Deactivation of Airports.
- Determination under 49 U.S.C. 44502(b) that the Proposed Action is reasonably necessary for use in air commerce or in the interest of national defense.
- Approval of a Construction Safety and Phasing Plan to maintain aviation and airfield safety during construction pursuant to FAA Advisory Circular 150/5370-2F, *Operational Safety on Airports During Construction*, [14 CFR Part 139 (49 USC § 44706)].
- Implementation of revised air traffic control procedures below 3,000 feet above ground level;
- Establishment of new Standard Instrument Departure and Standard Terminal Arrival Route procedures;
- Determinations under 49 U.S.C. § 47106 and § 47107 relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program (AIP);

[29] U.S. Department of Transportation, Federal Aviation Administration, AC 150/5300-13A, *Airport Design*, February 26, 2014.

[30] U.S. Department of Transportation, Federal Aviation Administration, AC 150/5300-13A, *Airport Design*, Paragraph 102 (qqq), February 26, 2014.

- Construction, installation, relocation and/or upgrade of various navigational and visual aids including but not limited to Localizer Array, Precision Approach Path Indicator (PAPI); wind directional indicator cones, Medium Intensity Approach Lights with Runway Alignment Indicator Lights (MALSR) and associated equipment shelters; runway threshold and edge lights, and taxiway edge lighting and signage and associated utility lines. This equipment is necessary to ensure the safety of air navigation for aircraft operations at the airport.
- Approval of the appropriate amendments to the Airport Certification Manual pursuant to 14 CFR Part 139;
- Appropriate amendment to air carrier operations specifications pursuant to 49 USC § 44705 to account for the imposition of declared distances; and
    - FAA determination of the Proposed Action's effects on the safe and efficient use of airspace.

1.6 General Implementation Timeframe

Implementation of the Proposed Action would begin upon FAA approval of this EA, if the FAA issues a favorable environmental finding and required environmental permits are obtained. Construction activities associated with the improvements would be anticipated to begin in late 2015 and be completed by the end of 2016.

Runway 6R-24L requires construction activities within the RSA on both ends of the runway, which would occur in two distinct phases. The first phase of construction would focus on the RSA improvements to the Runway 24L end; once those improvements are completed, construction of the RSA improvements to the Runway 6R end would occur. While an extended closure of the runway is not expected, the Proposed Action would require connecting taxiways to be intermittently closed during construction. Runway 6R-24L is the primary departures runway on the north airfield; during the first phase of construction (improvements on the Runway 24L end), approximately 9,000 feet of usable runway would be available for aircraft departures. A runway length analysis was conducted to determine the number and types of aircraft that would be able to depart on this reduced departure length. Aircraft capable at operating on 9,000 feet would perform intersection departures from Taxiway E8. Aircraft departures requiring a greater takeoff distance would need to be shifted to other runways during this period. The actual number and frequency of flights shifted to other runways is expected to be determined by LAX Operations and FAA Air Traffic Control. Further details on aircraft type and number of operations during the first phase of construction activities are discussed in Sections 4.2 and 4.5.

During the second phase of construction, approximately 9,200 feet would be available for aircraft departures. Similar to the first phase of construction, a runway length analysis was performed to determine aircraft capable of departing on 9,200 feet of runway; aircraft departures needing more than this would be shifted to other runways. Additionally, closures of Taxiways E17 and E16 would inhibit departures from Runway 6R; however, intersection departures from Taxiway BB would be possible. It should be noted that departures on this runway end occur less than 1 percent annually, and the taxiway closures are not expected to significantly impact operations. Also during construction of the Runway 6R RSA improvements, nighttime over-ocean operations arriving on Runway 6R would be prohibited; a shift in these arrivals to Runway 6L would need to

be coordinated and confirmed with FAA Air Traffic Control. Further details on aircraft type and number of operations during the second phase of construction activities are discussed in Sections 4.2 and 4.5.

As physical improvements to the RSA would not be completed until the end of 2016, LAWA is proposing to implement declared distances in order to meet the December 31, 2015 deadline requirement of Public Law 109-115, and to allow the runway to remain open during implementation of the proposed RSA improvements. During construction, it is expected that the runway will be used for departures with the runway length being temporarily reduced for safety clearances from construction areas. A minimum 1,000-foot long RSA will be required between the boundary of the construction area and the operable portion of the runway. In addition, a buffer area is assumed between the work area and the end of the RSA. Construction barriers and a blast fence would be temporarily installed in the buffer area. FAA coordination will be required to minimize disruption to aircraft operations and changes in approach and departure procedures.

1.7 Document Requirements and Organization

The format and content of this EA conforms to the requirements of Section (§) 102(2)(c) of the *National Environmental Policy Act of 1969* (NEPA, 42 United States Code [U.S.C.] 4321-4370h), and § 509(b)(5) of the *Airport and Airway Improvement Act of 1982*, as amended. The content of each section of this Draft EA is summarized below.

- Section 1 – Purpose and Need, provides a brief description of LAX and the Proposed Action, its purpose, and why it is needed.
- Section 2 – Alternatives, provides an overview of the identification and screening of alternatives considered as part of the environmental evaluation process.
- Section 3 – Affected Environment, describes existing environmental conditions within the project site.
- Section 4 – Environmental Consequences, discusses and compares the environmental impacts associated with the Proposed Action, feasible alternatives to the Proposed Action, and the No Action Alternative, and identifies mitigation options considered.
- Section 5 – Coordination and Public Involvement, discusses the coordination and public involvement associated with the EA process. This section also presents a list of federal, state, and local agencies and other interested parties that have been involved in EA coordination efforts.
- Section 6 – List of Preparers
- Section 7 – References
    - Section 8 – List of Abbreviations and Acronyms

The Appendices contain various reference materials, including technical information, and records of coordination activities.

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