
2.0 DESCRIPTION OF THE PROPOSED PROJECT

2.1 Runway 6L-24R and Runway 6R-24L RSA Improvements Background

The City of Los Angeles, through its aviation department, Los Angeles World Airports (LAWA), proposes to construct improvements to the Runway Safety Area (RSA) for Runway 6L-24R and RSA for Runway 6R-24L located on the north airfield of Los Angeles International Airport (LAX). These improvements are being proposed 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). This Act requires completion of RSA improvements by airport sponsors that hold a certificate under Title 14, Code of Federal Regulations (CFR), Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*, to comply with Federal Aviation Administration (FAA) design standards by December 31, 2015.¹ LAWA is also evaluating additional RSA improvements to Runway 6R-24L that would be implemented at a later date, which would be the subject of a separate environmental evaluation. In accordance with Section 15124 of the State *CEQA Guidelines*,² this chapter of the Draft EIR contains information describing the proposed Project.

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. LAX handled approximately 614,917 aircraft operations in 2013 (where an aircraft operation is defined as a landing or a takeoff).³ Passenger enplanements at LAX in 2013 were approximately 33,333,809. In addition to passenger service, LAX is also a major center for international air cargo. In 2013, approximately 1,926,050 tons of air cargo were handled at LAX.⁴ Located within the City of Los Angeles (**Figure 2-1**), 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 U.S. passenger enplanements.⁵ The Airport is owned and operated by LAWA, and serves

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 CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Section 3, §15000 et seq.) available from <http://ceres.ca.gov/ceqa/guidelines/>

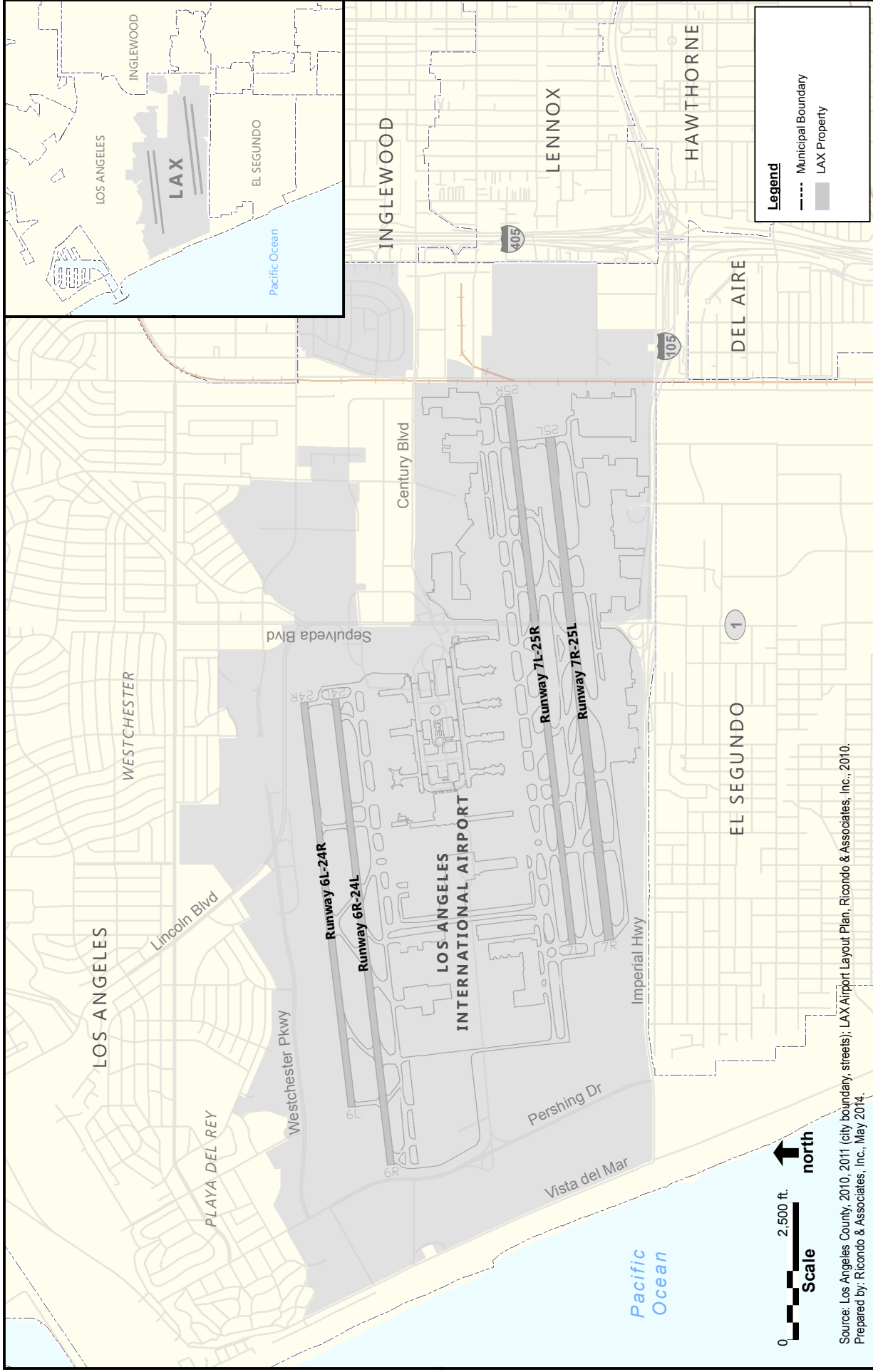
³ Los Angeles World Airports, *Traffic Comparison, Los Angeles International Airport*, January 2014, available from <http://www.lawa.org/LAXStatistics.aspx>.

⁴ Los Angeles World Airports, *Traffic Comparison, Los Angeles International Airport*, January 2014, available from <http://www.lawa.org/LAXStatistics.aspx>.

⁵ U.S. Department of Transportation, Federal Aviation Administration, *Report to Congress: National Plan of Integrated Airport Systems (NPIAS), 2013-2017*, September 27, 2012.

2. Description of the Proposed Project

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LAX Runway 6L-24R and Runway 6R-24L Runway Safety Area and Associated Improvements Draft EIR

General Location and Vicinity Map

Figure 2-1

2. Description of the Proposed Project

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2. Description of the Proposed Project

as a hub for Alaska Airlines, American Airlines, Great Lakes Airlines, Horizon Air, and United Airlines.

LAWA considers runway safety one of their highest priorities and continually puts forth effort to reduce the potential for and likelihood of compromised airfield safety. LAWA is enhancing safety at LAX by planning for and implementing long-term and short-term improvements to the runways at LAX. Related to long-term improvements to the airfield, LAWA has conducted a number of evaluations and assessments to identify the most effective means of enhancing runway safety based on current and future aircraft fleet mixes and operational characteristics, including:

- Runway 6L-24R and Runway 6R-24L Safety Area Practicability Study⁶
- LAX Master Plan⁷
- LAX Specific Plan Amendment Study⁸

As illustrated in **Figure 2-2**, LAX has four parallel runways oriented in an east-west direction. Two runways, 6L-24R and 6R-24L, are north of 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 6L-24R is 8,925 feet long by 150 feet wide and is primarily used for arrivals (aircraft landing at LAX on the north side). 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 30 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.

⁶ City of Los Angeles, Los Angeles World Airports, *Runway 6L-24R and Runway 6R-24L Safety Area (RSA) Practicability Study*, prepared by Ricondo and Associates, Inc., April 2010.

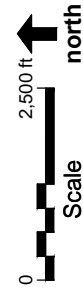
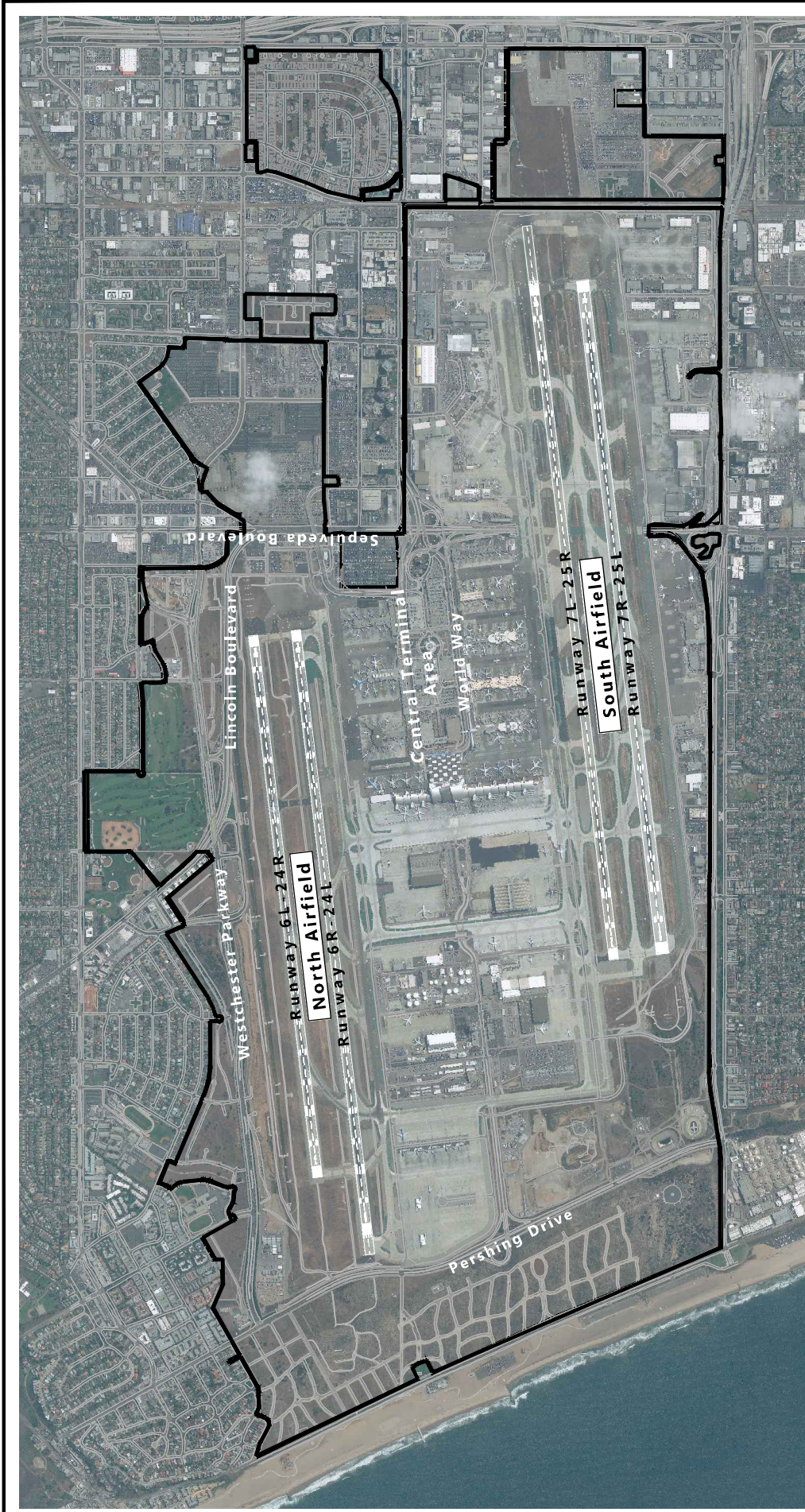
⁷ City of Los Angeles, Los Angeles World Airports and FAA, *Final Environmental Impact Statement/Final Environmental Impact Report, Los Angeles International Airport Proposed Master Plan Improvements SCH#1997061047*, April 2004.

⁸ City of Los Angeles, Los Angeles World Airports, *Preliminary LAX Specific Plan Amendment Study Report for Los Angeles International Airport (LAX) Specific Plan Amendment Study*, June 2012.

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

2. Description of the Proposed Project

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Legend
 — LAX Property Boundary

Source: Landrum & Brown, Los Angeles International Airport, Airport Layout Plan, 2005; Los Angeles World Airports, April 2013 (aerial photography).
 Prepared by: Ricondo & Associates, Inc., May 2014.

**LAX Runway 6L-24R and Runway 6R-24L Runway
 Safety Area and Associated Improvements Draft EIR**

Existing Airfield Configuration

Figure
 2-2

2. Description of the Proposed Project

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2. Description of the Proposed Project

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 comply with FAA design standards for RSAs by December 31, 2015.¹¹

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 2-1** 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 2-1

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.

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

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).

2. Description of the Proposed Project

Table 2-2

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 $\pm 5\%$

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.

In addition to dimensional requirements, the FAA has established specific design standards for RSAs¹² 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 2-2.
- 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.

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,

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

2. Description of the Proposed Project

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 6L-24R and 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. LAWA prepared an RSA Practicability Study for Runways 6L-24R and 6R-24L that included evaluation of RSA alternatives.¹³ For this effort, LAWA established an RSA Study Working Group to provide input and 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 LAX, FAA, and airlines operating at LAX. The study concluded that Runways 6R, 24L, and 24R do not meet applicable FAA RSA design standards.¹⁴

2.1.1 Runway 6L-24R

As illustrated in **Figure 2-3**, the RSA for Runway 6L-24R is 500 feet wide for the full length of the runway; it extends 1,000 feet from the west end of the runway and 841 feet from the east end. The RSA at the west end meets all FAA requirements for arriving and departing aircraft operations. The RSA at the east end meets the 600-foot length requirement prior to the Runway 24R arrival threshold for landings, but it is 159 feet short of meeting the 1,000-foot requirement beyond the runway end for Runway 6L arrivals and departures.

In addition to the dimensional deficiencies listed above, other areas of non-compliance include:

- Portions of a service road and drainage channel north of the runway are located within the RSA dimensions; and
- Portions of a service road south of the runway are located within the RSA dimensions.

Runway 6L-24R is the primary arrivals runway on the North Airfield. As such, portions of this runway handle a large amount of traffic. Due to heavy usage over the years, sections of the pavement have deteriorated and are in need of rehabilitation. The current Pavement Condition Index (PCI) rating for these pavements varies from 0 to 70, indicating that portions of the runway pavements are in a poor (0) to fair (70) condition.

2.1.2 Runway 6R-24L

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 **Figure 2-4**. 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

¹³ Ricondo and Associates, *Runways 6L-24R & 6R-24L Safety Area (RSA) Practicability Study for Los Angeles International Airport*, April 9, 2010.

¹⁴ 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 have undergone separate environmental evaluation; Runway 7R-25L was brought into compliance with RSA standards as part of the South Airfield Improvement Project.

2. Description of the Proposed Project

displaced threshold is a threshold that is located at a point on the runway beyond the beginning of the runway. It is in place due to obstructions off the end of Runway 6R (namely dunes) that penetrate the 14 CFR Part 77 approach surface¹⁵ 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, but it is 115 feet short of the 1,000-foot length requirement beyond the runway end for Runway 6R arrivals and departures.

2.1.3 Areas of Non-Compliance

Figure 2-5 depicts the areas of non-compliance for Runway 6L-24R and Runway 6R-24L.

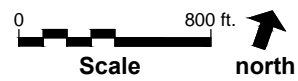
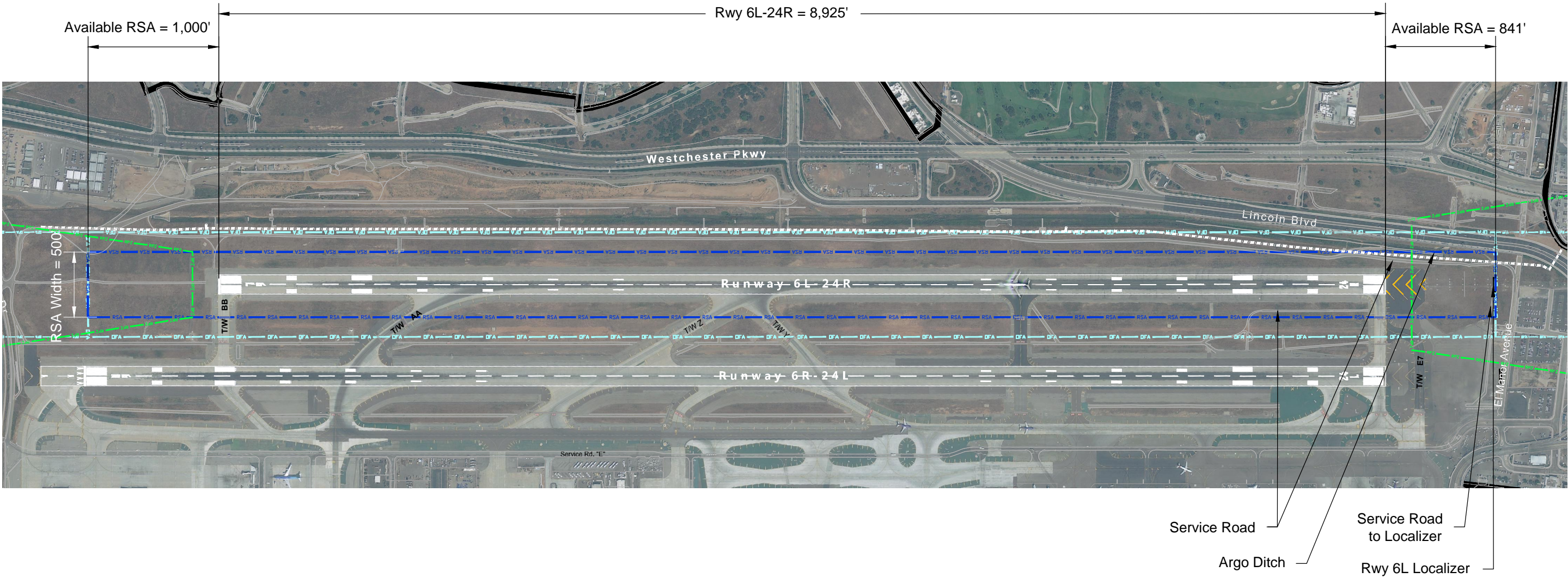
Areas of non-compliance for Runway 6L-24R include:

- At the west end of the runway, objects that are located within the standard RSA dimensions (1,000 by 500 feet) include portions of two service roads;
- At the east end of the runway, objects that are located within the standard RSA dimensions (1,000 by 500 feet) include, but are not limited to, the Runway 6L localizer, a service road, a perimeter fence, a parking lot, a portion of the Argo Ditch, and a portion of a public sidewalk along Lincoln Boulevard; and
- Portions of a service road south of the runway are located within the RSA dimensions.

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 dunes;
- At the east end of the runway, objects that are located with the standard RSA dimension (1,000 by 500 feet) include, but are not limited to, the Runway 6R localizer, portions of a service road and parking lot, and perimeter fencing;
- Portions of a service road north of the runway are located within the RSA dimensions; and
- Portions of a service road south of the runway are located within the RSA dimensions.

¹⁵ 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.



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

Legend	
LAX Property Boundary	Runway Protection Zone
Runway Safety Area	LA Dept. of Water and Power Water Main
Runway Object Free Area	

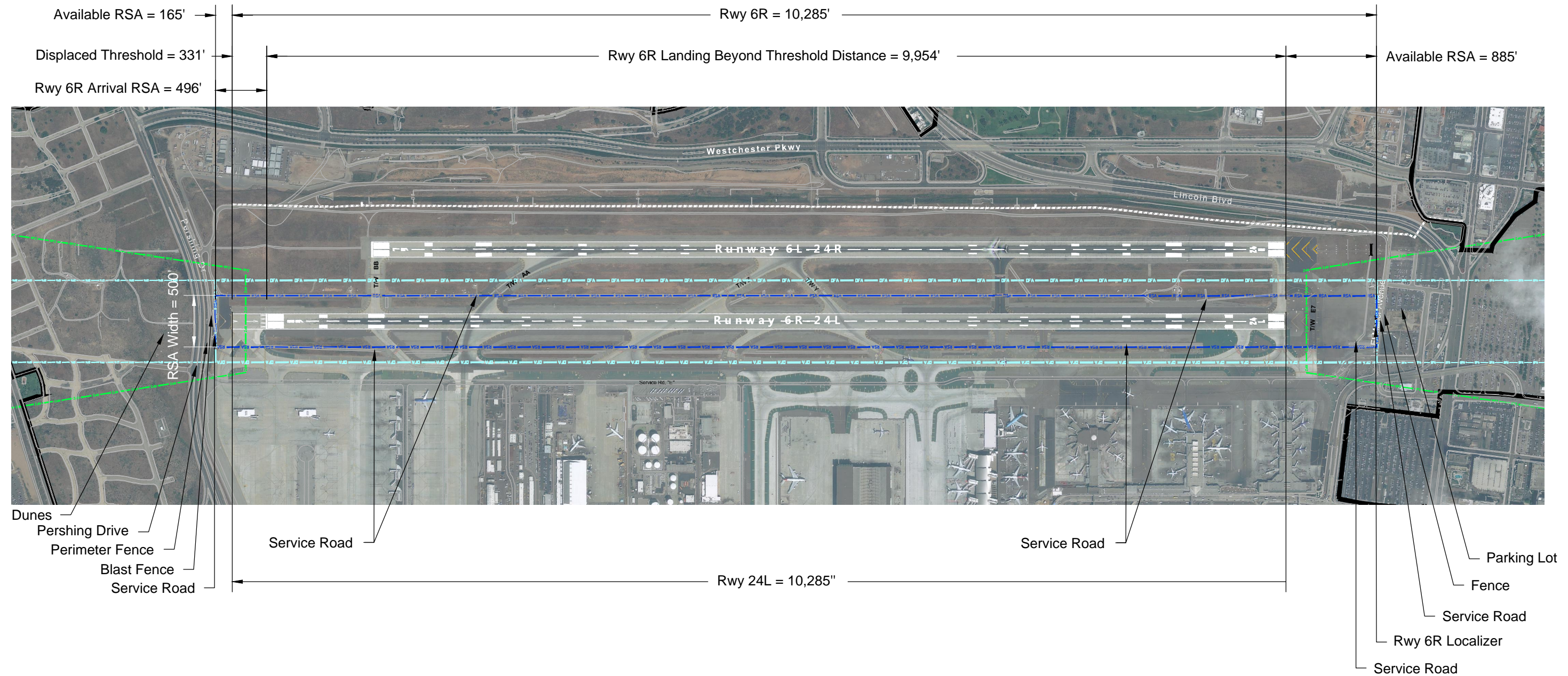
Runway 6L-24R and Runway 6R-24L Runway Safety Area and Associated Improvements Draft EIR

Runway 6L-24R Existing Conditions

Figure 2-3

2. Description of the Proposed Project

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

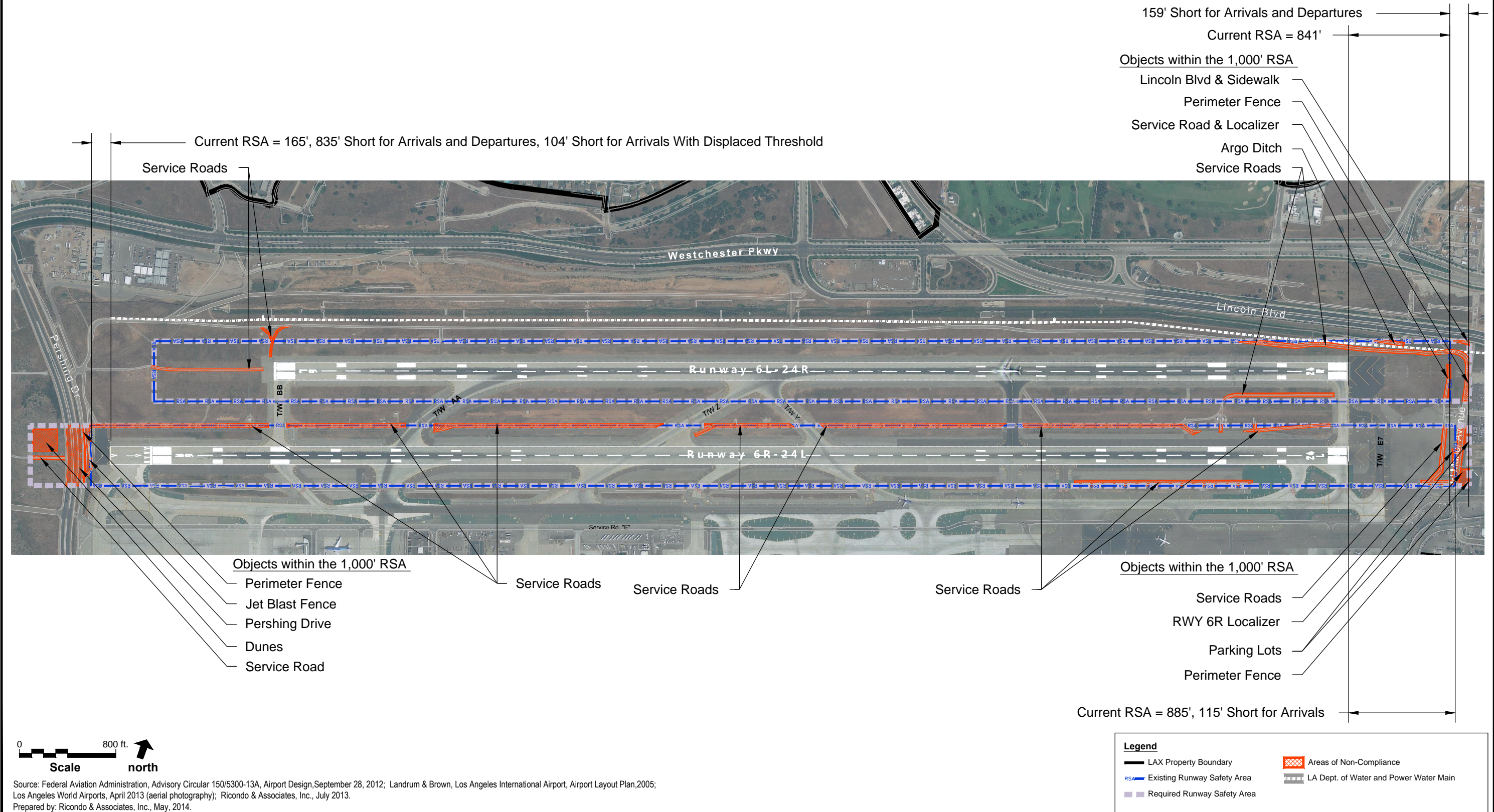
Runway 6L-24R and Runway 6R-24L Runway Safety Area and Associated Improvements Draft EIR

Runway 6R-24L Existing Conditions

Figure 2-4

2. Description of the Proposed Project

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Runway 6L-24R and Runway 6R-24L Runway Safety Area and Associated Improvements Draft EIR

Runway 6L-24R and Runway 6R-24L Areas of Non-Compliance

Figure 2-5

2. Description of the Proposed Project

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2.2 Project Objectives

One of the objectives of the proposed Project 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)¹⁶, which states that all RSAs at 14 CFR Part 139 airports must meet FAA design standards to the extent practicable by December 31, 2015. LAWA has identified improvements that can be implemented by December 31, 2015 to bring the Runway 6L-24R RSA into compliance with FAA design criteria and to make improvements to the Runway 6R-24L RSA.¹⁷ Other objectives of the proposed Project are to maintain safe operations, minimize effects to existing aircraft operations, and extend the life of Runway 6L-24R and associated Taxiway AA.

2.2.1 RSA Improvement Objectives

The Runway 6L-24R RSA at the east end meets the 600-foot length requirement prior to the Runway 24R arrival threshold for landings, but it is 159 feet short of meeting the 1,000-foot requirement beyond the runway end for Runway 6L arrivals and departures. 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 RSA for the Runway 24L arrival threshold is 115 feet short of the 1,000-foot length requirement beyond the runway end for Runway 6R arrivals and departures. The proposed Project would allow LAWA to meet FAA design standards for the Runway 6L-24R RSA by December 31, 2015 as required by P.L. 109-115, while also minimizing effects to existing aircraft operations. 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. Thus, LAWA is proposing to implement improvements to the Runway 6R-24L RSA by December 31, 2015, which will improve compliance with FAA design standards for RSAs.

2.2.2 Pavement Reconstruction Objectives

The primary objective of the Pavement Reconstruction component of the proposed Project is to address poor pavement conditions and extend the life of Runway 6L-24R, and associated Taxiway AA, to maintain its usage as the primary arrivals runway for the North Airfield.

¹⁶ *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.

¹⁷ Improvements to Runway 6L-24R and Runway 6R-24L are independent of any improvements proposed in the *Specific Plan Amendment Study Report*. The improvements to Runway 6L-24R examined in this document are proposed to bring the Runway 6L-24R RSA in compliance with FAA design criteria, as mandated by Public Law 109-115, and are independent of any future actions taken in regards to the Specific Plan Amendment Study (SPAS). Improvements contemplated in the SPAS Environmental Impact Report must still be assessed and approved by the Federal Aviation Administration (FAA), and they also need project-level approval under the California Environmental Quality Act.

2. Description of the Proposed Project

As the primary arrivals runway on the North Airfield, Runway 6L-24R has experienced heavy usage over the years and sections of the pavement have deteriorated and are in need of reconstruction. LAWA is responsible for providing suitable infrastructure and maintaining safe facilities at LAX for aircraft operations. Thus, the replacement or repair of deteriorated pavements would allow LAX to continue to safely support aircraft landing or departing on its runways and associated taxiways.

2.2.3 Realignment of Taxiway Hold Bars Objectives

The taxiway hold bars on Taxiways Y, Z, and AA need to be realigned to meet FAA standards. The hold bars on these taxiways mark where aircraft exiting from Runway 6L-24R, need to hold and wait for air traffic control clearance before crossing Runway 6L-24R. Realigning the hold bars will bring them into compliance with current FAA standards.

2.3 Project Location

Los Angeles International Airport is located at the western edge of the City of Los Angeles (see Figure 2-1). The Airport itself is located within a highly developed, urbanized area consisting of airport, commercial, transportation (i.e., interstate highways) and residential uses. To the north of LAX are the City of Los Angeles communities of Westchester and Playa del Rey, to the east are the City of Inglewood and unincorporated Los Angeles County, to the south is the City of El Segundo, and to the west is the Pacific Ocean. Regional access to LAX is provided by the San Diego Freeway (Interstate 405), which is a north-south freeway east of LAX, and the Century Freeway (Interstate 105), which is an east-west freeway south of LAX. Major roadways serving LAX include Sepulveda Boulevard, Century Boulevard, Imperial Highway, and Lincoln Boulevard.

As described above, LAX has four parallel runways oriented in an east-west direction (Figure 2-2). Two runways, 6L-24R and 6R-24L, are located north of the CTA and two other runways, 7L-25R and 7R-25L, are located south of the CTA. **Table 2-3** provides the dimensions and basic information about the runways at LAX.

Table 2-3

LAX Runway Information

Runway	Length x Width (feet)	Airfield	Primary Use
6L-24R	8,925 x 150	North	Arrivals
6R-24L	10,285 x 150	North	Departures
7L-25R	12,091 x 150	South	Departures
7R-25L	11,095 x 200	South	Arrivals

Source: Federal Aviation Administration, *LAX Airport Diagram, SW-3*, Effective from 01 May 2014 to 29 May 2014, available at www.faa.gov.

2. Description of the Proposed Project

The Project site is located on a developed part of the North Airfield (Figure 2-2). The North Airfield includes two parallel runways: Runway 6L-24R (primarily used as an arrival runway) and Runway 6R-24L (primarily used as a departure runway). Runway 6L-24R is 8,925 feet long and 150 feet wide, and Runway 6R-24L is 10,285 feet long and 150 feet wide. Both runways and all taxiways are lighted and equipped with signage.

2.4 Project Characteristics

The Los Angeles World Airports is proposing the following improvements to comply with Public Law 109-115 that requires all 14 CFR Part 139 certificated airports to meet FAA design standards for RSAs by December 31, 2015.¹⁸ In order to meet the requirements of Public Law 109-115, LAWA is proposing to implement improvements to Runway 6L-24R and Runway 6R-24L by December 31, 2015. However, the proposed improvements to Runway 6R-24L will not address all non-compliance issues. LAWA is continuing to evaluate alternatives in coordination with FAA to address all of the RSA non-compliance issues for Runway 6R-24L and will undertake those improvements in the future. The improvements proposed by LAWA for Runway 6R-24L will improve the RSA for this runway and can be implemented prior to December 31, 2015.

The proposed Project would involve the covering of portions of the Argo Ditch, the relocation of a portion of a service road along Lincoln Boulevard, closure of a portion of a service road located within the Runway 6L-24R RSA south of the runway, relocation of a portion of a service road located within the Runway 6R-24L RSA north of the runway, and closure of parking areas located within the Runway 6R-24L RSA east of the runway. The relocated service road along Lincoln Boulevard would become the limiting object, providing for a 641-foot RSA beyond the Runway 24R end. In order to provide a 1,000-foot standard RSA on that end, declared distances (see below) would be implemented, reducing the Runway 6L Accelerate-Stop Distance Available (ASDA) and Landing Distance Available (LDA) by 359 feet, from 8,925 feet to 8,566 feet. This alternative would also provide the required minimum 600 feet of RSA prior to the Runway 24R landing threshold. No improvements are required on the Runway 6L end.

Declared distances would also be implemented on Runway 6R-24L. The Runway 6R ASDA and LDA would be reduced by 115 feet to provide a 1,000-foot RSA from the Runway 6R localizer. The proposed improvements would not correct the 104-foot deficiency for the Runway 6R arrival RSA, the 835-foot deficiency for the Runway 24L RSA, and would not remove the portion of the service road located within the RSA south of the runway. As stated previously, LAWA is considering alternatives to address these RSA deficient 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 components of the proposed Project related to Runway

¹⁸ The figures presented in this document are intended to describe the overall nature and intent of the proposed Project, 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.

2. Description of the Proposed Project

6L-24R and Runway 6R-24L RSA improvements are depicted on **Figure 2-6** and **Figure 2-7**, respectively. The primary components of the RSA improvements include:

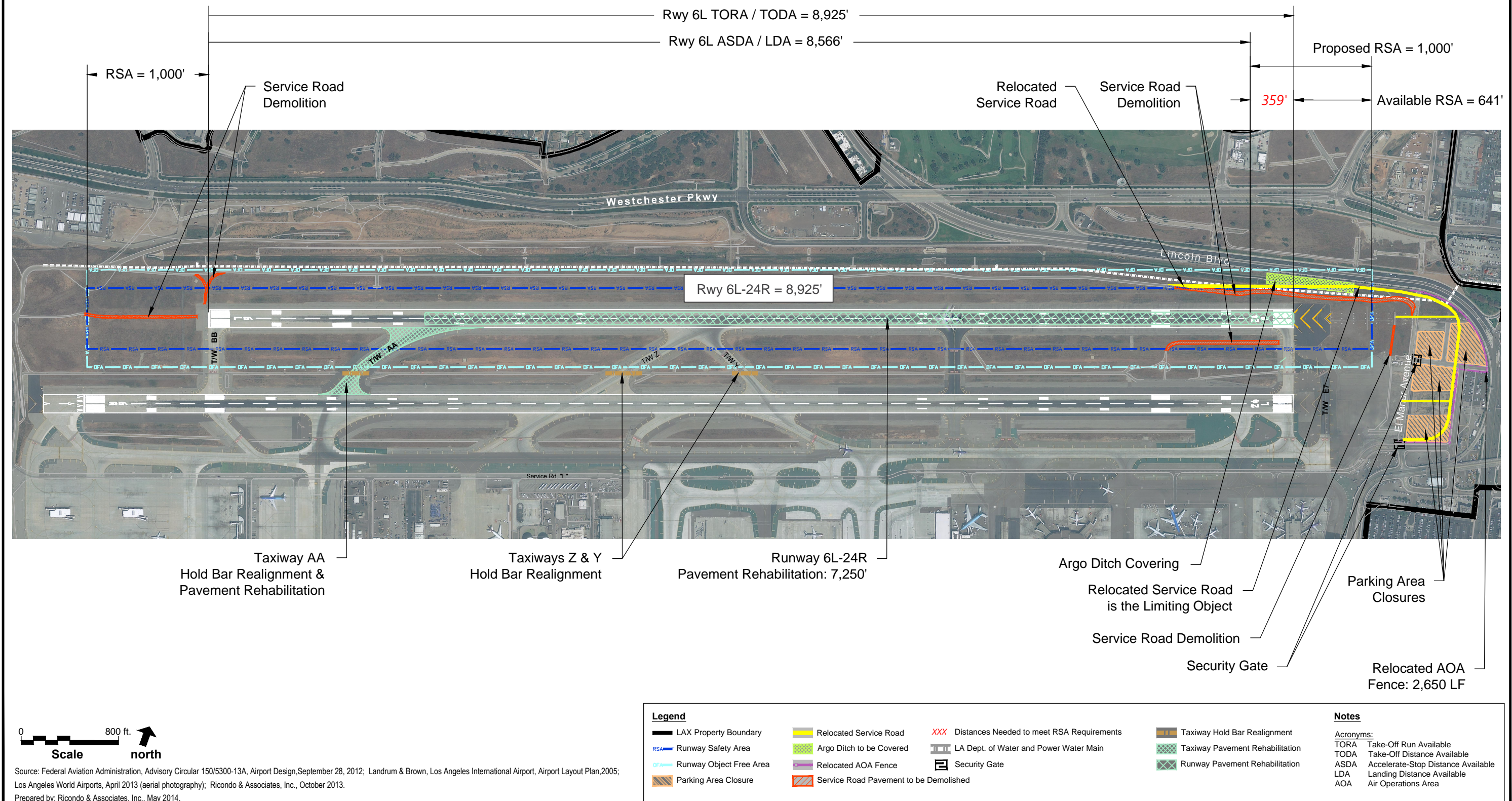
- Implementation of declared distances on Runway 6L and Runway 6R
- Demolition of service road segments on the west end of Runway 6L
- Service roads in the eastern portion of the Runway 6L-24R RSA would be relocated outside the RSA
- Two segments of service roads would be constructed for access to navigational aids (navaids) east of the runways
- Service road segments would be constructed between the Runway 6L-24R RSA and the Runway 6R-24L RSA
- Cover a segment of the Argo Ditch
- Pavement rehabilitation of Runway 6L-24R and Taxiway AA
 - Runway centerline and touchdown lighting replacement
 - Runway pavement markings
- Closure of vehicle service roads located within the Runway 6R-24L RSA
- Relocate security gate(s)
- Relocate Air Operations Area (AOA) Fence
- LAWA equipment parking areas closures
- Realignment of taxiway hold bars
- Construction Staging Areas

2.4.1 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.”¹⁹ 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).²⁰ Essentially, declared distances represent the maximum runway distances available to safely takeoff or reject a takeoff (TORA, TODA, and ASDA), or to land (LDA).

¹⁹ U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, *Airport Design*, February 26, 2014.

²⁰ *Ibid.*



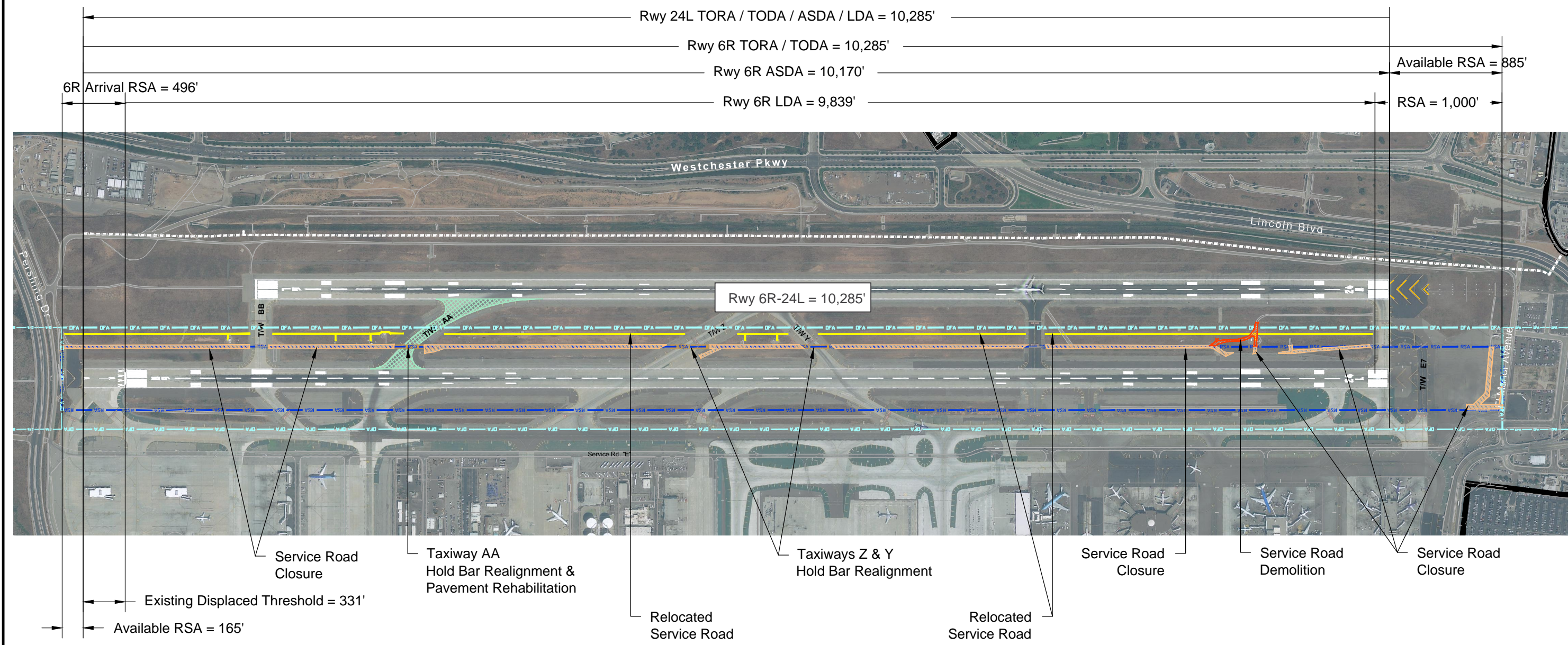
Runway 6L-24R and Runway 6R-24L Runway Safety Area and Associated Improvments Draft EIR

Runway 6L-24R Proposed Project

Figure 2-6

2. Description of the Proposed Project

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0 800 ft.

Scale **north**

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

Legend

LAX Property Boundary	Relocated Service Road	LA Dept. of Water and Power Water Main
RSA Runway Safety Area	Service Road Pavement to be Demolished	
OFA Runway Object Free Area	Taxiway Hold Bar Realignment	
Service Road to be Closed	Taxiway Pavement Rehabilitation	

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

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2. Description of the Proposed Project

The proposed Project includes the implementation of declared distances for Runway 6L, presented in **Table 2-4**. The proposed Project would also provide the required minimum 600 feet of RSA prior to the Runway 24R landing threshold for landing operations on Runway 24R.

Table 2-4

Runway 6L-24R Declared Distances

Declared Distances	Runway 6L	Runway 24R
Runway Length	8,925'	8,925'
Take-off Run Available (TORA)	8,925'	8,925'
Take-Off Distance Available (TODA)	8,925'	8,925'
Accelerate-Stop Distance Available (ASDA)	8,566'	8,925'
Landing Distance Available (LDA)	8,566'	8,925'

Source: Ricondo & Associates, Inc., *Runway 6L-24R & 6R-24L Safety Area (RSA) Practicability Study*, Refinement #1, Figure 4-12, April 9, 2010.

Implementation of declared distances on Runway 6L would shorten the ASDA and LDA for aircraft landing on Runway 6L by 359 feet.

The proposed Project also includes the implementation of declared distances for Runway 6R-24L, presented in **Table 2-5**. A 1,000-foot RSA from the Runway 6R localizer on the east side reduces the Runway 6R ASDA and LDA by 115 feet. The proposed Project improvements would be 104 feet short of providing the required minimum 600 feet of RSA prior to the Runway 6R landing threshold for arrival operations on Runway 6R. However, Runway 6R-24L is primarily used for departures on the north side of the airport (less than 2 percent of arrivals occur on Runway 6R). All other RSA dimensions would meet FAA RSA design requirements.

Table 2-5

Runway 6R-24L Declared Distances

Declared Distances	Runway 6R	Runway 24L
Runway Length	10,285'	10,285'
Take-off Run Available (TORA)	10,285'	10,285'
Take-Off Distance Available (TODA)	10,285'	10,285'
Accelerate-Stop Distance Available (ASDA)	10,170'	10,285'
Landing Distance Available (LDA)	9,839'	10,285'

Source: Ricondo & Associates, Inc., *Runway 6L-24R & 6R-24L Safety Area (RSA) Practicability Study*, Refinement #1, Figure 4-12, April 9, 2010.

2.4.2 Service Roads

Portions of service roads currently located within the Runway 6L-24R and Runway 6R-24L RSA would be demolished or abandoned in place, and relocated or realigned in order to meet RSA standards and

2. Description of the Proposed Project

to ensure that service vehicles operate outside of the RSA. These improvements would involve the relocation and reconstruction of service road pavement of two segments located within the Runway 6L-24R RSA and one segment located within the Runway 6R-24L RSA.

- The first service road segment is located north of Runway 6L-24R and is approximately 3,500 linear feet in length. This service road segment would be relocated north, outside of the RSA, beginning north of the Runway 6L-24R RSA where the current service road intersects the RSA and would continue eastward towards El Manor Avenue, then directly south through portions of existing parking lots (see below), before tying into an existing vehicle service road.
- Two service roads would be constructed to provide access from the first service road segment described above to navais located east of the north runways. The service road providing access to the navais east of Runway 6L-24R would be approximately 504 linear feet in length. The service road providing access to the navais east of Runway 6R-24L would be approximately 403 linear feet in length.
- A segment of service road approximately 970 linear feet in length located south of Runway 6L-24R would be demolished.
- Approximately 9,300 linear feet of service road located along the northern boundary of the Runway 6R-24L RSA would be constructed between the Runway 6L-24R RSA and Runway 6R-24L RSA. A portion of this new service road would replace the 970-foot section to be demolished.
- Additionally, the improvements include the demolition of service road segments located at the western end of Runway 6L and the closure of service road segments located within the Runway 6R-24L RSA.

2.4.3 Pavement Rehabilitation

Pavement rehabilitation activities would be undertaken for Runway 6L-24R to replace areas of pavement that are in poor condition. Pavement reconstruction activities may include, but are not limited to, demolition and removal of existing pavement and base materials, placement of new sub-base and/or base materials, installation of new Portland Cement Concrete (PCC) pavement, and application of runway and taxiway markings on the new pavement segments. Up to 7,250 feet of the eastern portion of Runway 24R's keel (or center) portion (up to 100 feet wide) would be demolished and reconstructed. Runway pavement rehabilitation would include the replacement of runway centerline lighting and touchdown lighting as well as runway pavement markings. Pavement rehabilitation of Taxiway AA would also be undertaken. Approximately 116,000 square feet of taxiway pavement would be rehabilitated.

2.4.4 Argo Ditch

A portion of the Argo Ditch located north of the Runway 24R threshold would need to be covered in order to relocate a segment of the service road on top of it. The relocation of the service road would ensure that service vehicles stay clear of the RSA. The proposed portion of the Argo Ditch to be covered is approximately 720 linear feet in length.

2. Description of the Proposed Project

2.4.5 Relocate Security Gates

Two security gates east of the north runway complex may need to be relocated or closed in order to realign sections of the service road and comply with RSA standards. Should these security gates be relocated, the future gate locations would be outside the RSA.

2.4.6 Relocate Air Operations Area (AOA) Fence

The AOA fence would need to be relocated along the northeastern portion of the north runway complex in order to accommodate the realigned service roads described above. A portion of the AOA fence approximately 2,650 linear feet long would be relocated along the outside of the relocated service road and parking lots east of Runway 6L-24R and Runway 6R-24L. The relocated fence would run from the northeastern Argo Ditch area along Lincoln Boulevard to the transition ramp along Sepulveda Boulevard. The relocated fence would then travel west around Alverstone Avenue and south to Davidson Drive, then west to reconnect with the existing AOA fence.

2.4.7 LAWA Equipment Parking Area Closures

The realignment of service roads outside the RSA along the eastern side of the north runway complex along with the relocated AOA fence would make it necessary to close four parking areas located east of the north runway complex. These parking areas are located inside the LAX property boundary, east of El Manor Avenue and are used for LAX construction vehicle staging; they are not open to the public. The pavement will remain in place but the site will no longer be used for construction vehicle staging. These parking areas total approximately 300,000 square feet in area and contain paved surface parking.

2.4.8 Realignment of Taxiway Hold Bars

The taxiway hold bars on Taxiways Y, Z, and AA need to be realigned to meet FAA standards. The hold bars consist of pavement striping/markings, in-pavement hold position lights, elevated guard lights, runway status lights, and hold position airfield signage. The lights and signage, as well as in-pavement taxiway centerline lights, would need to be relocated along with the realigned taxiway hold bars.

2.5 Construction Phasing

2.5.1 Overview

Runway 6L-24R requires pavement rehabilitation for a maximum of 7,250 feet of the keel portion of the runway. This component would require the closure of Runway 6L-24R for approximately four (4) months and a temporary displaced threshold of 1,925 feet on the Runway 24R end for an additional two (2) months. The temporary displaced threshold would allow the finishing and curing of the Argo Ditch culvert, while also allowing aircraft operations on the runway by providing an LDA of 7,000 feet. Runway 6L-24R is the primary arrivals runway on the North Airfield; the proposed closure would require shifting all arriving aircraft traffic to other runways at LAX during the 4-month runway closure period and shifting larger aircraft (ADG IV or higher) to other runways during the 2-month temporary displaced threshold. The actual number and frequency of flights shifted to other runways is expected to be

2. Description of the Proposed Project

determined by LAX Operations and FAA Air Traffic Control. It is likely that arrival flights would be diverted to Runway 6R-24L, or to the primary arrival runway on the South Airfield, Runway 7R-25L, or some combination of the two. The loss of runway capacity during the closure of Runway 6L-24R also has the potential to impact airfield operational efficiency during the construction period, possibly increasing delay times and affecting airlines and flight scheduling. Additional Project activities requiring the runway closure include the covering of the Argo Ditch, taxiway pavement rehabilitation, lighting replacement, runway/taxiway pavement markings and service road demolition. These Project components would be completed during the runway closure timeframe needed to rehabilitate the runway pavement, described above.

FAA coordination is required to minimize disruption to aircraft operations and changes in approach and departure procedures. The improvements as outlined in Section 2.4 are expected to be completed by December 31, 2015.

2.5.2 Construction Staging, Parking, and Haul Routes

2.5.2.1 Construction Staging Areas

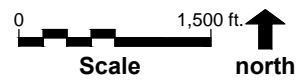
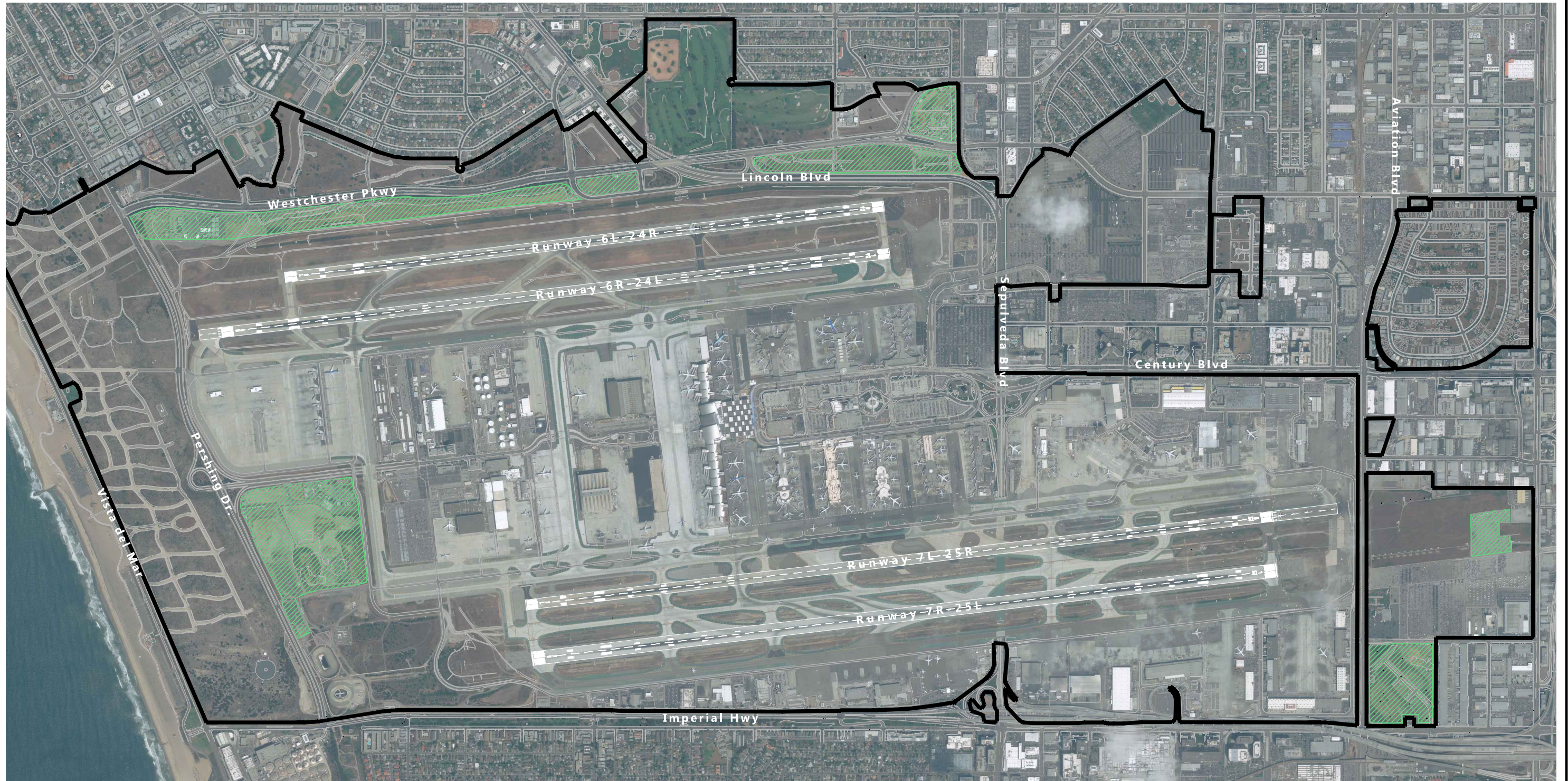
Construction staging areas would be necessary due to the limited space available for storage of materials and equipment within the airfield area. Locations of the potential construction staging areas for this Project have been illustrated in **Figure 2-8**. Only a portion of these construction staging areas would be used during construction of the proposed Project. However, specific construction staging areas to be utilized for this Project have not been determined at the present time, therefore all potential staging areas are being considered in the analysis for this Draft EIR. Construction staging areas would be located in previously disturbed areas and would result in minimal ground disturbance.

2.5.2.2 Contractor Employee Parking

It is anticipated that construction contractor employee parking would occur within a portion of the construction staging areas described above.

2.5.2.3 Contractor Haul Routes

Contractor haul routes would be located along primary arterial roads adjacent to the potential construction staging areas described above. Since only a portion of these proposed staging areas would be used and specific staging areas cannot be determined at the present time, specific haul routes have not been designated at the present time. However, construction haul routes and truck routes will be designated consistent with the applicable LAX Master Plan commitments and mitigation measures. Analysis of potential impacts to traffic due to construction of the proposed Project is discussed further in Section 4.7, *Construction Surface Transportation*.



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

Legend
 — LAX Property Boundary
 Potential Construction Staging Area

**Runway 6L-24R and Runway 6R-24L Runway Safety Area
and Associated Improvements Draft EIR**

Potential Construction Staging Areas

**Figure
2-8**

2. Description of the Proposed Project

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2.6 Applicable LAX Master Plan Commitments and Mitigation Measures

Although the proposed Project is not part of the LAX Master Plan, LAWA requires that all of its projects incorporate by reference the mitigation measures and commitments that were part of the LAX Master Plan EIS/EIR completed in 2004. Specific LAX Master Plan mitigation measures and commitments that are required for a particular environmental impact are described in detail in the subchapters of Chapter 4.

2.7 Project Operations

Operationally, the proposed Project would have a minimal effect on runway use or taxi times once completed. The proposed Project would not cause any long-term changes to operations; departures and arrivals runway utilization, as well as arrival and departure thresholds, on Runway 24R would remain the same as existing conditions. The proposed Project would include implementation of declared distances on Runway 6L, which would shorten the available distance for aircraft landing on Runway 6L by 359 feet. This would have no significant impact on operations on this runway because arrivals on Runway 6L represent less than 1 percent of the total arrivals at LAX on an annual basis and the shortening of landing distance available would result in aircraft exiting the runway sooner (before reaching the end of the runway).

The proposed Project also includes the implementation of declared distances for Runway 6R-24L, which would reduce the Runway 6R ASDA and LDA by 115 feet. This would have no significant impact on operations on this runway because Runway 6R-24L is primarily used for departures on the north side of the airport (less than 2 percent of total arrivals at LAX on an annual basis occur on Runway 6R) and the shortening of landing distance available would result in aircraft exiting the runway sooner (before reaching the end of the runway).

Additionally, the proposed Project is not a capacity-enhancing project and would not result in any associated permanent increase or decrease in aviation activity at the Airport.

2.8 Project Funding

The proposed Project may be funded primarily with FAA, Airport Improvement Program (AIP) funds.

2.9 Intended Uses of This Draft EIR

The content of this Draft EIR will be used by LAWA, the Board of Airport Commissioners, and the Los Angeles City Council to evaluate and consider the potential environmental impacts of the proposed Project. Certification of the proposed Project would complete the project-level CEQA compliance review for the runway safety area project as described in this EIR.

2. Description of the Proposed Project

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

In addition to use of this EIR by LAWA, the proposed Project requires various federal, state, and local approvals. CEQA requires that all state and local agencies consider the environmental consequences of projects over which they have discretionary authority. The approving agencies may use this EIR in their respective decision-making and approval processes. A list of federal, state, and local permits and approvals and consultations anticipated to be required to implement the proposed Project is provided below.

While the proposed Project would address all deficiencies with the Runway 6L-24R RSA and deficiencies with the Runway 6R-24L RSA, the proposed improvements to Runway 6R-24L will not address all non-compliance issues. LAWA is continuing to evaluate alternatives to address all of the RSA non-compliance issues for Runway 6R-24L and will undertake those improvements in the future. The improvements proposed by LAWA for Runway 6R-24L in this EIR will improve the RSA for this runway and can be implemented prior to December 31, 2015.

2.9.1 Federal Actions

- LAWA has requested that FAA approve the Airport Layout Plan (ALP) for LAX to incorporate the proposed Project and plans to ask FAA for assistance in funding the proposed Project. Before FAA can take these actions, FAA must evaluate the potential environmental effects in order to comply with the National Environmental Policy Act (NEPA). To comply with NEPA, FAA is preparing an Environmental Assessment (EA) for the proposed Project concurrently with this EIR.
- U.S. Department of Transportation, FAA approval of a Notice of Construction or Alteration to ensure safe and efficient operations during the construction of the proposed Project. LAWA and its selected contractor would submit FAA Form 7460-1 "Notice of Proposed Construction or Alteration."
- U.S. Army Corps of Engineers consultation would be required due to the presence of wetlands and/or Waters of the U.S. discussed further in Chapter 4.

2.9.2 State and Regional Actions

- South Coast Air Quality Management District review for any permits required for construction equipment that is not specifically exempt from the permit requirements. No new permanent stationary sources would be added as a result of the proposed Project; therefore, no additional permits for permanent facilities would be needed.
- The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) administer regulations regarding water quality in the State. Permits or approvals required from the SWRCB and/or RWQCB may include but are not limited to: (1) General Construction Storm Water Permit; (2) Standard Urban Stormwater

2. Description of the Proposed Project

Mitigation Plan; and (3) Submittal of a Recycled Water Report to the RWQCB for the use of recycled water as a dust control measure for construction.

2.9.3 Local Actions

- Certification of the Final EIR for the proposed Project.
- LAX Plan Compliance Review in accordance with Section 7 of the LAX Specific Plan.
- Preparation of a Project-specific Storm Water Management Plan or Standard Urban Storm Water Mitigation Plan for approval by the Bureau of Sanitation, Watershed Protection Division.
- City of Los Angeles Fire Department approval.
- Grading permits, building permits, and other permits issued by the Department of Building and Safety for the Project and any associated Department of Public Works permits for infrastructure improvements.
- Other federal, state, or local approvals, permits, or actions that may be deemed necessary for the Project.

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