# Preliminary
# LAX Specific Plan Amendment Study Report

**for**

**Los Angeles International Airport (LAX)**
**Specific Plan Amendment Study**

City of Los Angeles

July 2012

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# 1. INTRODUCTION

This Specific Plan Amendment Study (SPAS) Report identifies potential amendments to the LAX Specific Plan that plan for the modernization and improvement of Los Angeles International Airport (LAX) in a manner that is designed for a practical capacity of 78.9 million annual passengers while enhancing safety and security, minimizing environmental impacts on the surrounding communities, and creating conditions that encourage airlines to go to other airports in the region, particularly those owned and operated by Los Angeles World Airports (LAWA). This chapter discusses the purpose of this SPAS Report; a brief overview of the LAX Master Plan, LAX Plan, LAX Specific Plan, LAX Master Plan Stipulated Settlement, and the SPAS Process; a description of the relationship of this SPAS Report to the California Environmental Quality Act (CEQA) environmental evaluation process; and an overview of the chapters contained within this SPAS Report.

## 1.1 Purpose of Specific Plan Amendment Study Report

The purpose of this SPAS Report is to identify potential LAX Specific Plan amendments consistent with the requirements of the LAX Specific Plan and the LAX Master Plan Stipulated Settlement. This SPAS Report also documents the planning process used to identify potential LAX Specific Plan amendments and potential alternative designs, technologies, and configurations for the LAX Master Plan Program in accordance with the SPAS Process defined in Section 7.H of the LAX Specific Plan and Section V of the LAX Master Plan Stipulated Settlement. The amendments and alternatives identified in this SPAS Report have been evaluated in the Draft Environmental Impact Report (EIR) prepared for the LAX SPAS. The Draft EIR and the SPAS Report together make up the Specific Plan Amendment Study.

## 1.2 Overview/History of LAX Master Plan

### LAX Master Plan

In December 2004, the Los Angeles City Council certified the Final EIR and approved the LAX Master Plan and related entitlements for the future development of LAX, which was followed by the Federal Aviation Administration's Record of Decision (ROD) and approval of the Final EIS in May 2005. The LAX Master Plan provides the first major new facilities for, and improvements to, the airport since 1984, and plans to accommodate projected growth in passengers and cargo at LAX through the year 2015. The LAX Master Plan serves as a broad policy statement regarding the conceptual strategic planning framework for future improvements at LAX and working guidelines. The approved LAX Master Plan includes airfield modifications, new terminals, and new ground access facilities to accommodate passenger and employee traffic, parking, and circulation.

The LAX Master Plan is a study of LAX that is required for eligibility to apply for federal assistance from the Federal Aviation Administration (FAA). (See 14 C.F.R. Sections 151.27 and 152.113.) Its preparation is guided by FAA Advisory Circular (AC) 150/5070-6B.

### LAX Plan

The LAX Plan is the City of Los Angeles' general plan component for LAX. The LAX Plan sets out goals, policies, objectives, and programs for the long-term development and use of the airport consistent with the vision established by the LAX Master Plan. The LAX Plan requires that future projects must incorporate mitigation measures and LAX Master Plan commitments[1] from the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP) into project design and operation. The stated purpose of the LAX Plan is "to promote an arrangement of airport uses that encourages and contributes

[1] LAX Master Plan commitments are activities, policies, and practices included in the LAX Master Plan which are to be implemented with the approved LAX Master Plan. They are in addition to the mitigation measures identified in the LAX Master Plan EIR and are intended to reduce or avoid environmental impacts. (See LAX Master Plan Final EIR/EIS, Preface, p. 13.) The LAX Master Plan commitments are set forth in the MMRP for the LAX Master Plan.

to the modernization of the airport in an orderly and flexible manner within the context of the City and the region." It is also "intended to allow the airport to respond to emerging new technologies, economic trends and functional needs."

## LAX Specific Plan

The Los Angeles City Council approved the LAX Specific Plan in December 2004 (Ordinance No. 176,345, as amended by Ordinance No. 179,148). The LAX Specific Plan establishes zoning and land use regulations and procedures for the processing of future specific projects and activities anticipated in the LAX Master Plan Program to ensure consistency with the LAX Plan – the City of Los Angeles' general plan component for LAX – and to ensure the adequacy of environmental review and documentation of those individual projects. Appendices A and B of this report include the LAX Specific Plan and LAX Plan, respectively.

Section 7.H of the LAX Specific Plan requires LAWA to complete an LAX Specific Plan Amendment Study comprehensively addressing security, traffic, aviation activity, and corresponding environmental analysis consistent with CEQA, in the following three circumstances:

1. Prior to seeking an LAX Plan Compliance determination for any of the following projects (commonly referred to as the "Yellow Light" Projects):[2]
    a. Development of the Ground Transportation Center (GTC), including baggage tunnel, associated structures, and equipment;
    b. Construction of the Automated People Mover (APM) 2 from the GTC to the Central Terminal Area (CTA), including its stations and related facilities and equipment;
    c. Demolition of CTA Terminals 1, 2, and 3;
    d. North Runway re-configuration as contemplated in the LAX Master Plan, including center taxiways; and
    e. On-site road improvements associated only with (a) and (b) above.
2. If the annual traffic generation report required in Subsection G1 of the Specific Plan and/or the annual traffic generation report considered together with any project-specific traffic study, shows that any LAX Master Plan projects will be generating net new airport peak hour trips in excess of 8,236 (unless the total trips for that year are related to construction or phasing impacts).
3. If the annual aviation activity analysis required in Subsection G1 of the Specific Plan forecasts that the annual passengers for that year are anticipated to exceed 78.9 million.

As acknowledged in the Stipulated Settlement, discussed in more detail below, LAWA determines the appropriate methodology to conduct the LAX SPAS.

## LAX Master Plan Stipulated Settlement

In January 2005, the City of El Segundo, the City of Inglewood, the City of Culver City, the County of Los Angeles, and the Alliance for a Regional Solution to Airport Congestion (Petitioners) filed petitions challenging the approval of the LAX Master Plan Program. In February 2006, the City of Los Angeles and Petitioners agreed to, and the court approved, a settlement of the subject lawsuits, referred to as the LAX Master Plan Stipulated Settlement (Stipulated Settlement). Appendix C of this report includes the LAX Master Plan Final Stipulated Settlement.

Section V of the Stipulated Settlement requires LAWA to undertake a Specific Plan Amendment Study (SPAS) to fulfill the intent of Section 7.H of the LAX Specific Plan. The following section further describes the SPAS Process.

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[2] The LAX Specific Plan was amended in August 2007 (Ordinance No. 179,148) to remove the West Satellite Concourse and associated APM segments as a Yellow Light Project.

### SPAS Process

Section V of the Stipulated Settlement delineates the SPAS Process. As defined by the Stipulated Settlement (Section V.C), the SPAS will, consistent with previous local and federal approvals, identify Specific Plan amendments that plan for the modernization and improvement of LAX in a manner that is designed for a practical capacity of 78.9 million annual passengers while enhancing safety and security, minimizing environmental impacts on the surrounding communities, and creating conditions that encourage airlines to go to other airports in the region, particularly those owned and operated by LAWA.

As part of the Stipulated Settlement (Section V.D), LAWA is to focus the SPAS on the following:

1. Potential alternative designs, technologies, and configurations for the LAX Master Plan Program that would provide solutions to the problems that the Yellow Light Projects were designed to address consistent with a practical capacity of LAX at 78.9 million annual passengers (the "Alternative Projects").
2. Security, traffic, and aviation activity of such alternative designs, technologies, and configurations for the Alternative Projects.
3. Potential environmental impacts that could result from replacement of the Yellow Light Projects with Alternative Projects, and potential mitigation measures that could provide a comparable level of mitigation to that described for the Yellow Light Projects in the LAX Master Plan Program EIR.

Section V also requires LAWA to conduct an environmental review of potential traffic impacts for the Alternative Projects in consultation with all affected jurisdictions and the City of Los Angeles Department of Transportation, and establish an LAX SPAS Advisory Committee that includes representatives from the City of Los Angeles, County of Los Angeles, City of El Segundo, City of Inglewood, City of Culver City, and ARSAC.

## 1.3 Overview of LAX Specific Plan Amendment Study

As noted above, the SPAS Process involves the identification and evaluation of potential alternative designs, technologies, and configurations for the LAX Master Plan Program that would provide solutions to the problems that the Yellow Light Projects were designed to address. The Yellow Light Projects address airfield improvements, terminal improvements, and ground access improvements at LAX, as described in more detail in Chapter 3, *Problems the Yellow Light Projects Were Designed to Address and SPAS Planning Goals.* This SPAS Report identifies and evaluates alternative projects for these three categories of airport improvements. Specifically, this SPAS Report identifies nine alternatives for the Yellow Light Projects that are evaluated in the SPAS EIR and describes how they were developed. These nine alternatives are defined in detail in Chapter 6, *SPAS Alternative Projects*. Alternatives 1 through 4 are "fully-integrated" alternatives that include specific improvements in all three categories: airfield improvements, terminal improvements, and ground access improvements. Alternatives 5 through 7 focus primarily on variations to the airfield improvements, which, in turn, affect the terminal improvements. Alternatives 8 and 9 focus on variations to the ground access improvements. The SPAS Report also identifies potential amendments to the LAX Specific Plan that would be needed to implement any of the alternatives.

This SPAS Report evaluates each alternative and potential LAX Specific Plan amendments. The SPAS EIR analyzes the potential environmental impacts of the nine alternatives and proposes mitigation measures to address significant environmental impacts in compliance with CEQA. The impacts associated with each alternative, and proposed mitigation measures, are summarized in Chapter 6, *SPAS Alternative Projects*, and described in detail in the SPAS EIR. This SPAS Report also includes an analysis of the financial aspects of each alternative as well as an evaluation of security for the alternatives, prepared pursuant to Section V.I of the Stipulated Settlement, and which fulfills the requirements of Section 7.G(3) of the LAX Specific Plan.

In compliance with Section V.J of the Stipulated Settlement, LAWA formed an LAX SPAS Advisory Committee consisting of representatives of the former Petitioners (County of Los Angeles, City of El Segundo, City of Inglewood, City of Culver City, and ARSAC). Representatives from federal and state elected officials, Los Angeles City Council and mayor's offices, and LAWA staff also attended. Ongoing meetings of the Advisory Committee have been held since its inception in March 2006. In addition, six sets of community meetings were held in 2006 as part of the community-based planning process. This process included a broad outreach to affected stakeholders to ensure their involvement in the planning for potential alternative projects. Chapter 4, *SPAS Community/Advisory Committee Input*, describes the public involvement process implemented for SPAS.

## 1.4 Relationship to CEQA Process

Section 7.H of the LAX Specific Plan requires LAWA to complete an environmental analysis, consistent with CEQA, for the LAX SPAS. Section V.E of the Stipulated Settlement requires that the LAX SPAS be prepared pursuant to CEQA. For purposes of CEQA, the proposed project is the LAX SPAS. As indicated above, the SPAS EIR evaluated nine alternatives. In addition, the EIR addresses amendments to the LAX Specific Plan. The SPAS Draft EIR will be circulated for agency and public review and comment and, in accordance with CEQA, LAWA will prepare written responses to the comments received and will complete the Final EIR.

The SPAS project objectives, are set forth below and explained in detail in Chapter 2:

1. Provide North Airfield Improvements that Support the Safe and Efficient Movement of Aircraft at LAX
2. Improve the Ground Access System at LAX to Better Accommodate Airport-Related Traffic, Especially as Related to the Central Terminal Area
3. Maintain LAX's Position as the Premier International Gateway in Supporting and Advancing the Economic Growth and Vitality of the Los Angeles Region
4. Plan Improvements That Do Not Result in More Than 153 Passenger Gates at 78.9 MAP
5. Enhance Safety and Security at LAX
6. Minimize Environmental Impacts on Surrounding Communities
7. Produce an Improvement Program that is Efficient, Sustainable, Feasible, and Fiscally Responsible

As indicated above, the SPAS Draft EIR addresses, in detail, the potential environmental impacts associated with nine SPAS alternatives. Alternatives 1 through 4 are presented in the EIR as "fully-integrated" alternatives that include specific improvements in all three categories: airfield improvements, terminal improvements, and ground access improvements. Alternatives 5 through 7 focus on variations to the airfield improvements, which, in turn, affect the terminal improvements. Alternatives 8 and 9 focus on variations to the ground access improvements.

Although the primary focus of Alternatives 5 through 9 is on specific categories of improvements, there is a certain amount of compatibility or "interchangeability" between the SPAS alternatives. Specifically, the airfield and terminal improvements in Alternatives 5 through 7 are equally compatible with the ground access improvements in Alternatives 1, 2, 8, and 9. Likewise, the ground access improvements in Alternatives 8 and 9 are equally compatible with the airfield and terminal improvements in Alternatives 1, 2, 5, 6, and 7. In other words, the proposed ground transportation system incorporated into Alternatives 1 and 2 could function in the same manner with Alternatives 5, 6, or 7. That would also be the case for the ground transportation systems under Alternatives 8 and 9, which could be developed under Alternatives 5, 6, or 7, and could also replace the ground transportation system currently proposed for Alternatives 1 and 2. On the other hand, Alternatives 3 and 4 are unique "fully-integrated" alternatives and are not considered to have elements that are "interchangeable" with the other SPAS alternatives. While Alternatives 5, 6, and 7 focus on options for airfield/terminal improvements and Alternatives 8 and 9

focus on options for ground access improvements, these five alternatives (Alternatives 5 through 9) would only address all of the problems that the Yellow Light Projects were designed to address in conjunction with another alternative (Alternatives 1 through 4), or portion thereof. The following summarizes the key characteristics of each of the nine alternatives addressed in the Draft EIR.

**Alternative 1** is a fully-integrated alternative, consisting of airfield, terminal, and ground access components. The distinguishing airfield improvement feature of this alternative is the movement of Runway 6L/24R 260 feet north, along with the addition of a centerfield taxiway, the extension of Runway 6R/24L, improvements to Taxilane D and Taxiway E, and relocation of the service road. Terminal Improvements include addition of new Terminal 0, loss or modifications to concourse areas and/or gates at Terminals 1, 2, and 3, and the modification and potential northward extension of concourse area and gates at TBIT and the future MSC. Ground access improvements include modification of Sky Way; development of an Intermodal Transportation Facility (ITF) at 98th Street west of Airport Boulevard; development of an elevated/dedicated busway along 98th Street, with a bridge over Sepulveda Boulevard and stops at Manchester Square (future surface parking), the future Metro LAX/Crenshaw Light Rail Transit Station at/near Century and Aviation boulevards, the ITF, and the CTA; and the relocation of Lincoln Boulevard, a portion of which would be below grade and/or tunneled. This alternative is illustrated in **Figure 1-1**.

**Alternative 2** is a fully-integrated alternative, consisting of airfield, terminal, and ground access components. This alternative is distinguished by the fact that it does not propose a northerly relocation of Runway 6L/24R or a southerly relocation of Runway 6R/24L. This alternative does not include a centerfield taxiway, but does include the modification and addition of high-speed runway exits (taxiways) to enhance the safe and efficient movement of arriving aircraft. Many of the improvements associated with Alternative 2 are the same as those associated with Alternative 1, including Runway 6R/24L, Taxiway E and Taxilane D, service road relocation, terminal and gate modifications, and ground access components. Improvements associated with Runway 6L/24R under this alternative, including connecting taxiways, are different than Alternative 1. Because there would be no northerly relocation of Runway 6L/24R under Alternative 2, it does not require the modifications to the Argo Drainage Channel (other than those required under existing conditions to meet federal RSA requirements) and Lincoln Boulevard described above for Alternative 1. This alternative is illustrated in **Figure 1-2**.

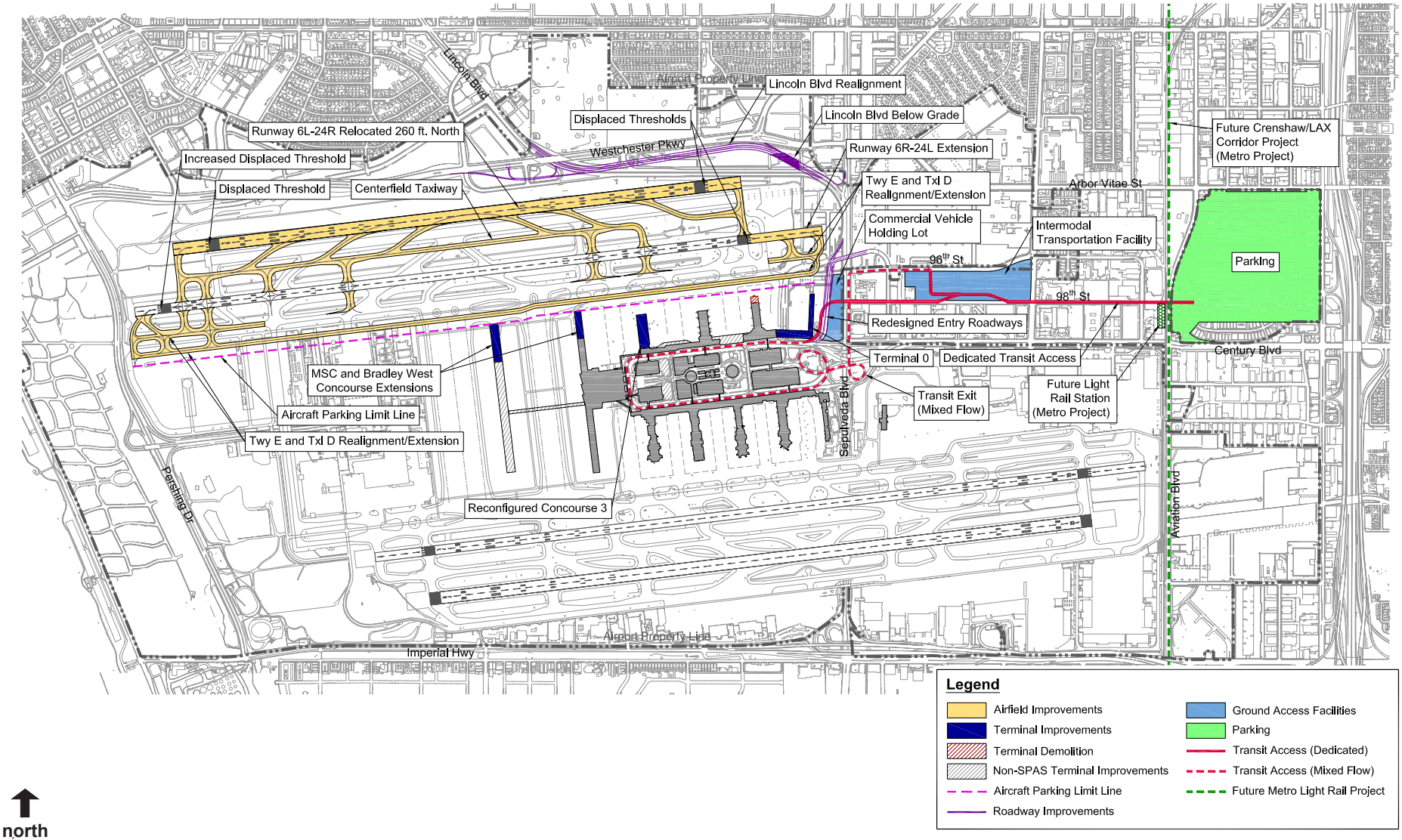
**Alternative 3** is the CEQA "No Project" Alternative and represents what would reasonably be expected to occur in the foreseeable future if the LAX Master Plan (i.e., "Alternative D") and all of the LAX Master Plan improvements, including the Yellow Light Projects, were implemented as originally envisioned. Analysis of Alternative 3 will allow decision-makers and the public to compare the impacts of implementing alternatives to the LAX Master Plan with the impacts that would occur under the LAX Master Plan. Alternative 3 is a fully-integrated alternative, consisting of airfield, terminal, and ground access components. The distinguishing airfield improvement related to this alternative is the movement of Runway 6R/24L 340 feet south, along with the addition of a new centerfield taxiway, extension of Runway 6L/24R, and relocation and improvements to Taxiway E, Taxilane D, and service roads. Related terminal improvements include demolition of the concourses/gates at Terminals 1, 2, and 3 and replacement with a new linear concourse, elimination of the northernmost gates at TBIT, and replacement of the existing CTA parking structures with new passenger processing terminals. Key ground access improvements include closure of the CTA to private vehicles; development of a GTC at Manchester Square, an ITC at the area referred to as Continental City with a pedestrian bridge to the existing Metro Green Line Station, and a CONRAC at Parking Lot C; development of two APM systems to link the ITC, CONRAC, and CTA and link the GTC and CTA; construction of new on-airport roads east of and parallel to Aviation Boulevard; reconfiguration and expansion of Parking Lot E located west of La Cienega Boulevard; and construction of a West Employee Parking facility. There would be no modifications to the Argo Drainage Channel (other than those

required under existing conditions to meet federal RSA requirements) or Lincoln Boulevard under this alternative. This alternative is illustrated in **Figure 1-3**.

**Alternative 4** represents what would reasonably be expected to occur if all ongoing and reasonably foreseeable non-Yellow Light improvements identified in the LAX Master Plan (i.e., "Alternative D") were implemented, and none of the Yellow Light Projects or any of the identified alternatives to the LAX Master Plan Program were constructed or implemented. Analysis of Alternative 4 will allow decision-makers and the public to evaluate the impacts of simply eliminating the Yellow Light Projects from the LAX Master Plan Program. Alternative 4 is a fully-integrated alternative, consisting of airfield, terminal, and ground access components. Ongoing and reasonably-foreseeable non-Yellow Light projects that would be developed include the Bradley West Project, an extension to Runway 6R/24L for RSA improvements, the MSC and related new passenger processor and connector within the CTA, and various terminal improvements. In addition, a CONRAC at Parking Lot C would be constructed and a new parking structure would be developed at the ITC site to accommodate the public parking displaced by the CONRAC. A portion of the Argo Drainage Channel would be covered to comply with existing RSA requirements by converting a portion of the existing open unlined channel to an enclosed concrete box culvert. There would be no modifications to Lincoln Boulevard under this alternative. This alternative is illustrated in **Figure 1-4**.

**Alternative 5** provides, as noted above, a focus on airfield improvements and associated terminal improvements, as may be compared to such improvements proposed under Alternatives 1 through 4. This alternative is compatible with the ground access improvements associated with Alternatives 1 and 2, as well as the ground access improvements associated with Alternatives 8 and 9, described below. The distinguishing feature of this alternative is the movement of Runway 6L/24R 350 feet north. Similar to Alternative 1, a new centerfield taxiway would be constructed, Runway 6R/24L would be extended, Taxilane D and Taxiway E would be modified/improved, and the service road would be relocated. Under this alternative, the taxilane/taxiway improvements would meet FAA design requirements to fully accommodate ADG VI aircraft. (Under Alternatives 1, 2, and 6, the taxiway configuration would either not meet or only partially meet ADG VI design standards, which would impose certain limitations and special requirements during the operation of those aircraft.) The increased runway-taxiway separation requirements under this alternative would cause the aircraft taxiway operations area to extend farther south than under Alternatives 1, 2, and 6, which, in turn, would result in comparatively less concourse and/or gate area for the potential TBIT extension and MSC extension. Under this alternative, a greater portion of Lincoln Boulevard would be below grade and/or tunneled than under Alternative 1. This alternative is illustrated in **Figure 1-5**.

**Alternative 6**, similar to Alternative 5, also focuses on airfield improvements and associated terminal improvements, as may be compared to such improvements proposed under Alternatives 1 through 4. This alternative is compatible with the ground access improvements associated with Alternatives 1 and 2, as well as the improvements associated with Alternatives 8 and 9. The distinguishing feature of this alternative is the movement of Runway 6L/24R 100 feet north. Similar to Alternative 1, a new centerfield taxiway would be constructed. All other physical aspects of the airfield and terminal improvements associated with this alternative would be essentially the same as those of Alternative 1, described above, with a lesser portion of the Argo Drainage Channel requiring covering (i.e., conversion to a concrete box culvert) and a lesser portion of Lincoln Boulevard requiring tunneling. This alternative is illustrated in **Figure 1-6**.

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Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 1 | Figure 1-1 |
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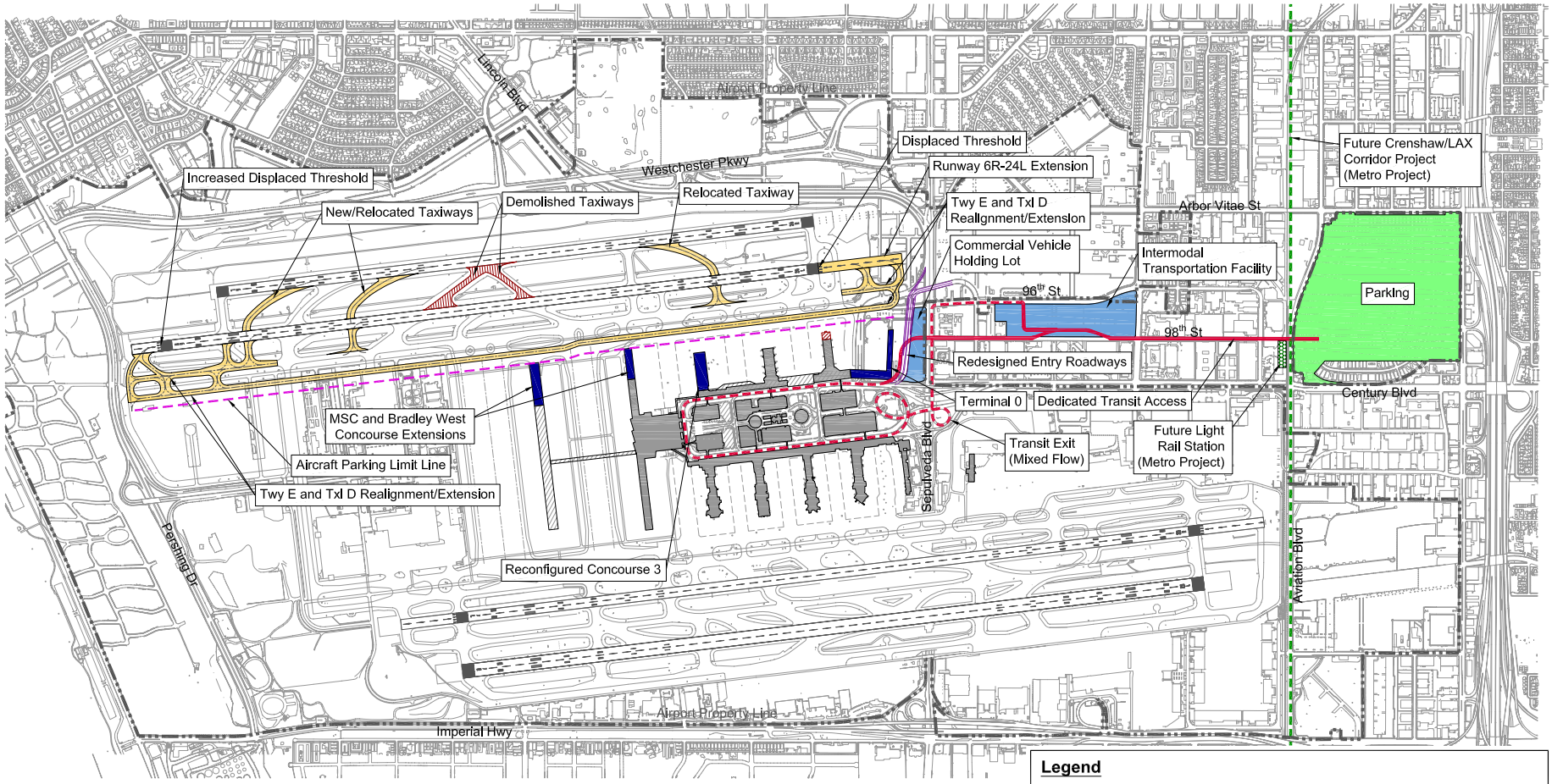


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| LAX Specific Plan Amendment Study Report | Alternative 2 | Figure 1-2 |
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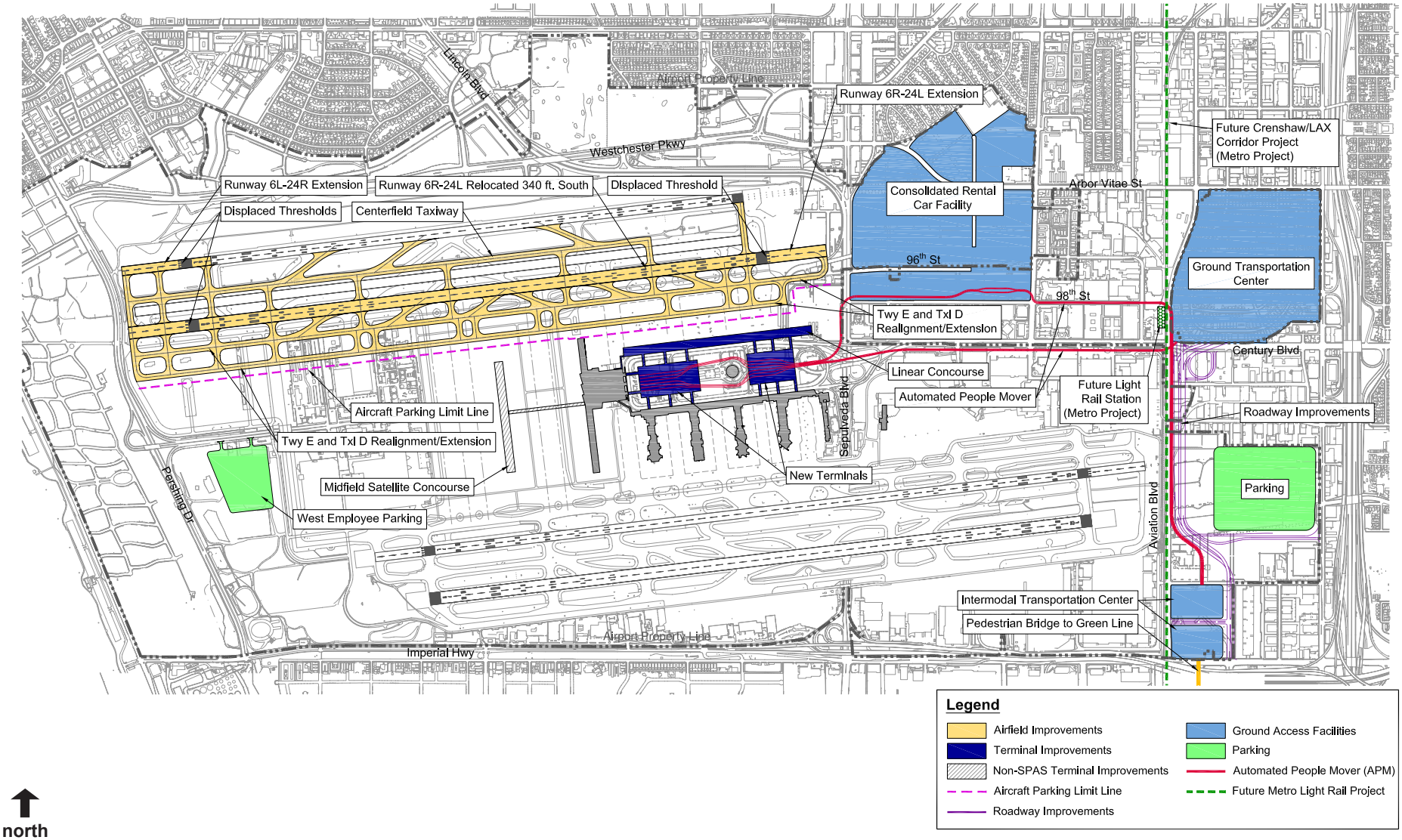


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Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 3 | Figure 1-3 |
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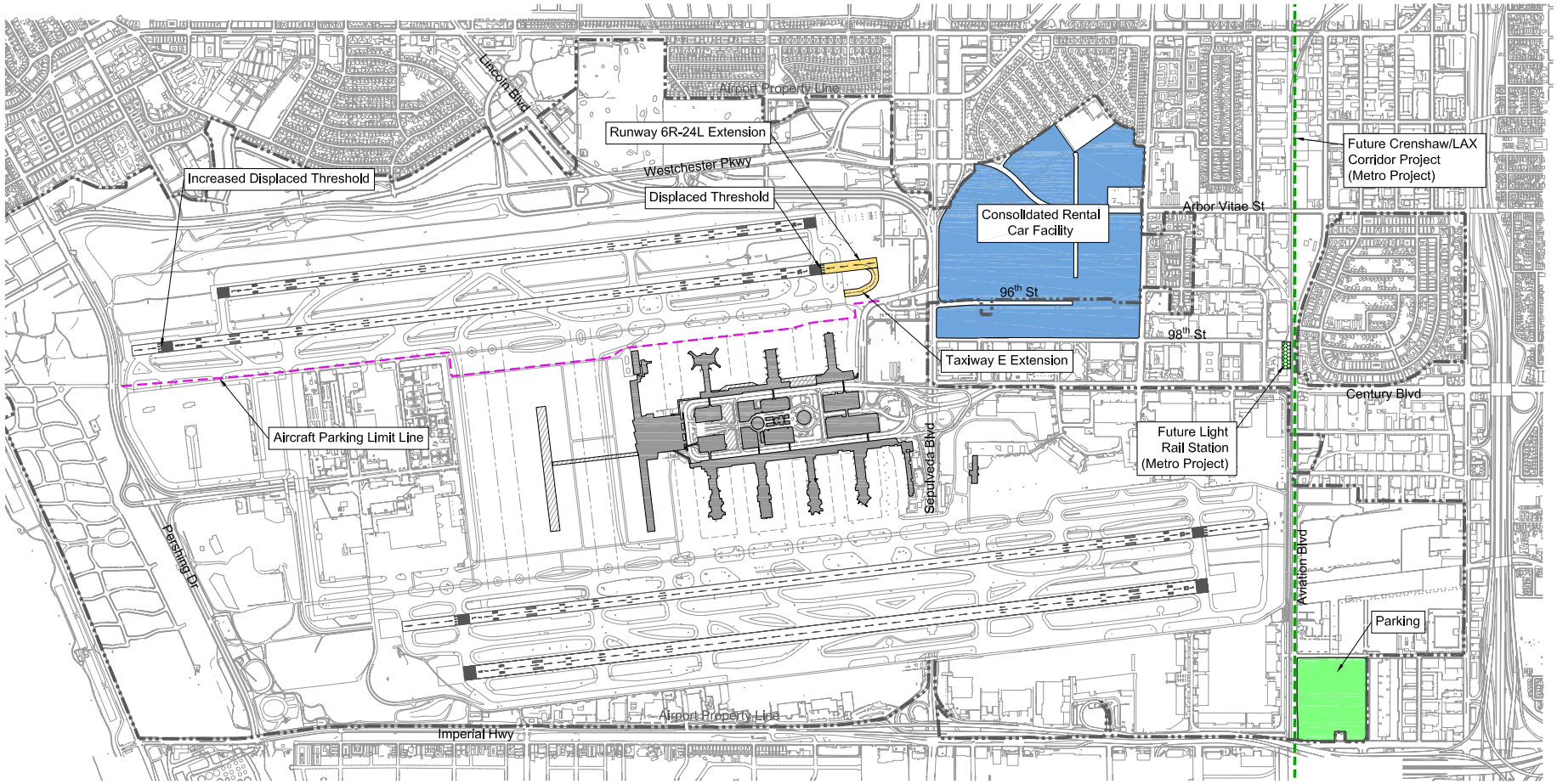


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| LAX Specific Plan Amendment Study Report | Alternative 4 | Figure 1-4 |
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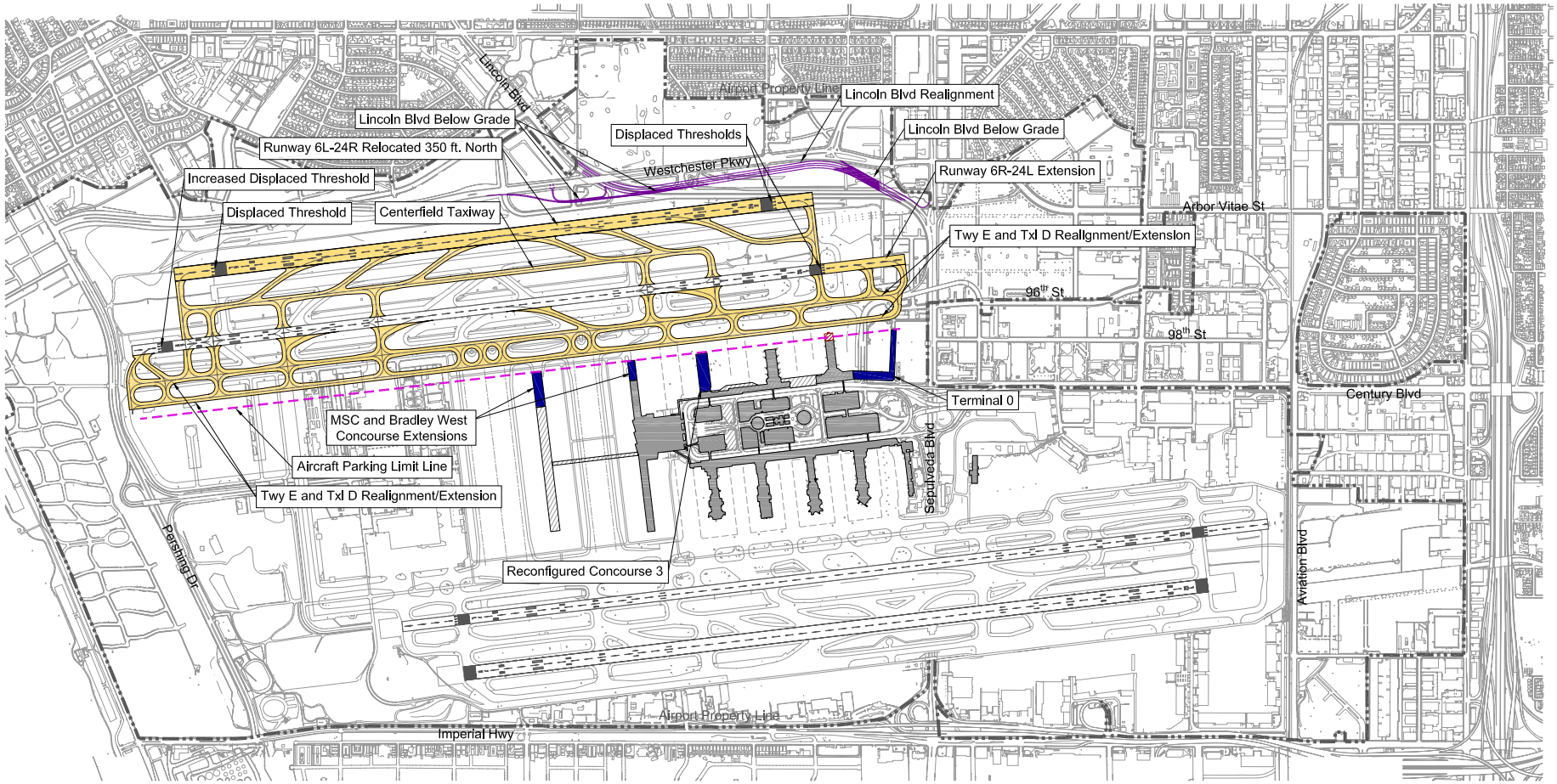


Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 5 | Figure 1-5 |
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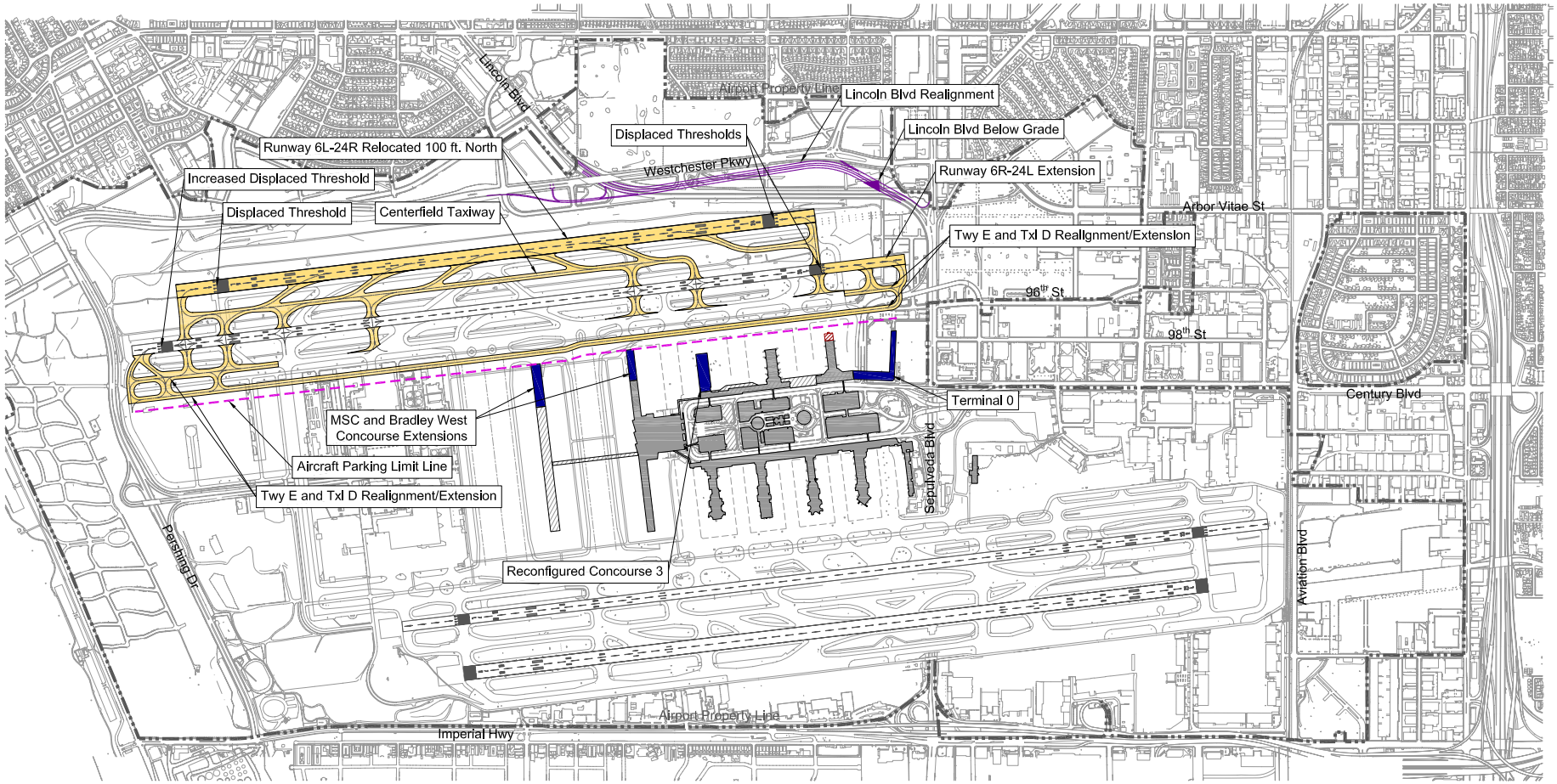


**Legend**

- Airfield Improvements
- Terminal Improvements
- Non-SPAS Terminal Improvements
- Terminal Demolition
- Aircraft Parking Limit Line
- Roadway Improvements

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Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 6 | Figure 1-6 |
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**Alternative 7**, similar to Alternatives 5 and 6, also focuses on airfield improvements and associated terminal improvements, as may be compared to such improvements proposed under Alternatives 1 through 4. This alternative is compatible with the ground access improvements associated with Alternatives 1 and 2, as well as the improvements associated with Alternatives 8 and 9. The distinguishing feature of this alternative is the movement of Runway 6R/24L 100 feet south. Similar to Alternative 1, a new centerfield taxiway would be constructed, Runway 6R/24L would be extended, Taxiway E and Taxilane D would be modified/improved, and the service road would be relocated. The southward movement of the runway and associated southerly relocation of Taxiway E and Taxilane D would cause the aircraft taxiway operations area to extend farther south than under Alternatives 1, 2, 5, and 6, which, in turn, would result in comparatively less concourse and/or gate area for Terminal 3, potential TBIT extension, and potential MSC extension. There would be no modifications to the Argo Drainage Channel (other than those required under existing conditions to meet federal RSA requirements) or Lincoln Boulevard under this alternative. The RPZ currently associated with Runway 6L/24R would continue to overlay existing residential uses. This alternative is illustrated in **Figure 1-7**.

**Alternative 8** focuses on ground access improvements that could be integrated in place of the improvements proposed under Alternatives 1 through 4. This alternative is compatible with the airfield and terminal improvements associated with Alternatives 1, 2, 5, 6, and 7. The distinguishing feature of this alternative is the development of a CONRAC in addition to parking at Manchester Square, and the development of parking at the Avis facility (east of Parking Lot C). All other ground access aspects of this alternative are comparable to those of Alternatives 1 and 2, with the exception of the realignment of Lincoln Boulevard, which is only associated with the airfield improvement alternatives. This alternative is illustrated in **Figure 1-8**.

**Alternative 9**, similar to Alternative 8, focuses on ground access improvements that could be integrated in place of the improvements proposed under Alternatives 1 through 4. This alternative is compatible with the airfield and terminal improvements associated with Alternatives 1, 2, 5, 6, and 7. The distinguishing features of this alternative are the development of an APM system, instead of a busway, along 98th Street, and development of a CONRAC in addition to parking at Manchester Square. The APM would be located within an elevated/dedicated corridor on the same alignment as the busway under the other alternatives. Within the CTA, the APM would be located on a new elevated guideway. All other ground access aspects of this alternative are comparable to those of Alternatives 1 and 2, with the exception of the realignment of Lincoln Boulevard, which is only associated with the airfield improvement alternatives. This alternative is illustrated in **Figure 1-9**.

## 1.5 Overview of Specific Plan Amendment Study Report Chapters

The following provides a summary of the contents of each chapter of this SPAS Report.

### Chapter 1 - Introduction

This chapter provides a discussion of the purpose of this SPAS Report; a brief overview of the LAX Master Plan, LAX Specific Plan, LAX Master Plan Stipulated Settlement, and the SPAS Process; and a description of the relationship of this SPAS Report to the CEQA environmental evaluation process. Chapter 1 also presents the project objectives presented in the Draft EIR for SPAS, as well as a summary description of, and figure for, each of the nine SPAS alternatives addressed in detail in the Draft EIR.

### Chapter 2 - Planning Approach

Chapter 2 provides a discussion of the planning approach used as part of the LAX SPAS concept development, including a discussion of the LAX Master Plan and SPAS background, the SPAS Project Objectives, the community-based planning process, and the alternatives formulation process.

## Chapter 3 - Problems the Yellow Light Projects Were Designed to Address and SPAS Planning Goals

This chapter describes the Yellow Light Projects as identified in the approved LAX Master Plan, identifies the problems the Yellow Light Projects were designed to address, and outlines the planning goals for finding solutions to those problems.

## Chapter 4 - SPAS Community/Advisory Committee Input

This chapter identifies the key planning parameters for the concept development process and the role of the community and the Advisory Committee in the formulation of the LAX SPAS alternative projects.

## Chapter 5 - SPAS Concept Development Process

Chapter 5 provides a detailed discussion of the iterative process used in the development of the "Yellow Light replacement" concepts, including the role of the community and LAX SPAS Advisory Committee, in the formulation of the "Yellow Light replacement" concepts, which ultimately led to the identification of SPAS alternative projects to be addressed in the SPAS EIR.

## Chapter 6 - SPAS Alternative Projects

This chapter describes the alternative projects that were identified through the LAX SPAS concept development process and describes how each of the alternative projects responds to key provisions of the Stipulated Settlement.

## Chapter 7 - LAX Specific Plan Amendments

Chapter 7 presents a potential amendment to Section 7.H of the LAX Specific Plan that would encourage further shifts in passenger and airline activity to other regional airports if aviation activity reaches specified levels. This chapter also identifies administrative amendments to the LAX Specific Plan that would be required if an Alternative Project is approved.

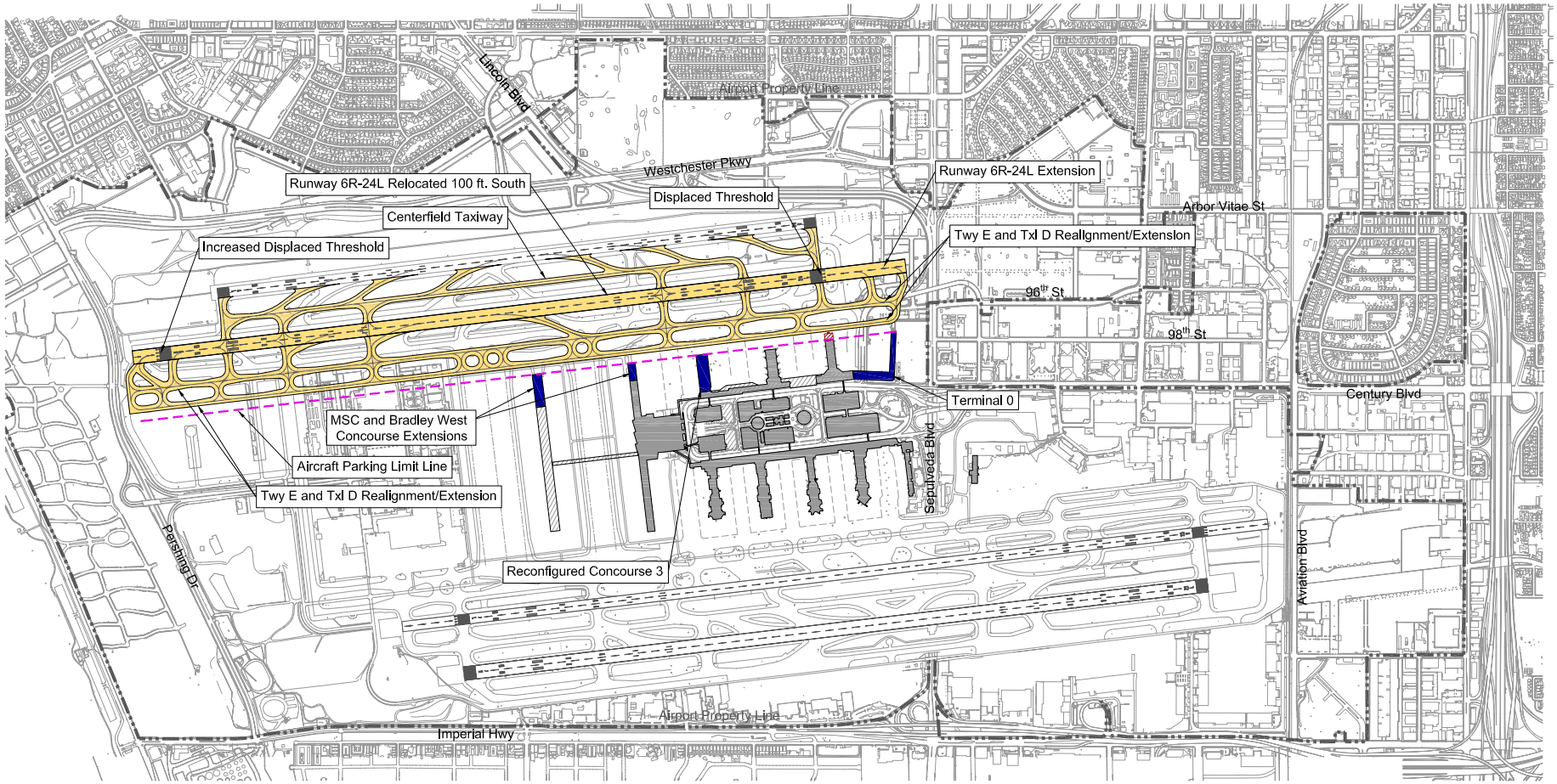
## Chapter 8 - Financial Analysis

Chapter 8 provides a comparative analysis of the costs associated with implementation of the nine SPAS alternative projects, and discusses LAWA's ability to finance the improvements.

## Appendices

Various appendices were prepared that provide specific data and material that supports/supplements the discussions and conclusions provided in this SPAS Report. These appendices are identified below:

| | |
|---|---|
| Appendix A | LAX Specific Plan |
| Appendix B | LAX Plan |
| Appendix C | Stipulated Settlement |
| Appendix D | Community/Advisory Committee Meeting Materials |
| Appendix E | Concept Development Process |
| Appendix F | Operational Analysis |
| Appendix G | SPAS Concepts Preliminary Rough Order of Magnitude Cost Estimates |
| Appendix H | North Airfield Safety Assessments |
| Appendix I | SPAS Security Assessment |

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Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 7 | Figure 1-7 |
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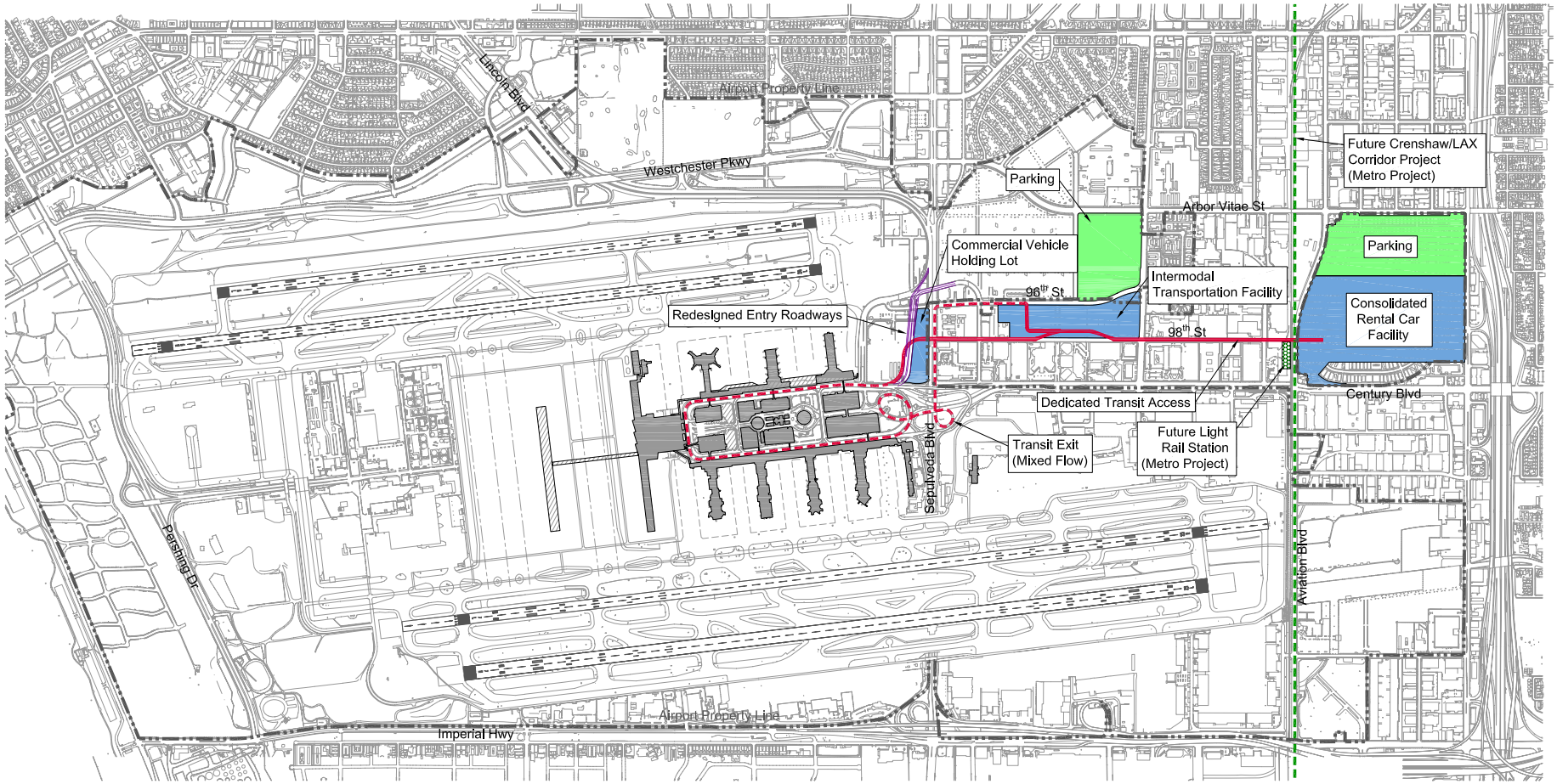


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Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 8 | Figure 1-8 |
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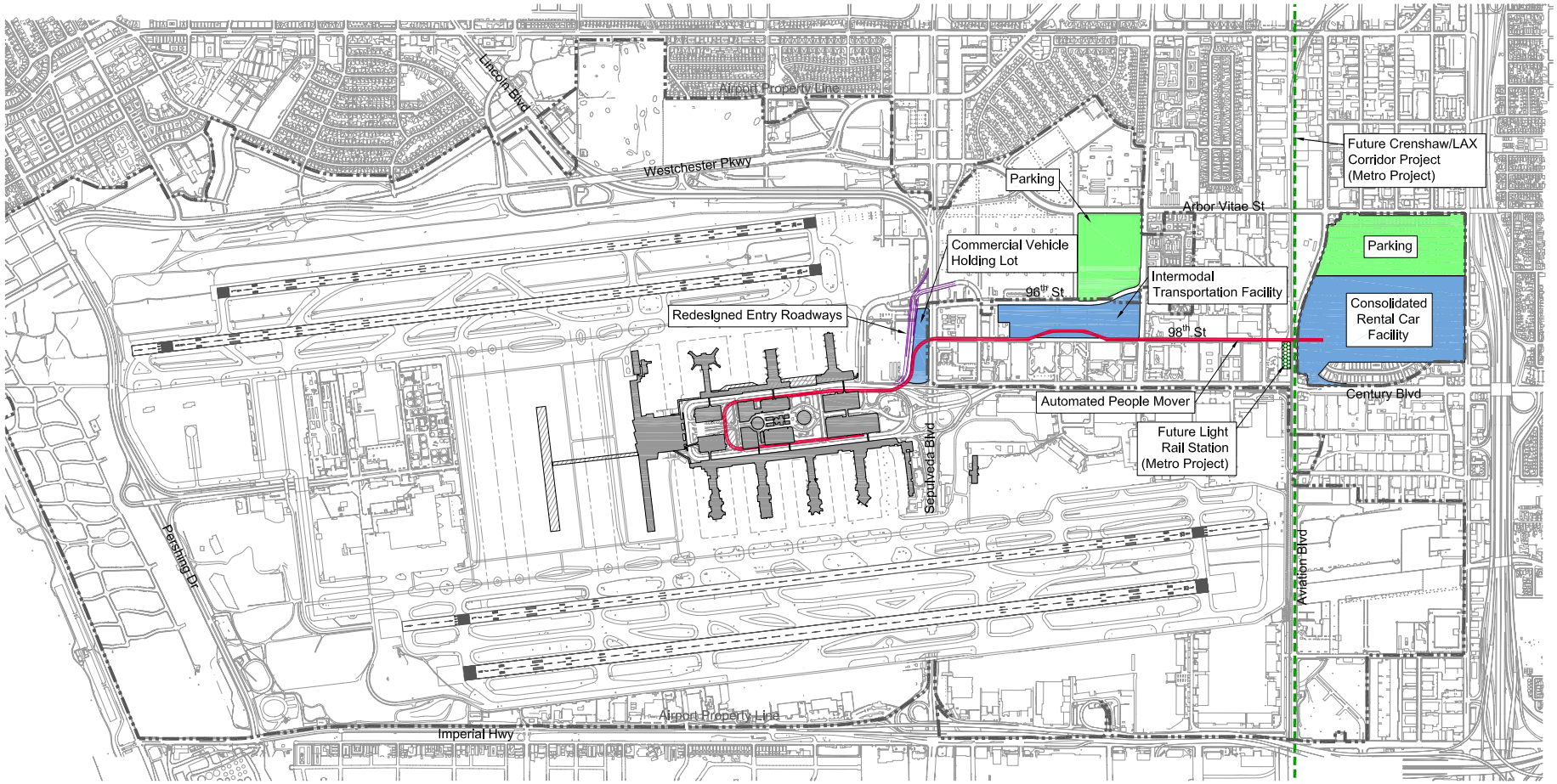


Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 9 | Figure 1-9 |
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# 2. PLANNING APPROACH

This chapter provides background relevant to development of the SPAS alternatives, presents the SPAS Project Objectives, and summarizes the process used to develop the alternatives based on community input, objectives, and response to the settlement requirements.

## 2.1 Relationship Between LAX Master Plan and SPAS

The following sections describe the planning process that resulted in adoption of the LAX Master Plan in December 2004, the Stipulated Settlement reached in 2006 in response to lawsuits challenging the LAX Master Plan Environmental Impact Report (EIR), and a summary of the planning approach to the SPAS Process.

### 2.1.1 Formulation of the LAX Master Plan

As described in Chapter 1, *Introduction*, the LAX Master Plan guides the first major development of new facilities and improvements at the airport since 1984. The formulation of the LAX Master Plan was completed in three main phases and included an exhaustive alternatives development process during which LAWA reviewed a wide range of alternatives before selecting a preferred development program known as Alternative D.

A brief summary of each of the three main phases is provided below.

- Research (Phase I): During this phase of the study, completed in December 1995, existing airport conditions at that time were defined, future demand was estimated, and the public consultation process was initiated. It was estimated that the unconstrained demand for air service at LAX by 2015 would be 98 million annual passengers (MAP) and 4.2 million annual tons of cargo. During this phase, the LAX Master Plan preparation process extensively analyzed existing and projected future activity levels at the airport. (Please also see Chapter 2 of the LAX Master Plan Final EIR and Chapter 3 of the Draft LAX Master Plan.)
- Concept Development (Phase II): This study phase was initiated in the fall of 1995 to evaluate facility requirements and to develop an airport layout for LAX to serve, in whole or in part, the forecast passenger and cargo demand. The concept development process involved policy decisions and design tradeoffs that spanned more than five years and included dozens of options to identify the best balance possible to serve the airport needs of the region and those of the differing stakeholders. As the process progressed, agency and public meetings and workshops were held to inform concerned parties of the progress and findings of the study and encourage participation in the process. As a result of public input, two of the initial four concepts were eliminated, and others were put forward. Three "build" alternatives and the No Action/No Project Alternative were initially moved forward to the third and final phase of the LAX Master Plan process and a fourth build alternative was later added to the process, following the events of September 11, 2001.
- Environmental Review and Approval (Phase III): Phase III of the LAX Master Plan Study included a thorough evaluation of the potential environmental effects associated with the four build alternatives, in accordance with federal and State of California environmental review procedures. The environmental review process was conducted as a joint Environmental Impact Statement (EIS), under federal environmental law, and EIR, under California law. The EIS/EIR provided descriptions of the environmental conditions in and around LAX, analyzed the potential impacts of the improvements associated with each alternative on the physical environment, and recommended mitigation measures to address potential impacts. The Draft EIS/EIR, addressing three build alternatives and the No Action/No Project Alternative, was released for public and agency review in January 2001, and the Supplement to the Draft EIS/EIR, addressing the fourth build alternative (Alternative D), was released for public and agency review in July 2003.

The LAX Master Plan Final EIR,[3] which addressed four build alternatives and the No Action/No Project Alternative, was developed on the basis of the Draft EIS/EIR, the Supplement to the Draft EIS/EIR, public and agency comments received on both documents, and written responses to those comments. The LAX Master Plan Final EIR, as well as the LAX Master Plan Mitigation Monitoring and Reporting Program (MMRP) identifying LAX Master Plan mitigation measures and commitments, were published in April 2004. A revised MMRP and an Addendum to the LAX Master Plan Final EIR were published in September 2004. Three additional LAX Master Plan addenda were published in early December 2004, prior to certification of the LAX Master Plan Final EIR by the Los Angeles City Council on December 7, 2004.

After certifying the LAX Master Plan Final EIR, the City Council approved Alternative D as the LAX Master Plan.

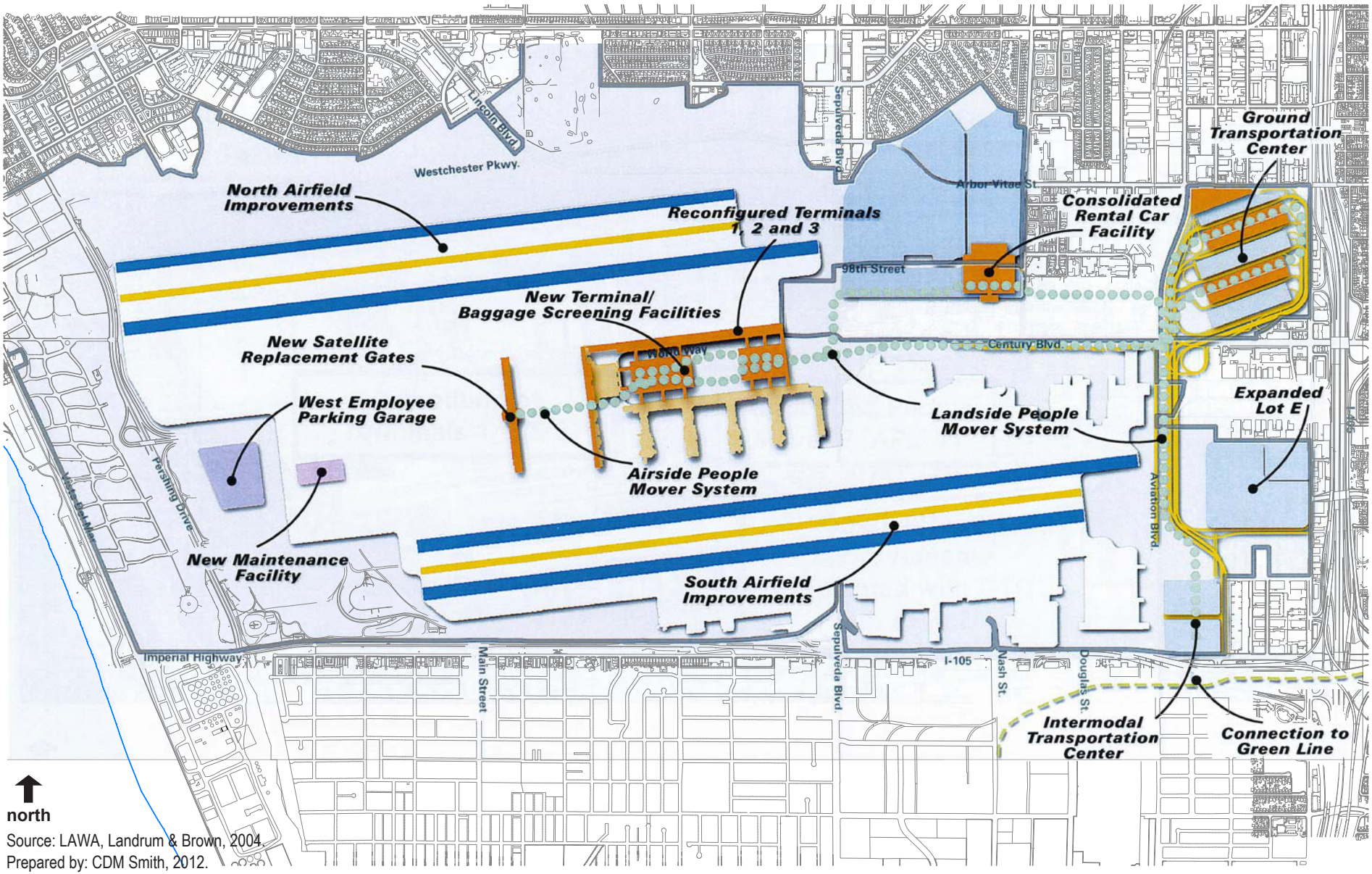
### 2.1.1.1 Approved LAX Master Plan (Alternative D)

The approved LAX Master Plan ("Alternative D") was formulated following the events of September 11, 2001 and integrated into the CEQA review process for the LAX Master Plan as the "Enhanced Safety and Security Plan." Under the approved LAX Master Plan, Runway 6R/24L would be moved 340 feet south, a new centerfield taxiway would be constructed, Runway 6L/24R would be extended, Taxiway E and Taxilane D would be relocated and improved, and service roads would be constructed.

Related terminal improvements include demolition of the concourses/gates at Terminals 1, 2, and 3 and replacement with a new linear concourse, elimination of the northernmost gates at Tom Bradley International Terminal (TBIT), and replacement of the existing Central Terminal Area (CTA) parking structures with new passenger processing terminals. Key ground access improvements include closure of the CTA to private vehicles; development of a Ground Transportation Center (GTC) at Manchester Square, an Intermodal Transportation Center (ITC) at the area referred to as Continental City with a pedestrian bridge to the existing Metro Green Line Station, and a Consolidated Rental Car Facility (CONRAC) at Lot C; development of two landside Automated People Mover (APM) systems to link the ITC, CONRAC, and CTA and link the GTC and CTA; construction of new on-airport roads east of and parallel to Aviation Boulevard; and construction of a West Employee Parking facility. There would be no modifications to the Argo Drainage Channel (other than those required under existing conditions to meet federal Runway Safety Area (RSA) requirements) or Lincoln Boulevard under Alternative D. The approved LAX Master Plan, Alternative D, is alternative is illustrated in **Figure 2-1**.

For the purposes of analysis in the SPAS EIR, Alternative 3 is the CEQA "No Project" Alternative and represents what would reasonably be expected to occur in the foreseeable future if the LAX Master Plan (i.e., "Alternative D") and all of the LAX Master Plan improvements, including the Yellow Light Projects, were implemented as originally envisioned. Analysis of Alternative 3 allows decision-makers and the public to compare the impacts of implementing alternatives to the LAX Master Plan with the impacts that would occur under the LAX Master Plan.

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




Source: LAWA, Landrum & Brown, 2004.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Approved LAX Master Plan | Figure 2-1 |
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### 2.1.1.2 LAX Master Plan Stipulated Settlement and Yellow Light Projects

As described in Chapter 1, *Introduction,* both the LAX Master Plan Stipulated Settlement and Section 7.H of the LAX Specific Plan require LAWA to undertake a SPAS during the LAX Master Plan implementation process. The Stipulated Settlement defines the nature, scope, timing, and procedural elements of the LAX SPAS. Pursuant to the Stipulated Settlement, LAWA has discretion to determine the appropriate methodology to conduct the LAX SPAS.

A key component of SPAS is the development and evaluation of alternatives to the Yellow Light Projects. The Yellow Light Projects include the following:

- GTC;
- APM 2 from the GTC to the CTA;
- Demolition of CTA Terminals 1, 2, and 3;
- North Runway re-configuration, including center taxiways; and
- On-site road improvements associated with the GTC and APM 2.

**Figure 2-2** identifies the location of these Yellow Light Project areas.

Concurrent with the SPAS Process, and consistent with LAX Specific Plan Compliance Review procedures, LAWA may continue to develop projects that are not Yellow Light Projects (e.g., the South Airfield Improvement Project, the Bradley West Project, the Crossfield Taxiway Project, and the Midfield Satellite Project), while SPAS is ongoing.

Many of the LAX Master Plan projects are interdependent on one another, meaning each component project of the LAX Master Plan is only a part of a whole system of facilities that together make up LAX. Some of the Yellow Light Projects were designed to mitigate existing or future impacts from the operation of LAX. For example, the GTC and its associated access roads and APM system would provide mitigation for traffic impacts on Century and Sepulveda Boulevards as well as in the CTA while providing a critical ground access and curbside function for the airport. LAWA has considered these interdependencies in developing alternatives to the Yellow Light Project.

### 2.1.1.3 Alternatives Development Process

LAWA initiated a public outreach process in 2006 to gain input from community members, airport neighbors, and other stakeholders on the development of alternatives to the Yellow Light Projects. Chapter 4, *SPAS Community/Advisory Committee Input*, explains the public outreach and community meeting process in more detail.

LAWA circulated a Notice of Preparation (NOP) to prepare the SPAS EIR in 2008. The 2008 NOP included several initial alternative options to the Yellow Light Projects in the approved LAX Master Plan. Following circulation of the NOP in 2008, LAWA reconsidered and refined the options for potential alternative designs, technologies, and configurations to be evaluated in the SPAS Report and SPAS EIR. LAWA's community outreach and Advisory Committee meeting processes and the SPAS EIR scoping meetings in 2008 contributed to the refinement of the alternatives to the Yellow Light Projects. LAWA issued a Revised NOP in October 2010, which identified the changes to the Yellow Light Project options. These Yellow Light Project options were further refined to the nine Alternative Projects evaluated in this SPAS Report and in the SPAS EIR. Chapter 5, *SPAS Concept Development Process*, describes the concept development process from the initial phases through identification of the nine Alternative Projects.

# 2.2 Project Objectives

The project is to complete a Specific Plan Amendment Study (SPAS) that fulfills Section 7.H of the LAX Specific Plan consistent with the definition of the SPAS set forth in the LAX Master Plan Stipulated Settlement. The objectives associated with completion of the SPAS Process are described below.

## 1. Provide North Airfield Improvements that Support the Safe and Efficient Movement of Aircraft at LAX

The runways and taxiways within the north airfield at LAX were designed and constructed in the late 1960s. The commercial aircraft fleet in operation at that time, and used as the basis for designing the airfield geometrics (i.e., runway/taxiway widths, lengths, slopes, separation distances, dimensions for safety area setbacks and clearances, etc.), consisted of aircraft types that were substantially smaller and lighter than today's commercial aircraft, and had substantially different performance characteristics (i.e., braking, turn radius, etc.). For example, the commercial aircraft fleet in operation in the late 1960s and 1970s was dominated by aircraft such as the Boeing 727. The Boeing 747 was introduced into commercial service in the early 1970s and soon became one of the most popular aircraft for international and long-distance flights, particularly at LAX. In October 2008, scheduled flight operations of the Airbus A380 began at LAX. Provided in **Table 2-1** below is comparison of the size and weight of the three subject aircraft.

**Table 2-1**

**Aircraft Size Comparison**

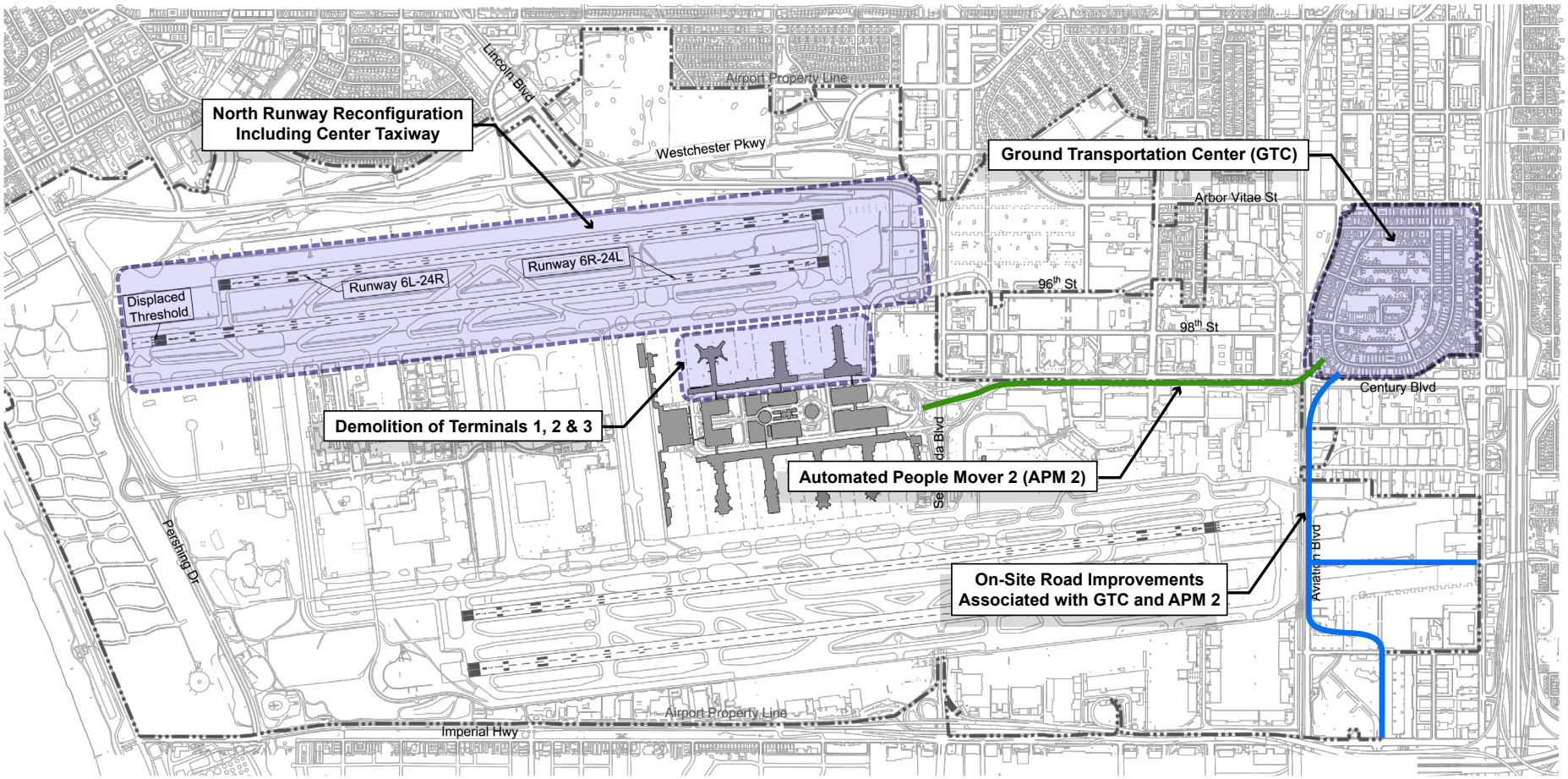
| | Boeing 727 | Boeing 747-400 | Airbus A380 |
|---|---|---|---|
| Wingspan | 108' | 195' | 261' |
| Length | 153' | 231' | 239' |
| Tail Height | 34' | 64' | 79' |
| Maximum Takeoff Weight | 200,000 lbs | 833,000 lbs | 1,235,000 lbs |

Source: Boeing, 2012 and Airbus, 2012. Boeing, Commercial Airplanes 727 Specifications, Available: http://www.boeing.com/commercial/727family/product.html, accessed January 2012; Boeing, Commercial Airplanes 747 Specifications, Available: http://www.boeing.com/commercial/747family/pf/pf_domestic_prod.html, accessed January 2012; Airbus, A380 Dimensions and Key Data, Available: http://www.airbus.com/aircraftfamilies/passengeraircraft/a380family/a380-800/specifications, accessed January 2012.

In addition to the overall growth in the size of airplane types over the past several decades, the wingspans of many current aircraft types, such as the Boeing 737, have increased with the addition of winglets (i.e., wingtip extensions that reduce induced drag, and increase fuel efficiency), which typically add approximately 15+/- feet to the wingspan.

Problems associated with the outdated airfield design include, but are not limited to, the following:

- LAX does not have an airfield, in either the north complex or the south complex, that is fully designed for the largest aircraft types currently in service (i.e., Aircraft Design Group (ADG) V aircraft, such as the Boeing 747-400, and ADG VI aircraft, such as the Airbus A380).
- The north airfield configuration requires nonstandard operating procedures, which are not optimal for safety and increase aircraft delay.




north

Source: LAX Specific Plan, 2004, as amended 2007, and LAX Stipulated Settlement, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Yellow Light Project Areas | Figure 2-2 |
|---|---|---|

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- The primary north airfield departure runway (6R/24L) is too short for certain larger aircraft (i.e., fully-loaded Boeing 747-400) on long-haul flights, requiring those aircraft to taxi to the south airfield, resulting in less efficient operations and disproportionate environmental impacts.
- The outdated airfield design creates a situation where aircraft are at increased risk of hazards. Those hazards include potential collisions with other aircraft, such as when a landing aircraft might move in the path of a departing aircraft (incursion).[4] Other potential hazards include, but are not limited to, insufficient side-by-side passing clearances between certain types of aircraft arriving/departing on runways and aircraft on nearby taxiways. Such hazards contribute to the potential for conflicts between taxiing aircraft and ground vehicles on runways, taxiways, and nearby service roads.
- With one exception, the north airfield configuration does not comply with FAA RSA requirements.
- The north airfield high-speed taxiways are not in compliance with FAA Engineering Brief No. 75.
- The north airfield does not provide sufficient areas at the end of the runways for holding arriving flights and sequencing departing aircraft.
- The existing Runway Protection Zone (RPZ) associated with Runway 6L/24R includes residential uses.

In identifying and evaluating alternatives to the north airfield improvements called for in the LAX Master Plan, LAWA is seeking to provide north airfield improvements that support the safe and efficient movement of aircraft at LAX; specifically, such improvements:

- Are consistent with FAA design standards for the largest aircraft types currently in service and anticipated for the future (ADG V and VI aircraft) for all weather conditions;
- Minimize modifications of standards, waivers, or operational restrictions, all of which reduce airfield efficiency and level of service;
- Reduce the potential for airfield hazards, including incursions, and enhance the overall safety of airfield operations through runway and taxiway design;
- Accommodate a greater percentage of departing aircraft, thereby increasing airfield efficiency;
- Provide sufficient areas at the ends of the runways for holding arriving flights and sequencing departing aircraft; and
- Minimize or eliminate the extent to which Runway Protection Zones overlay residential areas.

## 2. Improve the Ground Access System at LAX to Better Accommodate Airport-Related Traffic, Especially as Related to the Central Terminal Area

Travelers, visitors, employees, vendors, and others utilizing the commercial passenger terminal at LAX, defined by the CTA, have various ground access options including private vehicles, transportation service providers (i.e., taxis, shuttles, limousines, etc.), and public transit. Ground access within the CTA, where departing and arriving passengers are dropped off and picked up at curbside or can park their vehicles, is provided by an upper-level roadway and a lower-level roadway that loop around the center of the CTA and connect with surface streets on the east side of the CTA. The subject roadway system poses a number of concerns relative to traffic flows including, but not limited to, the following:

- CTA roadway system design currently creates queuing, weaving, and conflict points at various locations that impede traffic flow;
- During peak travel times, inbound airport traffic currently extends out of the CTA roadways onto public streets and may worsen as airport activity returns and grows;
- Curbside demand is unevenly distributed, especially during peak periods, creating concentrations of passengers that are not accommodated by the existing curbside system;

[4] A runway incursion is defined by FAA as "Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft."

- As cumulative regional traffic increases, there will be less time certainty for airport users without easy access to the airport from the regional transit system; and
- The roadway system is not designed to efficiently accommodate security screening of vehicles entering the CTA.

In identifying and evaluating alternatives to the ground access system delineated in the LAX Master Plan, particularly as related to the related Yellow Light Projects, LAWA is seeking to improve the ground access system at LAX to better accommodate airport-related traffic, especially within the CTA. In particular, LAWA is seeking to:

- Design CTA roadway segments and curbside areas that reduce traffic "bottlenecks" and congestion;
- Reduce the volume of private vehicles accessing the CTA by reconfiguring and developing airport facilities that allow for alternative drop off and pick up of passengers outside the CTA;
- Reduce roadway congestion and improve performance and reliability of the airport ground transportation system by providing a grade-separated/dedicated transportation system that connects airport and transit facilities to the CTA; and
- Integrate LAWA's ground access system improvements with regional transit facilities nearby, including the recently approved Metro Crenshaw/LAX Transit Corridor and Station.

## 3. Maintain LAX's Position as the Premier International Gateway in Supporting and Advancing the Economic Growth and Vitality of the Los Angeles Region

LAX serves a key role in the region's economy. This is particularly true relative to LAX's position as the international gateway for the western United States. According to a study completed in 2007 by the Los Angeles Economic Development Corporation (LAEDC), over the course of 2006 an average transoceanic flight traveling round-trip from LAX everyday added $623 million in economic output and sustained 3,120 direct and indirect jobs in Southern California with $156 million in wages.[5] Given the continued growth in, and reliance on, new large aircraft such as the Airbus A380 by major airlines operating on those long-distance international routes, it is important that LAX be able to effectively accommodate those aircraft.

LAX is a major employer on both a local level and a regional level. According to the LAX Master Plan Final EIS/EIR, on-airport employment at LAX provided almost 59,000 jobs and, on a larger-scale, LAX-related regional employment provided over 400,000 jobs and $60 billion in economic output.[6]

In addition to being a major provider of permanent positions at the airport, LAX is also a major provider of construction jobs, particularly over the last several years through the economic recession. According to an economic impact analysis completed by the LAEDC in April 2011, construction of the airfield improvements (i.e., Crossfield Taxiway Project), terminal improvements (i.e., Bradley West Project), and other related improvement underway at the time, will create 39,900 jobs over the course of the program, or an average of 5,500 to 6,000 jobs per year. Of these, between 3,500 and 4,000 jobs will be in construction industries.[7]

It is LAWA's desire to provide improvements that further enable LAX to support and advance the economic growth and vitality of the Los Angeles region.

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5 Los Angeles Economic Development Corporation, The Economic Activity Development on Overseas Flights at LAX, August 2007.

6 City of Los Angeles, Final Environmental Impact Report for Los Angeles International Airport (LAX), Tables F4.4.1-1, F4.4.1-2, and F4.4.1-3, April 2004.

7 Los Angeles Economic Development Corporation, Economic Impact Analysis - LAX Airfield and Terminal Construction Projects, 2011.

### 4. Plan Improvements That Do Not Result in More Than 153 Passenger Gates at 78.9 MAP

In identifying and evaluating alternatives to the demolition of Terminals 1, 2, and 3, LAWA is seeking to maintain consistency with the LAX Master Plan design for a total of 153 passenger gates, which was based on a future passenger activity level of 78.9 MAP at LAX in 2015. The need to demolish portions of Terminals 1, 2, and 3 is due to the reconfiguration of the north airfield as contemplated in the LAX Master Plan. As described in Section 2.1.1.2, the demolition of those terminals and the reconfiguration of the north airfield are both Yellow Light Projects being addressed in SPAS. The formulation of alternatives for reconfiguration of the north airfield includes various options for moving runways and associated taxiways northward or southward, each of which has implications relative to Terminals 1, 2, and 3. The formulation of potential alternatives to the demolition of Terminals 1, 2, and 3 is substantially influenced by the alternatives for the north airfield reconfiguration. While the extent to which terminals are reconfigured under each terminal alternative will vary depending on which airfield reconfiguration alternative it is linked to, LAWA is seeking to maintain consistency between all terminal alternatives such that none of them results in more than 153 passenger gates at the projected passenger activity level of 78.9 MAP.

### 5. Enhance Safety and Security at LAX

During the preparation of the LAX Master Plan, which began in the 1990s, Alternative D was formulated following the events of September 11, 2001 and integrated into the CEQA review process for the LAX Master Plan as the "Enhanced Safety and Security Plan." In now identifying and evaluating alternatives to the Yellow Light Projects, which are key elements of the LAX Master Plan, LAWA is seeking to maintain the ability of the LAX Master Plan, if and as modified by the outcome of the SPAS Process, to enhance safety and security at LAX.

### 6. Minimize Environmental Impacts on Surrounding Communities

LAX is a major international airport located within a very urbanized area, with established communities situated directly to the north, east, and south. These communities are affected to varying degrees by existing operations at the airport. Recognizing that these existing effects to the surrounding communities may change based on the alternatives being considered in SPAS, LAWA seeks to identify and apply ways to avoid, reduce, or minimize environmental impacts on surrounding communities.

### 7. Produce an Improvement Program that is Efficient, Sustainable, Feasible, and Fiscally Responsible

The nature and scope of improvements associated with the Yellow Light Projects are substantial. Each of those projects represents a major undertaking, requiring substantial funding; considerable planning, engineering, and design; and major construction activities. The costs for each of these major improvement projects would be financed primarily by Airport Improvement Program grants, Passenger Facility Charges (PFCs), and bond sales, all of which are subject to federal requirements regarding expenditure of airport funds, and which will also be utilized to finance other airport improvements outside of the scope of SPAS. The ability to successfully fund such improvements is, to a large extent, dependent on whether certain airport activity levels are reached. Additionally, the types of improvements associated with the Yellow Light Projects and the alternatives thereto represent major long-term investments in the airport's infrastructure that must be efficient and sustainable for many years. The construction of these major improvements poses the potential for major disruptions to existing airport operations. In identifying and evaluating alternatives to those Yellow Light Projects, LAWA is seeking to produce an improvement program that is efficient, sustainable, feasible, and fiscally responsible.

## 2.3 Community-Based Approach

LAWA initiated a community-based planning process in 2006. This process included a broad outreach to affected stakeholders to ensure their involvement in the planning for potential alternative options. In March 2006, in compliance with Section V.J of the Stipulated Settlement, LAWA established the LAX

SPAS Advisory Committee consisting of representatives of the former Petitioners (County of Los Angeles, City of El Segundo, City of Inglewood, City of Culver City, and ARSAC). Representatives from federal and state elected officials, Los Angeles City Council and mayor's offices, and LAWA staff also attended. Ongoing meetings of the LAX SPAS Advisory Committee have been held since its inception. LAWA held six sets of community meetings in 2006 as part of the community-based planning process. This process included a broad outreach to affected stakeholders to ensure their involvement in the planning for potential alternative projects. Chapter 4, *SPAS Community/Advisory Committee Input*, of this report describes the community meetings in more detail and Appendix D, *Community/Advisory Committee Meeting Materials*, includes agendas, presentations, and other materials from the meetings.

As discussed in Chapter 4, the public meetings included presentations to the public and the opportunity for small, "break-out" group discussions. In addition, all LAX Master Plan-related reports and information were made available on the LAX website (ourlax.org), including all public and scoping meeting presentations and public comments; all environmental analysis documents; public information brochures of the alternatives development process; information about ongoing improvement projects at the airport; and technical studies completed as part of the SPAS Process. Similarly, Advisory Committee members were provided with the opportunity to evaluate concepts being studied by LAWA, and to propose concepts for consideration. As a result of this outreach, LAWA incorporated public and Advisory Committee input in the alternatives development process and in the formulation of alternatives to the Yellow Light Projects. LAWA will provide additional opportunity for the public to provide input throughout the SPAS EIR process.

## 2.4 Specific Plan Amendments

Development of any of the potential SPAS alternatives would require various amendments to the LAX Specific Plan. These amendments would consist of new LAX Specific Plan provisions as well as administrative amendments arising from the physical and operational configurations associated with the SPAS alternatives that would be necessary from a land use and zoning perspective. Chapter 7, *LAX Specific Plan Amendments*, identifies a summary of the anticipated amendments that plan for the modernization and improvement of LAX in a manner that is designed for a practical capacity of 78.9 MAP while enhancing safety and security, minimizing environmental impacts on surrounding communities, and creating conditions that encourage airlines to go to other airports in the region, particularly those owned and operated by LAWA. The exact language and scope of the amendments would be determined during the land use entitlement process for SPAS.

# 3. PROBLEMS THE YELLOW LIGHT PROJECTS WERE DESIGNED TO ADDRESS AND SPAS PLANNING GOALS

The SPAS focuses on alternative designs, technologies, and configurations for the five Yellow Light Projects[8] (identified in Figure 2-2), including:

- Development of the Ground Transportation Center (GTC), including the baggage tunnel, associated structures, and equipment;
- Construction of the Automated People Mover (APM) 2 from the GTC to the Central Terminal Area (CTA), including its stations and related facilities and equipment;
- Demolition of CTA Terminals 1, 2, and 3;
- Reconfiguration of the north airfield as contemplated in the LAX Master Plan, including center taxiways; and
- Improvements to on-site roadways associated with the GTC and APM 2, above.

The sections below describe the Yellow Light Projects as identified in the approved LAX Master Plan, identify the problems the Yellow Light Projects were designed to address, and outline the planning goals of the alternatives to the Yellow Light Projects. The development of alternatives to the Yellow Light Projects is described further in Chapter 5, *SPAS Concept Development Process*, of this report.

## 3.1 North Airfield Reconfiguration

### 3.1.1 Existing Conditions

There are currently two runways in the north airfield of LAX, Runways 6L/24R and 6R/24L. Runway 6L/24R is primarily used for arrivals and Runway 6R/24L is primarily used for departures. Runway 6R/24L, the inboard runway, is 10,285 feet long and 150 feet wide. Aircraft access to and from Runway 6R/24L is provided by a parallel taxiway located 400 feet south of Runway 6R/24L (Taxiway E), and a series of connecting taxiways between the runway and the parallel taxiway. Outboard Runway 6L/24R, located approximately 700 feet to the north of the Runway 6R/24L centerline is 8,925 feet long and 150 feet wide. Aircraft access to and from Runway 6L/24R is provided by a series of connecting taxiways. At this time, there is no parallel taxiway associated with Runway 6L/24R.

The current north airfield was designed in the late 1960s to accommodate the fleet of aircraft in use at that time. The largest of these older aircraft are known as Aircraft Design Group (ADG) IV aircraft and include the Boeing 727. Older aircraft types are smaller than the fleet of aircraft currently using the north airfield, such as the Boeing 747-400 and the Airbus A340 (which are ADG V aircraft). ADG V aircraft are defined by certain characteristics, such as wingspan, tail height, and weight. Scheduled flight operations of the even larger ADG VI aircraft, which include the Airbus A380 and the Boeing B747-8, began in 2008. **Table 3-1** provides a comparison of the size and weight of three aircraft in the three different ADGs.

[8] Section 7.H of the LAX Specific Plan as approved in December 2004 also included the West Satellite Concourse and associated APM segments as Yellow Light Projects; these improvements were later removed through a Specific Plan Amendment and are no longer considered to be Yellow Light Projects, consistent with Section V.D.1 of the Stipulated Settlement.

**Table 3-1**

**Aircraft Size Comparison**

| | Boeing 727 | Boeing 747-400 | Airbus A380 |
|---|---|---|---|
| Wingspan | 108' | 195' | 261' |
| Length | 153' | 231' | 239' |
| Tail Height | 34' | 64' | 79' |
| Maximum Takeoff Weight | 200,000 lbs | 833,000 lbs | 1,235,000 lbs |

Source: Boeing, 2012 and Airbus, 2012. Boeing, Commercial Airplanes 727 Specifications, Available: http://www.boeing.com/commercial/727family/product.html, accessed January 2012; Boeing, Commercial Airplanes 747 Specifications, Available: http://www.boeing.com/commercial/747family/pf/ pf_domestic_prod.html, accessed January 2012; Airbus, A380 Dimensions and Key Data, Available: http://www.airbus.com/aircraftfamilies/ passengeraircraft/a380family/a380-800/specifications, accessed January 2012.

## 3.1.2 Approved LAX Master Plan

Reconfiguration of the north airfield as approved in the LAX Master Plan would address airport operational issues created by the existing configuration of the north airfield, reconfigure the north airfield to increase space between the runways, provide a Modified ADG VI airfield, increase operational efficiency, and enhance safety. The primary airfield improvement related to reconfiguration of the north airfield as approved in the LAX Master Plan is the southerly relocation of Runway 6R/24L, along with the addition of a new centerfield taxiway, extension of Runway 6L/24R, and relocation and improvements to Taxiway E and Taxilane D. Specifically, the north airfield reconfiguration contained in the LAX Master Plan consists of the following components:

- Move Runway 6R/24L southward by 340 feet;
- Construct a 100-foot-wide centerfield taxiway between Runways 6L/24R and 6R/24L, with a separation distance of 520 feet from each runway to enhance safety and reduce incursions and other airfield hazards, while providing for ADG VI separation distances, and provide exit taxiways from Runway 6L/24R to the centerfield taxiway, taxiways from the centerfield taxiway to and across Runway 6R/24L, and other related airfield taxiway improvements;
- Extend Runway 6L/24R 1,495 feet west and Runway 6R/24L 135 feet west and 1,280 feet east to maximize runway lengths and reduce the need for large aircraft to taxi from the north airfield to the south airfield;
- Establish displaced threshold on Runway 6L and dual displaced thresholds on Runway 6R/24L to meet Runway Safety Area (RSA) requirements; and
- Redesign, relocate, extend, and/or widen existing Taxiway E and Taxilane D as follows:
  - Taxiway E: Relocate varying distances (ranging from 290 to 340 feet) south to meet ADG V separation distances; extend 980 feet east to support easterly extension of Runway 6R/24L; and widen to 100 feet to meet ADG VI standards in place when LAX Master Plan Alternative D was proposed.
  - Taxilane D: Relocate varying distances (ranging from 355 to 409 feet) south to meet ADG VI separation distances; extend 90 feet east to support easterly extension of Runway 6R/24L and 5,145 feet west to provide for dual full-length taxiways in the north airfield; and widen to 100 feet to meet ADG VI standards in place when LAX Master Plan Alternative D was proposed.

### 3.1.3 Problems the North Airfield Reconfiguration Was Designed to Address

There are several problems associated with the existing outdated north airfield design and configuration. As described above, the runways and taxiways were initially designed to accommodate the commercial aircraft fleet in operation in the late 1960s. Thus, the airfield geometrics (i.e., runway/taxiway widths, lengths, slopes, separation distances, dimensions for safety area setbacks and clearances, etc.) were based on this older aircraft, which consisted of aircraft types that were substantially smaller and lighter than current day commercial aircraft. Under existing conditions, the north airfield does not meet FAA standards for ADG V and VI aircraft under any weather conditions. Failure to meet these standards results in restricted operations when ADG V or VI aircraft utilize the north airfield, impacting operations of all aircraft on the north airfield. Restricted operating procedures increase operational delays and aircraft-related emissions and adversely affect passenger convenience. Additionally, without a centerline taxiway and other airfield improvements, there is an increased risk of incursions and collisions. Further, Runway 24L is not long enough to accommodate some fully-loaded departing aircraft, resulting in higher utilization of the south airfield by these aircraft.

The north airfield configuration set forth in the LAX Master Plan was designed to accommodate the largest aircraft types currently in service and anticipated for the future (ADG V and VI aircraft), reduce the risk of runway incursions, enhance the safety and efficiency of aircraft operations at LAX, and provide a better balance in heavy aircraft operations between the north airfield and the south airfield. The north airfield configuration set forth in the LAX Master Plan would achieve these goals by relocating Runway 6R/24L 340 feet to the south of the existing runway centerline in order to accommodate a 75-foot-wide centerfield taxiway between Runway 6L/24R and Runway 6R/24L with 520 feet separation between each of the runway centerlines and the new taxiway centerline. The north airfield design set forth in the LAX Master Plan would provide for a Modified ADG VI airfield. ADG VI standards are designed to accommodate the new generation of wide-bodied airplanes that began to operate at LAX in 2008. These aircraft, referred to as new large aircraft or NLA, have significantly wider wingspans, taller tail sections, and longer fuselages. In the absence of an airfield that meets ADG VI aircraft standards, operational restrictions are imposed to accommodate NLA at LAX. These restrictions affect the operation of all aircraft at the airport.

Specific problems associated with the outdated airfield design include, but are not limited to, the following:

- Under existing conditions, the airport does not have an airfield, in either the north complex or the south complex, which is fully designed for the largest aircraft types currently in service (i.e., ADG V aircraft, such as the Boeing 747-400, and ADG VI, such as the Airbus A380).
- The north airfield configuration requires nonstandard operating procedures, which are not optimal for safety and increase aircraft delay.
- The primary north airfield departure runway (6R/24L) is too short for certain larger aircraft (e.g., fully-loaded Boeing 747-400) on long-haul flights, requiring those aircraft to taxi to the south airfield, resulting in less efficient operations and disproportionate environmental impacts.
- The outdated airfield design creates a situation where aircraft are at increased risk to hazards. Those hazards include potential collisions with other aircraft, such as when a landing aircraft might move into the path of a departing aircraft (incursion)[9]. Other potential hazards include, but are not limited to, insufficient side-by-side passing clearances between certain types of aircraft arriving/departing on runways and aircraft on nearby taxiways. Such hazards contribute to the potential for conflicts between taxiing aircraft and ground vehicles on runways, taxiways, and nearby service roads.
- With one exception, the north airfield configuration does not comply with FAA RSA requirements.

[9] A runway incursion is defined by FAA as "Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft."

- The north airfield high-speed taxiways are not in compliance with FAA Engineering Brief No. 75.
- The north airfield does not provide sufficient areas at the ends of the runways for holding arriving flights and sequencing departing aircraft.
- The existing Runway Protection Zone (RPZ) associated with Runway 6L/24R includes residential uses.

### 3.1.4 Planning Goals for the North Airfield Reconfiguration Alternatives

In identifying and evaluating alternatives to the north airfield improvements as approved in the LAX Master Plan, LAWA is seeking to provide north airfield improvements that support the safe and efficient movement of aircraft at LAX; specifically, such improvements that:

- Are consistent with FAA design standards for the largest aircraft types currently in service and anticipated for the future (ADG V and VI aircraft) for all weather conditions;
- Minimize modifications of standards, waivers, or operational restrictions, all of which reduce airfield efficiency and level of service;
- Reduce the potential for airfield hazards, including incursions, and enhance the overall safety of airfield operations through runway and taxiway design;
- Accommodate a greater percentage of departing aircraft, thereby increasing airfield efficiency;
- Provide sufficient areas at the ends of the runways for holding arriving flights and sequencing departing aircraft; and
- Minimize or eliminate the extent to which RPZs overlay residential areas.

## 3.2 Terminal Reconfiguration

### 3.2.1 Existing Conditions

Terminals 1 through 3 are located on the north side of the CTA. The three terminals are configured in a pier formation and consist of aircraft gates as well as over one million square feet of terminal and concourse space including passenger processing, passenger holdroom, concessions, airline operations, and administrative space.

### 3.2.2 Approved LAX Master Plan

Under the LAX Master Plan, portions of Terminals 1, 2, and 3 would be demolished in order to provide room for the relocation of Runway 6R/24L 340 feet to the south of the existing runway centerline. This is necessary because the building lines and the aircraft parking limit lines (APLL) under the LAX Master Plan runway reconfiguration overlap portions of the concourse areas for Terminals 1 through 3. The existing terminal configuration would be replaced by a linear concourse with a continuous line of approximately 15 contact gates. The proposed linear concourse would consist of three levels. The lower level of the concourse would include a combination of airline operations space, baggage transfer belts from the new processors, and storage for ramp service equipment and vehicles. The second level would be equipped with horizontal moving walks to connect holdrooms, concessions, and passenger convenience facilities. The partial third level would contain a sterile corridor to facilitate the movement of international arriving passengers from the aircraft to the new Federal Inspection Services (FIS) facilities that would be developed in the terminal buildings. Existing parking structures within the CTA would be demolished and replaced with four new passenger processers located in the interior of the CTA (where the existing parking garages are currently located). Under the LAX Specific Plan and Stipulated Settlement, only the demolition of Terminals 1 through 3 is a Yellow Light Project.

### 3.2.3 Problems Terminal Reconfiguration Was Designed to Address

As noted above, under the LAX Master Plan, substantial portions of Terminals 1, 2, and 3, notably the piers/concourses, would be demolished in order to provide room for the relocation of Runway 6R/24L 340 feet to the south of the existing runway centerline. The existing terminals would be replaced by a linear concourse that would provide aircraft gates and passenger holdrooms but no passenger processing capacity. Under the LAX Master Plan, the passenger processing capacity provided by existing Terminals 1, 2, and 3 would be replaced by new passenger processing facilities in the interior of the CTA (where the existing parking garages are currently located).

### 3.2.4 Planning Goals for the Terminal Reconfiguration Alternatives

In identifying and evaluating alternatives to the demolition of Terminals 1, 2, and 3, LAWA is seeking to maintain consistency with the LAX Master Plan design for a total of 153 passenger gates, which was based on a future passenger activity level of 78.9 million annual passengers (MAP) at LAX in 2015. The need to demolish portions of Terminals 1, 2, and 3 is due to the reconfiguration of the north airfield as contemplated in the LAX Master Plan. The demolition of those terminals and the reconfiguration of the north airfield are both Yellow Light Projects being addressed in SPAS. The formulation of alternatives for reconfiguration of the north airfield includes various options for moving runways and associated taxiways northward or southward, each of which has implications relative to Terminals 1, 2, and 3. The formulation of potential alternatives to the demolition of Terminals 1, 2, and 3 is substantially influenced by the alternatives for the north airfield reconfiguration. While the extent to which terminals are reconfigured under each terminal alternative will vary depending on which airfield reconfiguration alternative it is linked to, LAWA is seeking to maintain consistency between all terminal alternatives such that none of them results in more than 153 passenger gates at the projected passenger activity level of 78.9 MAP.

## 3.3 Ground Transportation Center

### 3.3.1 Existing Conditions

Under existing conditions, vehicular access to the passenger terminals, including curbside facilities that allow for the drop off and pick up of passengers, is provided within the CTA. Commercial vehicles (i.e., taxis, shuttle vans, and limousines) provide direct service to passengers within the terminal area. Vehicle access to the CTA is provided via World Way, which operates as a one-way, multi-lane, two-level rectangular loop road within the CTA with direct connections to all of the terminals. Ramps from the main access routes (i.e., Century Boulevard, Sepulveda Boulevard, and Sky Way) direct traffic onto World Way just east of Terminal 1. Parking structures located within the CTA provide close-in public parking. Security within the CTA is provided by police checkpoints, random vehicle checks, active curbside traffic enforcement, police patrols, passenger and baggage screening, employee badging, and other layered and coordinated policing techniques.

### 3.3.2 Approved LAX Master Plan

Under the LAX Master Plan, a GTC would be constructed at an area known as Manchester Square located northeast of the intersection of Aviation and Century Boulevards. Manchester Square is part of the ongoing LAX Voluntary Residential Acquisition and Relocation Program, through which much of the area has been vacated. The GTC would serve as the primary access point for all passenger drop off and pick up and for vehicle parking, thus eliminating curbside private vehicle access to the CTA. In order to connect transportation facilities to the existing terminal area, APM 2 (described below in Section 3.4) would be constructed between the GTC and CTA along Century Boulevard.

The GTC facility would be divided into two parallel passenger processing facilities, called "piers", with adjacent parking facilities consisting of three garages providing approximately 7,515 stalls, made up of both short-term and long-term parking. A commercial vehicle holding area would be provided adjacent to the GTC for staging of taxis, door-to-door vans, limousines, and other commercial vehicles.

In addition to the above aspects of the GTC Yellow Light Project, on-airport roadways would be constructed to provide access to the GTC and APM.

The following major components would be included in the GTC, as conceived in the LAX Master Plan:

- Short-term and long-term parking
- E-kiosk check-in
- Curbside interface for buses, private automobiles, taxis, limousines, etc.
- Skycap baggage check-in
- First level passenger security screening
- APM interface
- Baggage re-claim (optional for re-checked bags)
- Compressed Natural Gas (CNG) fueling station

### 3.3.3 Problems the Ground Transportation Center Was Designed to Address

Under the LAX Master Plan, the function of the GTC is to replace CTA curb front for drop off and pick up of passengers and to replace a portion of the private vehicle parking area and all of the commercial vehicle (e.g., taxis, shuttle vans, and limousines) staging area. The GTC was designed to allow closure of the CTA to private vehicle access and provide the curb front function at a location well-removed from the main terminal area to enhance security within the CTA. The GTC, in conjunction with the Intermodal Transportation Center (ITC) and other parking facilities proposed as part of the LAX Master Plan, would also provide replacement parking for the existing parking that would be eliminated under the LAX Master Plan, such as in the CTA and Parking Lots C and D.

Travelers, visitors, employees, vendors, and others utilizing the commercial passenger terminal at LAX, defined by the CTA, have various ground access options including private vehicles, transportation service providers (i.e., taxis, shuttles, limousines, etc.), and public transit. Ground access within the CTA, where departing and arriving passengers are dropped off and picked up at curbside or can park their vehicles, is provided by an upper-level roadway and a lower-level roadway that loop around the center of the CTA and connect with surface streets on the east side of the CTA. The subject roadway system poses a number of concerns relative to traffic flows including, but not limited to, the following:

- CTA roadway system design currently creates queuing, weaving, and conflict points at various locations that impede traffic flow;
- During peak travel times, inbound airport traffic currently extends out of the CTA roadways onto public streets and may worsen as airport activity returns and grows;
- Curbside demand is unevenly distributed, especially during peak periods, creating concentrations of passengers that are not accommodated by the existing curbside system;
- As cumulative regional traffic increases, there will be less time certainty for airport users without easy access to the airport from the regional transit system; and
- The roadway system is not designed to efficiently accommodate security screening of vehicles entering the CTA.

### 3.3.4 Planning Goals for the Ground Transportation Center Alternatives

In identifying and evaluating alternatives to the ground access system delineated in the LAX Master Plan, particularly as related to the Yellow Light Projects, LAWA is seeking to improve the ground access system at LAX to better accommodate airport-related traffic, especially within the CTA. In particular, LAWA is seeking to:

- Design CTA roadway segments and curbside areas that reduce traffic "bottlenecks" and congestion;
- Reduce the volume of private vehicles accessing the CTA by reconfiguring and developing airport facilities that allow for alternative drop off and pick up of passengers outside the CTA;
- Reduce roadway congestion and improve performance and reliability of the airport ground transportation system by providing a grade-separated/dedicated transportation system that connects airport and transit facilities to the CTA; and
- Integrate LAWA's ground access system improvements with regional transit facilities nearby, including the recently approved Metro Crenshaw/LAX Transit Corridor and Station.

## 3.4 Automated People Mover from the GTC to the CTA

### 3.4.1 Existing Conditions

APMs are fully-automated (driverless) fixed-guideway grade-separated/exclusive right-of-way transit systems. LAX is not served by an APM system under existing conditions.

### 3.4.2 Approved LAX Master Plan

Under the LAX Master Plan, the construction of APM 2 is a Yellow Light Project. APM 2 would be a non-secure elevated system connecting the GTC with the CTA via a route along the south side of Century Boulevard. Only construction of APM 2 (not APM 1) is a Yellow Light Project and subject to the SPAS planning process.

### 3.4.3 Problems the Automated People Mover (APM 2) Was Designed to Address

As described in Section 3.3.1.1, the GTC Yellow Light Project is designed to separate commercial and private vehicle facilities and access from the CTA. With the construction and operation of the GTC away from the CTA, a transportation system is necessary to transport people to and from the terminals. Under the LAX Master Plan, the function of APM 2 is to provide a connection between the planned GTC and the CTA.

### 3.4.4 Planning Goals for the Automated People Mover from the GTC to the CTA

The APM 2 is part of the overall ground access system delineated in the LAX Master Plan. Please see Section 3.3.4 above regarding the planning goals LAWA is seeking to achieve with respect to the ground access system at LAX to better accommodate airport-related traffic, especially within the CTA.

# 3.5 On-Site Road Improvements Associated with the GTC and APM 2

## 3.5.1 Existing Conditions

The CTA curbside and roadway system consists of a two-level roadway; the upper level is dedicated to departing passenger activities, and the lower level is primarily dedicated to arriving passenger activities. The CTA roadway network provides access to the airport's CTA public parking garages, which are intended to accommodate the short-term and daily parking customers and employees. The two-level on-airport curbside and roadway network is accessed from the following three off-airport roadways:

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

Each of these roadways provides vehicular access to both the departures (upper) level or the arrivals (lower) level curbsides and roadways. On-airport access from the departures level to the arrivals level is provided via a recirculation ramp located at the eastern end of the CTA and a ramp at the western end of Center Way, connecting to West Way. Access from the arrivals level to the departures level is provided via the ramp at the western end of Center Way, connecting to West Way (upper level).

There are currently no on-airport roads in the portion of the airport east of Aviation Boulevard where the on-site road improvements are located under the LAX Master Plan.

## 3.5.2 Approved LAX Master Plan

Under the approved LAX Master Plan, on-site roadway system improvements would be necessary in relation to the GTC and APM 2. These improvements include developing a new roadway system at the east end of the airport to provide improved access to the GTC. Specifically, new and improved roadways would provide connections to the GTC, ITC, and APM 2.

## 3.5.3 Problems the On-Site Road Improvements Associated with the GTC and APM 2 Were Designed to Address

Given that these on-site roadway improvements are necessary to connect the GTC, ITC, and APM 2, and to accommodate changes in traffic due to the relocation of the ground access system from the CTA to an area several miles east of the CTA, they would only be necessary under the Yellow Light Project options in the approved LAX Master Plan, and not under any of the potential alternatives evaluated in the SPAS (in which the GTC and APM 2 would not be developed). Therefore, it is not necessary to develop potential alternative designs, technologies, or configurations that would provide solutions to the problems that these roadway improvement Yellow Light Projects were designed to address (including access to the GTC and APM 2).

## 3.5.4 Planning Goals for the On-Site Road Improvements Associated with the GTC and APM 2

The on-site road improvements are part of the overall ground access system delineated in the LAX Master Plan. Please see Section 3.3.4 above regarding the planning goals LAWA is seeking to achieve with respect to the ground access system at LAX to better accommodate airport-related traffic, especially within the CTA.

# 4. SPAS COMMUNITY/ADVISORY COMMITTEE INPUT

This chapter discusses the outreach and public involvement processes used in the development of the Yellow Light Project concepts, including the role of the community and LAX SPAS Advisory Committee. Section 4.2.2.1 provides a summary of the public meetings held during the concept development phase. Appendix D, *Community/Advisory Committee Meeting Materials*, includes meeting materials and public comments from the public meetings, as well as meeting materials from the Advisory Committee meetings.

## 4.1 Advisory Committee Input

In March 2006, in compliance with Section V.J of the Stipulated Settlement, LAWA established the LAX SPAS Advisory Committee. Advisory Committee members include representatives of the County of Los Angeles, City of Los Angeles, City of El Segundo, City of Culver City, City of Inglewood, and Alliance for a Regional Solution to Airport Congestion (ARSAC). Representatives from federal and state elected officials, Los Angeles City Council and mayor's offices, and LAWA staff also attended. LAWA held 24 meetings with the Advisory Committee between March 2006 and June 2012. A list of these Advisory Committee meeting dates is included in Appendix D-2, *Advisory Committee Meeting Materials*.

Advisory Committee meetings were held throughout the SPAS Process. Meetings were scheduled prior to and following public meetings that LAWA convened to seek community input on the SPAS. As representatives of distinct communities, the Advisory Committee members provided input and feedback on various aspects of the airport planning process in relation to the public meetings. LAWA has consulted with Advisory Committee members during each significant step of the SPAS Process, including prior to release of the 2008 SPAS Notice of Preparation (NOP), prior to release of the 2010 Revised SPAS NOP, and prior to release of the Draft EIR.

## 4.2 Community Involvement Process

### 4.2.1 Targeted Outreach Efforts

As part of the community outreach efforts, LAWA provided ongoing responses to inquiries for information about the planning process and concepts. LAWA provided educational information about the planning process to organizations and individuals and actively sought public feedback. Specific groups that were provided with information included the Los Angeles Area Chamber of Commerce, the Valley Industry and Commerce Association, the Central City Association of Los Angeles, Mayor Villaraigosa's Committee for Jobs and the Economy, the Los Angeles Business Council, and the Air Line Pilots Association.

### 4.2.2 Public Meetings

In addition to meeting with the Advisory Committee, LAWA implemented a community-based planning process for the SPAS Process and for the analysis and development of alternatives to the Yellow Light Projects. Between March 2006 and December 2006, LAWA held a series of six public meetings to gather feedback, input, comments, and ideas from community members. Two meetings were held each month in March, April, May, August, October, and December, and each month's meetings focused on a different topic related to the SPAS and the Yellow Light Projects. As shown in **Table 4-1**, each meeting topic was discussed both at a Wednesday evening meeting and at a Saturday morning meeting, to ensure the widest community participation.

**Table 4-1**

**LAX SPAS Community Meetings**

| Meeting No. | Meeting Subject | Date/Time/Location |
|---|---|---|
| 1 | Settlement Agreement Overview | Wednesday March 15, 6:00 p.m. – 9:00 p.m.<br>Saturday March 18, 9:00 a.m. – 12:00 p.m.<br><br>Flight Path Learning Center, Imperial Terminal, located at 6661 West Imperial Highway, Los Angeles, CA 90045 |
| 2 | Terminal Congestion and Airport Access | Wednesday April 19, 6:00 p.m. – 9:00 p.m.<br>Saturday April 22, 9:00 a.m. – 12:00 p.m.<br><br>Flight Path Learning Center, Imperial Terminal, located at 6661 West Imperial Highway, Los Angeles, CA 90045 |
| 3 | Airport Operations | Wednesday May 17, 6:00 p.m. – 9:00 p.m.<br>Saturday May 20, 9:00 a.m. – 12:00 p.m.<br><br>Flight Path Learning Center, Imperial Terminal, located at 6661 West Imperial Highway, Los Angeles, CA 90045 |
| 4 | Preliminary Access Concepts | Wednesday August 23, 6:00 p.m. – 9:00 p.m.<br>Saturday August 26, 9:00 a.m. – 12:00 p.m.<br><br>Flight Path Learning Center, Imperial Terminal, located at 6661 West Imperial Highway, Los Angeles, CA 90045 |
| 5 | Airfield Safety | Wednesday October 25, 6:00 p.m. – 9:00 p.m.<br>Saturday October 28, 9:00 a.m. – 12:00 p.m.<br><br>Proud Bird Restaurant, located at 11022 Aviation Boulevard, Los Angeles, CA 90045 |
| 6 | Preliminary North Airfield Concepts | Wednesday December 6, 6:00 p.m. – 9:00 p.m.<br>Saturday December 9, 9:00 a.m. – 12:00 p.m.<br><br>Flight Path Learning Center, Imperial Terminal, located at 6661 West Imperial Highway, Los Angeles, CA 90045 |

Source: CDM Smith, 2012.

The meetings were interactive and the formats of the meetings varied according to their objectives. For example, meetings included both formal presentations of information on the SPAS Process and existing airport conditions as well as facilitated discussions and small group break-out sessions. All public meetings were advertised by the LAWA LAX Stakeholder Liaison[10] through newspaper advertisements and email notifications. The meetings were held at the Flight Path Learning Center and at the Proud Bird Restaurant, both of which are located on airport property. Copies of the meeting materials for each meeting, including the meeting notice, welcome sheet, handouts, attendee sign-in sheets, presentation, and public comments, are included in Appendix D-1, *Community Meeting Materials*.

[10] LAWA's LAX Stakeholder Liaison Office was created to ensure public participation in the implementation of projects at LAX. The Stakeholder Liaison Office provides stakeholders with direct access to applicable information on the project implementation process and serves as a two-way conduit for communication on issues related to the modernization efforts at the airport. The Stakeholder Liaison also provides informational briefings on projects at LAX.

LAWA used public input from the meetings to develop and refine alternative options for the Yellow Light Projects.

### 4.2.2.1 Overview of LAX Specific Plan Amendment Study Community Meetings

The following provides an overview of each of the community meetings held by LAWA between March and December 2006. Each meeting followed a basic agenda including:

- 6:00 p.m. – Sign-in
- 6:15 p.m. – Presentation
- 7:00 p.m. – Working group break-out sessions/public questions
- 8:00 p.m. – Working group break-out summaries
- 8:45 p.m. – Next steps in the process
- 9:00 p.m. – Adjournment

#### March Meetings

#### Topics covered:

- Provide an update on the Stipulated Settlement finalized in February 2006 regarding the LAX Master Plan
- Explain the Green Light Projects
- Obtain ideas to potentially replace Yellow Light Projects with alternative projects that increase airport efficiency and mitigate traffic, noise, and air pollution

#### April Meetings

#### Topics covered:

- Present a project schedule update including topics for future meetings
- Share an overview of the first public meetings
- Provide some background traffic data to promote an understanding of passenger travel mode patterns
- Solicit the public's input on potential solutions, developed in conjunction with the Advisory Committee, for solving congestion inside the Central Terminal Area and accessing the airport

#### May Meetings

#### Topics covered:

Provide information on and respond to questions about:

- Aircraft operations and flight patterns
- Noise contours
- Noise mitigation efforts
- Residential soundproofing program

#### August Meetings

#### Topics covered:

- Provide background information on the public planning process
- Report on regional planning efforts

- Review LAWA's progress on Stipulated Settlement commitments
- Present preliminary ground access concepts developed in response to public and Advisory Committee input from previous meetings and solicit feedback on the preliminary concepts

## October Meetings

### Topics covered:

No planning concepts were discussed at the October meetings. The focus of the meetings was on airfield safety. Representatives from the FAA were present to provide information on runway incursions, tower operations, and airport safety concerns.

## December Meetings

### Topics covered:

- Report on regional planning efforts
- Identify north airfield planning considerations
- Present preliminary north airfield concepts and solicit feedback
- Discuss reuse opportunities for LAX Northside and the Manchester Square and Belford properties

# 5. SPAS CONCEPT DEVELOPMENT PROCESS

This chapter discusses the steps used in the development of the alternative projects, including the role of the community and SPAS Advisory Committee, in the formulation of "Yellow Light Project" replacement concepts, which ultimately led to the identification of the SPAS alternatives. Appendix E, *Concept Development Process*, provides additional materials related to the development of the airfield, terminal, and ground access components of the SPAS alternatives.

## 5.1 Early Planning

### 5.1.1 Community Involvement

In March 2006, LAWA established a SPAS Advisory Committee. Advisory Committee members included representatives of the County of Los Angeles, City of Los Angeles, City of El Segundo, City of Culver City, City of Inglewood, and Alliance for a Regional Solution to Airport Congestion (ARSAC). In addition, LAWA implemented a community-based planning process to involve members of the community and other interested parties in the development of the Yellow Light Project replacement concepts.

The outreach and community involvement processes associated with the development of the Yellow Light Project replacement concepts are detailed in Chapter 4, *SPAS Community/Advisory Committee Input*. Appendix D, *Community/Advisory Committee Meeting Materials*, includes a list of Advisory Committee and community meeting dates, meeting materials, and public comments from the community meetings.

### 5.1.2 Initial Concept Development

The initial concept development process began in 2006 and continued through 2007. As part of the community involvement process, the SPAS Advisory Committee met to discuss the development of new ground access, terminal, and airfield concepts. These concepts were subsequently presented at a series of community meetings for review and comment by the general public. Typically, the concepts for the different components (i.e., ground access, terminal, and airfield) were presented in separate public meetings. All public comments were considered by LAWA.

Based on input from the SPAS Advisory Committee and community meetings, modifications and updates to the concepts were made. At the conclusion of the initial development phase, the first iteration of the SPAS concepts was included in the Notice of Preparation (NOP) for the SPAS Draft EIR in 2008.

Community and Advisory Committee meeting materials, which include planning goals and illustrations of the initial development concepts, are located in Appendix D, *Community/Advisory Committee Meeting Materials*.

#### 5.1.2.1 Initial Ground Access Concepts

The initial ground access concepts were developed based on LAWA's experience and understanding of the local traffic conditions at and around the airport, and input from the SPAS Advisory Committee and community meetings. The SPAS Advisory Committee was assisted by the firm HNTB, providing expertise and technical support in aviation and transportation planning. The ground access concepts were the subject of LAX SPAS Community Meeting 4, held on August 23 and August 26, 2006 (see Chapter 4, *SPAS Community/Advisory Committee Input*). The considerations underlying the development of the ground access concepts, as identified in the Community Meeting 4 presentation materials provided in Appendix D-1, *Community Meeting Materials*, included:

- Reduce congestion on airport access roads
- Increase capacity on airport access roads
- Reduce congestion at Central Terminal Area (CTA) curb fronts
- Increase points of access to and from the CTA

- Establish a direct transit connection to the LAX terminals
- Create direct freeway access to the LAX terminal curbs
- Increase security on LAX terminal access roads
- Reduce air quality impacts caused by traffic congestion in and around LAX

In addition, the development of the initial ground access concepts took into consideration a potential future two-station Green Line minimum operable segment, which would extend the Green Line from the station at Aviation Boulevard and Imperial Highway to the intersection of Lincoln and Sepulveda Boulevards.

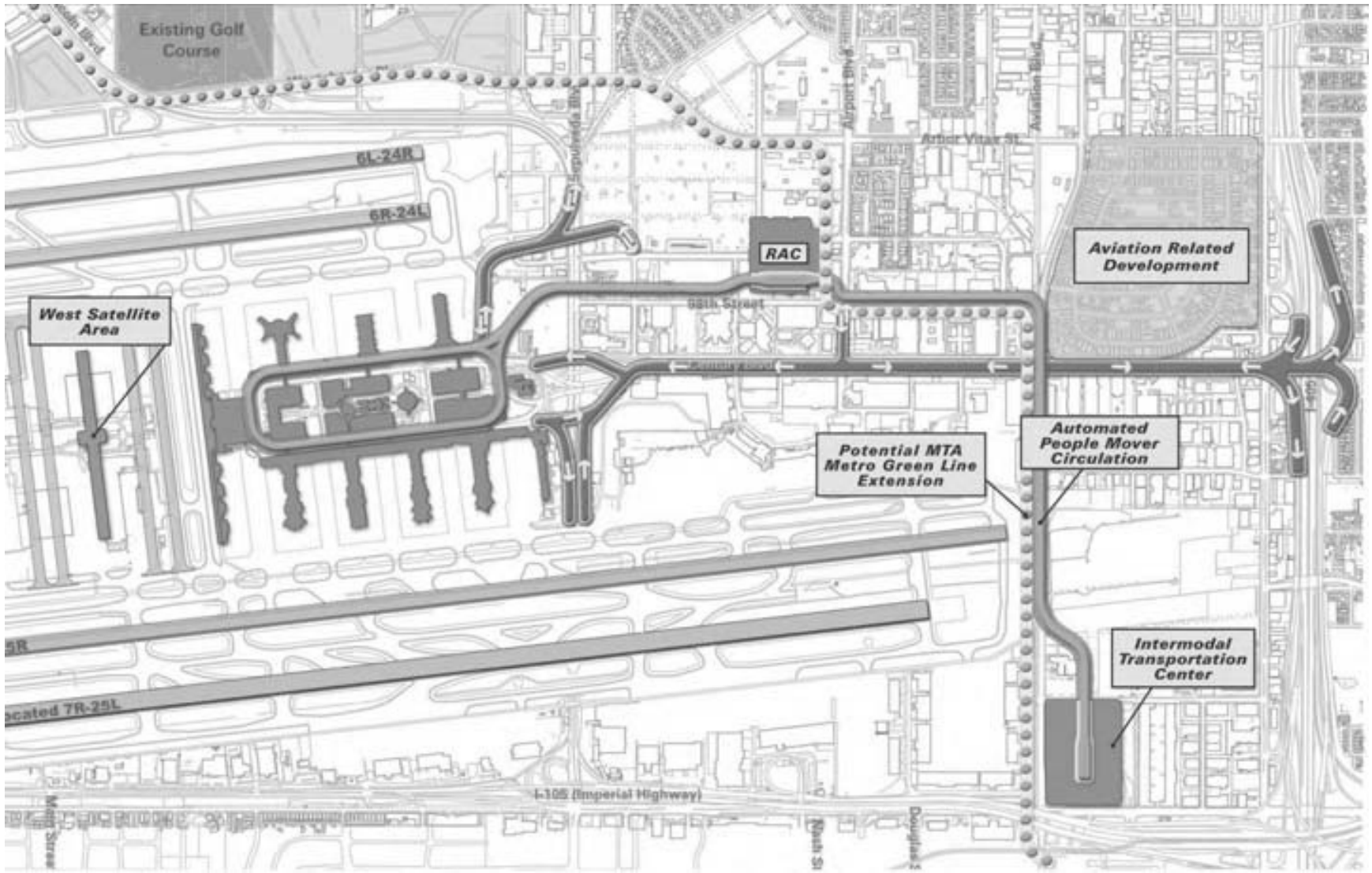
The ground access components included new concepts for primary roadway access points around the airport, including Century Boulevard, Sepulveda Boulevard, 98th Street, Arbor Vitae Street, and Lennox Boulevard/Interstate 105 (I-105). New concepts were also developed to provide access to the CTA, referred to in the planning process as the airport's "front door," as well as access to potential future terminal facilities, including a Midfield Satellite Concourse (MSC) and a West Satellite Concourse. Additionally, the initial ground access concepts assumed implementation of ground transportation facilities approved as part of the LAX Master Plan, including the Intermodal Transportation Center (ITC), an Automated People Mover (APM) system, and a Consolidated Rental Car Facility (CONRAC).

In subsequent modifications to the original concepts, the ITC was replaced with an intermodal transportation facility (ITF) at the northeast corner of Aviation Boulevard and Century Boulevard, as discussed below. Relocation of the ITC from Continental City to Manchester Square reflected ongoing changes in regional transit planning. In June 2006, the Board of Directors of the Los Angeles County Metropolitan Transportation Authority (Metro, formerly MTA) initiated an effort to study extension of the Green Line to LAX. In July 2006, Los Angeles City Councilman Bill Rosendahl introduced a City Council Motion concerning implementation of a two-station minimum operable segment, described above. Additionally, in the summer of 2006, Metro embarked on an analysis of transportation options along the Harbor Subdivision, which parallels Aviation Boulevard in the vicinity of LAX, including a possible a future transit line.

The initial ground access concepts are summarized below and illustrated in **Figures 5-1** to **5-10**. The figures depict the access concepts combined with the ground transportation facility concepts. However, these concepts are addressed separately below.

## Primary Access Concepts

- Century Boulevard Double Deck - This concept, illustrated in **Figures 5-1 and 5-2**, would double-deck Century Boulevard to improve access to the CTA. This concept envisioned improved direct freeway access to Interstate 405 (I-405) from Century Boulevard.
- 98th Street/Century Boulevard Access - This concept envisioned dual access along Century Boulevard and 98th Street, with the addition of new direct access from I-405 to the CTA via 98th Street. Existing Century Boulevard would be dedicated to eastbound traffic and 98th Street would be dedicated to westbound traffic. This concept is illustrated in **Figures 5-3 and 5-4**.
- Arbor Vitae Street Access - This concept is a variation of the 98th Street/Century Boulevard Access concept, but would place the new direct access off of I-405 at Arbor Vitae Street, and through Manchester Square, instead of 98th Street. This concept is illustrated in **Figure 5-5**.
- Sepulveda Tunnel Improvements - This concept, illustrated in **Figure 5-6**, examined the possibility of widening Sepulveda Tunnel to improve traffic flow into and out of the CTA. Changes to the tunnel would include improved separation of airport traffic from through traffic to reduce congestion and delays.




north

Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Ground Access Concept - Century Boulevard Double Deck | Figure 5-1 |
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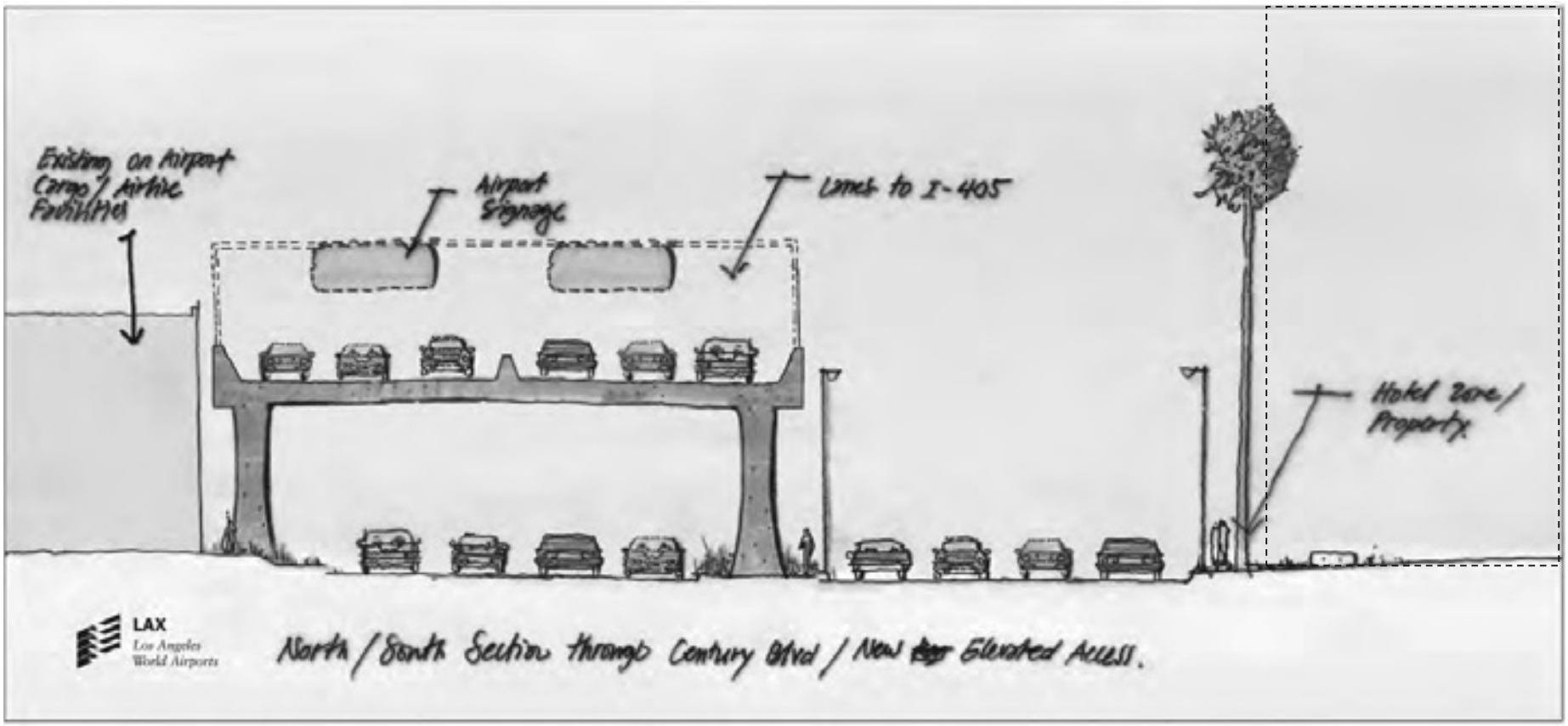


north

Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Ground Access Concept - Century Boulevard Double Deck Elevation | Figure 5-2 |
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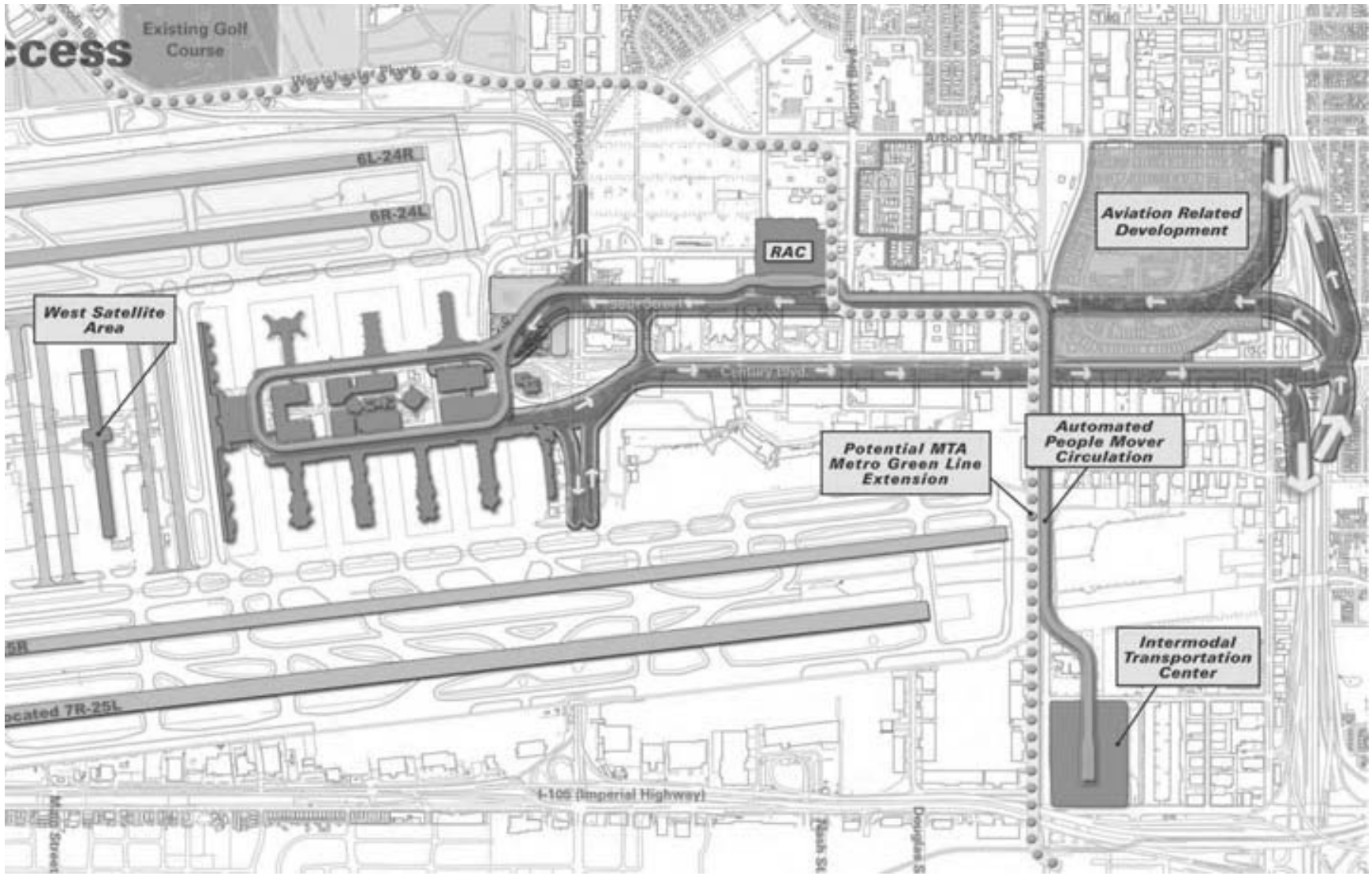


Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Ground Access Concept - 98th Street/Century Boulevard | Figure 5-3 |
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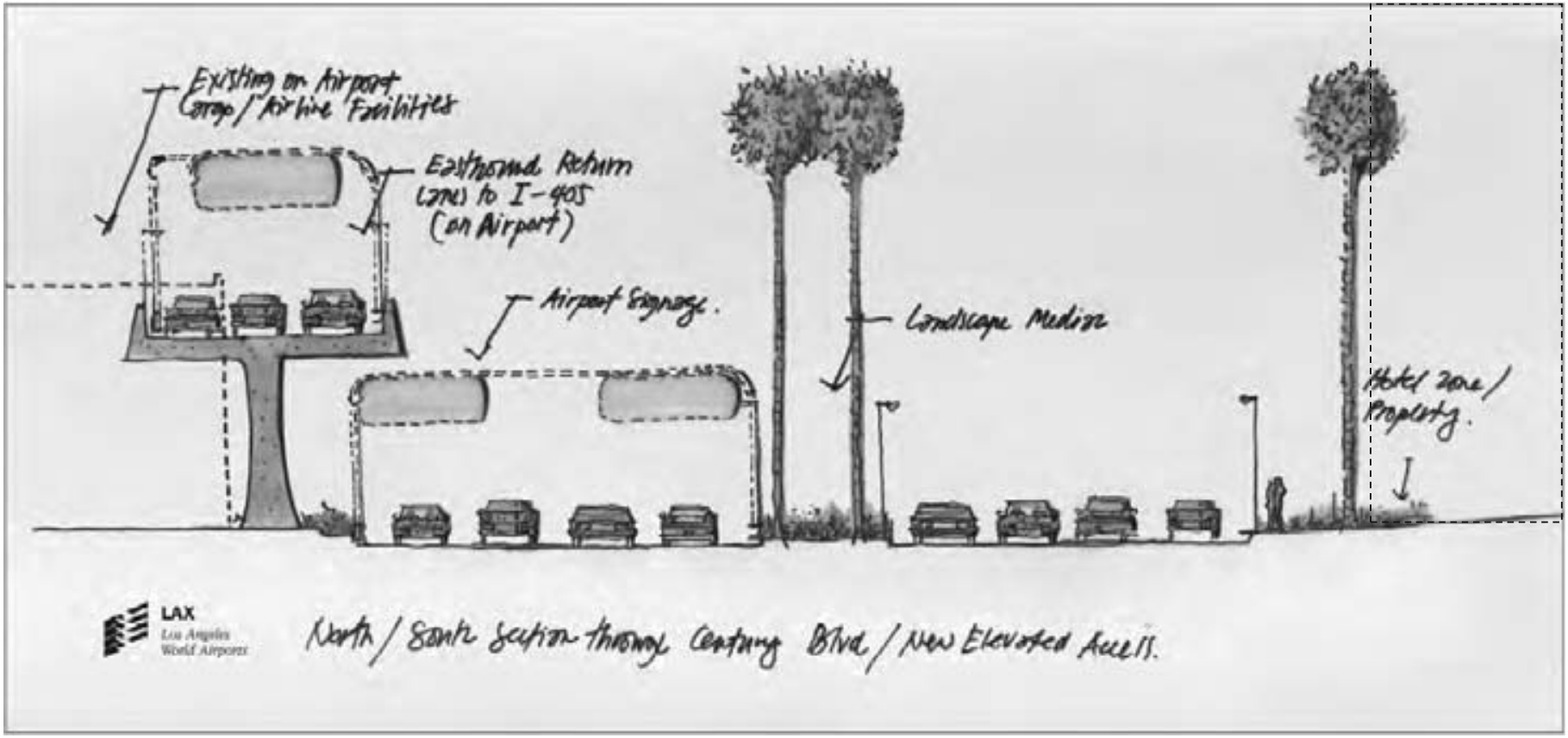


north

Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Ground Access Concept - 98th Street/Century Boulevard Elevation | Figure 5-4 |
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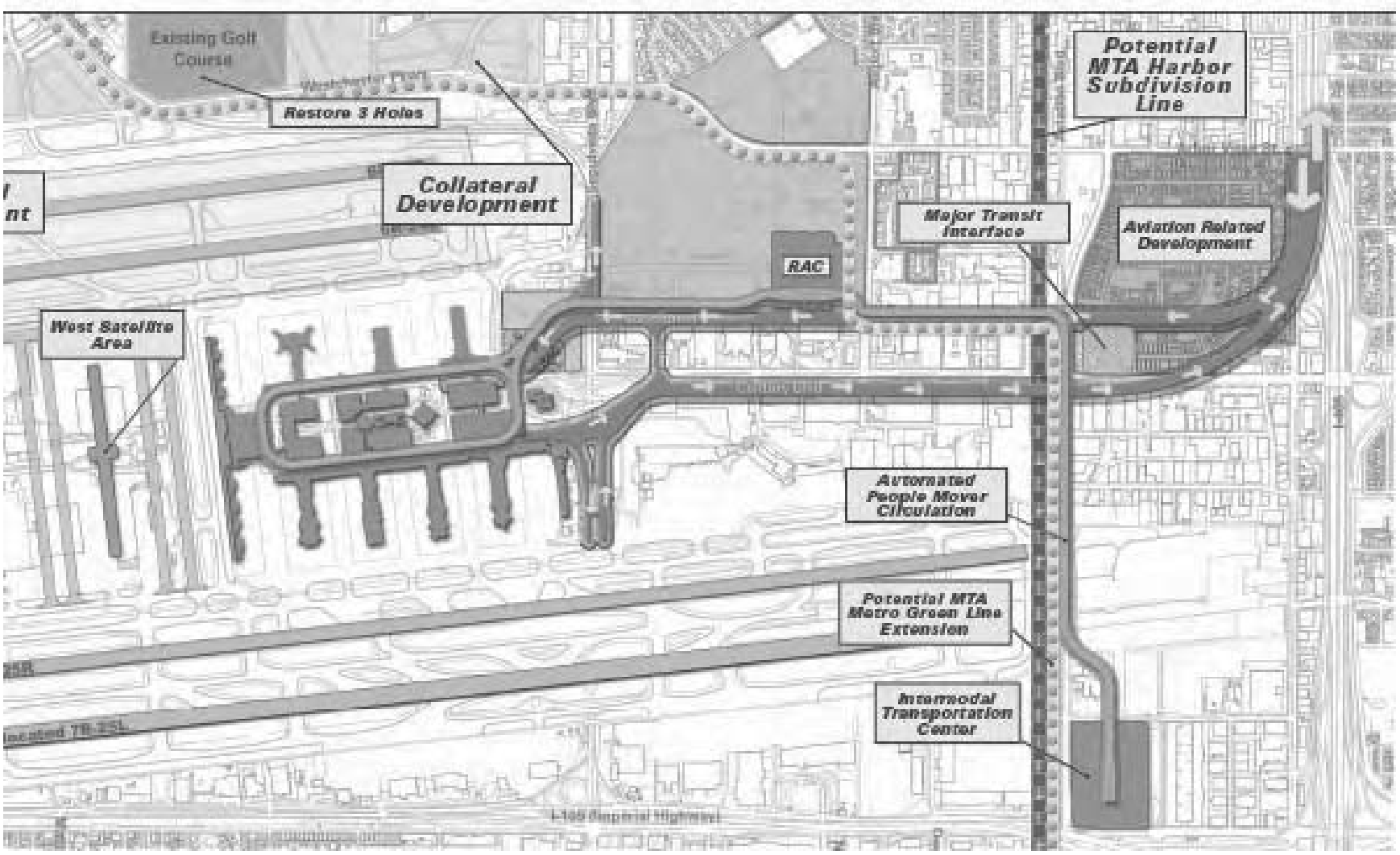


Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Ground Access Concept - Arbor Vitae Boulevard Access | Figure 5-5 |
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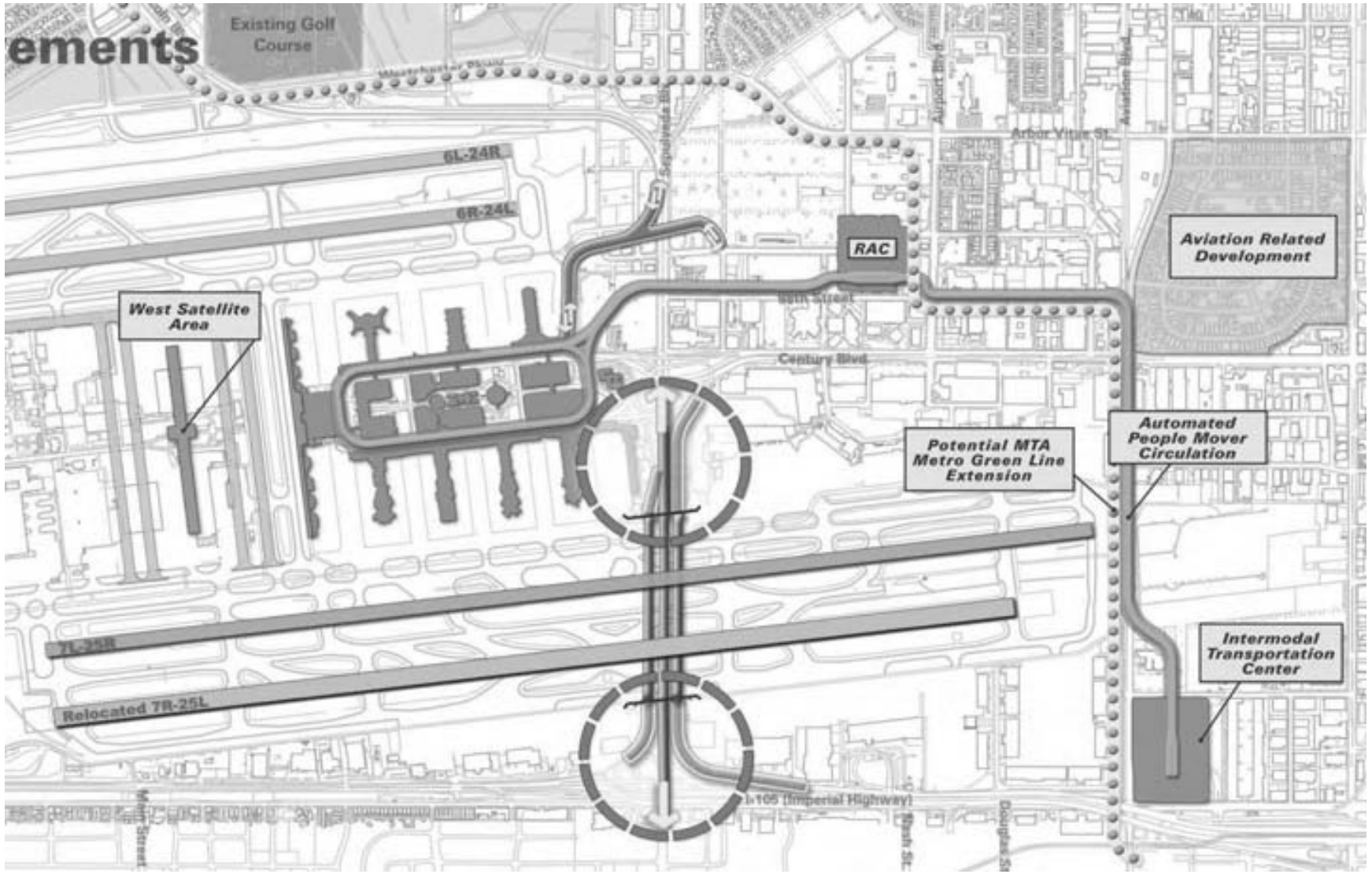


Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Ground Access Concept - Sepulveda Tunnel Improvements | Figure 5-6 |
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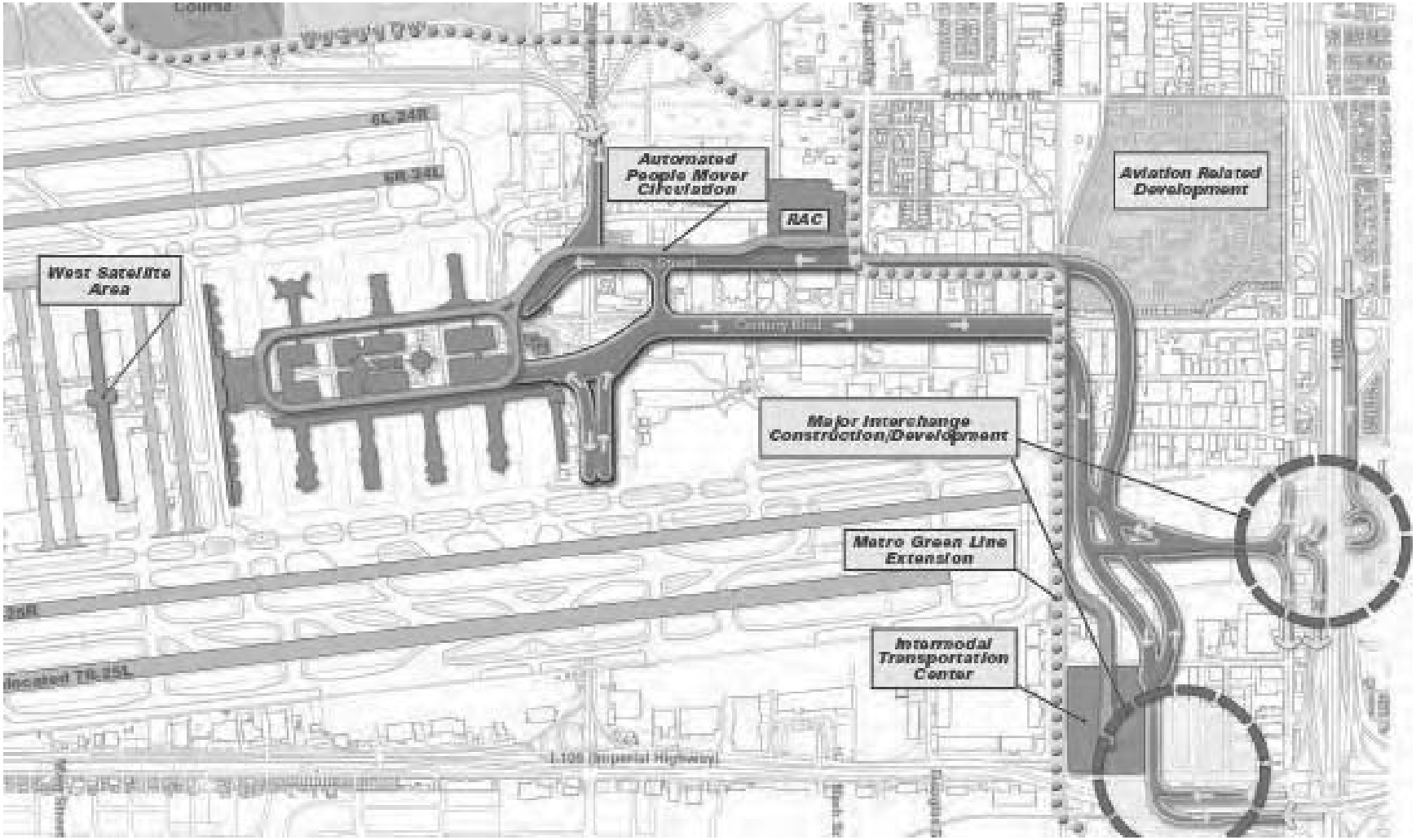


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Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Ground Access Concept - Lennox/I-405 and I-105 Interchanges | Figure 5-7 |
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north

Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

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| **LAX Specific Plan Amendment Study Report** | **Initial Ground Access Concept - "Front-Door" Landside Terminal Ground Access** | Figure **5-8** |

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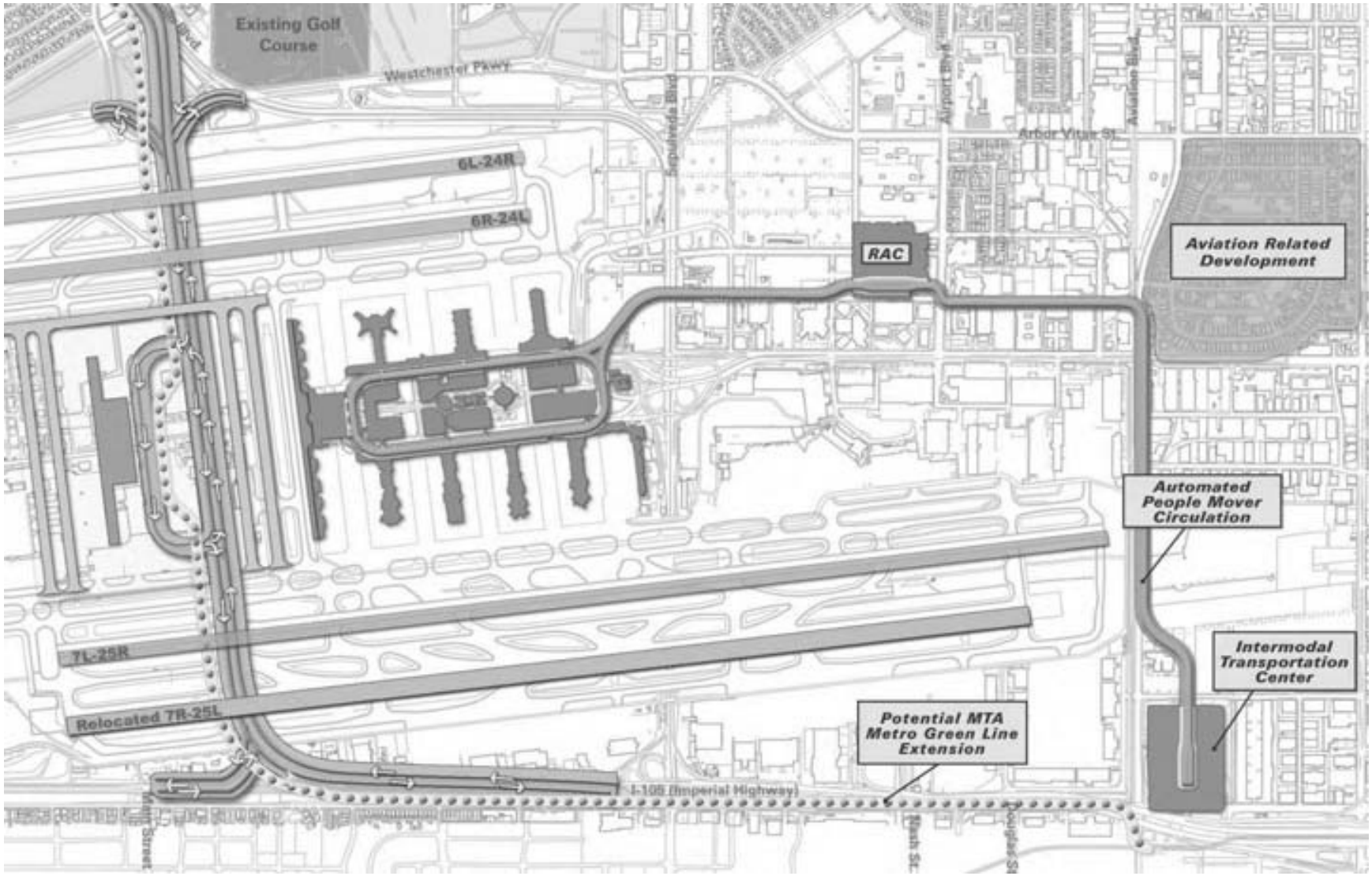


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Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Ground Access Concept - Midfield Satellite Ground Access | Figure 5-9 |
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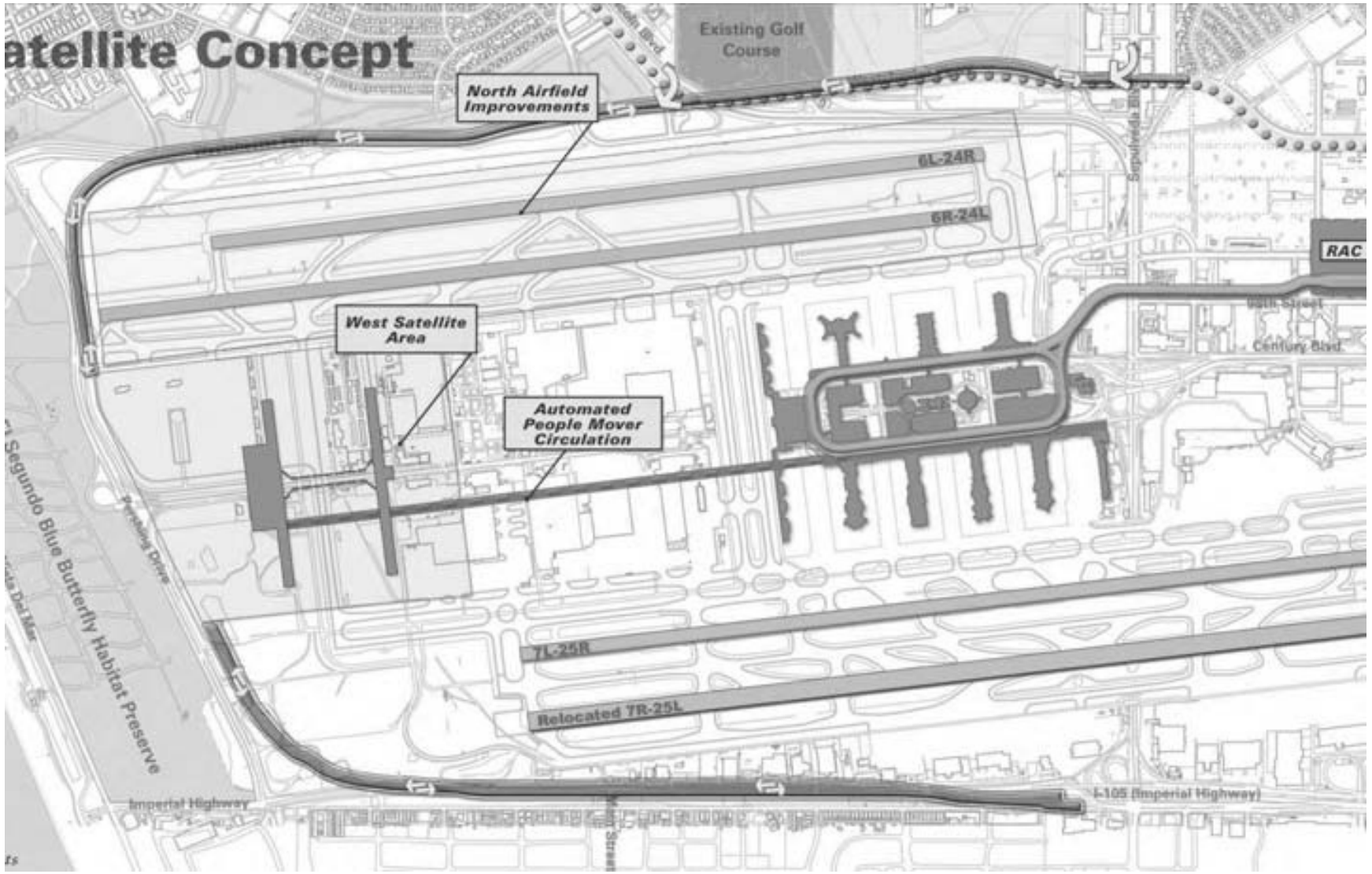


Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Ground Access Concept - West Satellite Ground Access | Figure 5-10 |
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- Lennox Boulevard/I-405 and I-105 Interchanges – This concept built upon mitigation measures included in the LAX Master Plan to provide new roadway access options off of I-405 and I-105. The new access from I-405 would be located at Lennox Boulevard and include a new entrance roadway that would direct traffic north to 98th Street and then west to the CTA. The new access from I-105 would be located just east of Aviation Boulevard and also direct traffic north to 98th Street and then west to the CTA. All traffic on 98th Street would be westbound into the CTA and all traffic on Century Boulevard would be eastbound exiting the CTA. This concept is illustrated in **Figure 5-7**.

### Terminal Facility Access Concepts

- "Front-Door" Landside Terminal Ground Access – Two variations of new "front door" access were developed. One variation identifies a "front-door" improvement that would add a new "Drop Off/Pick Up/Check In" location for Terminal 1 at the intersection of World Way North and Sky Way (**Figure 5-8**). A second concept would provide access to a new landside terminal (discussed in Section 5.1.2.2 below) at the airport's "front-door." The ground access component of this facility would include major interchange redesign at the intersection of Century Boulevard and Sepulveda Boulevard (depicted in **Figure 5-13** below).
- Midfield Satellite Concourse Ground Access – This concept would provide a new north/south access corridor that would be located between the Tom Bradley International Terminal (TBIT) and the MSC (MSC, discussed in Section 5.1.2.2 below). The Green Line extension would be routed west from the existing Aviation/LAX Station and parallel the new north/south access corridor to the MSC. This option would require new tunnels under both the north and south airfields as well as new interchanges along Imperial Highway and Westchester Parkway. This concept is illustrated in **Figure 5-9**.
- West Satellite Ground Access – This concept includes roadway and APM access improvements to a future West Satellite terminal (discussed in Section 5.1.2.2 below). Initial ground access concepts developed in 2006 associated with the West Satellite included improvements to Westchester Parkway and Imperial Highway. Access from Imperial Highway would be direct and independent from (east of) Pershing Drive. The APM would also be extended from the CTA to the West Satellite. This concept is illustrated in **Figure 5-10**. Later refinements to the terminal component of this concept were coupled with refinements to the ground access component. These refined ground access components are discussed together with the terminal components in Section 5.1.2.2 and illustrated in **Figures 5-14** through **5-18** below.

### Ground Access Facilities

- Intermodal Transportation Center – The original ground access concepts assumed implementation of the ITC at the northeast corner of Aviation Boulevard and Imperial Highway, in the area referred to as Continental City, as approved as part of the LAX Master Plan.
- Automated People Mover – An APM would extend from the ITC to the CTA, stopping at a future CONRAC, as approved as part of the LAX Master Plan.
- Consolidated Rental Car Facility – A CONRAC would be located in the Lot C area, as approved as part of the LAX Master Plan.
- Intermodal Transportation Facility – Later iterations of the initial ground access options included an ITF at the northeast corner of Aviation Boulevard and Century Boulevard, in the area known as Manchester Square. This facility replaced the ITC included in the LAX Master Plan in the ground access concepts.

## 5.1.2.2 Initial Terminal Concepts

Initial terminal concepts included alternative configurations for Terminals 1 through 3, a new "Front Door" landside terminal, and new terminals located west of the CTA, including a Midfield Satellite option and a West Satellite option. These initial concepts are discussed further below.

## North Terminal Concepts

As part of the Advisory Committee process, preliminary terminal concepts were developed that were focused on the north terminal area. These were development options that could be implemented in place of the demolition of Terminals 1 through 3 as included in the LAX Master Plan. The north terminal concepts were identified based on their configuration shapes and included the following options (see **Figure 5-11**):

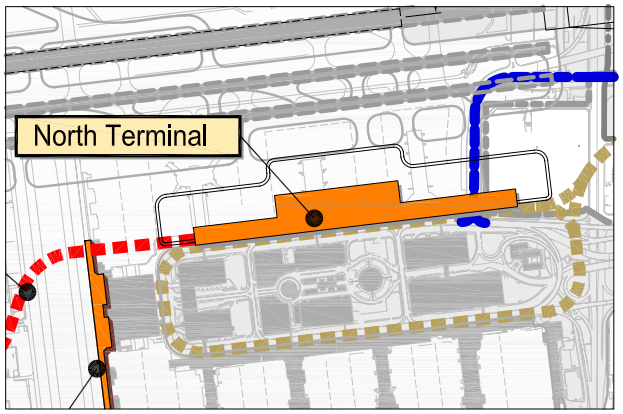
- Linear – North terminal concepts that are parallel to the runway/taxiway system
- Pier – North terminal concepts perpendicular to the runway/taxiway system
- "T" – North terminal concepts that are a combination of linear and pier configurations
- Arc (also known as Curvilinear) – North terminal concepts that are generally parallel with the runway/taxiway system but include an arc shape intended to maximize the number of aircraft gates

An additional concept, referred to as the "Super TBIT" concept, combined the arc/curvilinear layout on the north side with redevelopment of TBIT with three pier concourses (see **Figure 5-12**).

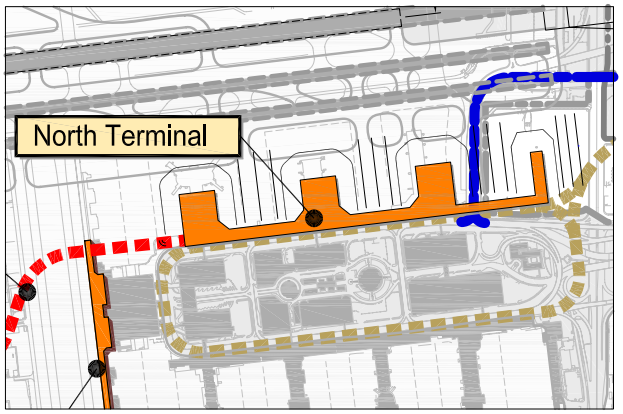
## New Terminal Concepts

In addition to the north terminal concepts listed above, several new terminal concepts were evaluated, including the following:

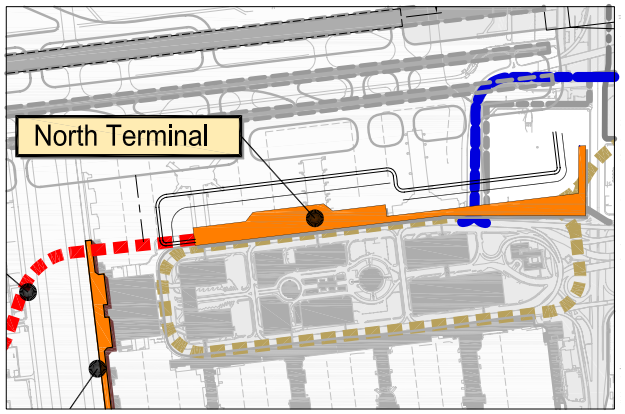
- New "Front-Door" Landside Terminal - Elements of this concept would include an International Terminal east of Terminal 1 that would serve the West Satellite Concourse (later renamed the MSC), an underground APM between the new International Terminal and the MSC, and ground access improvements as described in Section 5.1.2.1. This concept is illustrated in **Figure 5-13**.
- Midfield Satellite Concourse – Originally referred to as the West Satellite Concourse, but later renamed, this concept assumed implementation of the facility that was approved as part of the LAX Master Plan. Early concepts for the MSC (developed in 1996) are illustrated, together with ground access components, in **Figures 5-9** and **5-13**.
- West/Midfield Terminal 1 and 1a – This concept was developed in early 2007 and had two variations that would add a new terminal and concourse (i.e., including aircraft gates) west of the approved MSC and east of the existing airport fuel farm. The west terminal would be located in the same general area, but west of, the MSC as included in the LAX Master Plan. The primary difference between Variation 1 and Variation 1a is that Variation 1 has an aircraft "push-back zone" (i.e., area into which an aircraft tug would push a departing aircraft away from the terminal gate and position onto a taxiway) on the east side of the MSC. Without the "push-back zone," Variation 1a would move the new west terminal and MSC slightly to the east, allowing for a larger vehicle parking area footprint. Connectivity between terminals would be provided by an APM from the CTA to the MSC and new west terminal. Ground access to the west terminal would be provided by World Way West via Westchester Parkway and an extension of I-105. These concepts are illustrated in **Figures 5-14** and **5-15**.
- West/Midfield Terminal 2 and 2a – This concept, also developed in early 2007 and including two variations, is very similar to the West/Midfield Terminal 1 and 1a concept. The primary difference between the two concepts is that under the West/Midfield Terminal 1 and 1a concept, the west terminal would not include the gate piers attached to the terminal; that is, there would be no concourse area or aircraft gates. Instead, the gate piers would be replaced by structured vehicle parking. Another difference between the two concepts is the replacement of the vehicle parking structure in the Terminal 1 and 1a options with an open/surface parking area. These concepts are illustrated in **Figures 5-16** and **5-17**.



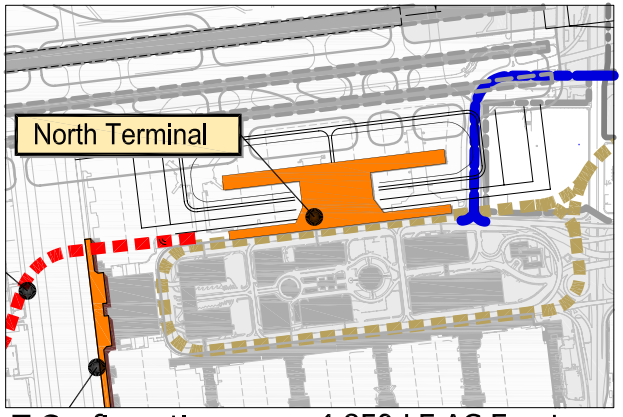

Linear Configuration 3,420 LF AC Frontage



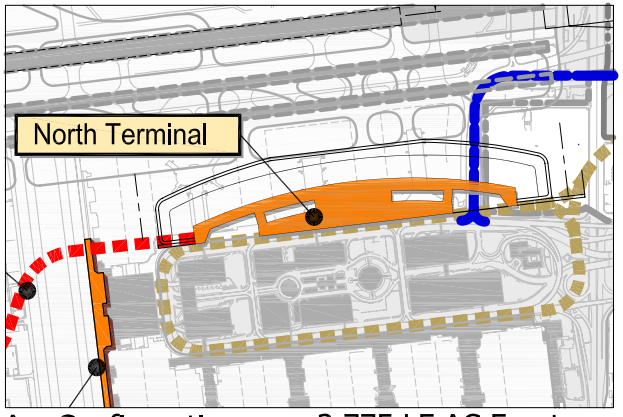

Pier Configuration 5,940 LF AC Frontage



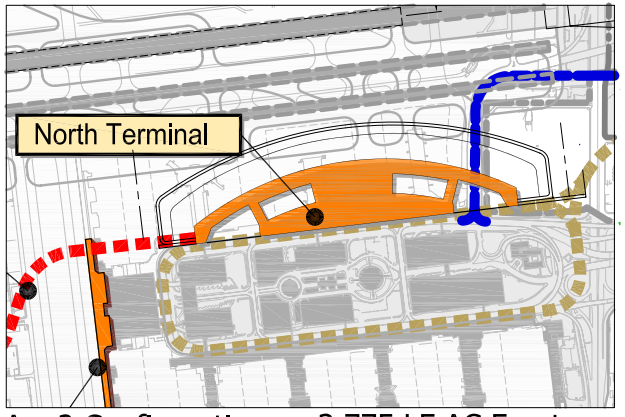

Linear 2 Configuration 3,830 LF AC Frontage




T Configuration 4,850 LF AC Frontage




Arc Configuration 3,775 LF AC Frontage




Arc 2 Configuration 3,775 LF AC Frontage

Source: HNTB, LAX Concept Development Report and Planning Illustrations, May 2007.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Terminal Concept - North Terminal Concepts | Figure 5-11 |
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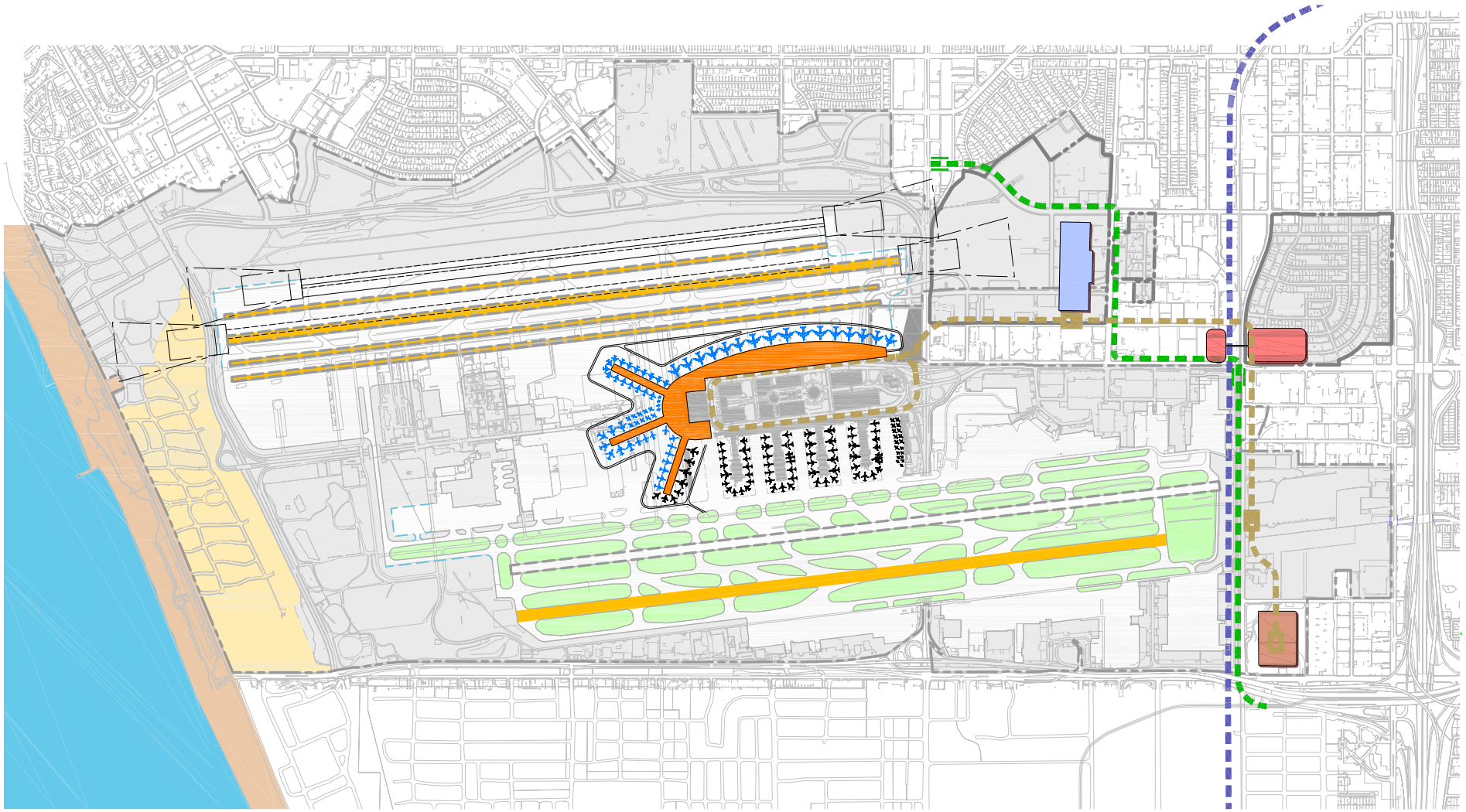

north

Source: HNTB, LAX Concept Development Report and Planning Illustrations, May 2007.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Terminal Concept - Super TBIT Concept | Figure 5-12 |
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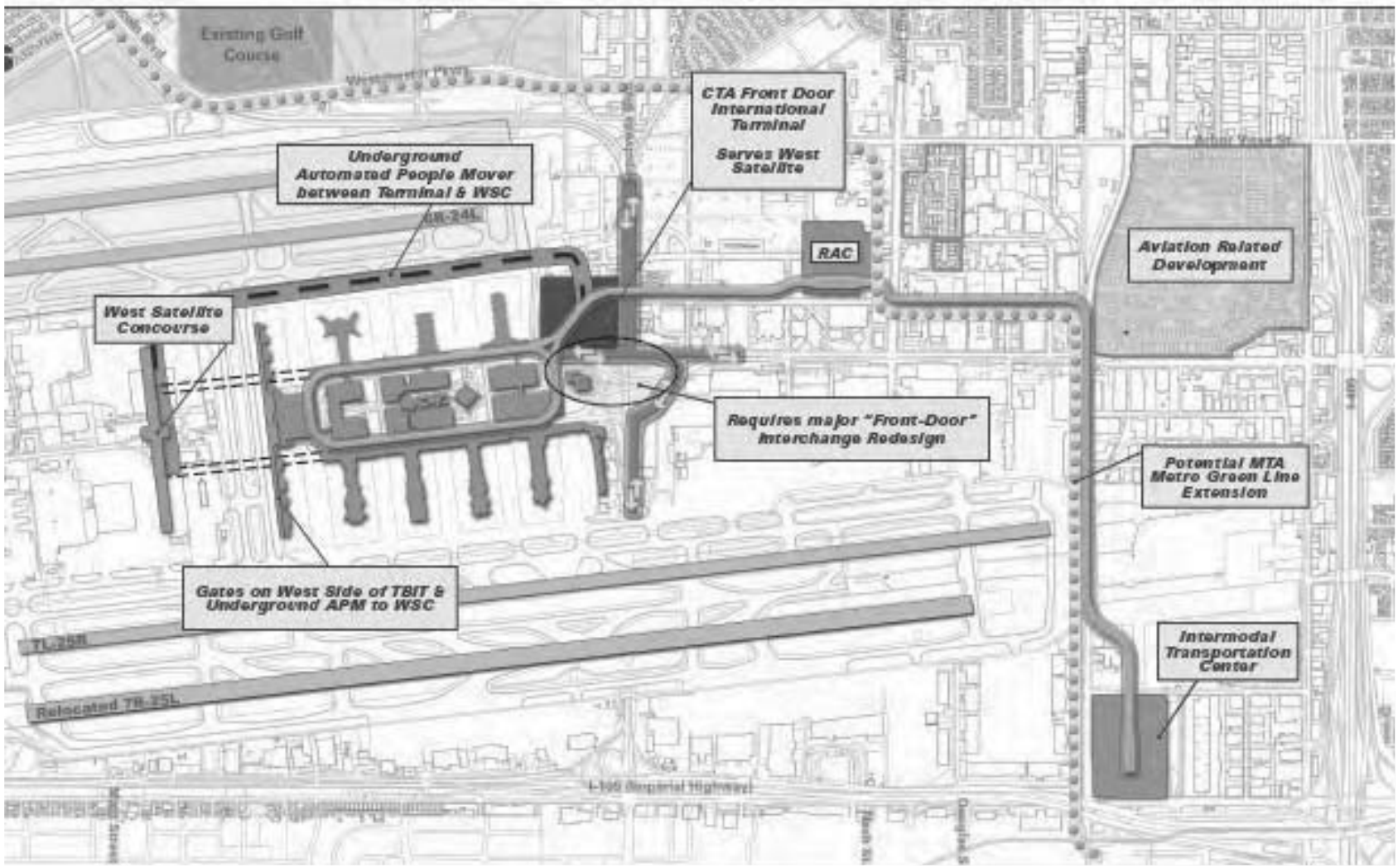


north

Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Terminal Concept - "Front-Door" Landside Terminal | Figure 5-13 |
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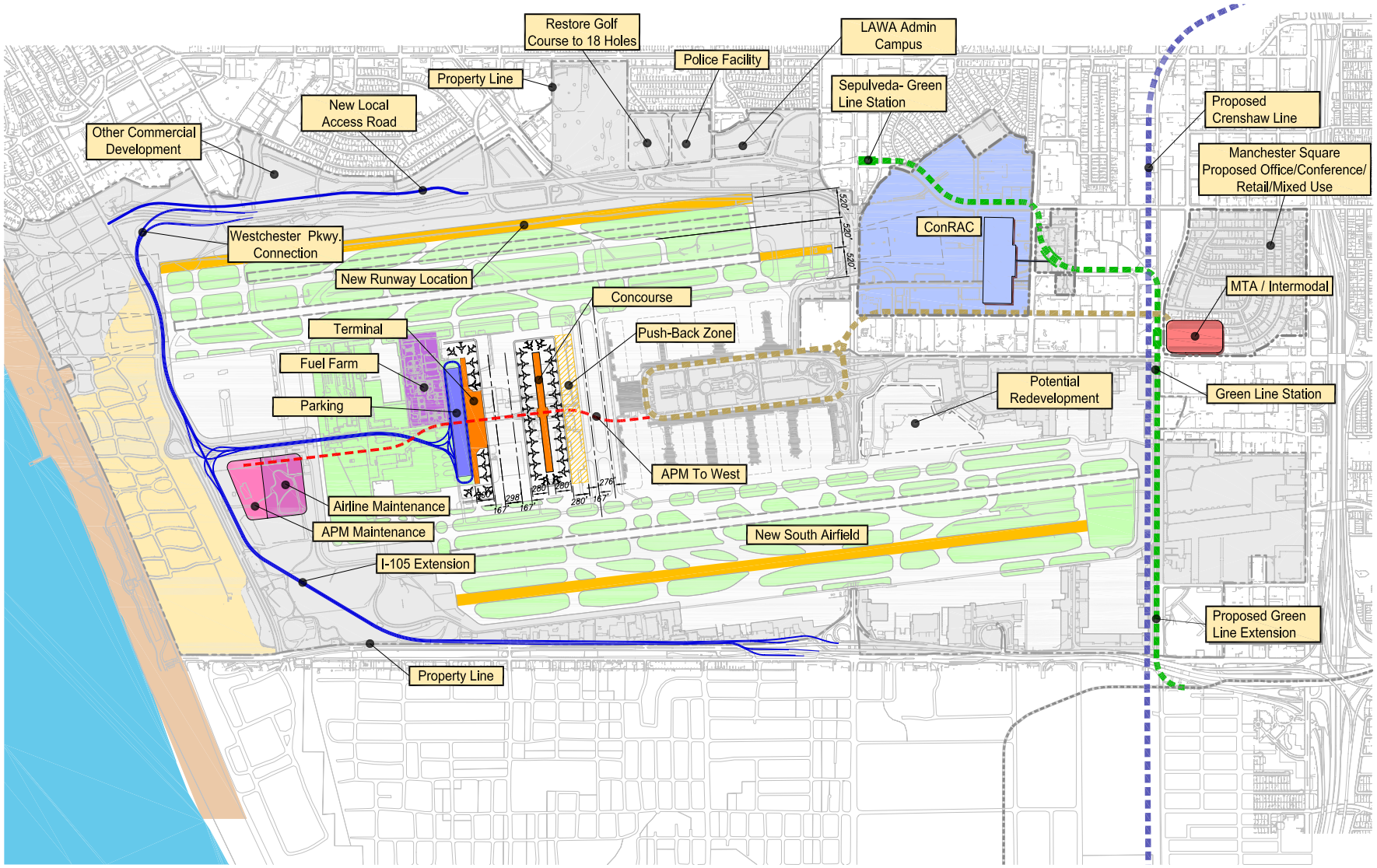


Source: HNTB, LAX Concept Development Report and Planning Illustrations, May 2007.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Terminal Concept - West/Midfield Terminal (Variation 1) | Figure 5-14 |
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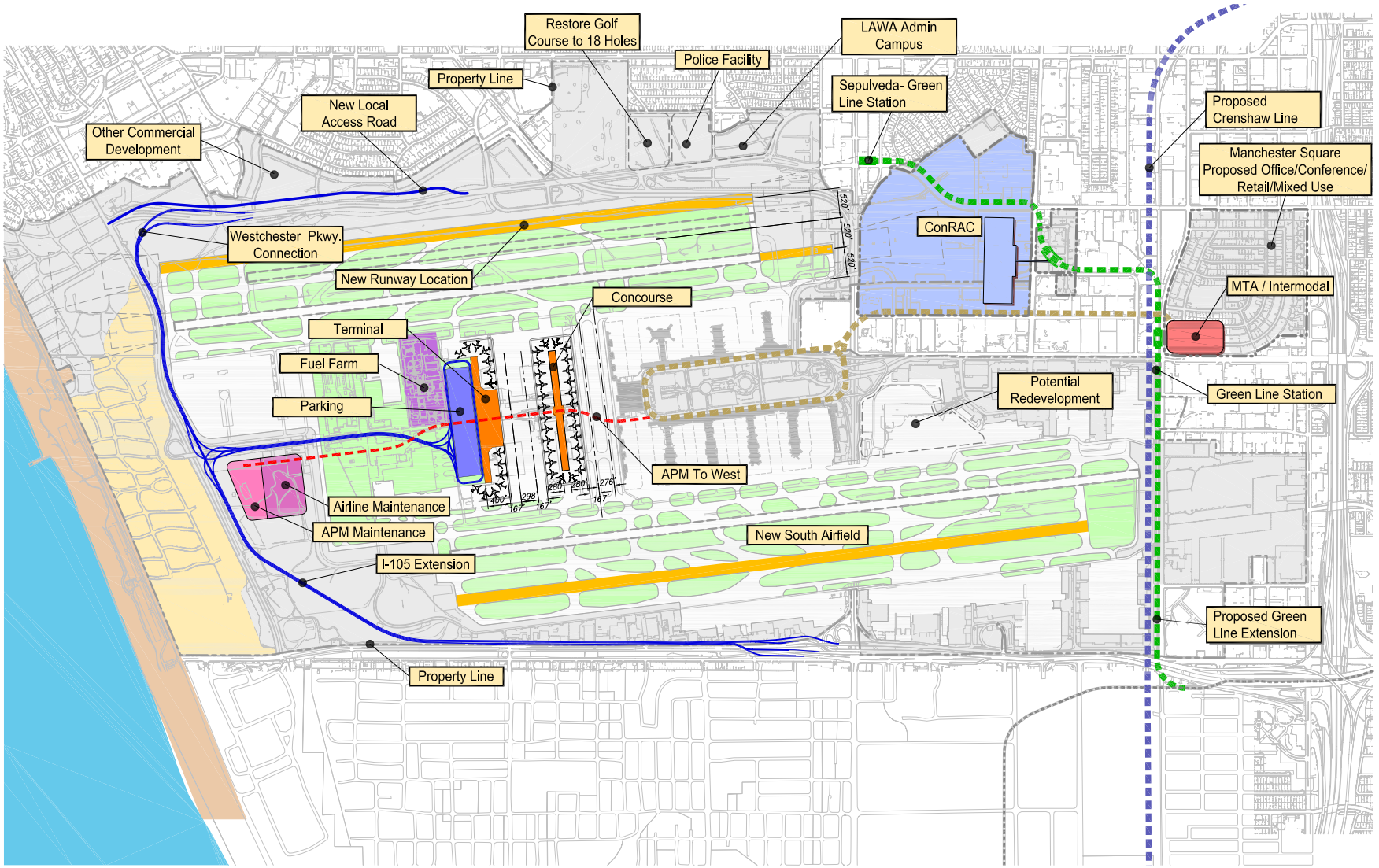


north

Source: HNTB, LAX Concept Development Report and Planning Illustrations, May 2007.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Terminal Concept - West/Midfield Terminal (Variation 1a) | Figure 5-15 |
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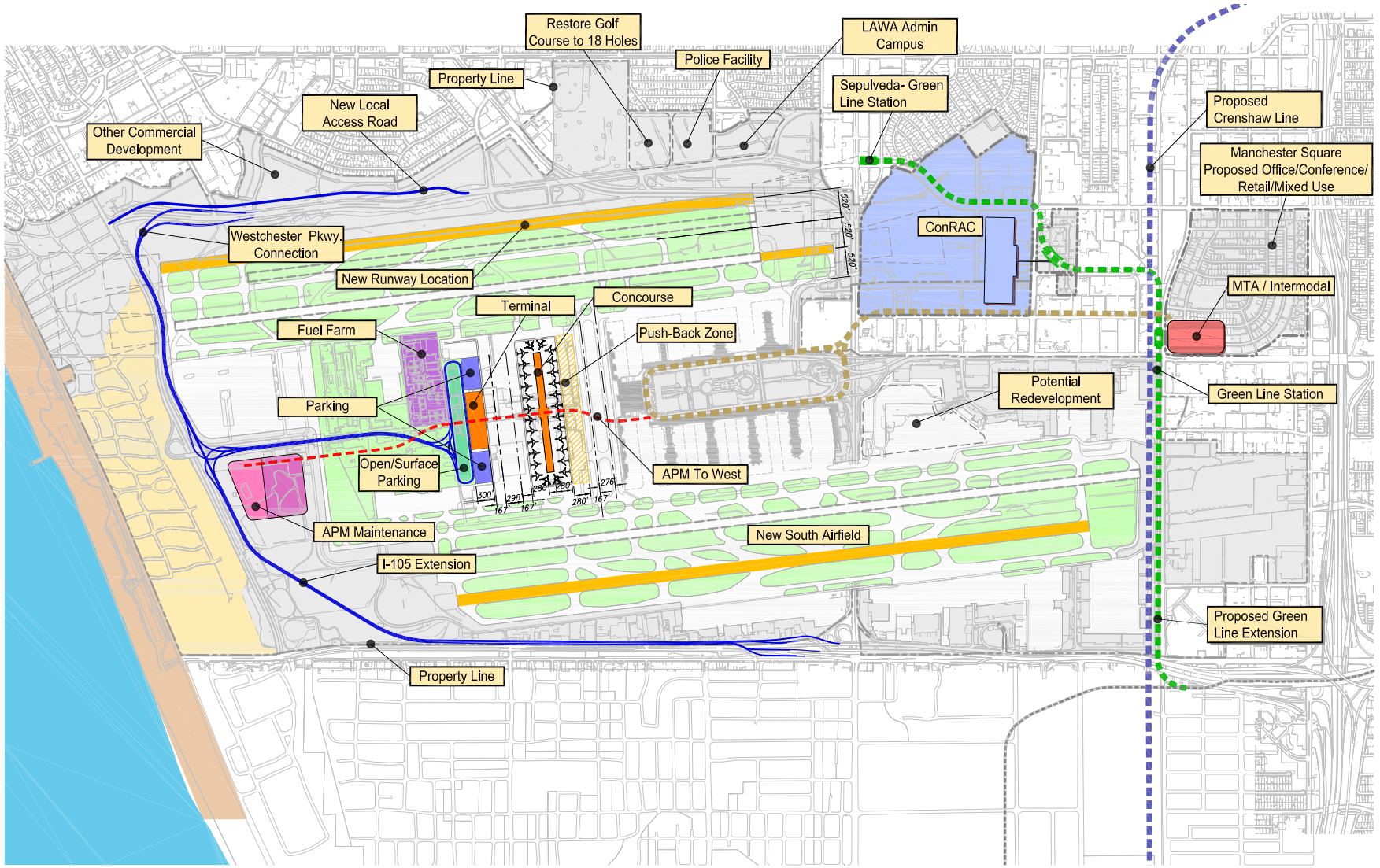


Source: HNTB, LAX Concept Development Report and Planning Illustrations, May 2007.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Terminal Concept - West/Midfield Terminal (Variation 2) | Figure 5-16 |
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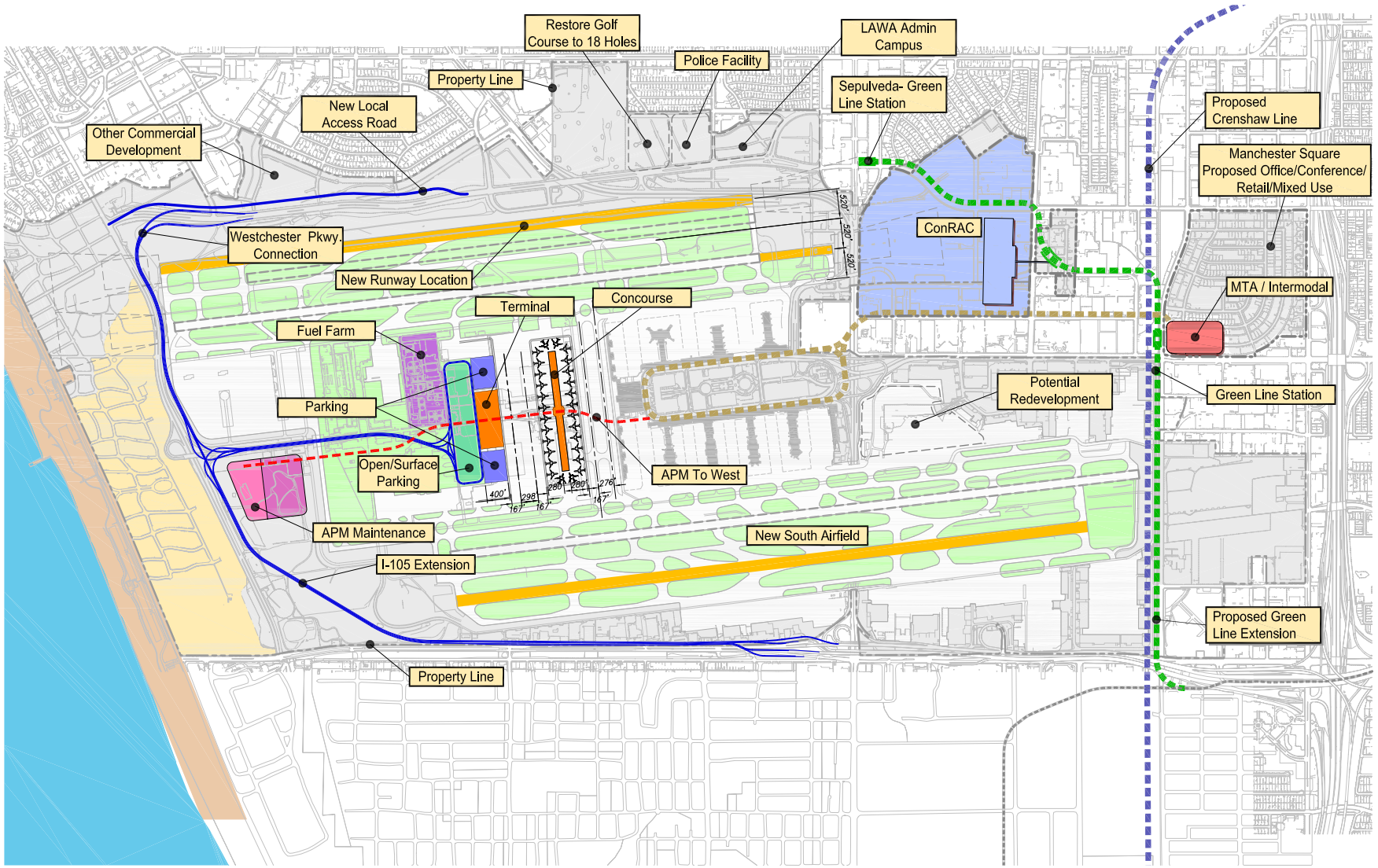


north

Source: HNTB, LAX Concept Development Report and Planning Illustrations, May 2007.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Terminal Concept - West/Midfield Terminal (Variation 2a) | Figure 5-17 |
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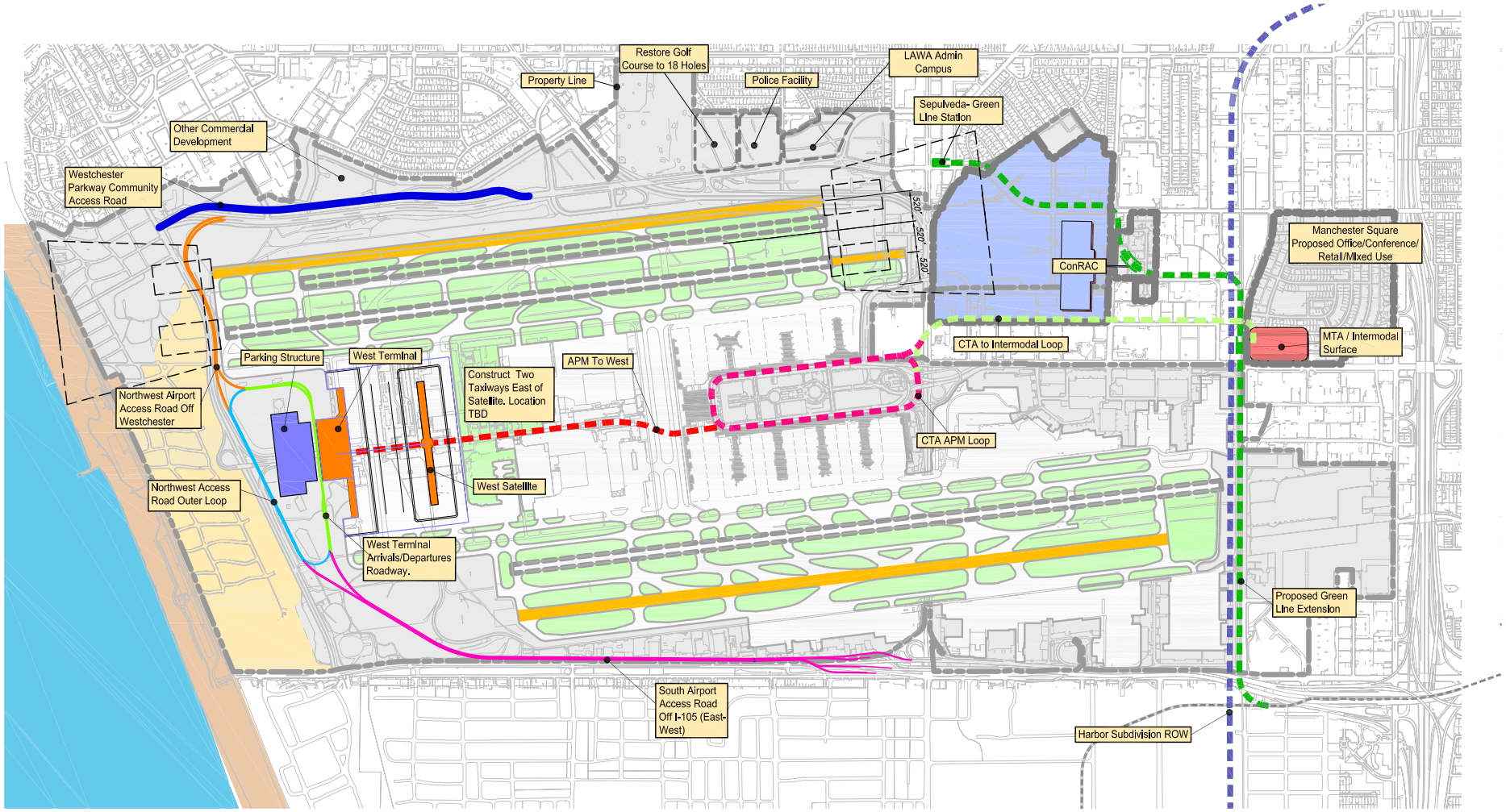


north

Source: HNTB, LAX Concept Development Report and Planning Illustrations, May 2007.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Terminal Concept - West Terminal Concept | Figure 5-18 |
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- West Terminal – This concept, developed in mid-2007, adds a new terminal at the west end of the airport, and moves the west satellite approved as part of the LAX Master Plan to a location west of the LAX Fuel Farm and east of the new west terminal. For aircraft gates, the West Terminal would include an attached pier; gates would also be provided at the relocated satellite concourse. The concept also includes a vehicle parking structure. A connection between the West Terminal and the existing CTA would be provided via an APM. Ground access to the west terminal would be via Westchester Parkway and Imperial Highway, although a new roadway system would be developed that would allow the system to be independent of Pershing Drive from both the north and the south. This concept is illustrated in **Figure 5-18**.

### 5.1.2.3 Initial Airfield Concepts

The initial SPAS airfield concepts were developed based on LAWA's expertise and input from the SPAS Advisory Committee and community meetings. The SPAS Advisory Committee was assisted by the firm HNTB, providing technical expertise in aviation and airfield planning. The initial airfield concepts were the subject of LAX SPAS Community Meeting 6, held on held on December 6 and December 9, 2006 (see Chapter 4, *SPAS Community/Advisory Committee Input*). The considerations underlying the development of the airfield concepts, as identified in the Community Meeting 6 presentation materials provided in Appendix D-1, *Community Meeting Materials*, included:

- Address safety concerns with runway incursions
- Balance long-haul departing aircraft operations between the north and south airfields
- Improve runway and taxiway spacing to ease large aircraft movement and safety
- Reduce air quality impacts from existing north airfield taxiways and gate locations

In addition to meeting these goals, the initial airfield concepts included a range of configurations to address impacts to the surrounding communities. Additionally, in the absence of Transportation Safety Administration requirements to close the CTA to public vehicular traffic, the initial airfield concepts were aimed at minimizing impacts to the existing north terminal facilities and maintaining an open CTA. The initial airfield concepts are summarized below.

- Minimal Change – This concept maintains the existing north airfield runway configuration and adds a 45-degree exit taxiway at the west end of Runway 6L/24R with a new connecting taxiway between Runway 6R/24L and Taxiway E. This concept would also include operational and technological improvements such as a new ASDE-X ground radar (also known as an Airport Surface Detection Equipment Version X), new Runway Status Lights, a pilot alert system (in the cockpit), and full Airport Traffic Control Tower staffing. This concept is illustrated in **Figure 5-19**.
- Shift Runway 6R/24L 100 Feet South – This concept included two variations, both of which would move existing Runway 6R/24L 100 feet to the south. With the additional space between the runways, under one variation, new individual exit taxiways would be built for aircraft exiting Runway 6L/24R, while under the other variation, a centerfield taxiway would be constructed. Under both variations, Taxiway E and Taxilane D would be rebuilt. Under the centerfield taxiway variation, Runway 6L/24R would be extended 475 feet to the west, and Runway 6R/24L would be extended 1,415 feet to the west. These concepts are illustrated in **Figures 5-20** and **5-21**.
- Shift Runway 6L/24R 100 Feet North – This concept would move existing Runway 6L/24R 100 feet to the north and add a centerfield taxiway between the runways. Additionally, Runway 6L/24R would be extended 1,495 feet to the west and Runway 6R/24L would be extended 1,415 feet to the east. This concept is illustrated in **Figure 5-22**.
- Shift Runway 6L/24R 340 Feet North – This concept would move existing Runway 6L/24R 340 feet to the north and add a centerfield taxiway between the runways. Additionally, Runway 6L/24R would be extended 1,495 feet to the west and Runway 6R/24L would be extended 1,415 feet to the east. This concept is illustrated in **Figure 5-23**.

Development of the initial SPAS airfield concepts considered the following five assessments of north airfield safety that were completed in 2007 as part of the SPAS process. The following is a summary of each of these studies. The complete studies are provided in Appendix H, *North Airfield Safety Assessments*.

- LAX North Airfield Special Peer Review, March 2007 - A special peer review process involving airport industry experts was formed to objectively review the facts concerning the north airfield improvements (i.e., various options for increasing the separation distance between Runways 6L/24R and 6R/24L, adding a centerfield parallel taxiway, and modifying the locations designs of taxiway/runway intersections) and to provide the group's insight and advice on the best solution and way to move forward. The Peer Review Group consisted of 13 aviation experts from the private, airport, and public sector with experience in planning, engineering and operations of major U.S. airports.

  The Peer Review Group[11] evaluated the north airfield from the perspectives of operational safety, airfield balance, and efficiencies. They found that there is a definite need for improvements to the north airfield, that doing nothing is not an option, and massive terminal demolition is not feasible. The Group concluded that shifting the northerly runway 340 feet northward offers maximum safety, balance, and efficiency advantages. This option provides for new large aircraft operations, does not impact the apron/gate terminal infrastructure, presents fewer construction phasing impacts, and provides for a full-length center taxiway to promote safe and efficient aircraft landing and takeoff operations.

- Analysis of LAX North Airfield Alternatives, May 2007 - An analysis of LAX north airfield alternatives was prepared by the International Aviation Management Group, Inc.,[12] an aviation planning firm headed by a professor of Airport Operations and Management from Embry Riddle Aeronautical University. The purpose of this study was to provide expert and objective guidance as to which alternatives being considered for the SPAS at the time (i.e., provide more separation between runways by moving Runway 6L/24R north by either 100 feet or 340 feet, or moving Runway 6R/24L south by either 100 feet or 340 feet, or keeping runways in current locations) were most appropriate for further study as they relate to operational safety, aircraft compatibility, capacity, and environmental considerations.

  The study determined that the alternatives that provided an additional runway separation of 340 feet (LAX Master Plan Alternative D [340 feet south] and 340-foot north alternative) were the most appropriate for further study, while the least appropriate alternatives were the no additional separation and the 100-foot south concepts.

- Los Angeles International Airport North Airfield Assessment, May 2007 - A north airfield assessment was prepared by URS Corporation,[13] a large multi-disciplinary worldwide aviation-consulting and engineering firm. The study examined options for reconfiguring the north airfield to address airfield safety related to runway incursions, the need to accommodate ADG VI aircraft, operational efficiencies, and cost factors.

  The study concluded that several aircraft types create operational challenges to the existing airfield and that addition of a center taxiway, which could occur if there was more separation between the existing runways, would eliminate several risks and problems. The study recommended, based upon FAA standards, pursuing relocating Runway 6L/24R 350 feet northerly and increasing its runway takeoff length. Current FAA design standards require greater separation between parallel runways and between runways and taxiways than what exists in the north airfield today, to safely and efficiently accommodate larger aircraft.

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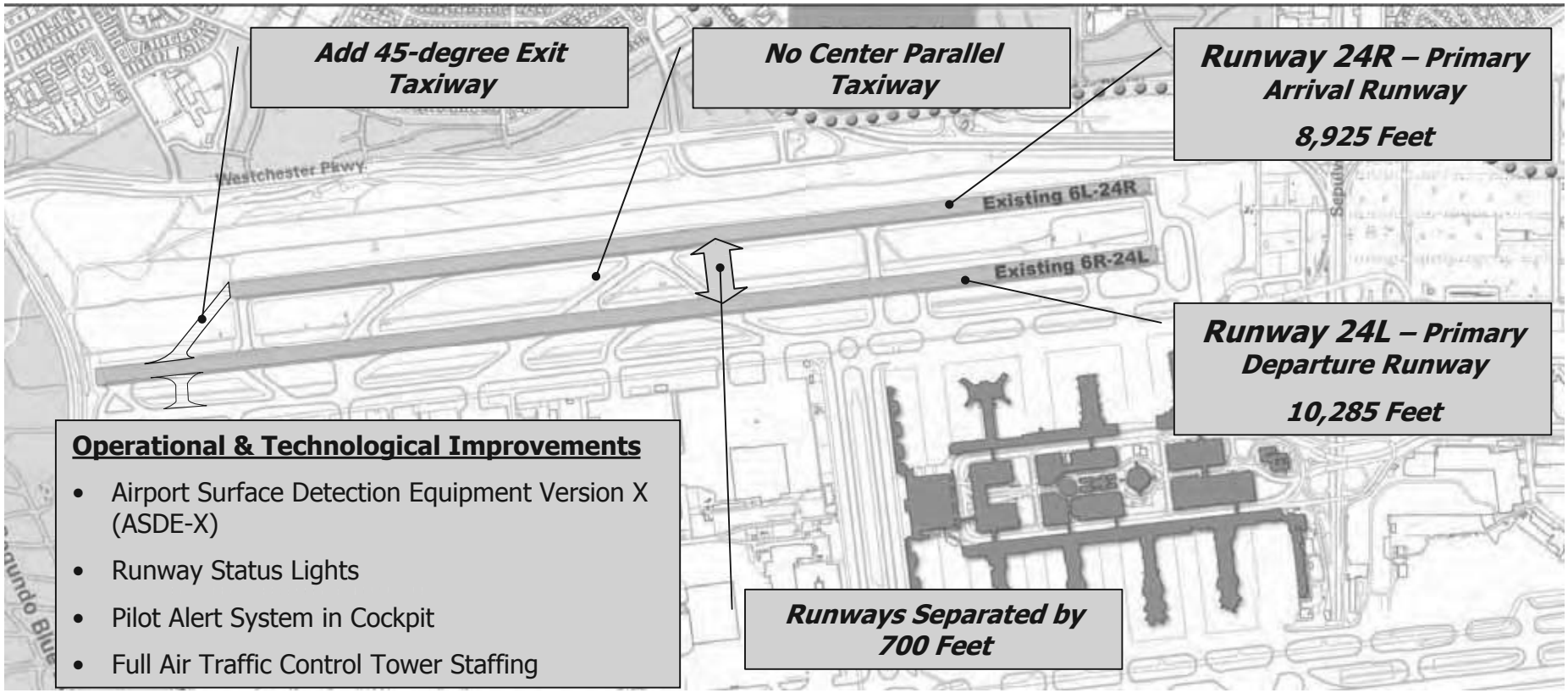
11 DMJM Harris-AECOM and Peer Review Group, LAX North Airfield Special Peer Review, Summary Report, March 2007.

12 International Aviation Management Group, Inc., Analysis of LAX North Airfield Alternatives, May 2007.

13 City of Los Angeles, Los Angeles World Airports, Los Angeles International Airport North Airfield Assessment, prepared by URS Corporation, May 2007.




north

Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Airfield Concept - Minimal Change | Figure 5-19 |
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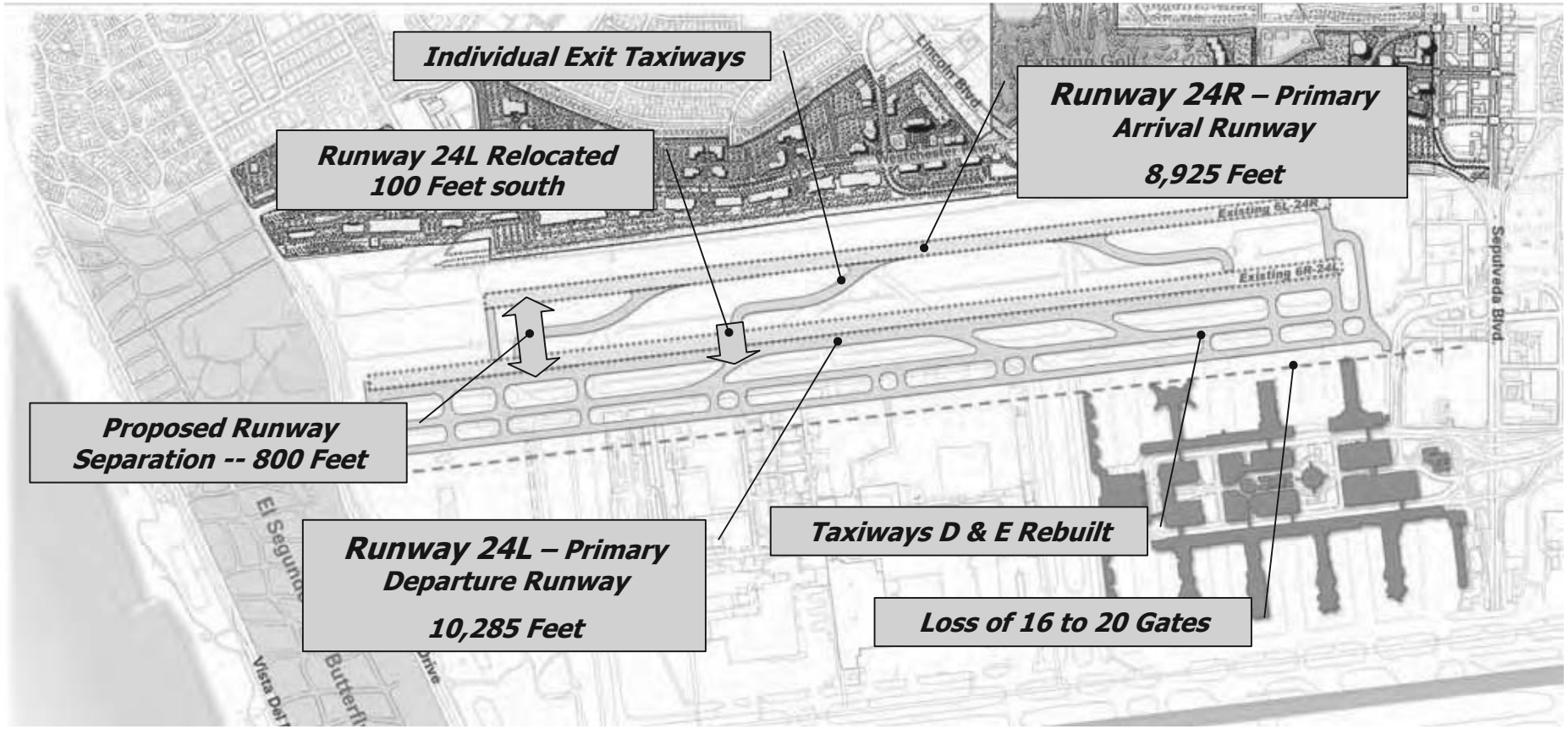


north

Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Airfield Concept - Shift Runway 6R/24L 100' South (Variation 1) | Figure 5-20 |
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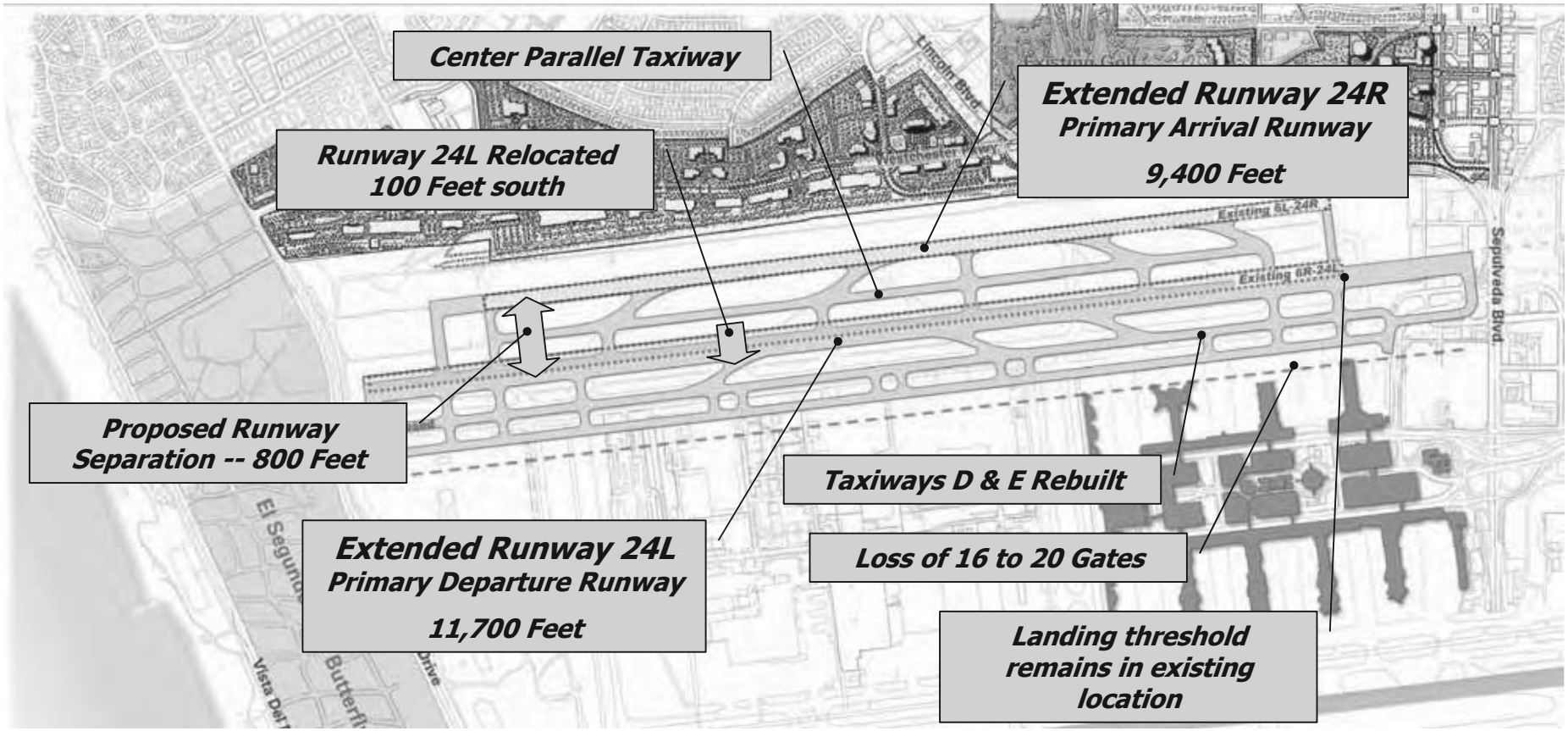


north

Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Initial Airfield Concept - Shift Runway 6R/24L 100' South (Variation 2) | Figure 5-21 |
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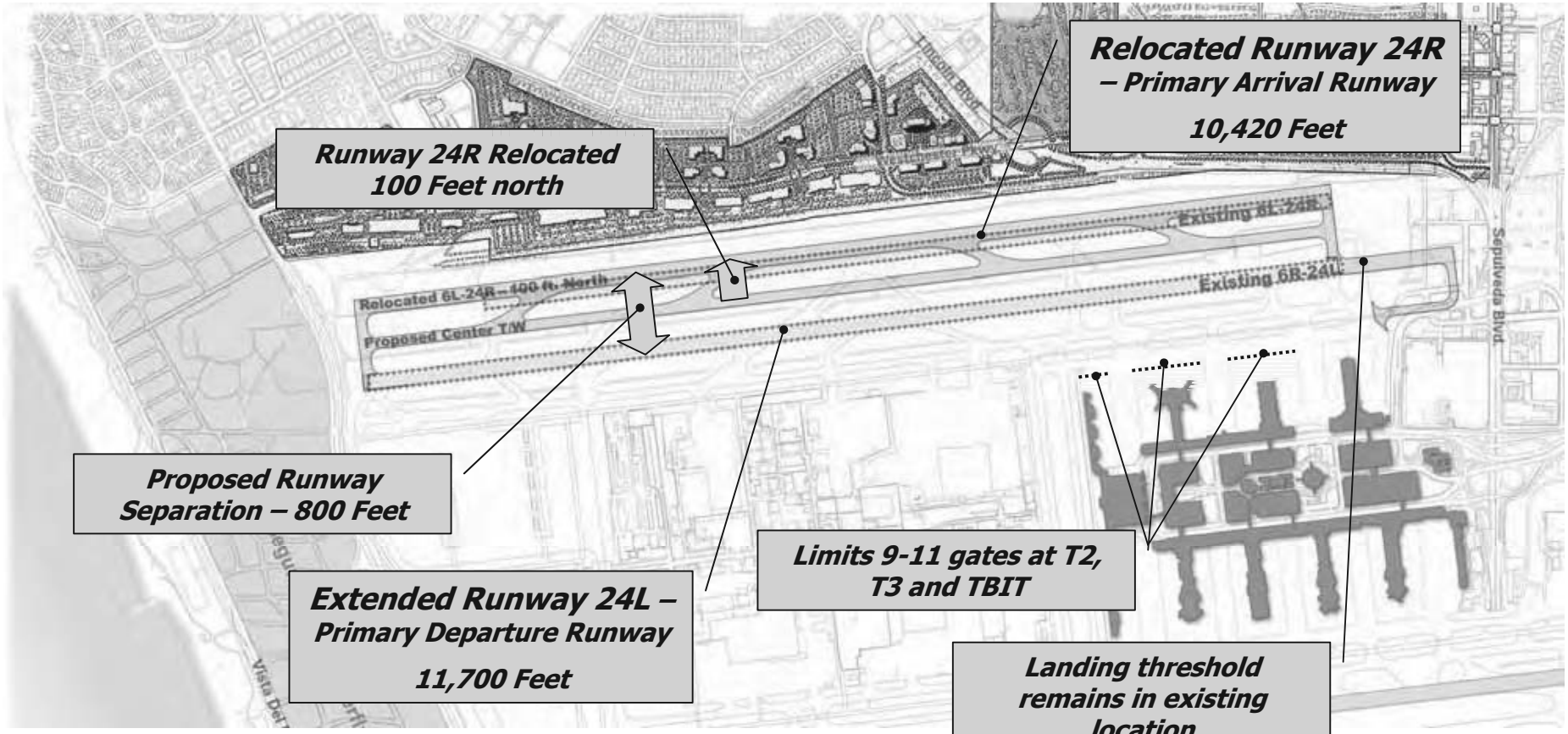


north

Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

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| **LAX Specific Plan Amendment Study Report** | **Initial Airfield Concept - Shift Runway 6L/24R 100' North** | Figure **5-22** |

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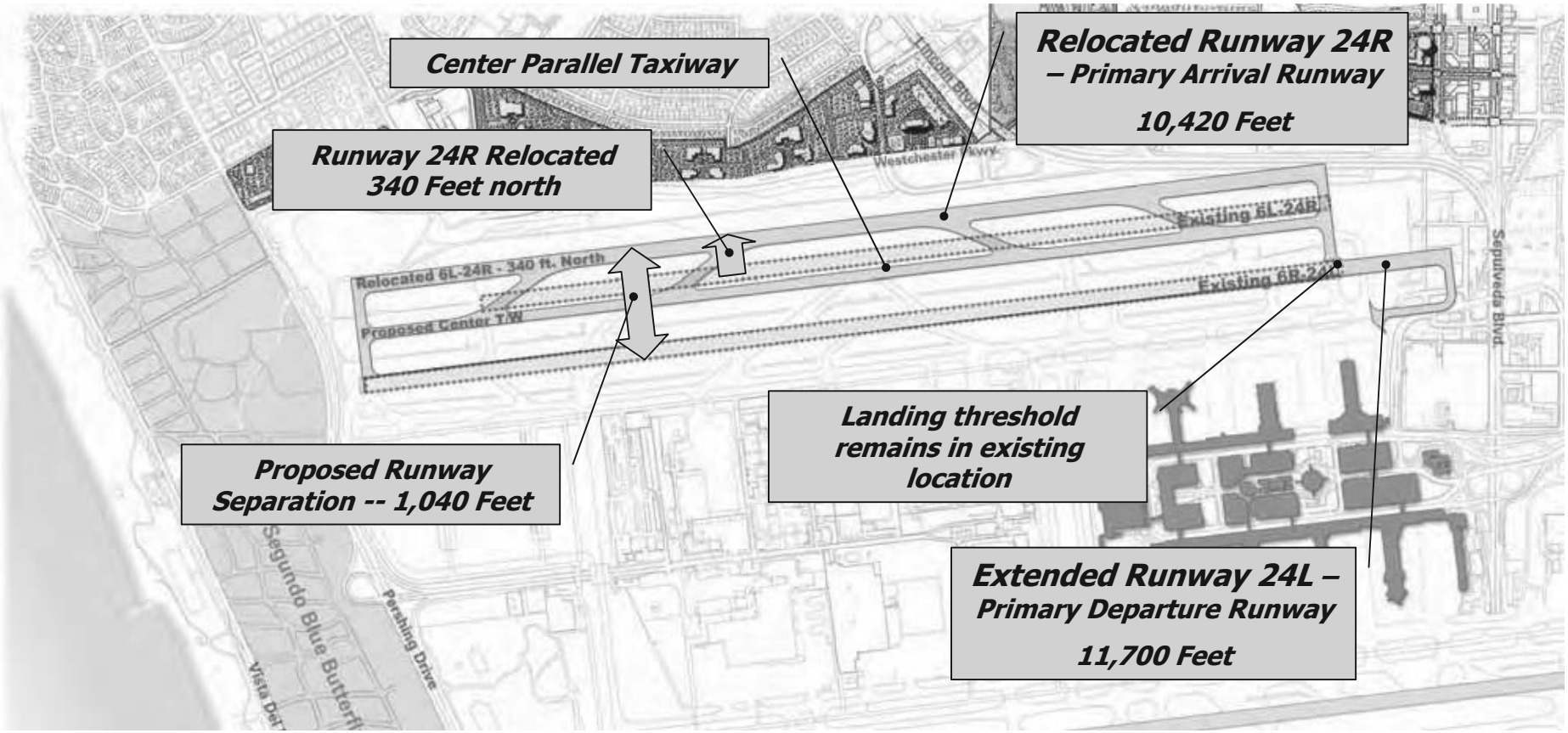


north

Source: Los Angeles World Airports, 2006.
Prepared by: CDM Smith, 2012.

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| **LAX Specific Plan Amendment Study Report** | **Initial Airfield Concept - Shift Runway 6L/24R 340' North** | Figure **5-23** |

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- Los Angeles International Airport Modernization - Tomorrow is Now, May 2007 - Twenty-two members of the Airline Pilots Association (ALPA)[14] formed a committee to present their findings and recommendations in a presentation entitled "Los Angeles International Airport Modernization - Tomorrow is Now." ALPA is an international organization of over 60,000 pilots representing over 40 airlines that is heavily engaged in safety issues and improvements for the airline industry.

  The ALPA Committee recommended that Runway 6L/24R be relocated northward to provide 623 feet, but not less than 550 feet, of runway to taxiway separation and that mirroring the separation on the south airfield is not an option.

- LAX North Airfield Proposed Runway Configuration - Safety Risk Assessment, May 2007 - The Washington Consulting Group, Inc. (WCG)[15] led a panel of subject matter experts through a safety risk assessment on the north airfield proposed runway configurations. WCG is an Air Traffic Management Systems and Air Traffic Controller Training firm that is expert in conducting an FAA defined Safety Risk Management (SRM) Study. The SRM panel was to identify operational hazards, analyze associated risks, and establish mitigating strategies to ensure the safe and expeditious management of air traffic and then specifically develop and prioritize improvements that will increase the level of airfield safety.

  The analysis by panel produced a list of ten preliminary hazards associated with aircraft operating on the existing north airfield. **Table 5-1** describes the ten hazards.

**Table 5-1**

**Preliminary Hazard List from 2007 North Airfield Safety Risk Assessment**

| Hazard Number | Summary of Hazard Description | Summary of Possible Effect |
|---|---|---|
| LAX 001 | Aircraft landing on Runway 24R, crossing Runway 24L without Air Traffic Control Tower (Control Tower) clearance at Taxiway (Twy) Y or Twy Z with a non-heavy aircraft departing on 24L | Reduction of separation by a high severity operational error that could lead to an aircraft collision, large reduction in safety margin, serious or fatal injury, physical distress and excessive workload |
| LAX 002 | Same as LAX 001 above, but with a heavy aircraft departing on Runway 24L | Same as LAX 001 above |
| LAX 003 | Aircraft landing on Runway 24R, crossing Runway 24L without Control Tower clearance at Twy AA or Twy BB with a heavy aircraft departing Runway 24L | Significant increase in ATC and Flight Crew workload; reduction in safety margin and physical discomfort of passengers |
| LAX 004 | Same as LAX 003 above, but with a non-heavy aircraft departing on Runway 24L | Slight reduction in ATC capability, slight increase in Flight Crew workload, reduction in safety margin and physical discomfort of passengers |
| LAX 005 | Arrival and departure occurring simultaneously on Runway 24L | Reduction of separation by a moderate severity operational error, significant increase in Flight Crew workload, significant reduction in safety margin, physical distress to passengers or possible injury |
| LAX 006 | Arrival and departure occurring simultaneously on Runway 24R | Same as LAX 005 above |
| LAX 007 | An arrival off of Runway 24R is holding at Twy AA or Twy BB when there is both a departure on Runway 24L and a new (trailing) arrival on Runway 24R, resulting in the | Reduction of separation by a high severity operational error that could lead to an aircraft collision, large reduction in safety margin, serious or fatal injury, physical distress and |

[14] Airline Pilots Association, Los Angeles International Airport Modernization - Tomorrow is Now, May 18, 2007.

[15] Washington Consulting Group, Inc., LAX North Airfield Proposed Runway Configuration - Safety Risk Assessment, May 2007.

**Table 5-1**

**Preliminary Hazard List from 2007 North Airfield Safety Risk Assessment**

| Hazard Number | Summary of Hazard Description | Summary of Possible Effect |
|---|---|---|
| | aircraft at Twy AA or BB being within an area designated as an Obstacle Free Zone (OFZ) | excessive workload |
| LAX 008 | Runway 24L in use for (sequenced) arrivals and departures and Taxiway E in use with an Aircraft Design Group (ADG) V aircraft (i.e., B747-400) or ADG VI aircraft (i.e., A380), resulting in the taxiing aircraft tail impeding on the runway OFZ | Reduction of separation by a moderate severity operational error, significant increase in Flight Crew workload, significant reduction in safety margin, physical distress to passengers or possible injury |
| LAX 009 | Runways 6R/24L and 6L/24R in use with increase of complexity associated with new fleet mix of ADG V/VI aircraft | Same as LAX 008 above |
| LAX 010 | Runway 24R in use and Aircraft Rescue and Fire Fighting (ARFF) equipment operating in runway safety area northeast of the runway, resulting in ARFF equipment inadvertently being within the runway OFZ | Slight increase of ATC complexity, no effect on Flight Crew, inconvenience |

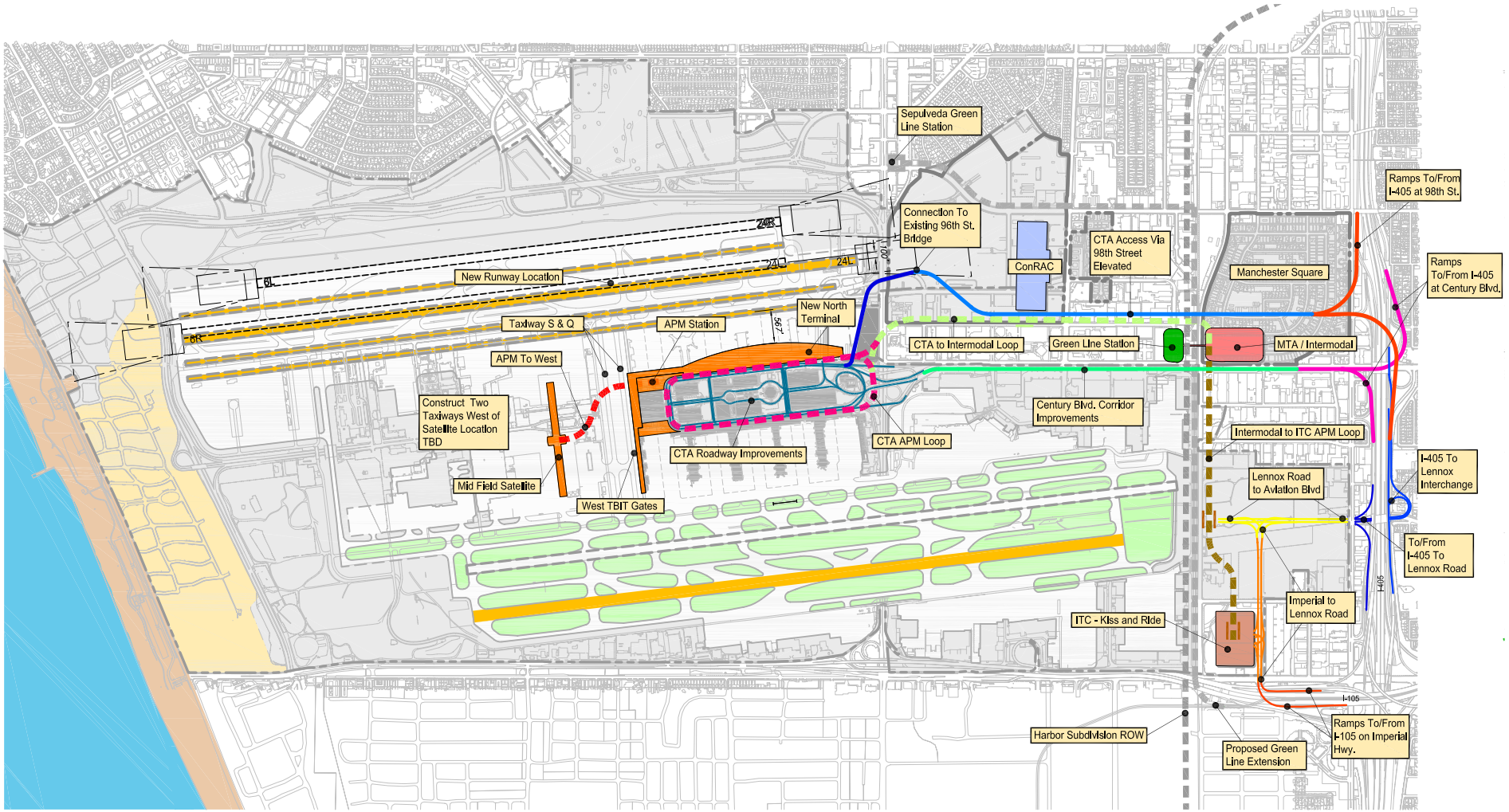
Source: CDM Smith, 2012, as summarized from Washington Consulting Group, Inc. LAX North Airfield Proposed Runway Configuration - Safety Risk Assessment, May 2007.

The panel evaluated each of the ten risks using the FAA SRM process and data specific to the design and operation of the north airfield, and rated each risk in terms of severity of safety consequences and likelihood of occurrence. The panel then reevaluated each of the ten risks assuming relocation of Runway 6L/24R 340 feet northward with a westward extension for a total length of 10,420 feet, addition of a centerfield parallel taxiway, eastward extension of Runway 6R/24L for a total length of 11,700 feet departure length, and realignment of exit taxiways. The conclusions of the evaluation indicated that the risk reductions associated with those improvements directly relate to the removal of the midfield high speed turnoffs to the immediate and adjacent parallel runway, increased distance between the parallel runways and operational opportunity for large/heavy aircraft to fully clear a runway after landing, and the change to procedures for aircraft taxiing on Taxiway E, as facilitated by and/or associated with, the addition of a centerfield parallel taxiway.

## 5.1.2.4 Initial Consolidated Concepts

Based on the initial ground access, terminal, and airfield concepts that were developed as a result of consultation with the SPAS Advisory Committee meetings, and with input from the community, the petitioner members of the Advisory Committee identified three consolidated concepts that were supported by these committee members. These three initial concepts are summarized below.

- Advisory Committee Unified Concept – This concept was predicated on the idea of moving Runway 6R/24L 100 feet to the south. The key elements of this concept, which are illustrated in **Figure 5-24**, include the following:
  - Ground Access: Incorporates key LAX Master Plan ground access facilities, including a new CONRAC along 98th Street, an ITC/"Kiss-and-Ride" facility in the area of Imperial Highway and Aviation Boulevard, and an APM to connect the ITC and the CONRAC to the CTA. New Green Line stations were anticipated to be located at a Metro/Intermodal facility at Aviation and Century Boulevards and on Sepulveda Boulevard at Westchester Parkway. Roadway improvements would include converting 98th Street to westbound traffic only with new access ramps from I-405,




north

Source: HNTB, LAX Concept Development Report and Planning Illustrations, May 2007.
Prepared by: CDM Smith, 2012.

| | | |
|---|---|---|
| **LAX Specific Plan Amendment Study Report** | **Initial Consolidated Concept - Advisory Committee Unified Concept (Runway 6R/24L 100' South)** | Figure **5-24** |

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and converting Century Boulevard to eastbound traffic only with a separate set of new entrance ramps from I-405. A new I-405 interchange would be built at Lennox Boulevard with a connection to Aviation Boulevard. New ramps to/from Imperial Highway would be built and connected to the new Lennox Boulevard connection to Aviation Boulevard. Roadway improvement would also be made along Century Boulevard and in the CTA.

- Terminal: Removes Terminals 1 through 3 and replaces them with an arc/curvilinear terminal. Gates would be added to the west side of TBIT and a new midfield satellite would be built, as approved in the LAX Master Plan. The midfield satellite would be connected to the main terminal area with an APM. TBIT would be expanded and would include an APM station.
- Airfield: Moves Runway 6R/24L 100 feet to the south with an extension to the east and adds a centerfield taxiway. Includes reconstruction of Taxiway E and Taxilane D, and the westerly extension of Taxilane D. Assumes construction of four crossfield taxiways to the east and west of the new midfield satellite, as approved in the LAX Master Plan.

- El Segundo/Inglewood Concept – This concept was focused around the movement of Runway 6L/24R 100 feet to the north and was favored by Advisory Committee members City of El Segundo and City of Inglewood. The key elements of this concept, which are illustrated in **Figure 5-25**, include the following:
  - Ground Access: Improvements are the same as the "Unified" concept identified above.
  - Terminal: Adds new gates on the west side of TBIT and includes a new midfield satellite with an APM connection to the main terminal area, as approved in the LAX Master Plan. TBIT would be expanded and would include an APM station.
  - Airfield: Moves Runway 6L/24R 100 feet to the north with an extension to the west and adds a centerfield taxiway. In addition, Runway 6R/24L and Taxiway E would be extended to the east. Assumes construction of four crossfield taxiways to the east and west of the new midfield satellite, as approved in the LAX Master Plan.
- ARSAC/Westchester Concept – This concept assumed no physical changes to the north airfield and was favored by Advisory Committee member ARSAC. The key elements of this concept, which are illustrated in **Figure 5-26**, include the following:
  - Ground Access: Improvements are the same as the "Unified" and "El Segundo/Inglewood" concepts identified above.
  - Terminal: Adds new gates on the west side of TBIT and includes a new midfield satellite with an APM connection to the main terminal area, as approved in the LAX Master Plan. TBIT improvements would include an APM station.
  - Airfield: This concept includes no physical changes to the north airfield, but would rely on operational improvements to the airfield (for example, runway status lights) and additional Airport Traffic Control Tower personnel. Assumes construction of four crossfield taxiways to the east and west of the new midfield satellite, as approved in the LAX Master Plan, and an APM connecting the satellite to the CTA.

## 5.2 First Iteration SPAS Concepts

Based on input received during the SPAS Advisory Committee and community meetings described above and in Chapter 4, *SPAS Community/Advisory Committee Input*, LAWA developed several initial alternatives for evaluation in the SPAS Draft EIR. These alternatives incorporated comments and concepts identified during the community and Advisory Committee consultation process. As discussed in Section 2.1.1.3, LAWA circulated an NOP for the preparation of a SPAS Draft EIR in 2008, which included these alternatives.

The 2008 SPAS NOP identified six alternatives to be evaluated in the Draft EIR, including two variations of the No Project Alternative. The alternatives, which were identified according to their airfield configurations, included:

- No Project/No Development (Existing Conditions)
- No Project/No Specific Plan Amendment (Implement Approved Master Plan)
- Runway 6R/24L 100' South
- Existing Runways with Operational Improvements Only
- Runway 6L/24R 100' North
- Runway 6L/24R 340' North

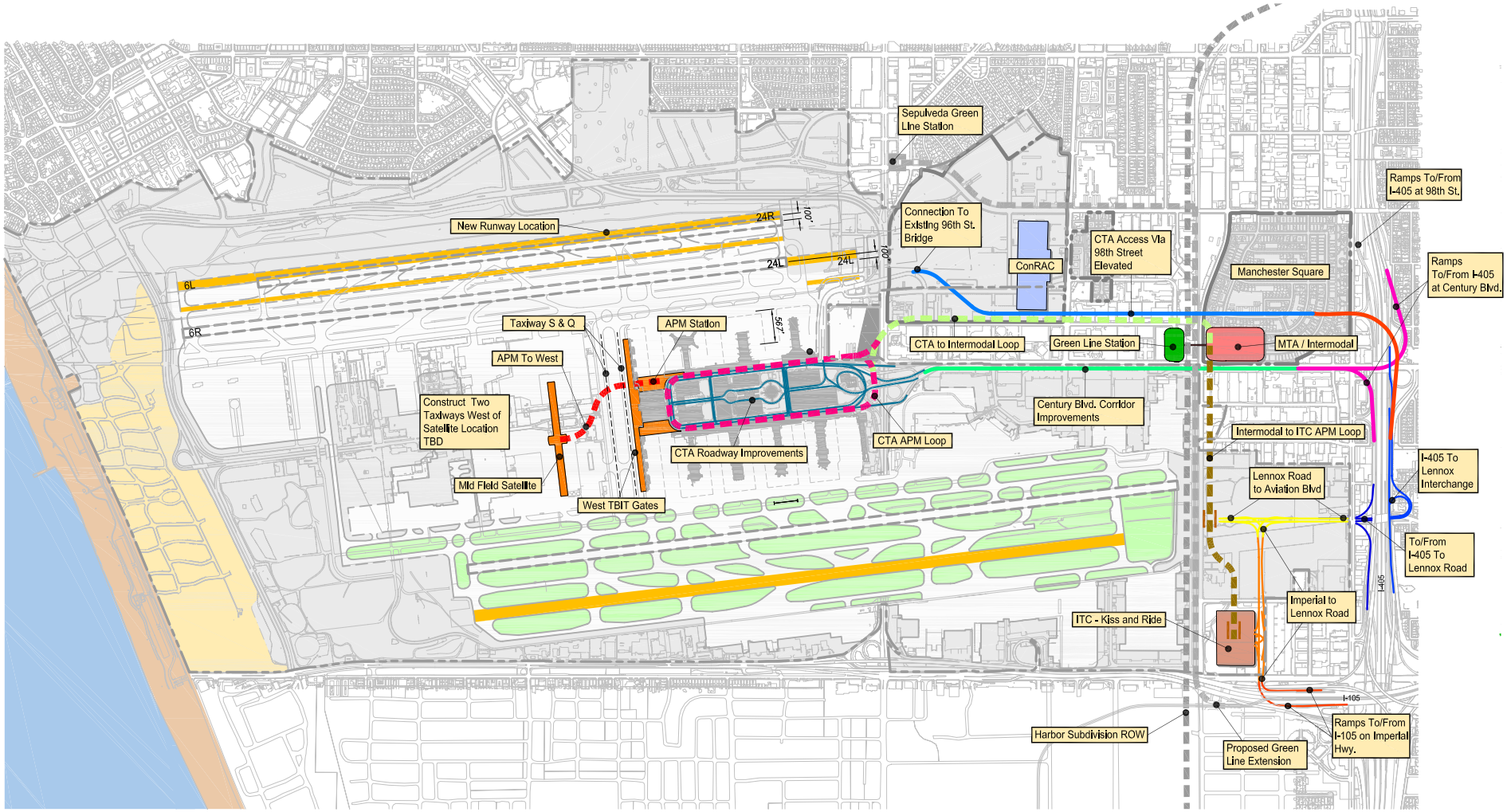
These alternatives included the following terminal configurations:

- New Linear Terminal (Approved Master Plan)
- New Curvilinear Terminal (associated with Runway 6R/24L 100' South alternative)
- Drop Off/Pick Up Area east of Terminal 1 (associated with Existing Runways with Operational Improvements Only alternative)
- No Terminal Improvements (associated with Runway 6L/24R 100' North, and Runway 6L/24R 340' North alternatives)

These alternatives included the following ground access improvements:

- Close access to CTA, GTC in Manchester Square, ITC in Continental City, two separate APMs (with CONRAC and West Employee Parking projects assumed as approved Master Plan projects) (Approved Master Plan)
- Maintain access to CTA, transportation centers in Continental City and Manchester Square, modified APM between the transportation centers and CTA, connectivity to future Metro Green Line extension (all other build alternatives)

The basic characteristics of the six alternatives identified in the 2008 NOP are summarized in **Table 5-2** and illustrated in **Figures 5-27** through **5-32**. Further descriptions of the six initial alternatives identified for environmental analysis are included in Appendix E3-1, *2008 SPAS NOP*.




north

Source: HNTB, LAX Concept Development Report and Planning Illustrations, May 2007.
Prepared by: CDM Smith, 2012.

| | | |
|---|---|---|
| **LAX Specific Plan Amendment Study Report** | **Initial Consolidated Concept - El Segundo/Inglewood Concept (Runway 6L/24R 100' North)** | Figure **5-25** |

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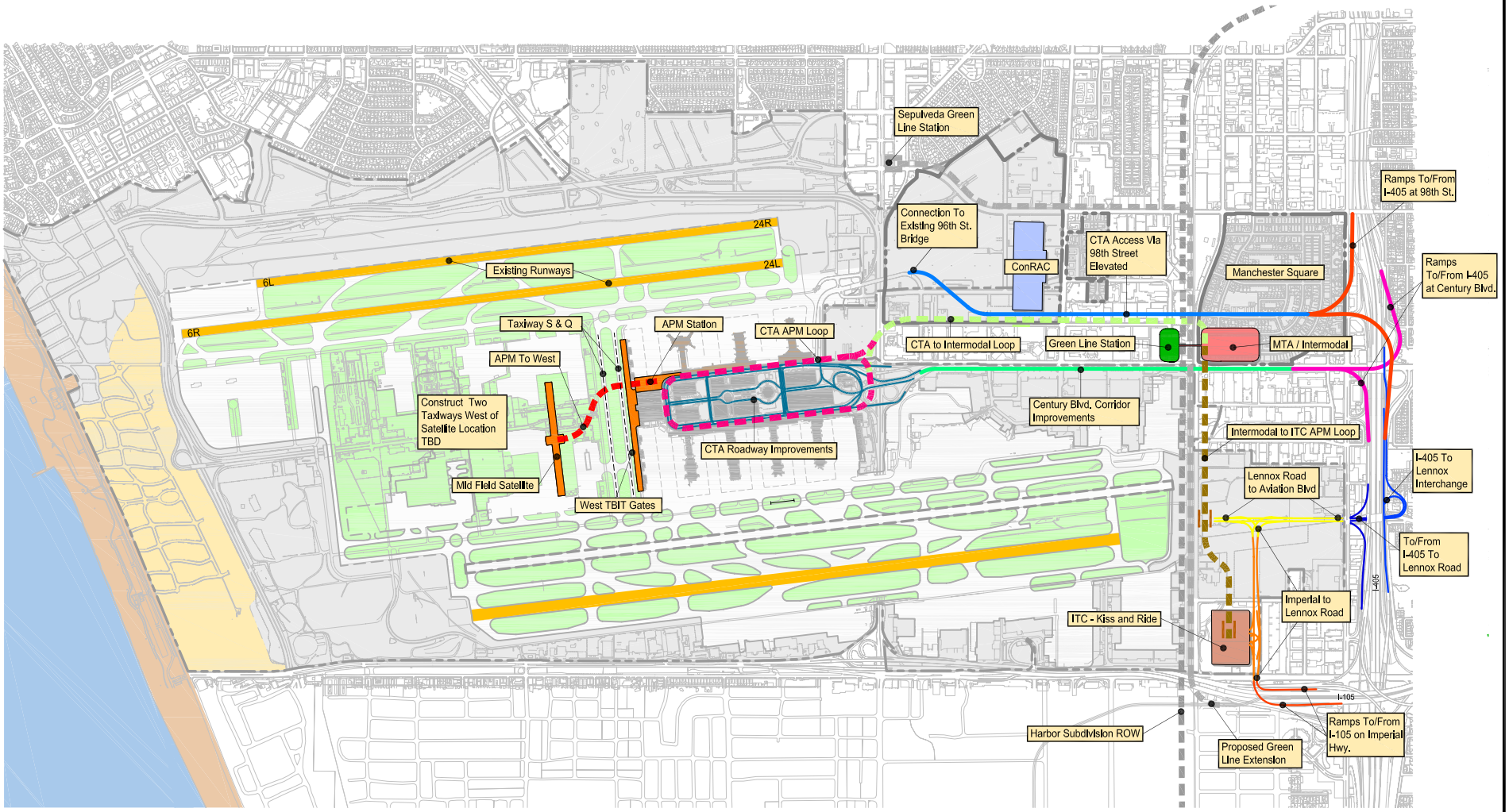


north

Source: HNTB, LAX Concept Development Report and Planning Illustrations, May 2007.
Prepared by: CDM Smith, 2012.

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| **LAX Specific Plan Amendment Study Report** | **Initial Consolidated Concept - ARSAC/Westchester Concept (No Change to the North Airfield)** | Figure **5-26** |

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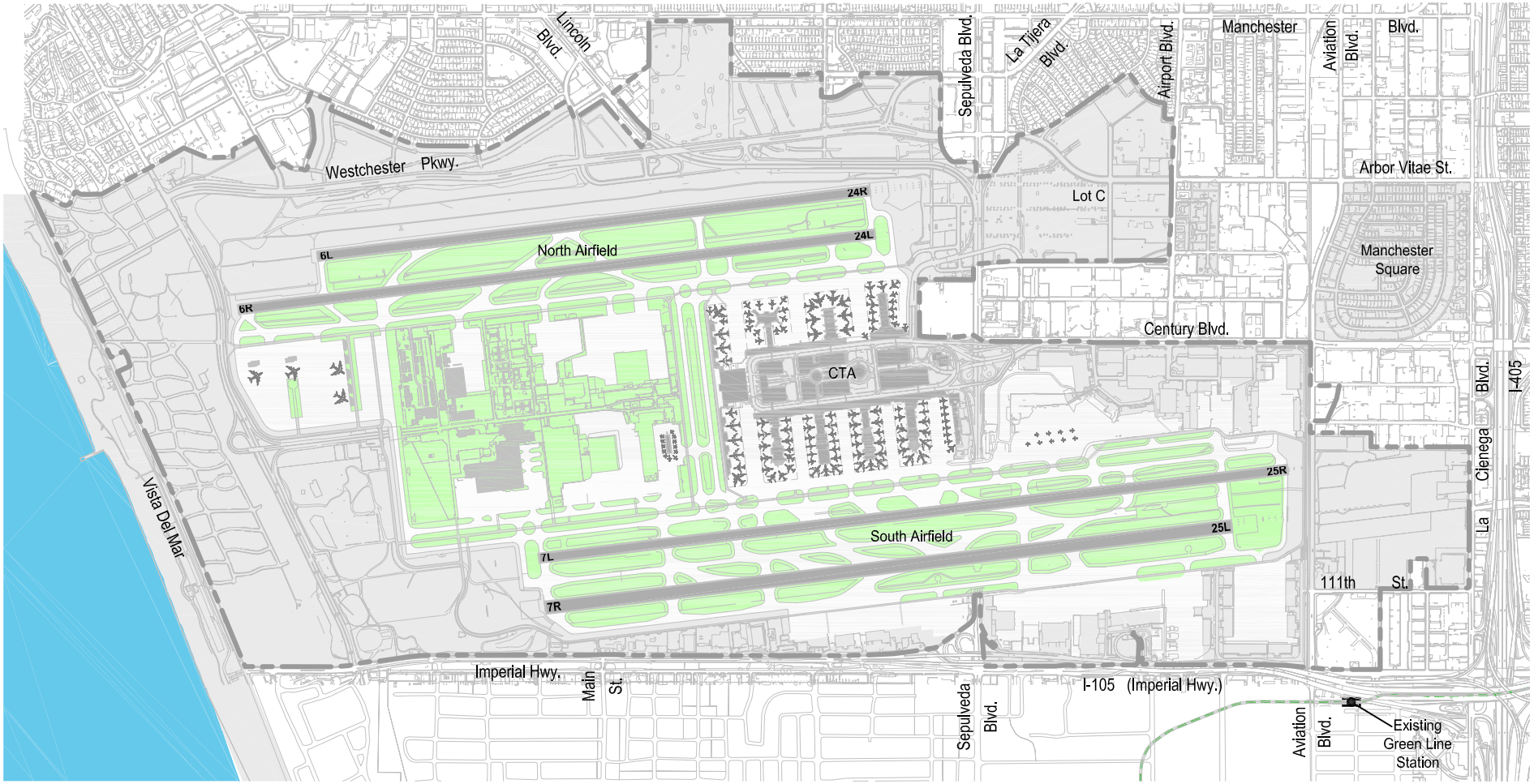


north

Source: Los Angeles World Airports, 2008.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 1st Iteration Concept - No Project/No Development (Existing Conditions) | Figure 5-27 |
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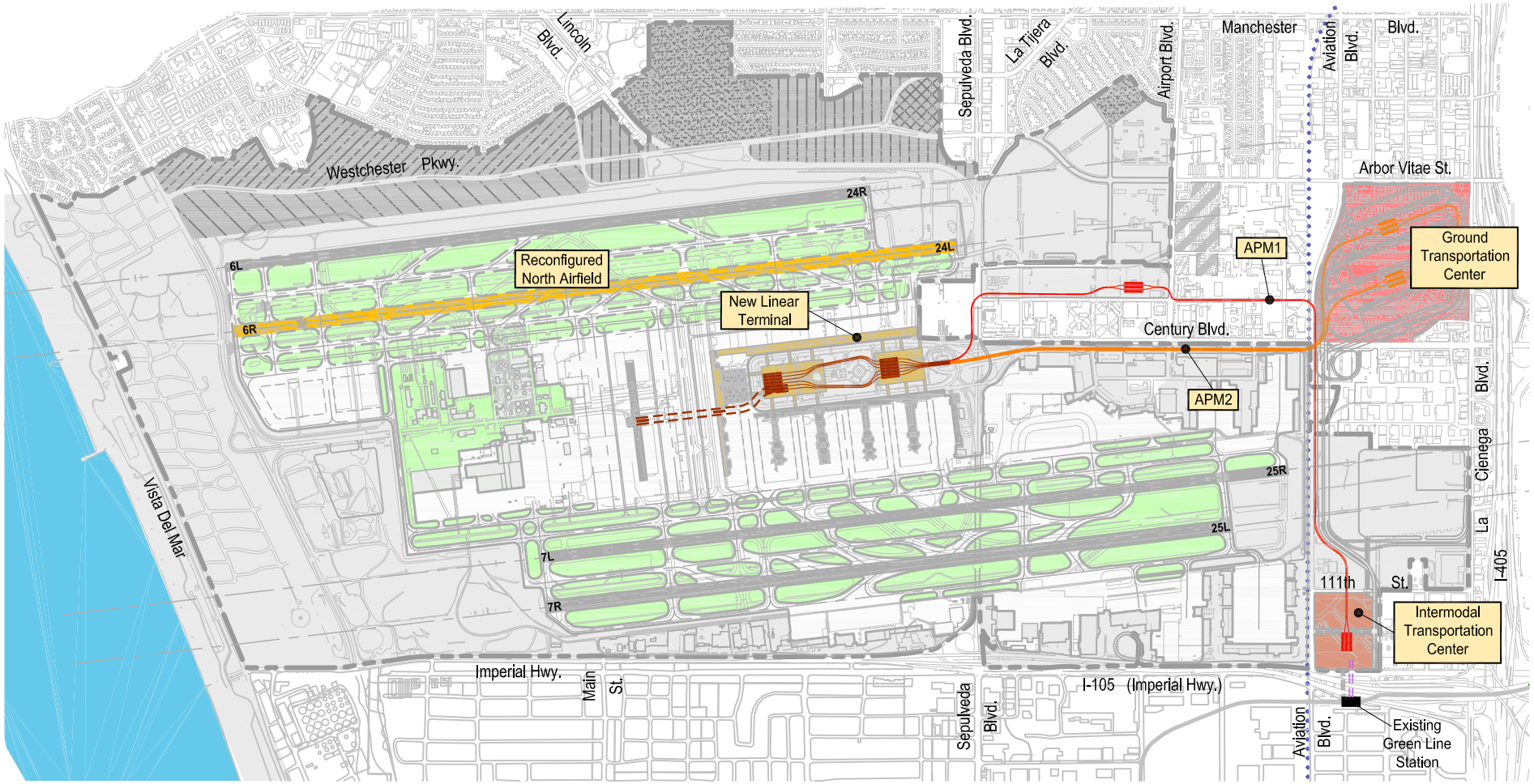


north

Source: Los Angeles World Airports, 2008.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 1st Iteration Concept - No Project/No Specific Plan Amendment (Implement Approved Master Plan) | Figure 5-28 |
|---|---|---|

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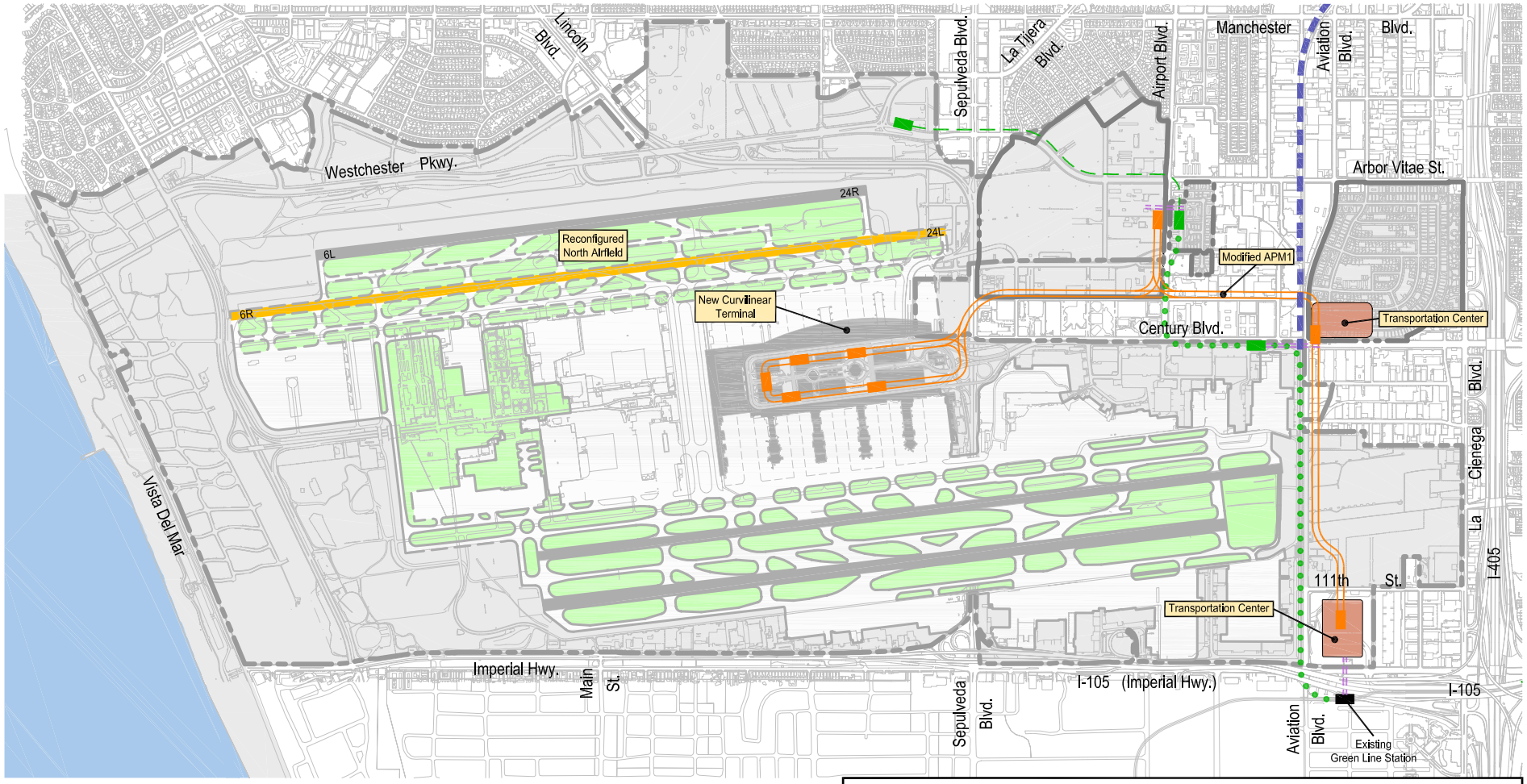


north

Source: Los Angeles World Airports, 2008.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 1st Iteration Concept - Runway 6R/24L 100' South | Figure 5-29 |
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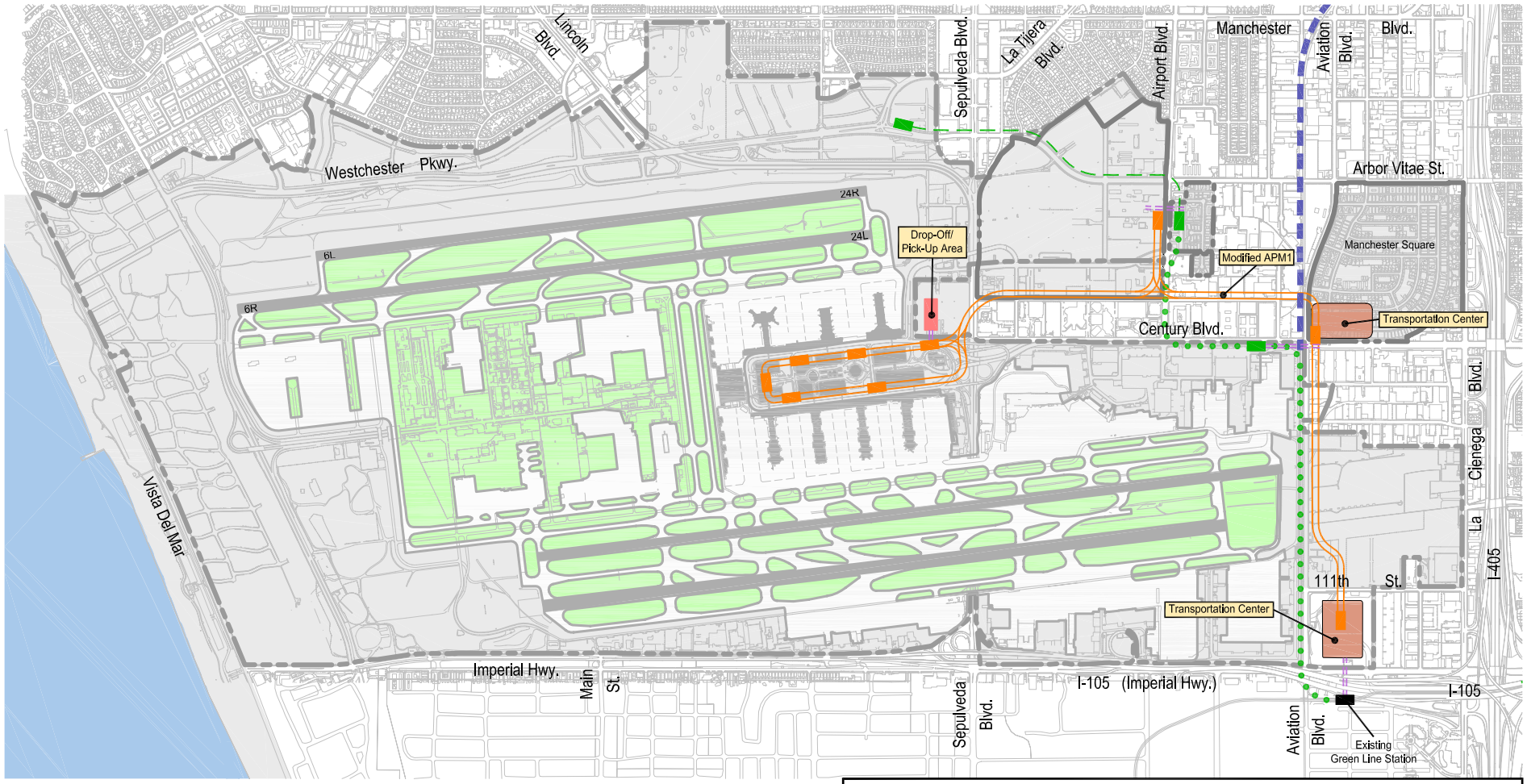


## Legend

- APM Line
- APM Station
- Pedestrian Walkways
- Possible Future Transit
- Possible Extension of Green Line - Minimum Operable Segment
- Possible Future Extension of Green Line
- Possible Green Line Station

north

Source: Los Angeles World Airports, 2008.
Prepared by: CDM Smith, 2012.

**LAX Specific Plan Amendment Study Report**

**1st Iteration Concept - Existing Runways with Operational Improvements Only**

Figure
**5-30**

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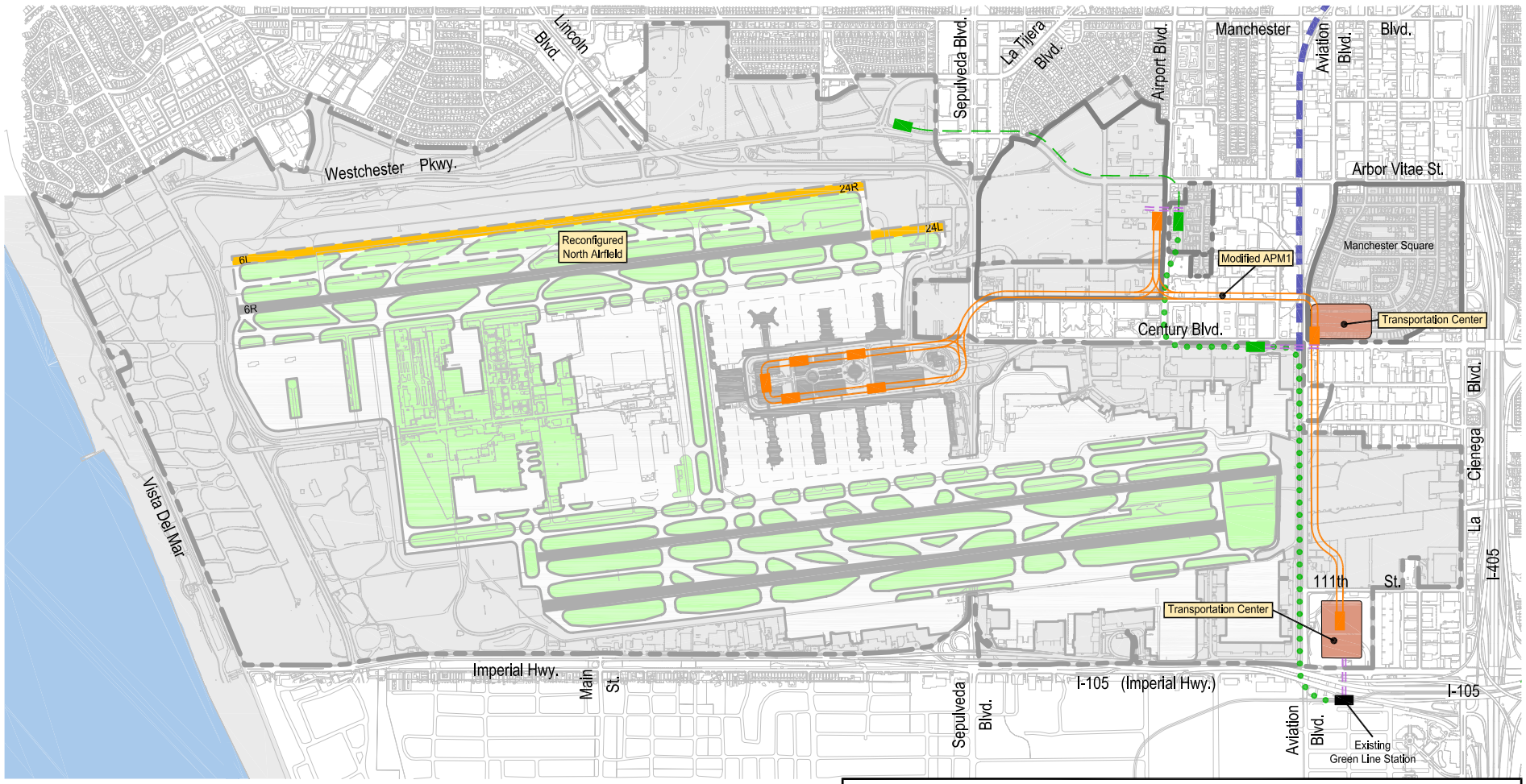


## Legend

- APM Line
- APM Station
- Pedestrian Walkways
- Possible Future Transit
- Possible Extension of Green Line - Minimum Operable Segment
- Possible Future Extension of Green Line
- Possible Green Line Station

north

Source: Los Angeles World Airports, 2008.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 1st Iteration Concept - Runway 6L/24R 100' North | Figure 5-31 |
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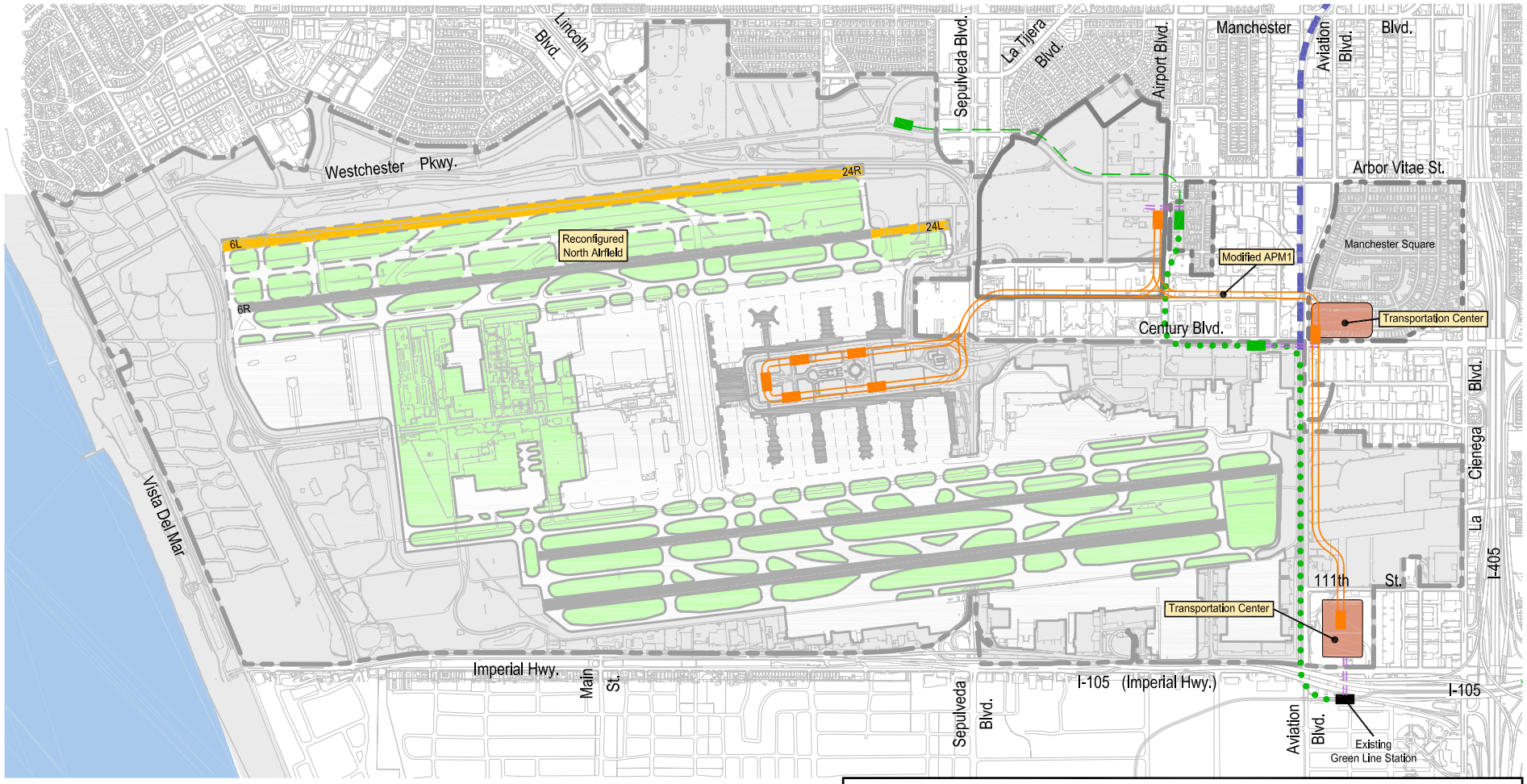


Source: Los Angeles World Airports, 2008.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 1st Iteration Concept - Runway 6L/24R 340' North | Figure 5-32 |
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**Table 5-2**

**Initial Alternatives Identified in the 2008 SPAS NOP**

| Yellow Light Project Options | No Project/ No Development Alternative | No Project/ No SPAS Alternative (Approved Master Plan) | Runway 6R/24L 100' South Alternative | Existing Runways | Runway 6L/24R 100' North Alternative | Runway 6L/24R 340' North Alternative |
|---|---|---|---|---|---|---|
| **North Airfield Reconfiguration** | | | | | | |
| Keep Existing Runway Layout | X | | | X | | |
| Move Runway 6R/24L 340' South | | X | | | | |
| Move Runway 6R/24L 100' South | | | X | | | |
| Move Runway 6L/24R 100' North | | | | | X | |
| Move Runway 6L/24R 340' North | | | | | | X |
| **Demolition of Terminals 1, 2, and 3** | | | | | | |
| Keep Existing Terminals 1-3 | X | | | X | X | X |
| Demolish Terminals 1-3 | | X | X | | | |
| **Ground Transportation Center** | | | | | | |
| Keep Existing CTA Ground Access System (CTA Open to Public Access - No GTC) | X | | X | X | X | X |
| Close CTA to Public Access - Build GTC | | X | | | | |
| Keep CTA Open to Public Access - Build Transportation Centers at Manchester Square and Aviation/Imperial | | | X | | X | X |
| Keep CTA Open to Public Access - Build Transportation Centers at Manchester Square and at Aviation/Imperial and Provide New Drop Off/Pick Up Area East of Terminal 1 | | | | X | | |
| **Automated People Mover 2** | | | | | | |
| Existing Conditions (No APM) | X | | | | | |
| Build APM 2 (Connecting GTC to CTA) | | X | | | | |
| Build Modified APM 1 instead of APM 2 to connect Transportation Centers to CTA | | | X | | X | X |
| Build Modified APM 1 instead of APM 2 to connect Transportation Centers and New Drop Off/Pick Up Area East of Terminal 1 to CTA | | | | X | | |
| **On-Site Road Improvements Associated with the GTC and APM 2** | | | | | | |
| Existing System (No GTC and APM 2; therefore No GTC/APM-Related Road Improvements) | X | | X | X | X | X |
| Build On-Site Road Improvements Associated with the GTC and APM 2 | | X | | | | |

Source: City of Los Angeles, Los Angeles World Airports, Notice of Preparation of a Draft Environmental Impact Report for the Los Angeles International Airport Specific Plan Amendment Study, March 2008.

# 5.3 Refinement of First Iteration SPAS Concepts

## 5.3.1 Factors Influencing Refinements

As discussed in Section 2.1.1.3, subsequent to circulation of the SPAS NOP in 2008, LAWA reconsidered and refined the options for potential alternative designs, technologies, and configurations to be evaluated in the SPAS Report and SPAS EIR. Input received during the SPAS EIR scoping meetings in 2008 contributed to the refinement of the alternatives to the Yellow Light Projects identified in the 2008 SPAS NOP. Additional sources of information and changes leading to reconsideration of the Yellow Light Project options included the following:

- **Completion of LAX North Airfield Safety Study** (February 19, 2010),[16] which found that, although the current north airfield configuration provides a high level of safety, changes to the configuration by further separating the runways would enhance safety and reduce airport congestion during peak hours. (This study is provided in Appendix H, *North Airfield Safety Assessments*.)
- **Letter from FAA regarding LAX North Airfield Safety Study** (April 2, 2010),[17] urging the City of Los Angeles and the Board of Airport Commissioners to reconfigure the north airfield in order to "address the known safety risks, improve efficiency, and meet design standards on the LAX north airfield."
- **Acquisition of the Park One parking facility by LAWA** (July 28, 2009), which provides additional area for airport improvements.
- **Subsequent analysis of the CONRAC by LAWA** (2009-2010), including evaluation of the CONRAC in the absence of a GTC in Manchester Square, consideration of financial feasibility, and assessment of the implications for traffic and air quality associated with a CONRAC.
- **Subsequent analysis of CTA circulation options by LAWA** (2009-2010), which evaluated measures to improve traffic circulation while keeping the CTA open to private vehicles.
- **Updated 2009 Los Angeles County Metropolitan Transportation Authority (Metro) Long Range Transportation Plan** (adopted October 2009),[18] including Crenshaw-LAX Transit Corridor Project and Green Line Extension and the related proposed transit station on Aviation Boulevard between 98th Street and Century Boulevard.

The following identifies some of the background and reasoning for refinements to the first iteration SPAS Concepts.

## 5.3.2 Refined Concept Development

### 5.3.2.1 Refined Ground Access Concepts

The configuration of the future LAX ground access components continued to evolve after the first iteration of the SPAS concepts. The refinement of the ground access components focused on the following:

- Keeping the CTA open to public traffic
- Eliminating the need for a transportation facility along Aviation Boulevard at Imperial Highway
- Development of a transportation facility closer to the terminal along 98th Street
- Development of a CONRAC in the Manchester Square area, instead of in the Lot C area as approved in the LAX Master Plan

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16 Dr. Arnold Barnett (Chairman), Dr. Michael Ball, Dr. George Donohue, Dr. Mark Hansen, Dr. Amedeo Odoni, Dr. Antonio Trani, Los Angeles International Airport North Airfield Safety Study, February 19, 2010.

17 FAA Administrator (J. Randolph Babbitt) Letter to Mayor Villaraigosa, Los Angeles International Airport North Airfield Safety Study, April 2, 2010.

18 Los Angeles County Metropolitan Transportation Authority, 2009 Long Range Transportation Plan, October 2009.

- Maintaining and expanding Public Parking Lot C
- Eliminating the concept for a West Employee Lot and adding employee parking in the Manchester Square area or at the eastern end of the Public Parking Lot C area
- Providing dedicated access to connect ground transportation functions between the Manchester Square and the CTA, to include an APM or busway

In addition to the refinement of the ground access components above, LAWA also began to evaluate new roadway concepts due to refinements in airfield and terminal concepts. These concepts included the realignment of Lincoln Boulevard to meet Runway Safety Area (RSA) requirements for some Runway 6L/24R concepts and the relocation of Sky Way to the east because of the introduction of Terminal 0, described below. The analysis of the ground access concepts during this iteration is further detailed in Appendix E2, *Ground Access Concept Development*, with the exception of the Lincoln Boulevard realignment which is documented in Appendix E1, *Airfield and Terminal Concept Development*.

### 5.3.2.2 Refined Terminal Concepts

The refinement of SPAS airfield concepts led to the evaluation of new terminal concepts that did not involve the complete demolition of Terminals 1-3. This included terminal concepts that would be compatible with moving Runway 6R/24L 100 feet to the south as well as with airfield concepts that kept Runway 6R/24L in its current location. Because the existing distance between Runway 6R/24L and Terminals 1-3 does not meet full FAA taxiway and taxilane separation standards for aircraft larger than ADG III (i.e., B-737s), the introduction of new airfield alternatives also provided the opportunity to evaluate new taxiway/taxilane options that would allow for improved operational efficiency of aircraft larger than ADG III. The limited distance between Runway 6R/24L and existing terminal facilities also meant that any option to improve taxiing capabilities for larger aircraft in this area would also involve "down-sizing" or eliminating some gates at Terminals 1-3. The gate impact analysis for the various taxiway/taxilane options between Runway 24L and the terminal is included in Appendix E1, *Airfield and Terminal Concept Development*. The results of the gate impact analysis determined that the various development options for Terminals 1-3 required the need to replace the impacted and eliminated gates with a new Concourse 0, as well as extensions to TBIT and MSC.

### 5.3.2.3 Refined Airfield Concepts

Refinements to the airfield options were based on completion of the LAX North Airfield Safety Study[19], the Runway Safety Area (RSA) Practicability Study[20] (which included all runway ends at LAX), and the Interim Runway Taxiway Safety Improvement (ITSIP) Project.[21] Additionally, airfield safety improvements that had been incorporated into the first iteration concept referred to as Existing Runways with Operational Improvements Only were already being implemented, including enhanced runway pavement markings, signage and lighting, the deployment of Runway Status Lights (prototype program), and the installation of Runway Status Lights (Phase II). Therefore, this concept was dropped from further consideration.

The approved LAX Master Plan, which included the 340-foot south relocation of Runway 6R/24L, had been based on then-current FAA guidelines for separation distances for New Large Aircraft (Aircraft Design Group [ADG] VI) aircraft. Due to additional operational analysis by FAA since development of the LAX Master Plan, separation distances for ADG VI have been revised. The first iteration 340-foot north option was a concept considered to have the same operational benefits as the original 340-foot south alternative in the LAX Master Plan. Although the 340-foot south alternative was approved in the LAX Master Plan, a 340-foot north concept would not likely be approved by the FAA with the same operational

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19 Dr. Arnold Barnett (Chairman), Dr. Michael Ball, Dr. George Donohue, Dr. Mark Hansen, Dr. Amedeo Odoni, Dr. Antonio Trani, Los Angeles International Airport North Airfield Safety Study, February 19, 2010.

20 City of Los Angeles, Los Angeles World Airports, Airports Facilities and Planning Division, Runway Safety Area Practicability Study; Runways 6L/24R and 6R/24L, April 9, 2010.

21 City of Los Angeles, Los Angeles World Airports, Comparative Safety Risk Assessment; Interim Taxiways Safety Improvement Project, July 2010.

benefits because of the revised separation standards for ADG VI aircraft. Therefore, the 340-foot north concept identified in the first iteration of the SPAS concepts was dropped from further consideration.

Although the 340-foot north concept was eliminated, airfield operational benefits can still be obtained from moving Runway 6L/24R to the north more than 100 feet. Because these benefits could vary with many different separation options, LAWA initiated a detailed analysis of various options at specific distances that would provide operational benefits. These refined concepts included moving Runway 6L/24R to the north at 200, 300, 400, and 500 foot distances. The refinements also evaluated options that would keep the Runway 24R approach Runway Protection Zone (RPZ) clear of residential properties east of the runway. A refined concept was developed that included displacing the Runway 24R landing threshold 604 feet to the west as well as extending the runway 604 to the west to maintain the runway's existing landing length. Because Runway 6L/24R would be extended to the west 604 feet, the landing threshold for Runway 6L would be displaced 604 feet to the east to maintain the existing glide path for Runway 6L approaches.

## 5.4 Second Iteration SPAS Concepts

As indicated above, based on subsequent information and events, including completion of the North Airfield Safety Study in 2010 and FAA and City response to the study, updates to Los Angeles County mass transit plans, acquisition of Park One by LAWA, and further analysis of the ground transportation system by LAWA, as well as additional community input received during the scoping meetings for the Draft EIR in 2008, LAWA expanded and refined options for the potential alternative SPAS designs, technologies, and configurations.

The SPAS Revised NOP identified the following airfield, terminal, and ground access options:

### Airfield Options

- Move Runway 6R/24L 340' south (approved Master Plan)
- Move Runway 6R/24L 100' south (with two taxiway/taxilane variations)
- Move Runway 6L/24R 100' north
- Move Runway 6L/24R 200' north
- Move Runway 6L/24R 300' north
- Move Runway 6L/24R 400' north

### Terminal Options

- Demolish most of Terminals 1-3, including the terminal piers/concourses in their entirety (Approved Master Plan)
- No Demolition of Terminal 1-3 buildings, addition of Concourse 0, deletion of northernmost gates at TBIT, northerly extensions of TBIT and MSC (associated with one of the Runway 6R/24L 100-foot south taxiway/taxilane options and all of the Runway 6L/24R north options)
- Partial demolition of Terminal 1 building, addition of Concourse 0, deletion of northernmost gates at TBIT, smaller northerly extensions of TBIT and MSC (associated with the other Runway 6R/24L 100-foot south taxiway/taxilane option)

### Ground Access Options

- Close access to CTA - build GTC at Manchester Square (Approved Master Plan)
- Maintain access to CTA - build employee parking lot at Manchester Square and transportation facility south of Lot C and north of 98th Street, connected to one another and to the CTA by a dedicated access route, and redesign the CTA entry roadways (Ground Transportation Concept A)

- Maintain access to CTA - build CONRAC at Manchester Square, public and employee parking in Lot C, and transportation facility south of Lot C and north of 98th Street, connected to one another and to the CTA by an APM, and redesign the CTA entry roadways (Ground Transportation Concept B)

### APM 2 Options

- Build APM 2 (Approved Master Plan)
- Do not build APM 2 - build a dedicated route between Manchester Square and the CTA (included in Ground Transportation Concept A)
- Build a modified APM 2 (included in Ground Transportation Concept B)

The airfield options are illustrated in **Figures 5-33** through **5-38**, terminal options in **Figures 5-39** through **5-42**, and ground transportation options in **Figures 5-43** through **5-44**. Further descriptions of the airfield, terminal, ground transportation, and APM 2 options identified in the SPAS Revised NOP are included in Appendix E3-2, *2010 SPAS Revised NOP*.

At the time the SPAS Revised NOP was published, LAWA had not determined which combinations of the various elements (i.e., north airfield reconfiguration options, options regarding Terminals 1-3, ground access options, and APM options) would be considered as alternatives in the SPAS EIR.

## 5.5 Refinement of Second Iteration SPAS Concepts

Following the publication of the SPAS Revised NOP described in the previous section and receipt and review of public and agency comments on the NOP, the concepts were evaluated relative to a variety of metrics in order to refine or validate each concept. The sections below describe the various analyses conducted related to the airfield, terminal, and ground access improvements associated with each concept.

### Airfield Concepts

Analyses were undertaken to evaluate both the operational capability of the airfield and potential physical effects. The operational analyses included pilot line-of-sight, Obstacle Free Zone (OFZ) aircraft profiles, and take-off length requirements. Analyses related to the physical effects of the various airfield improvement concepts included evaluation of land uses within the RPZ, modifications to the Argo Drainage Channel, realignment of Lincoln Boulevard, siting of navigational aids, relationship of the concepts to the abandoned tunnel segment that lies beneath Runway 6L/24R, airspace obstruction identification, and consequences of the Taxilane D extension.

Below is a description of the various analyses and their resulting conclusions.

### Pilot Line-of-Sight

In February 2010, an Academic Panel completed the *Los Angeles International Airport (LAX) North Airfield Safety Study* with the primary purpose of estimating the potential level of safety for the existing and prospective north airfield configurations. As part of the study, the Academic Panel examined characteristics of airport geometric design that could impact the level of safety. One such area of evaluation was the ability of taxiing aircraft to maneuver in such a way that pilots can observe the departure/arrival end of the active runway. This concept was applied to the evaluation of the SPAS Revised NOP concepts.

PathPlanner A5©, a Computer-Aided Design (CAD) based aircraft tracking program developed by Simtra AeroTech, was used to simulate the aircraft taxi movements associated with each of the SPAS Revised NOP concepts to determine the ability of a pilot to observe the departure/arrival end of Runway 6R/24L upon reaching the hold line during a turn from a centerfield taxiway.

Results of the pilot line-of-sight analysis indicated that greater separations between a future centerfield taxiway and Runway 6R/24L would increase the number of different aircraft types that could see the east end of Runway 6R/24L when at the hold line. Additionally, the methodology developed for the analysis

also provided the separation requirements that would allow specific aircraft types to be able to see the east end of Runway 6R/24L from the hold line. For ADG V aircraft and the B747-8, 460 feet of separation between a future centerfield taxiway and Runway 6R/24L would be sufficient to provide this line-of-sight. For the A380-800, the necessary separation is 465 feet.

The assumptions, methodology, and results of the analysis are described in detail in the *Runway Visibility for North Airfield Concepts* memorandum, provided in Appendix E1, *Airfield and Terminal Concept Development.*

## OFZ Aircraft Profiles

In order to evaluate the potential for aircraft to operate on runway-taxiway separations that are less than the standards listed in FAA Advisory Circular (AC) 150/5300-13, *Airport Design,* profiles depicting various aircraft types on the centerfield taxiway relative to the Runway 24L and 24R OFZs were developed. Aircraft types that remained clear of both OFZs for a runway-taxiway separation that is less than the FAA standard resulted in the assumption that LAWA would request and obtain a Modification of Standard (MOS) for that condition.

The OFZ aircraft profiles indicated that greater separations between a future centerfield taxiway and Runways 6R/24L and 6L/24R would increase the number of different aircraft types able to operate on the centerfield taxiway without penetrating the OFZs. Additionally, the methodology developed for the analysis also provided the separation necessary between Runway 6L/24R and a centerfield taxiway for specific aircraft types to remain clear of the Runway 24R OFZ while turning from the centerfield taxiway to the hold line prior to crossing runway 6R/24L. For ADG V aircraft and the B747-8, 445 feet of separation between a future centerfield taxiway and Runway 6L/24R would be sufficient to prevent OFZ penetration. For the A380-800, the necessary separation is 515 feet.

The assumptions, methodology, and results of the analysis are described in detail in the *Runway Visibility for North Airfield Concepts* memorandum, provided in Appendix *E1, Airfield and Terminal Concept Development*.

## Take-off Length Analysis For Runway 6R/24L

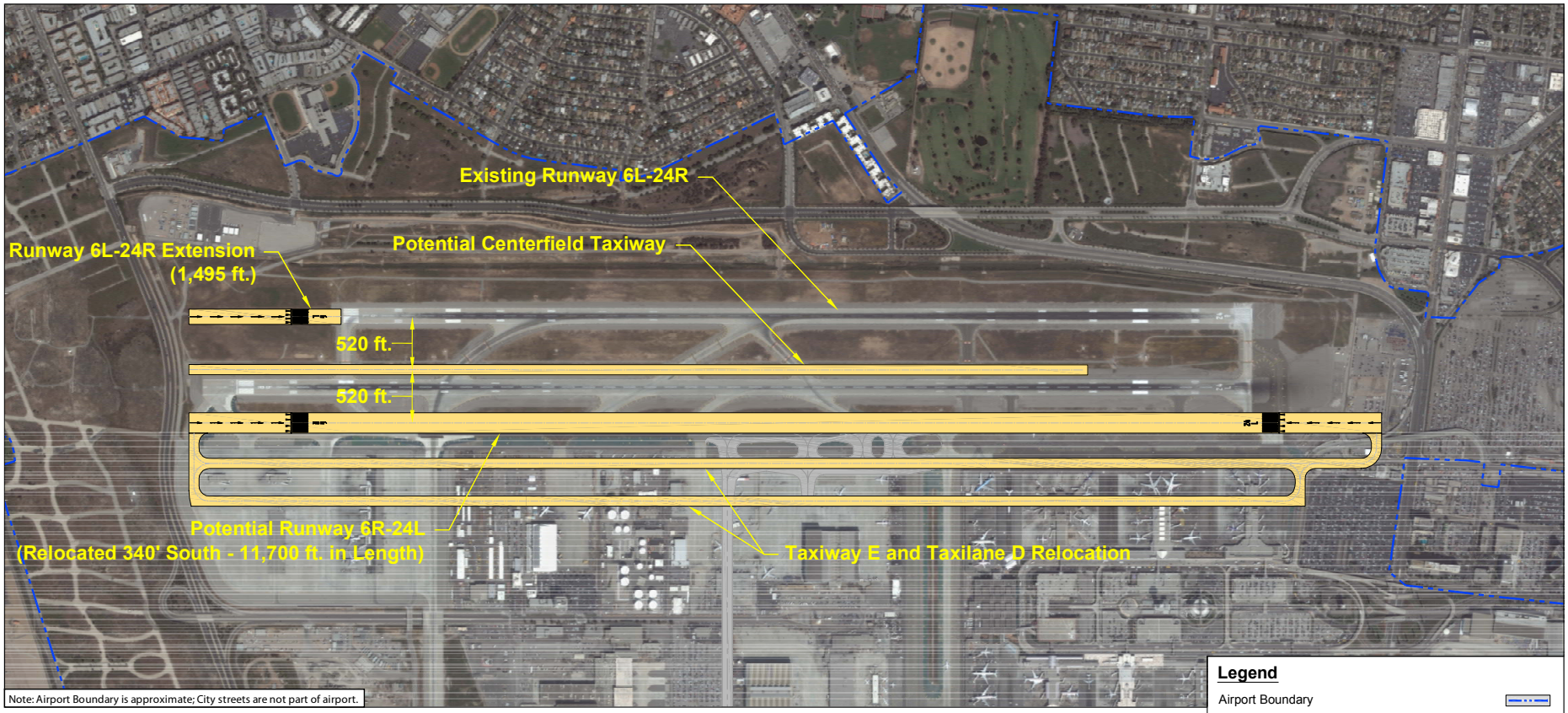
Some long-haul departures at Maximum Gross Take-off Weight (MGTOW) must bypass the north airfield in order to use the longer runway length available on the south airfield. As such, it was recognized that an extension to Runway 6R/24L could help balance the number of departures able to utilize the north airfield. In order to quantify the number of additional departures that could use the north airfield, airplane manufacturers' airport planning manuals were used to calculate the takeoff distances for aircraft anticipated to use the airfield in the 2025 timeframe with a MGTOW of 255,000 pounds.

Additional aircraft types able to depart Runway 24L with a 1,250-foot extension while operating at MGTOW during International Standard Atmosphere conditions include the A340-600, B747-400 and B767-300.

The assumptions, methodology, and results of the analysis described above are detailed in the *Los Angeles International Airport Takeoff Length Analysis for Runway 6R/24L* memorandum, provided in Appendix *E1, Airfield and Terminal Concept Development*.

## Land Uses Within the Runway Protection Zone

FAA AC 150/5300-13, *Airport Design,* provides a list of recommended land uses to be excluded from the RPZ where it is impracticable for the airport owner to acquire the entire RPZ. These include residences, places of public assembly (churches, schools, hospitals, office buildings, shopping centers, etc.), and fuel storage facilities. Because a large portion of the north airfield existing RPZs, as well as those associated with the SPAS Revised NOP airfield concepts, falls outside of the airport property boundary, the type and quantity of the non-airport controlled parcels within the RPZ were identified.




north

Source: Ricondo & Associates, Inc., 2010.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 2nd Iteration Airfield Concept - Runway 6R/24L Relocated 340' South (Approved Master Plan) | Figure 5-33 |
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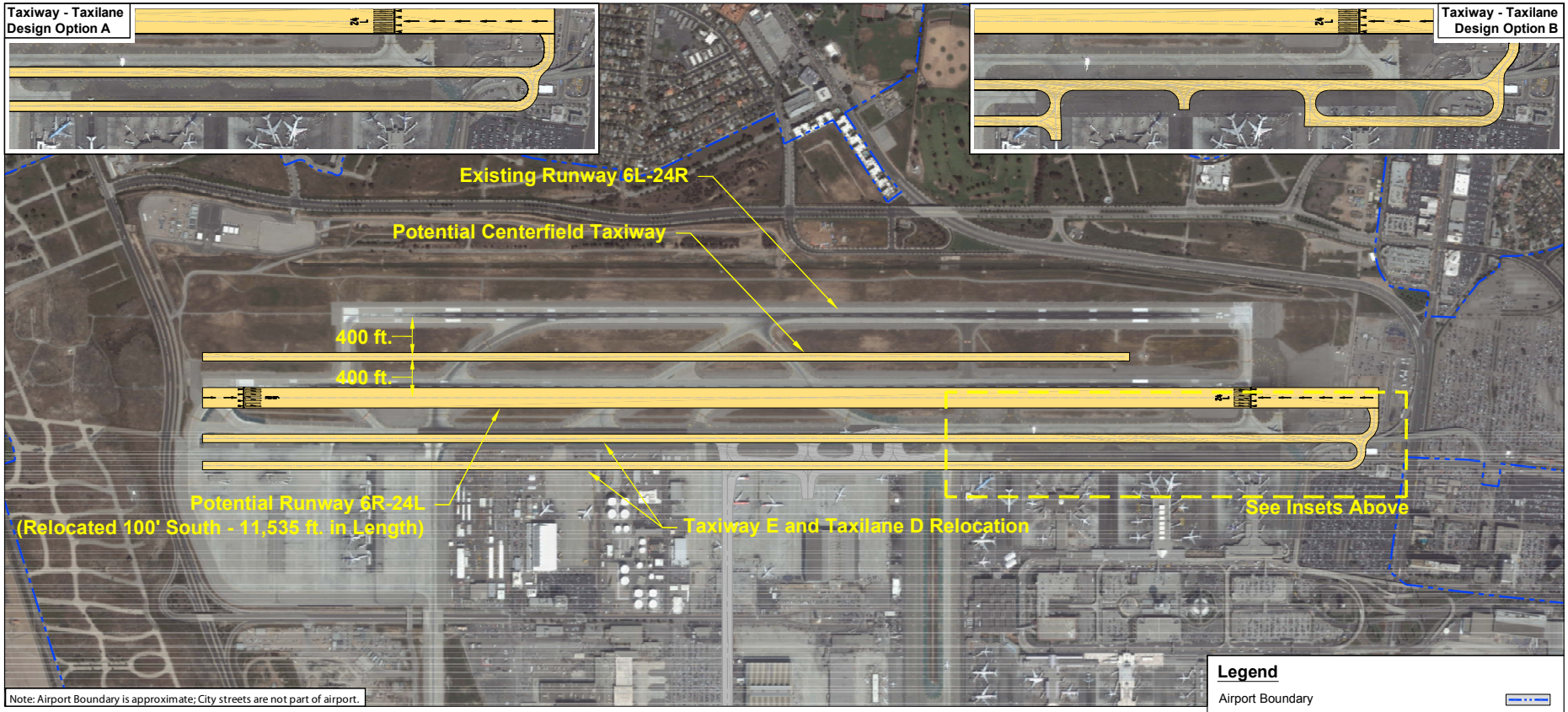


north

Source: Ricondo & Associates, Inc., 2010.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 2nd Iteration Airfield Concept - Runway 6R/24L Relocated 100' South | Figure 5-34 |
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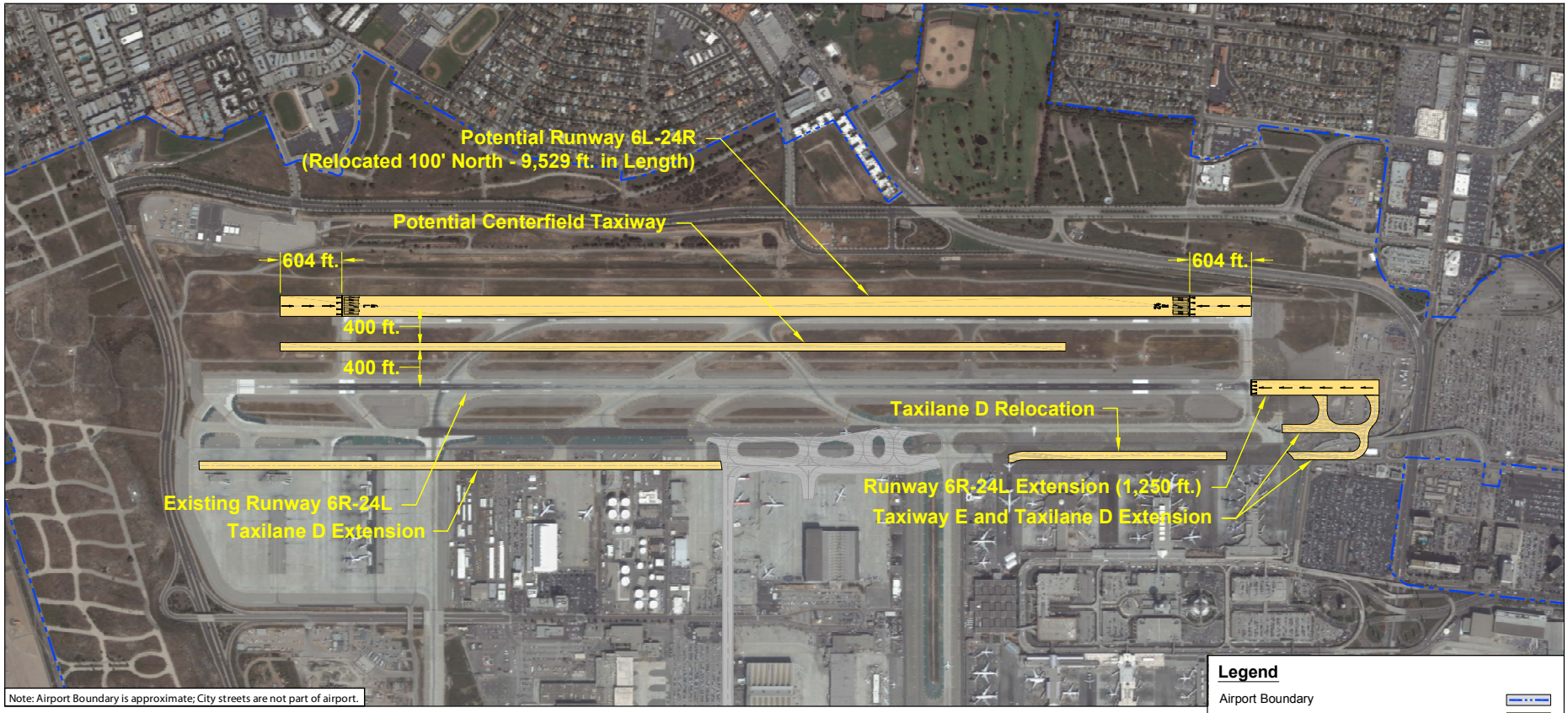


north

Source: Ricondo & Associates, Inc., 2010.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 2nd Iteration Airfield Concept - Runway 6L/24R Relocated 100' North | Figure 5-35 |
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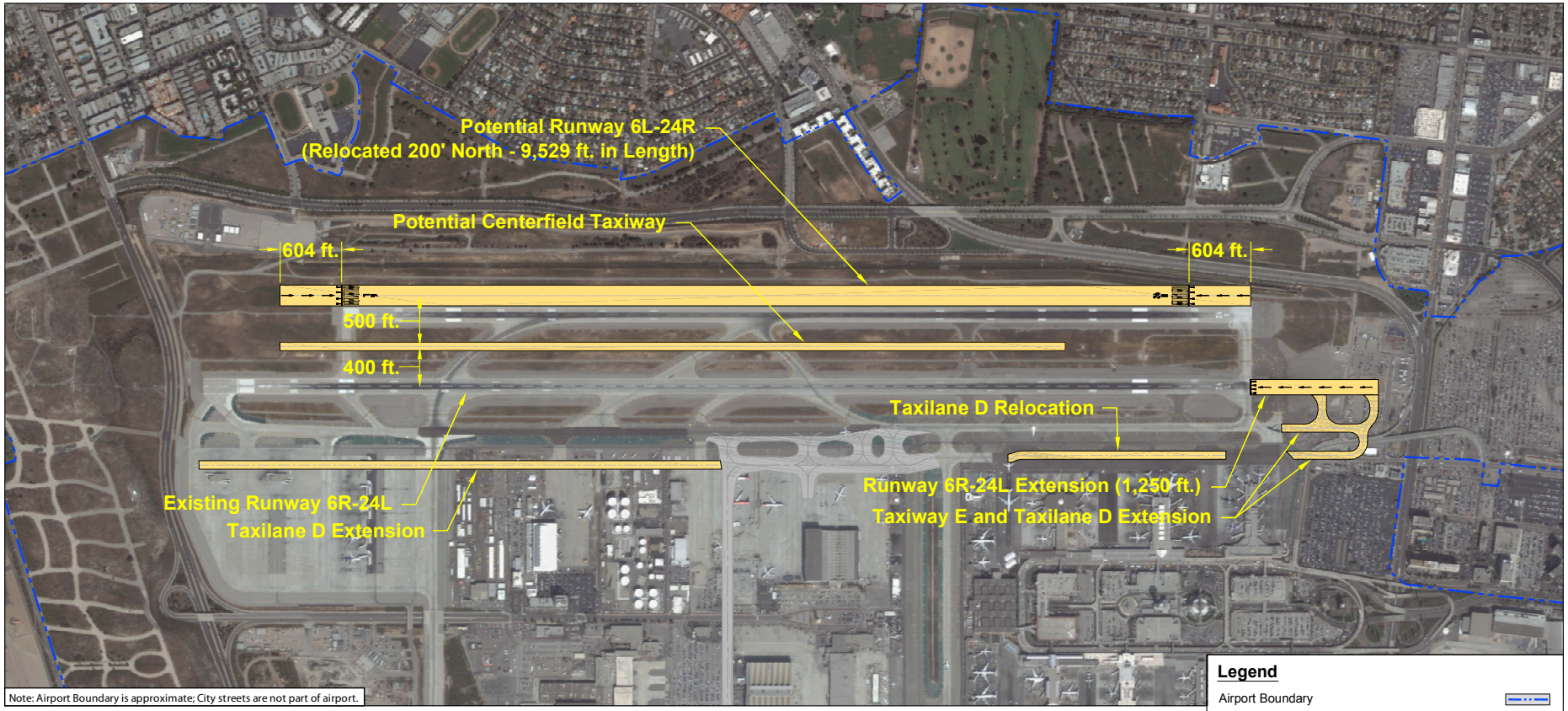


north

Source: Ricondo & Associates, Inc., 2010.
Prepared by: CDM Smith, 2012.

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| **LAX Specific Plan Amendment Study Report** | **2nd Iteration Airfield Concept - Runway 6L/24R Relocated 200' North** | Figure **5-36** |

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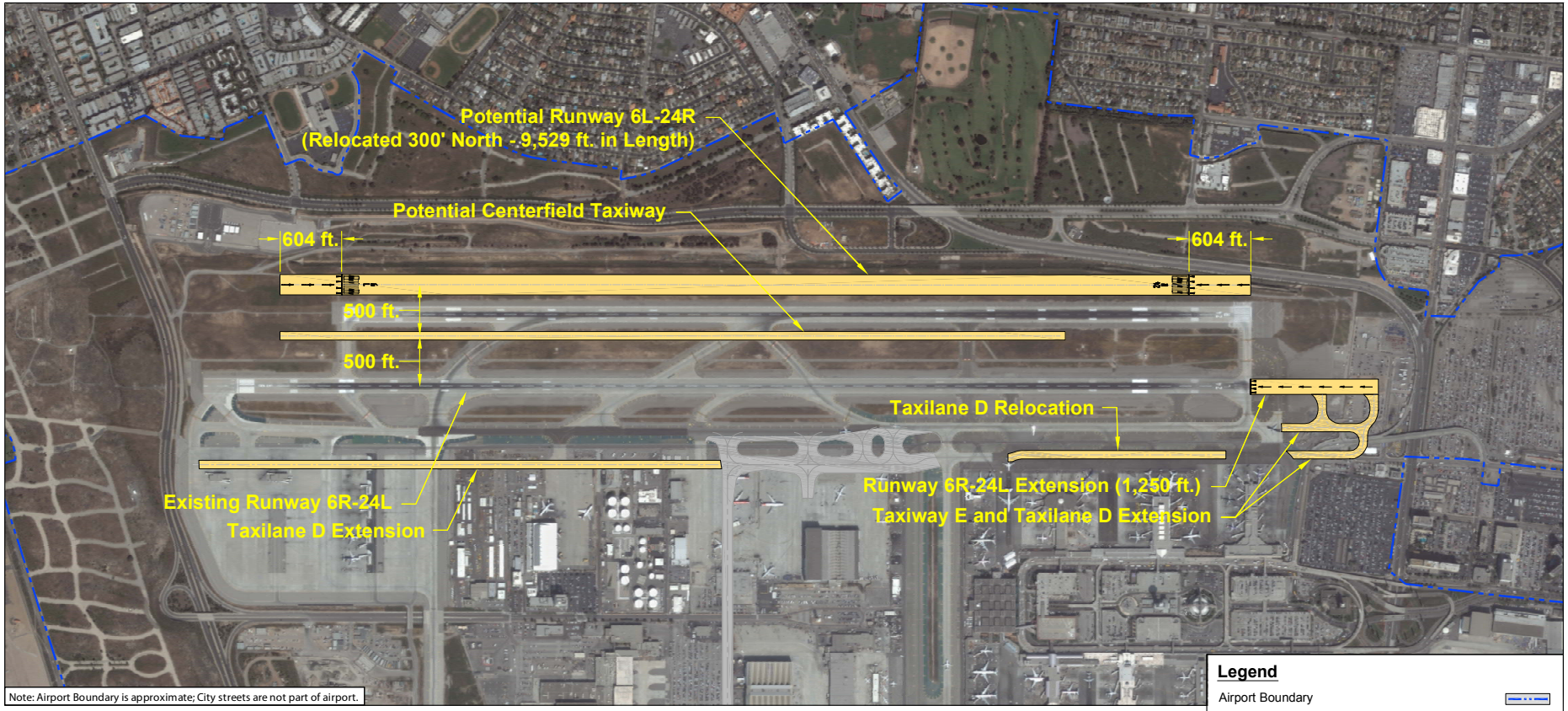


north

Source: Ricondo & Associates, Inc., 2010.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 2nd Iteration Airfield Concept - Runway 6L/24R Relocated 300' North | Figure 5-37 |
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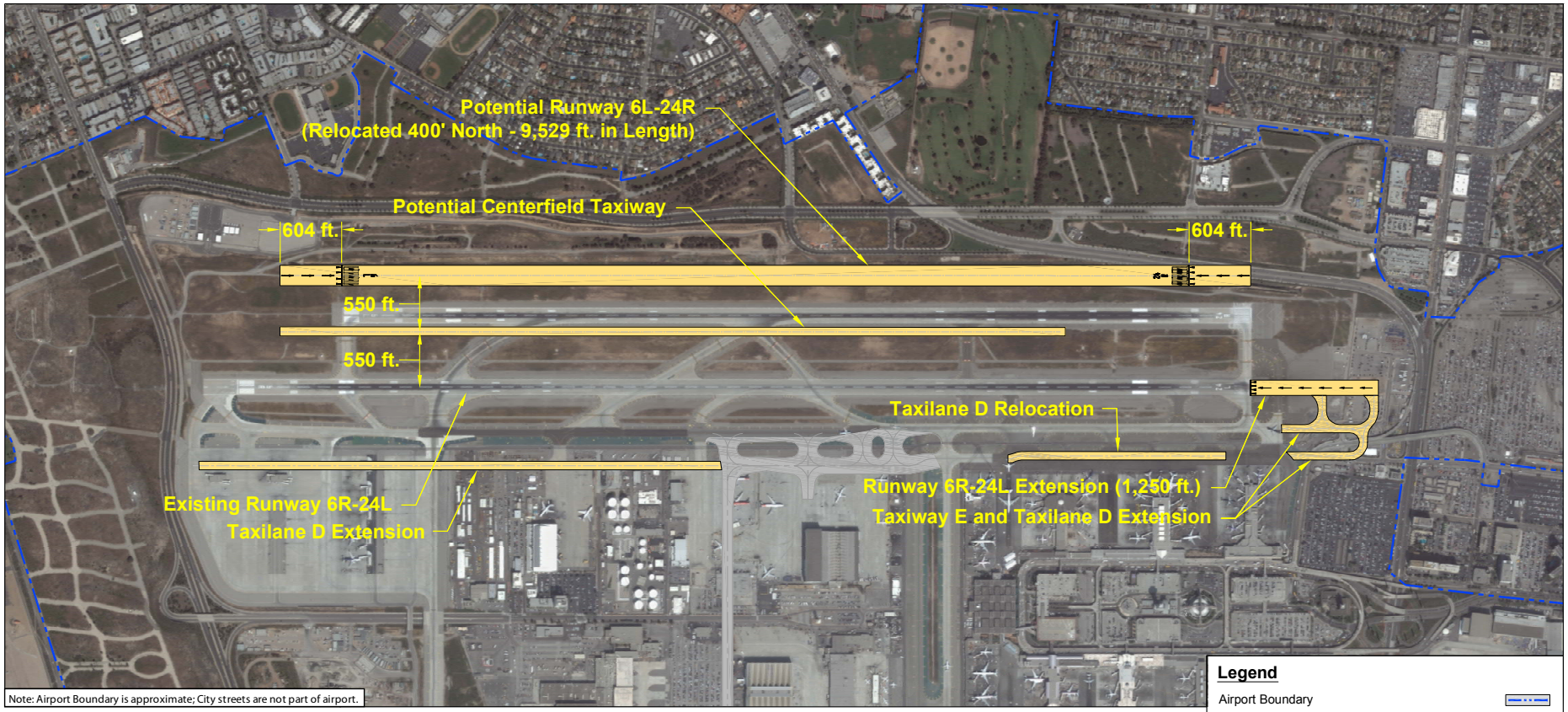


north

Source: Ricondo & Associates, Inc., 2010.
Prepared by: CDM Smith, 2012.

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| **LAX Specific Plan Amendment Study Report** | **2nd Iteration Airfield Concept - Runway 6L/24R Relocated 400' North** | Figure **5-38** |

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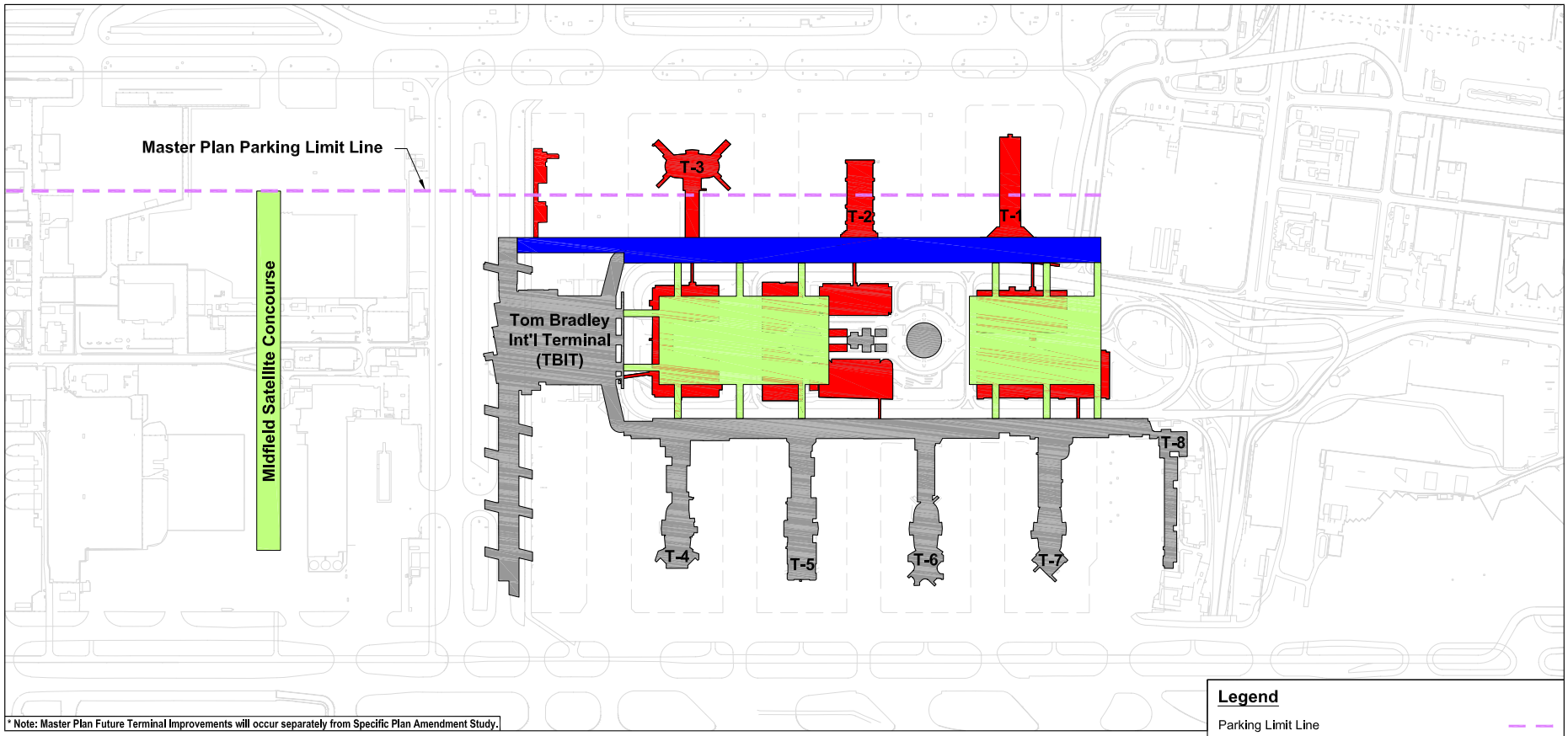


north

Source: Ricondo & Associates, Inc., 2010.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 2nd Iteration Terminal Concept - Approved Master Plan | Figure 5-39 |
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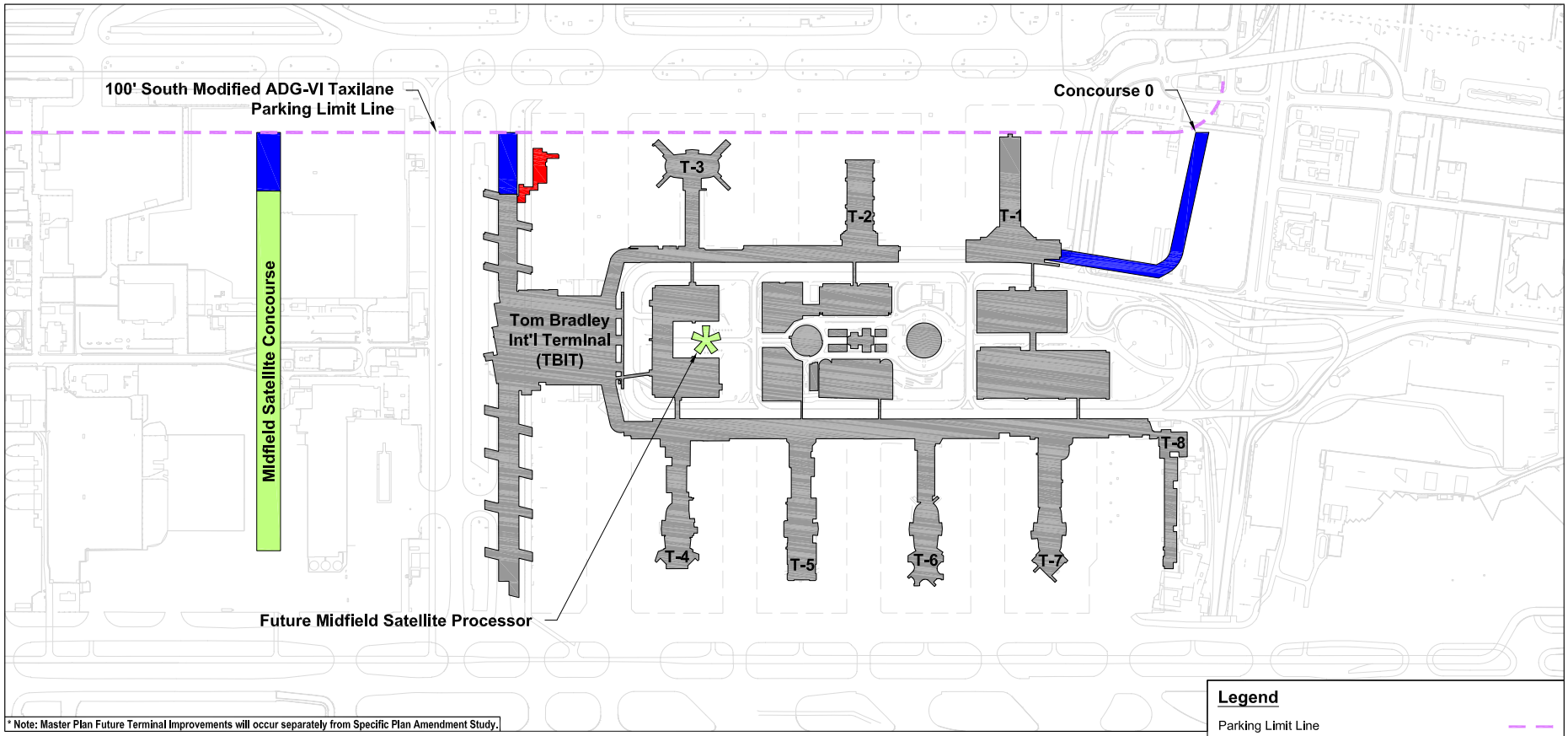


north

Source: Ricondo & Associates, Inc., 2010.
Prepared by: CDM Smith, 2012.

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| LAX Specific Plan Amendment Study Report | 2nd Iteration Terminal Concept - Runway 6R/24L Relocated 100' South, Full ADG-V Taxiway E/Full ADG-V Taxilane D (Modified ADG-VI) | Figure 5-40 |

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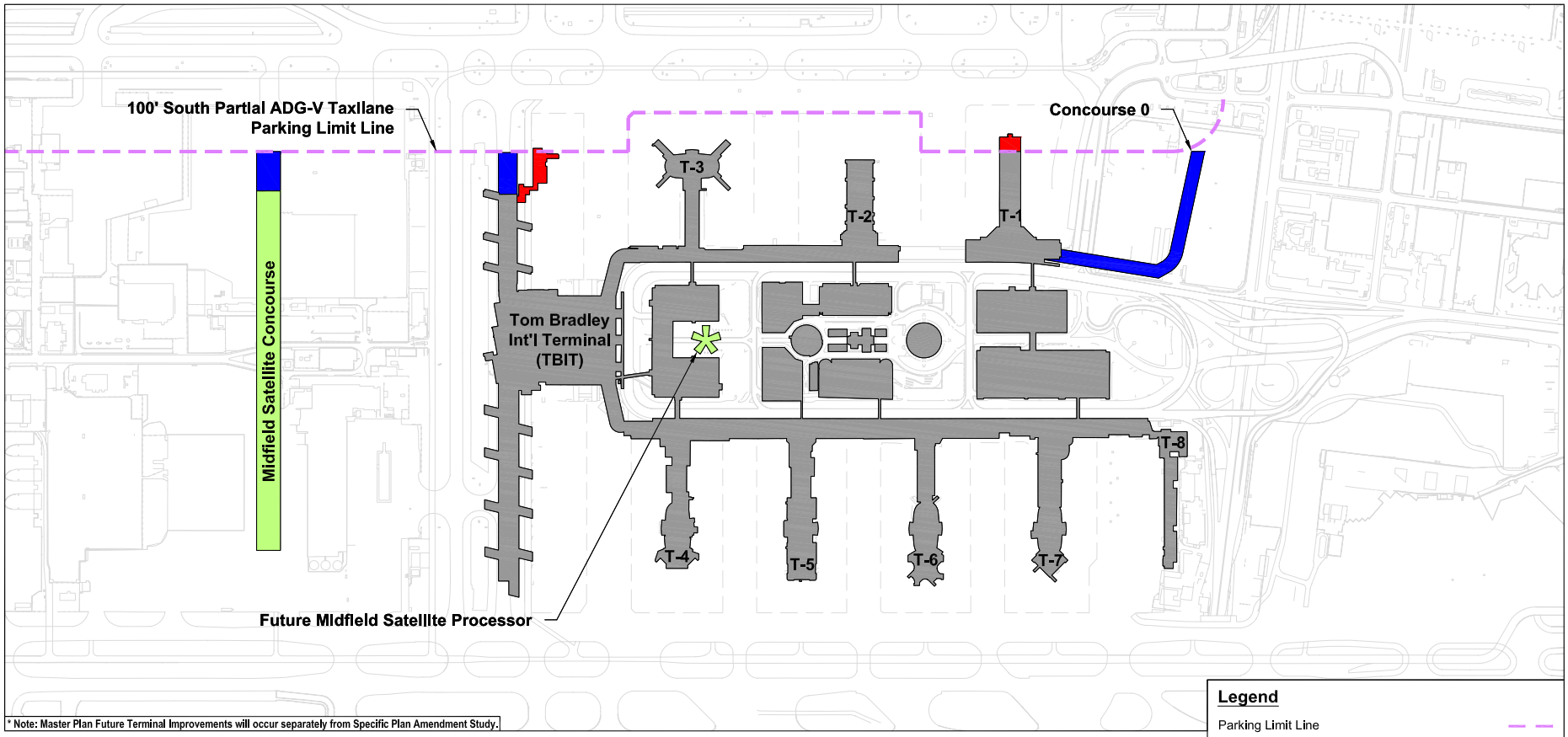


north

Source: Ricondo & Associates, Inc., 2010.
Prepared by: CDM Smith, 2012.

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| LAX Specific Plan Amendment Study Report | 2nd Iteration Terminal Concept - Runway 6R/24L Relocated 100' South, Full ADG-VI Taxiway E/ Partial ADG-V Taxilane D | Figure 5-41 |

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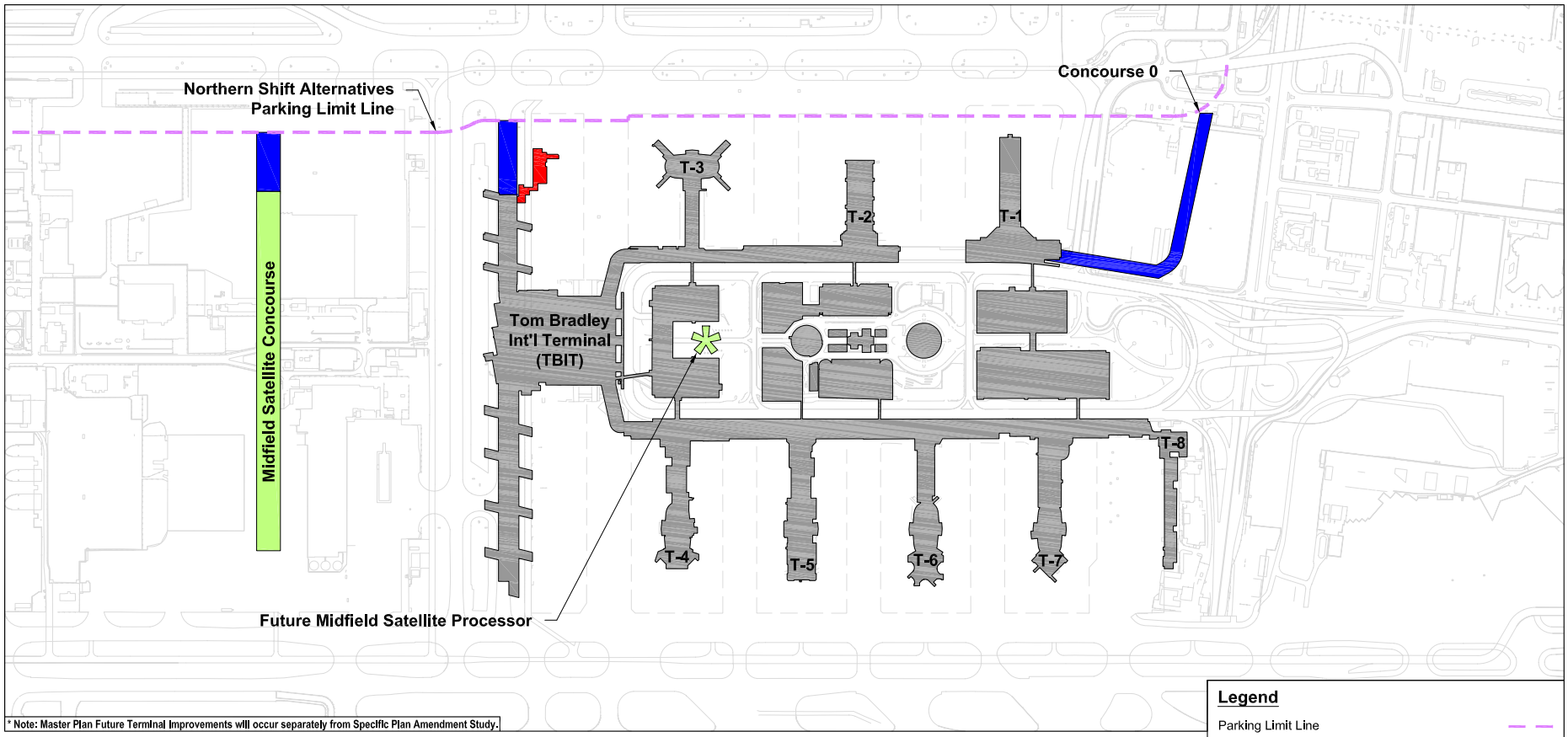


north

Source: Ricondo & Associates, Inc., 2010.
Prepared by: CDM Smith, 2012.

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|---|---|---|
| **LAX Specific Plan Amendment Study Report** | **2nd Iteration Terminal Concept - Runway 6L/24R Relocated North, Full ADG-V Taxiway E/ Full ADG-V Taxilane D (Modified ADG-VI)** | Figure **5-42** |

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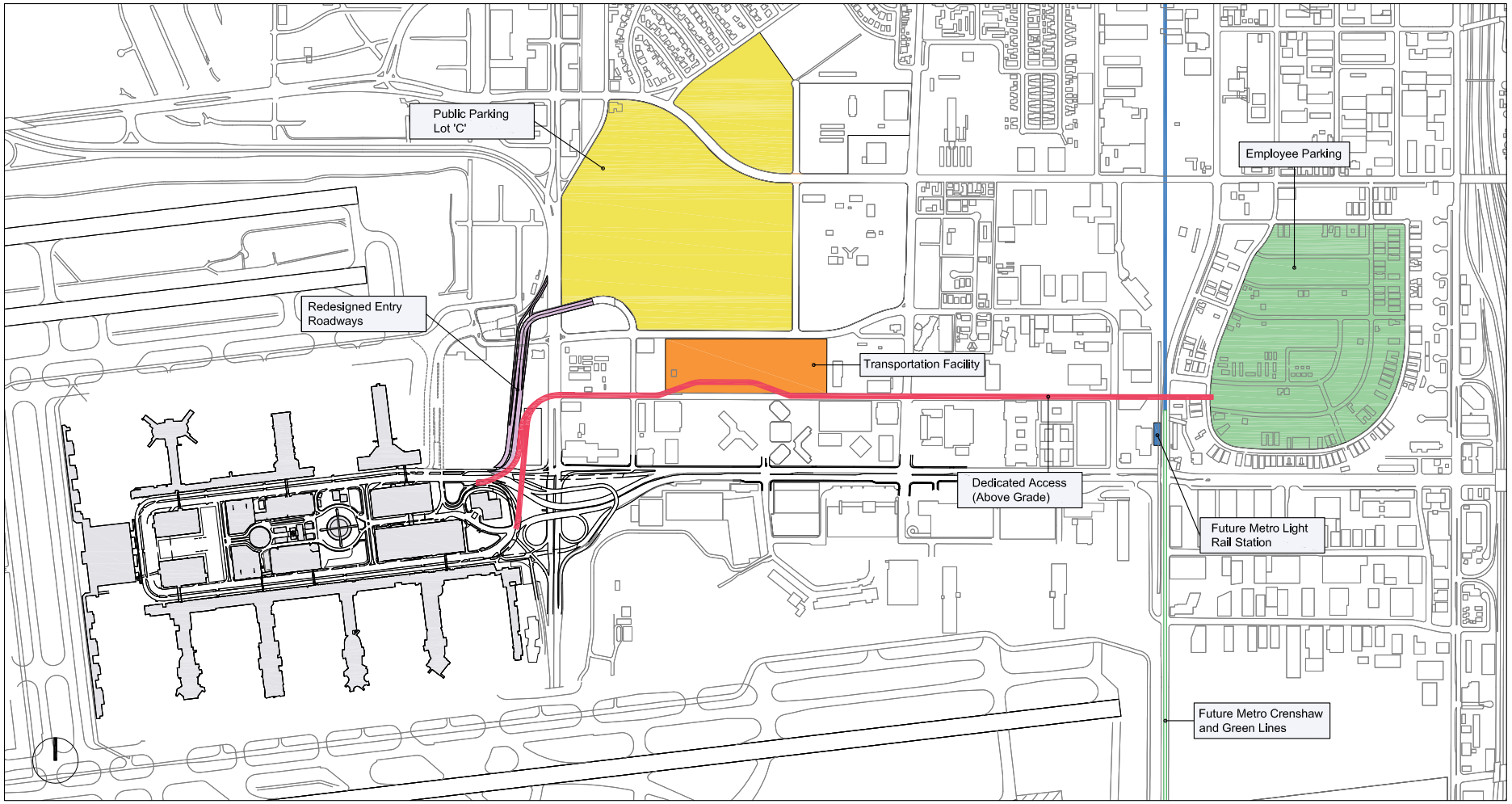


north

Source: STV, 2010.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 2nd Iteration Ground Access - Concept A | Figure 5-43 |
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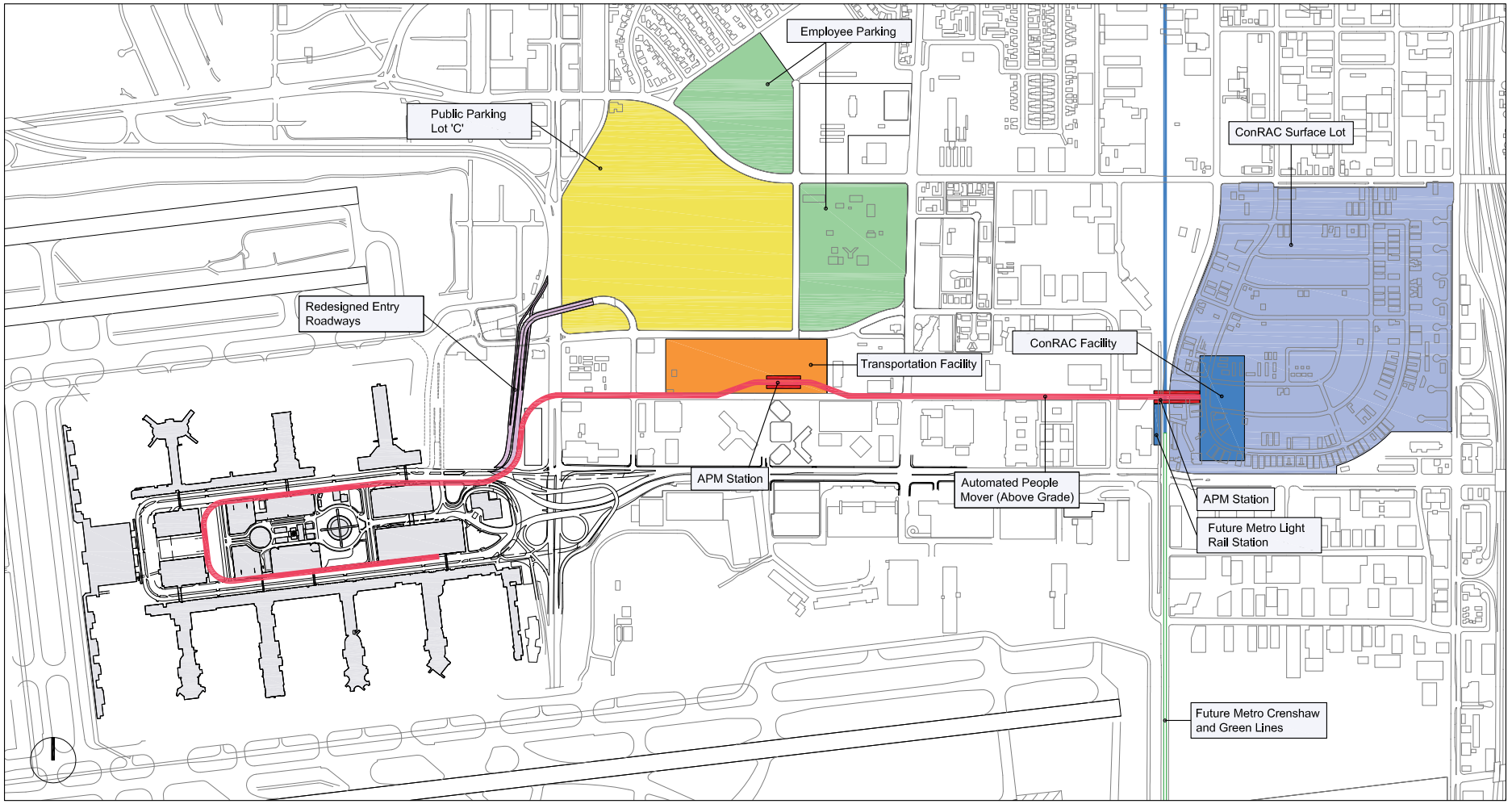


north

Source: STV, 2010.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | 2nd Iteration Ground Access - Concept B | Figure 5-44 |
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The results of the analysis showed that airfield concepts with displaced thresholds on Runway 24R would remove all residential parcels from the Runway 24R approach RPZ regardless of any north or south shifts. However, northern runway shifts did increase the number of other parcel types, mainly commercial and parking, that would fall within the RPZ.

Documentation, exhibits, and tables detailing the parcels for the various airfield concepts are provided in Appendix *E1, Airfield and Terminal Concept Development*.

## Argo Drainage Channel

The Argo Drainage Channel is a man-made flood control structure consisting of an unlined channel approximately 30 feet deep and approximately 9,900 feet long, which runs roughly parallel to and approximately 500 feet to the north of Runway 6L/24R. Relocation of Runway 6L/24R to the north would cause the associated RSA and Object Free Area (OFA) to encroach upon the Argo Drainage Channel. As such, each of the SPAS Revised NOP airfield concepts was examined relative to the Argo Drainage Channel in order to determine the linear footage that may require modification in order to meet FAA standards.

Any northern shift would require a portion or all of Argo Drainage Channel to be reconstructed in order to meet RSA and OFA grading requirements.[22] However, the analysis showed that the point at which the entire length of Argo Drainage Channel, approximately 9,900 linear feet, must be fully reconstructed is between 200 feet north and 300 feet north. Northerly shifts within this range would require that the Argo Drainage Channel be structurally covered (i.e., converted to a concrete box culvert) to support the weight of an aircraft. Northerly shifts of less than 200 feet would require a lesser linear portion of the channel to be structurally covered.

Exhibits depicting the RSA, OFA, and Argo Drainage Channel for each of the SPAS Revised NOP airfield concepts are provided in Appendix *E1, Airfield and Terminal Concept Development*.

## Lincoln Boulevard

Similar to the Argo Drainage Channel, relocation of Runway 6L/24R to the north would place portions of Lincoln Boulevard within the RSA and/or OFA. Consequently, new alignments of Lincoln Boulevard were developed (including covered and below grade sections) in order to comply with FAA standards.

Concepts with greater runway separation would require portions of the alignment to be covered and below grade. The conceptual alignments are provided in Appendix *E1, Airfield and Terminal Concept Development*.

## Navigational Aid Siting

Movement of any north airfield runway or threshold would cause the associated locations of runway dependent navigational aids to shift with the runway. As such, the probable location of the navigational aids associated with the SPAS Revised NOP airfield concepts were identified in order to determine if any conditions exist that would preclude a concept from being practicable.

Upon completion, no instances were found that would make any of the evaluated concepts infeasible due to navigational aids siting. Exhibits depicting the location of the runway dependent navigational aids are provided in Appendix *E1, Airfield and Terminal Concept Development*.

## North Airfield Abandoned Tunnel Segment

When Runway 6L/24R was constructed, a 720-foot-long tunnel segment was constructed under a portion of the runway to facilitate the potential future extension of Lincoln Boulevard under the runway. The tunnel has never been used, leaving a partially completed section beneath the north airfield. Depending

[22] Under existing regulatory requirements, and independent of the LAX Master Plan or SPAS, approximately 750 linear feet of the eastern portion of the channel that lie within the Runway 6L/24R RSA are required to be structurally covered (i.e., converted to a concrete box culvert) to support the weight of a truck of a relocated service road.

on the movement of the north airfield runways, potential engineering issues related to the presence of this tunnel would need to be evaluated. As such, the location on the tunnel was identified relative to the SPAS Revised NOP concepts.

Exhibits depicting the Revised SPAS NOP concepts relative to the north airfield abandoned tunnel segment are provided in Appendix *E1, Airfield and Terminal Concept Development*.

### Taxilane D Extension

For the purpose of quantifying the impact of extending Taxilane D to the west, in conjunction with the north-south realignment of the taxilane, existing airport facilities that would fall within the OFA of two relocation alignment concepts were identified. The alignments relocating Taxilane D farther to the south would affect more facilities.

Exhibits depicting the Taxilane D extension alignments and corresponding impacted facilities are provided in Appendix *E1, Airfield and Terminal Concept Development*.

## Terminal Concepts

The review and evaluation of the SPAS Revised NOP concepts did not change the number of terminal options evaluated in the EIR. The three terminal options described in the SPAS Revised NOP remained the same, but refinements were made to the second and third options, as discussed below.

In the SPAS Revised NOP, the terminal option that would not involve demolition of any of the north terminal buildings or alteration of the gate configurations was initially paired with an airfield option that would relocate Runway 6L/24R north and an airfield option that would relocate Runway 6R/24L 100 feet south, coupled with a full ADG V Taxiway E and a full ADG V/modified ADG VI Taxilane D. In further refining both the airfield and the terminal concepts, this terminal configuration was no longer paired with the Runway 6L/24R north or the Runway 6R/25L 100 foot south options but, rather, was paired with an airfield option that involved no relocation of runways or taxiways, for reasons described below.

As the SPAS concepts and their associated Taxiway E and Taxilane D alignments were further defined, the number of gates that would be affected could be quantified. This analysis included identification of the number of gates that would need to be realigned, downsized,[23] or eliminated. As a result of the additional analysis, the related terminal requirements were refined. It was determined that the optimal gate configuration for Terminal 1 would require demolition of the northern tip of this terminal under all of the alternatives that included the relocation of Taxilane D. In addition, an evaluation of the gates at Terminal 2 and Terminal 3 concluded that additional spacing was required between these terminals to allow for dual-directional taxiing of aircraft to the gates on the west side of Terminal 2 and the east side of Terminal 3. Moreover, it was determined that the terminal and concourse areas within Terminal 3 required modernization. The optimal configuration to meet both of these requirements involved demolition and reconstruction of Terminal 3 with a building centerline shifted 40 feet to the west. Finally, it was determined that terminal needs would best be met with the construction of a new terminal (which could include ticketing, baggage, screening, and other functions), rather than only a concourse (which would only include gates and concessions), east of Terminal 1. The only airfield configuration that would not require modifications to terminals was an option that involved no relocation of runways or taxiways. The terminal gate impact analysis for various taxiway and taxilane realignment options associated with the SPAS concepts is provided in Appendix *E1, Airfield and Terminal Concept Development*.

## Ground Access Concepts

A refinement of the SPAS Revised NOP ground access concepts was undertaken to distribute airport parking demand, and modify commercial vehicle access and egress concepts as well as the proposed development for the Manchester Square site. The following list outlines the refinements and resulting

[23] A downsized gate would accommodate smaller aircraft types.

ground access options from the second iteration of the SPAS concepts. There were no changes to the APM concepts in this iteration.

- Ground Transportation Concept A, identified in Section 5.4, was refined by expanding the footprint of the employee parking lot within Manchester Square to accommodate more private and/or employee vehicles. In addition, the footprint of the transportation facility south of Lot C and north of 98th Street was extended to the east to ensure adequate space and street frontage along a major arterial (i.e., Airport Boulevard). This concept was also refined to eliminate the dedicated access for eastbound commercial vehicle traffic exiting the CTA onto the grade-separated/dedicated transit system connecting Manchester Square and the CTA. Rather, buses would exit the CTA in mixed-flow traffic lanes, traveling north on Sepulveda Boulevard and east on 98th Street before entering the dedicated transit access system. This refinement was made due to feasibility issues associated with extending a dedicated alignment northerly from World Way South due to the presence of existing airport facilities in this area, particularly the current LAWA Administration Building and the LAX pylons that mark the entrance to the CTA.
- Refinements were also made to Ground Transportation Concept B, identified in Section 5.4. The size of the CONRAC facility in Manchester Square was reduced to add space for non-CONRAC parking. As with Ground Transportation Concept A, the footprint of the transportation facility south of Lot C and north of 98th Street was extended to the east to ensure adequate space and street frontage along a major arterial (i.e., Airport Boulevard). No adjustments were made to the APM alignment associated with this concept, however, an additional variation of this option was developed that replaced the APM with the same dedicated transit system included in Ground Transportation Concept A.

## SPAS Alternatives Development

Taking into consideration the findings of the analysis described above, a total of nine SPAS alternatives were developed to encompass the various airfield, terminal, and ground access design options. Illustrations of these alternatives are provided in Chapter 6, *SPAS Alternative Projects*. The reasoning and rationale for each alternative are detailed below.

### Alternative 1

The pilot line-of-sight analysis revealed that the runway-taxiway separation necessary to allow pilots of ADG V aircraft and the B747-8 taxiing on a future centerfield taxiway to see the east end of Runway 6R/24L prior to crossing the runway was 460 feet. This separation, combined with the FAA standard for runway-taxiway separation of 500 feet for ADG V aircraft between Runway 6L/24R and a centerfield taxiway during CAT I weather conditions, resulted in a total runway-runway separation of 960 feet. To achieve these separations, a shift of Runway 6L/24R 260 feet to the north would be required. Terminal options for Alternative 1 include the elimination and removal of gates at Terminals 1 through 3 and the addition of Terminal 0. Ground transportation options include building a larger public parking area at Manchester Square, a transportation facility north of 98th Street, and a dedicated transit access connecting Manchester Square to the transportation facility and CTA. Under this alternative, Lincoln Boulevard would be relocated, with a portion below grade. In addition, the Argo Drainage Channel would be fully covered.

### Alternative 2

The basis of Alternative 2 is the implementation of the ITSIP in lieu of increasing the separation between the runways and adding a centerfield taxiway. ITSIP would reconfigure the taxiways between Runways 6R/24L and 6L/24R using the guidance presented in FAA Engineering Brief (EB) 75, *Incorporation of Runway Incursion Prevention into Taxiway and Aprons.* EB 75 recommends that runway crossings occur within the last third of a runway and that runway-taxiway intersections should be as close to 90 degrees as possible. As such, ITSIP is an alternative design meant to achieve some of the same airfield safety goals as the construction of a centerfield taxiway, but would not require the relocation of either runway.

Terminal and ground transportation options for Alternative 2 are identical to Alternative 1, with the exception of Lincoln Boulevard, which would not require realignment.

## Alternative 3

Alternative 3 is the approved LAX Master Plan with minor modifications to accommodate the same number of gates (i.e., 153) as the approved LAX Master Plan while taking into account changes in airfield operational parameters. One change is the addition of winglets to many of the aircraft that operate at LAX. These devices have been added to many aircraft to increase fuel efficiency but can also improve aircraft handling characteristics as well as enhance safety for following aircraft by reducing wake turbulence. The winglets widen the wingspan of these aircraft, thereby increasing the linear footage needed for each aircraft gate. Another change is the agreement between LAWA and the airlines to prohibit the parking of two aircraft at a single gate position, thereby requiring additional linear footage to accommodate the same number of aircraft gates.

## Alternative 4

Alternative 4 represents the elimination of all Yellow Light Projects and the implementation of only those LAX Master Plan components that are reasonably foreseeable. This alternative includes minor airfield improvements, such as increased displaced thresholds and an 835-foot extension to Runway 6R/24L to incorporate the changes presented within the *Runway 6L-24R and 6R-24L Safety Area Practicability Study*[24] and the addition of a CONRAC in the Lot C area, as approved in the LAX Master Plan.

## Alternative 5

The SPAS Revised NOP airfield concept proposing to relocate Runway 6L/24R 400 feet north, which would meet FAA standards to fully accommodate ADG VI aircraft, was subsequently refined to take into account the existing and anticipated visibility minimums for Runway 6R/24L (greater than or equal to 0.5 statute mile). Consequently, the separation between the centerfield taxiway and Runway 6R/24L was decreased from 550 feet to 500 feet. This resulted in relocating Runway 6L/24R 350 feet north. Terminal options for Alternative 5 are similar to Alternatives 1 and 2, including the addition of Terminal 0, but the runway-taxiway separation under this alternative would cause the aircraft taxiway operations area to extend farther south which, in turn, would result in the downsizing or elimination of a greater number of gates and less concourse area. Alternative 5 focuses on airfield and associated terminal improvements; no ground transportation options are included with this alternative, with the exception of Lincoln Boulevard, which would be relocated, with a portion below grade. In addition, the Argo Drainage Channel would be fully covered.

## Alternative 6

The SPAS Revised NOP concept relocating Runway 6L/24R 100 feet north was retained due to the fact that 100 feet is the minimum increase in separation between the two north airfield runways that would allow for the construction of a centerfield taxiway. Terminal options for Alternative 6 are identical to Alternatives 1 and 2. Alternative 6 focuses on airfield and associated terminal improvements; no ground transportation options are included with this alternative, with the exception of Lincoln Boulevard, which would be relocated, with a portion below grade. In addition, a portion of the Argo Drainage Channel would be covered.

## Alternative 7

Similar to Alternative 6, the SPAS Revised NOP concept relocating Runway 6R/24L 100 feet south was retained due to the fact that 100 feet is the minimum increase in separation between the two north airfield runways that would allow for the construction of a centerfield taxiway. Terminal options for Alternative 7 are similar to Alternatives 1, 2, 5, and 6, including the addition of Terminal 0, but the runway-taxiway separation under this alternative would cause the aircraft taxiway operations area to extend the farthest

[24] Ricondo & Associates, Inc., Runway 6L-24R & 6R-24L Safety Area (RSA) Practicability Study, April 9, 2010.

south which, in turn, would result in the downsizing or elimination of a greater number of gates and less concourse area. Alternative 7 focuses on airfield and associated terminal improvements; no ground transportation options are included with this alternative.

### Alternative 8

This alternative focuses on ground access improvements; no airfield or terminal options are included with this alternative. The ground transportation options include utilizing Manchester Square for both public parking and CONRAC facilities. This alternative includes a transportation facility south of Lot C and north of 98th Street with connectivity to both Manchester Square and the CTA via a dedicated transit access for buses.

### Alternative 9

This alternative focuses on ground access improvements; no airfield or terminal options are included with this alternative. The ground transportation options for Alternative 9 are the same as Alternative 8 with the exception of the connectivity between Manchester Square and the CTA. The connectivity for Alternative 9 includes an APM.

## 5.6 SPAS Alternatives Evaluated in the Draft EIR

Based on the iterative refinements to the SPAS concepts documented above, nine final SPAS alternatives were identified in the Draft EIR, offering a range of potential alternative designs, technologies, and configurations that would provide solutions to the problems that the Yellow Light Projects were designed to address, consistent with a practical capacity of LAX at 78.9 million annual passengers. The key characteristics of each SPAS alternative can be grouped into three categories: airfield improvements, terminal improvements, and ground access improvements. Details regarding each of these components, as they relate to the SPAS alternatives, are outlined below.

- Airfield Improvements - Airfield improvements include changes to the runways, taxiways, navigational aids, and service and maintenance roads associated with the north airfield. The primary differences in airfield improvements associated with the various SPAS alternatives pertain to:
  - Separation distances between runways and taxiways. Separation distances largely determine the maximum size aircraft that can freely operate on that system under various visibility conditions, and, in certain visibility conditions, would either require FAA approval of special operating procedures (i.e., MOS or other forms of operational waivers) or would be prohibited;
  - Whether an increase in the separation distance between Runway 6L/24R and Runway 6R/24L would allow for the construction of a centerfield parallel taxiway between the runways, to enable aircraft arriving on the outboard (6L/24R) runway to exit onto the center taxiway and hold while aircraft are departing on the inboard (6R/24L) runway, thereby allowing the departing aircraft to safely pass before the arriving aircraft proceeds to the terminal gates;
  - The extent to which the Lincoln Boulevard and the Argo Drainage Channel would have to be modified in order to accommodate a northerly shift in the alignment of Runway 6L/24R;
  - Whether Runway 6R/24L would be extended 1,250 feet eastward to provide greater departure length in west flow condition that would better accommodate departures of large aircraft on long-haul flights and improve the balance between the north airfield and the south airfield relative to such departures;
  - Whether Runway 6L/24R would be reconfigured or extended to relocate its associated RPZ with respect to residential uses, and/or to improve the north airfield and the south airfield relative to the operation of aircraft;

- How RSA requirements would be met, in terms of runway extensions, declared distances,[25] displaced thresholds,[26] or a combination thereof; and
- Separation distances between Runway 6R/24L, Taxiway E, Taxilane D, the adjacent vehicle service road, and the aircraft gates/parking positions at the north end of the CTA, which largely determine the maximum size aircraft that can either freely operate on that system or would be subject to certain limitations, particularly as related to the interface between aircraft going to or from the gates at Terminals 1 through 3 and aircraft taxiing to the east end of Runway 6R/24L for departure.

- Terminal Improvements - Terminal improvements consist primarily of additions/demolitions to existing terminals/concourses, and, for most SPAS alternatives, the construction of a new terminal - Terminal 0 ("zero"). The primary differences in terminal improvements for the various SPAS alternatives are directly related to the movement of runways and taxiways under each alternative. Specifically, the alternatives differ in the location of their building limit lines (i.e., the "object free" safety area along runways and taxiways where no part of a structure can be present) and their aircraft parking limit lines (APLL) (i.e., the safety clearance setback area along runways and taxiways into which no part of an aircraft parked at a gate can extend). The northernmost limit of concourse building area and/or aircraft gate parking positions is defined by the southernmost safety clearance distance for the runways and taxiways in the north airfield. Depending on the location and design of the runways and taxiways associated with each alternative, the locations of the building limit line and APLL may differ between alternatives.

  In general, the building lines and APLLs associated with most of the alternatives extend southward, overlapping, to varying degrees, portions of the concourse areas for Terminals 1 through 3, which would require removal (demolition) of those building areas that encroach past the building limit line and/or the elimination or reduction in aircraft size capability of gate parking positions that encroach past the parking limit line. Conversely, the building and parking limit lines associated with several alternatives do not extend as far south as the limit lines defined in the LAX Master Plan, which assumed the movement of Runway 6R/24L 340 feet south and defined the northerly building limits for the TBIT West Gates, currently under construction as part of the Bradley West Project, and the future MSC. In those cases, establishing building and parking limit lines farther north than the current LAX Master Plan limit lines would allow the opportunity for a future northward extension (i.e., an addition to) the north concourses for Bradley West and the MSC.

  While the amount of concourse area and the layout of aircraft gates vary between alternatives, all of the SPAS alternatives include no more than 153 passenger gates.

  Certain alternatives propose a westerly realignment of the Terminal 3 concourse to provide a wider alleyway between the concourses at Terminals 2 and 3 for aircraft taxiing.

  For those alternatives that include development of the new Terminal 0, the existing alignment of Sky Way (the primary access road connecting CTA to southbound Sepulveda and 96th Street Bridge) would be shifted east, into the area now occupied by the Park One parking lot, providing an improved entrance roadway into the CTA.

- Ground Access Improvements - Ground access improvements consist of changes to on-airport and off-airport roads, addition of specific transportation facilities, development of dedicated access (i.e., busway or APM) into the CTA, and changes in parking locations. While the focus of SPAS is on alternatives to the Yellow Light Projects, such as the GTC and its associated roadways and one of the two APM systems proposed under the LAX Master Plan (APM 2), the ground access improvements proposed under the various SPAS alternatives also take into consideration key non-Yellow Light projects that are integral parts of the overall ground access system. Such projects

[25] Declared distances are the distances the airport operator declares available for an aircraft's take-off run, take-off distance, accelerate-stop distance, and landing distance requirements to obtain a standard safety area.

[26] A displaced threshold is a threshold that is located on a point on the runway other that the designated beginning of the runway to satisfy approach surface criteria and/or RSA length requirements.

include the CONRAC, the ITC, the APM connecting the ITC and CONRAC to the CTA, and the West Employee Parking facility. The ground access improvements proposed under the various SPAS alternatives represent different combinations of options to the Yellow Light Projects. Due to integral nature of these key non-Yellow Light projects with the overall ground access system, the SPAS alternatives include proposed modifications to, or proposed deletion of, these non-Yellow Light projects.

Provided below is an overview of the nine SPAS alternatives addressed in the Draft EIR. The details of each alternative are provided in Chapter 6, *SPAS Alternative Projects*.

Alternatives 1 through 4 are "fully-integrated" alternatives that include specific improvements in all three categories: airfield improvements, terminal improvements, and ground access improvements. Alternatives 5 through 7 focus on variations to the airfield improvements, which, in turn, affect the terminal improvements. Alternatives 8 and 9 focus on variations to the ground access improvements.

Although the primary focus of Alternatives 5 through 9 is on specific categories of improvements, there is a certain amount of compatibility or "interchangeability" between the SPAS alternatives. Specifically, the airfield and terminal improvements in Alternatives 5 through 7 are equally compatible with the ground access improvements in Alternatives 1, 2, 8, and 9. Likewise, the ground access improvements in Alternatives 8 and 9 are equally compatible with the airfield and terminal improvements in Alternatives 1, 2, 5, 6, and 7. In other words, the proposed ground transportation system incorporated into Alternatives 1 and 2 could function in the same manner with Alternatives 5, 6, or 7. That would also be the case for the ground transportation systems under Alternatives 8 and 9, which could be developed under Alternatives 5, 6, or 7, and could also replace the ground transportation system currently proposed for Alternatives 1 and 2. On the other hand, Alternatives 3 and 4 are unique "fully-integrated" alternatives and are not considered to have elements that are "interchangeable" with the other SPAS alternatives. While Alternatives 5, 6, and 7 focus on options for airfield/terminal improvements and Alternatives 8 and 9 focus on options for ground access improvements, these five alternatives (Alternatives 5 through 9) would only address all of the problems that the Yellow Light Projects were designed to address in conjunction with another alternative (Alternatives 1 through 4), or portion thereof. Additional information regarding the characteristics of each of the nine alternatives in presented above in Chapter 1, along with figures delineating the key components of the alternatives.

The nine SPAS alternatives were formulated at a programmatic level of conceptual planning, and no design or engineering plans, or construction phasing plans or schedules, are available for any of the alternatives. In general, however, it is assumed that all of the improvements proposed under each alternative would be completed by 2025, with construction beginning in 2015.

## 5.7 Alternatives Considered but Rejected during Concept Development Process

### 5.7.1 Alternative Location

Implementation of any of the SPAS alternatives would not be feasible at any location other than LAX. Pursuant to the Stipulated Settlement, the SPAS will plan for the modernization and improvement of LAX. Implementing the SPAS alternatives at any other location would not accomplish this fundamental goal. The existing facilities at LAX cannot accommodate the existing demand and forecasted increase in the numbers of aircraft, cargo, and passengers without significant delays and a very poor level of service. As the existing facilities are used beyond their design capacity, the level of service provided to the user degrades. This lowering of the level of service may be demonstrated by increased congestion within the passenger terminals, the various surface roads on and around the airport, and on the airfield itself. The consequences of taking no action to solve this problem will result in a loss of air service and declining economic benefits (jobs) for the Los Angeles region. Air service and economic benefits would likely relocate to other regions both within the state of California and to other states. Therefore, any

comprehensive solution to meeting the regional demand for transportation must include improvements at LAX.

## 5.7.2 Alternative Designs

As detailed throughout this chapter, several alternative concepts were formulated and considered during development of the nine SPAS alternatives. Three of the airfield improvement concepts initially considered for inclusion in the Draft EIR were subsequently refined or consolidated. Specifically, an airfield improvement concept proposing to relocate Runway 6L/24R 400 feet north, which would meet all FAA standards for ADG VI aircraft, was subsequently refined to meet the basic requirements with only a 350-foot northward move. That refined alternative is Alternative 5 in this SPAS Report. Two other airfield improvement concepts, one proposing to move Runway 6L/24R 200 feet north and the other to move the subject runway 300 feet to the north were consolidated into the 260-foot north move, which is Alternative 1 in this SPAS Report.

## 5.7.3 Three-Runway Airfield

This concept involves removing one of the two runways within the north airfield and operating LAX with a three-runway system (i.e., one runway in the north airfield along with the two existing runways in the south airfield). This concept would provide sufficient runway and/or taxiway/taxilane separation distances for ADG V and VI aircraft on the north airfield and would eliminate the existing safety hazards associated with crossing an active runway within that airfield. However, the removal of a runway in the north airfield would have adverse impacts on and around the south airfield because of the associated shift in daily aircraft activity from the north airfield to the south airfield. This shift in activity would create unbalanced and inefficient operations for arriving and departing aircraft both in the air and on the ground. Under a three-runway system, a number of aircraft gated on the north side of the CTA, that would otherwise taxi to and from the north airfield, would instead have to taxi to and from the south airfield. While this type of three-runway configuration could reduce aircraft noise exposure levels in developed areas north of the airport, it would essentially just shift aircraft noise exposure impacts to the highly populated areas south and southeast of the airport. Similarly, this geographic shift in aircraft activity would be accompanied by a southward shift in emissions of airfield-related air pollutants; moreover, there would be a net increase in overall airfield emissions because of the increased taxiing times, distances, and congestion associated with more aircraft operations being concentrated in the south airfield. To the extent that such congestion and delays associated with aircraft movements on the ground hamper the ability of air traffic control to clear runways for arriving flights, any resultant need to have inbound aircraft divert from the approach path and go into a hold pattern would increase regional air pollutant emissions, including emissions of greenhouse gases. The imbalance in aircraft operations between the north airfield and the south airfield would adversely affect the overall operational performance of the entire LAX airfield system. In light of the above, a three-runway airfield is not considered a viable concept (i.e., a SPAS alternative) and was therefore eliminated from further evaluation.

## 5.7.4 Next Generation Technology

The Next Generation Air Transportation System, or NextGen, is currently being developed to provide a transformative change in the management and operation of how aircraft operate. The primary components of NextGen are related to technologically-advanced electronic navigational and communication systems associated with air traffic control, on-board aircraft systems, and airline operations. NextGen is designed to integrate all modes of aircraft operations including gate push-back, taxi operations, takeoffs, enroute flight, landings, and gate arrival. Once fully developed and implemented on a large scale, airports and aircraft in the National Airspace System will be connected to NextGen's advanced infrastructure and will continually share real-time information to provide a better travel experience.

The application of NextGen to the SPAS effort was considered by LAWA to determine if any component of NextGen could provide for a viable concept. Although NextGen systems could provide for better ground situational awareness for air traffic controllers and pilots, and it could make airfield operations

more efficient, it would not increase safety-related physical separation distances on the ground to meet ADG V and VI runway and/or taxiway/taxilane separation standards and OFZ requirements. Based on this evaluation, LAWA determined that no component of NextGen technology can provide a viable concept (i.e., a SPAS alternative) and, therefore, NextGen was eliminated from further consideration.

### 5.7.5 Offset Runways and Simultaneous Offset Instrument Approaches

A Simultaneous Offset Instrument Approach (SOIA) is a procedure typically used to enhance airfield operational capacity by allowing simultaneous instrument approaches to closely-spaced parallel runways or to closely-spaced runways that are not parallel. This concept was considered by LAWA during the formulation of SPAS airfield improvement options for increasing the separation between the runways in the north airfield in order to meet FAA separation standards for runway and/or taxiway operations, specifically as related to ADG V and VI aircraft. Offsetting one of the runways in the north airfield could provide the required separation distance between the runways that would allow construction of a centerfield taxiway; however, any new approach to the offset runway would have adverse impacts to off-airport areas, by shifting aircraft noise impacts to newly exposed areas. Also, the use of SOIA operations inherently reduces overall airfield operational performance. Based on the above, LAWA determined that offset runways and associated SOIAs do not provide a viable concept (i.e., a SPAS alternative) and, therefore, they were eliminated from further consideration.

### 5.7.6 Dual Runway Relocations

Under this concept, increased separation between runways, as necessary to allow the development of a center parallel taxiway and achieve FAA runway and taxiway separation design standards for ADG V and VI aircraft, would be accomplished by moving both runways. Specifically, Runway 6L/24R would be relocated northward from its current location by, for example, 175 feet and Runway 6R/24L would be relocated southward from its current location by 175 feet, and a center taxiway would be included, to achieve a total of 350 feet of increased separation within the intervening area. There could be any number of variations to this, such as moving Runway 6L/24R northward by a lesser amount (e.g., 100 feet), and Runway 6R/24L a greater amount (e.g., 250 feet), or vice versa, in order to achieve a total of 350 feet of increased separation, but the basic idea of this concept is to split the difference in achieving an increased runway separation distance by moving both runways. Under this concept, any southward relocation of Runway 6R/24L would necessitate a corresponding southward relocation of existing Taxiway E and existing Taxilane D in order to meet the required runway and taxiway/taxilane separation distance requirements. This concept would provide a means of achieving the same design standards as other alternatives, but in a different manner. For example, Alternative 5 would provide a runway configuration that meets ADG VI design standards under both good and poor weather conditions by moving Runway 6L/24R northward by 350 feet and adding a center parallel taxiway.

Development of this alternative is considered infeasible and impractical and likely to result in environmental impacts comparable to or greater than those of the other alternatives addressed in detail within the Draft EIR. Under this concept, the southward relocations of the runway and associated taxiway and taxilane would result in the loss of aircraft gates on the ends of concourses for Terminals 1, 2, and 3, the extent of which would depend on the distance of the southward relocations. To the extent that there is a substantial loss of gates on the north side of the CTA and more gate usage would have to occur on the south side of the CTA, there would be an imbalance in aircraft taxiing and operations between the north and south airfields. Given the extent of airfield construction activities required to relocate both runways, add a center parallel taxiway, relocate Taxiway E and Taxilane D, and modify the north ends of the concourse for Terminals 1, 2, and 3, the construction duration, costs, and construction-related impacts associated with this concept, particularly as related to air quality, would be substantial, and would be comparatively greater than the other alternatives addressed in detail within the Draft EIR that yield the same airfield safety and operational benefits. In other words, the alternatives analyzed in the Draft EIR that move just one runway, instead of both, would achieve the same safety and operational benefits as

the dual runway relocation concept but would be less costly, could be completed in a shorter amount of time, and would require less construction equipment activity.

Similarly, completion of dual runway and taxiway improvements would necessitate either more incremental phasing of airfield construction activities (to keep at least one of the north airfield runways operational at all time), more nighttime construction activities (to take advantage of low airfield activity levels), or complete closure of one or both runways in the north airfield for an extended period (to expedite the overall airfield improvement program).

Further, runway construction activities required for dual runway relocations are more likely to be constrained by the FAA airfield construction safety requirement that construction activities be at least 250 feet away from an active runway. For example, FAA is more likely to allow one runway to remain operational during construction while the other runway is relocated 250 feet or more than it is if the runway were moved half that distance - 125 feet. To the extent that runway closures in the north airfield are required during construction of the airfield improvements associated with this dual runway relocation concept, the demands on the other remaining runways at LAX would increase, resulting in an imbalance in operations between the north and south airfields and/or increased potential for airfield congestion and delays that would have impacts both locally and at other airports within the national airspace system.

Additionally, this alternative is within the range of alternatives already analyzed in the EIR as it would provide a means of achieving the same design standards as other alternatives, but in a different manner.

Based on the above, LAWA determined that the dual runway relocations concept was not feasible as a SPAS alternative and, therefore, it was eliminated from further consideration.

# 6. SPAS ALTERNATIVE PROJECTS

## 6.1 Introduction

As explained in Chapter 1, *Introduction*, Section 7.H of the LAX Specific Plan requires LAWA to initiate an LAX Specific Plan Amendment Study (SPAS) prior to seeking LAX Plan Compliance for any of the projects commonly referred to as the Yellow Light Projects. Section V.D of the Stipulated Settlement requires that LAWA focus the SPAS on the following:

1. Potential alternative designs, technologies, and configurations for the LAX Master Plan Program that would provide solutions to the problems that the Yellow Light Projects were designed to address consistent with a practical capacity of LAX at 78.9 million annual passengers (the "Alternative Projects").
2. Security, traffic, and aviation activity of such alternative designs, technologies, and configurations for the Alternative Projects.
3. Potential environmental impacts that could results from replacement of the Yellow Light projects with the Alternative Projects, and potential mitigation measures that could provide a comparable level of mitigation to that described for the Yellow Light Projects in the LAX Master Plan Program EIR.

This chapter identifies the Alternative Projects and describes how each of the Alternatives addresses the criteria identified in Section V.D of the Stipulated Settlement.

Chapter 3, *LAX Master Plan Elements*, of this SPAS Report identifies the problems that the Yellow Light Projects were designed to address, while Chapter 5, *SPAS Concept Development Process*, explains the history of concept development, and the refinement of those concepts into the SPAS Alternative Projects. This chapter discusses the extent to which each of the alternatives would provide solutions to the problems the Yellow Light Projects were designed to address, either in whole or in part, through alternative facility configurations and including, in some cases, the deletion or modification of non-Yellow Light Master Plan projects, including the Consolidated Rental Car Facility (CONRAC), the Intermodal Transportation Facility (ITC), and the West Employee Parking facility. This chapter also addresses security, traffic, and aviation activity for each of the alternatives, the potential environmental impacts that could result from replacement of the Yellow Light Projects with the alternatives, and the potential mitigation measures that could provide a comparable level of mitigation to that described for the Yellow Light Projects in the LAX Master Plan EIR.

In accordance with Section 7.G(2) of the LAX Specific Plan, LAWA prepared an evaluation of security for all of the SPAS alternatives. This evaluation included an assessment of the LAX Master Plan, represented by SPAS Alternative 3, which evaluated all of the components of the LAX Master Plan, including those projects yet to be initiated. In accordance with Section V.1 of the Stipulated Settlement, the evaluation of security for the Alternative Projects was conducted in consultation with security experts. The complete SPAS Security Evaluation is provided in Appendix I. Summaries of the findings of the security evaluation relative to each alternative are provided in this chapter.

Comprehensive studies of traffic, including on-airport and off-airport transportation, were conducted as part of the SPAS EIR. (On-airport transportation is addressed in Section 4.12.1 and Appendix K1 of the Draft EIR, and off-airport transportation is addresses in Section 4.12.2 and Appendix K2 of the Draft EIR.) The traffic characteristics of each alternative, including transportation-related impacts, are summarized in this chapter.

Aviation activity includes the number of passengers, volume of air cargo, and number of aircraft operations associated with an airport. This chapter identifies the number of passengers and airport operations associated with each of the SPAS alternatives at the buildout year of 2025. None of the alternatives would affect the volume of air cargo at LAX; as such, cargo is not addressed in this chapter. A detailed analysis of forecast activity associated with SPAS is provided in Appendix F-1, *LAX 2009-2025*

*Passenger Forecast and Design Day Flight Schedule Development*, of this report. The overall effect of the proposed airfield configurations on airport operations, including throughput[27] and delay[28], is evaluated in Appendix F-2, *North Runway Alternatives Simulation Analysis*.

A detailed analysis of the environmental impacts of the SPAS alternatives is provided in the SPAS Draft EIR. The Draft EIR also identifies mitigation measures to reduce or eliminate significant impacts associated with the alternatives. The environmental impacts and mitigation measures associated with each of the SPAS alternatives are summarized in this chapter.

## 6.2 Consistency with Practical Capacity of LAX at 78.9 MAP

All of the SPAS alternatives have been designed with 153 gates and analyzed at a practical capacity of 78.9 million annual passengers (MAP). The term "practical capacity" in this context means a forecast of activity determined by how LAX's various components will function together in the context of real-world market conditions, particularly given the market conditions projected in LAX's forecast. While practical capacity is not based solely on market assumptions, it takes into account the expected physical characteristics of the various functional elements of the airport and how they are planned and expected to work together, given how the market is likely to respond to, and use LAX.[29]

The LAX Master Plan ("Alternative D") was designed to serve the same practical capacity as the then existing airport would have served without the LAX Master Plan improvements (i.e., the same number of passengers that would have been served if no LAX Master Plan improvements had been made.)[30] Both the existing airport design in 2004 and the approved LAX Master Plan design were projected to serve approximately 78.9 million passengers in 2015.[31] The LAX Master Plan projections were based on an analysis of what elements at the airport (e.g., runways, airspace, terminals, or ground access) constrained the practical capacity of LAX.[32] The Stipulated Settlement reinforced this approach by calling for LAWA to reduce the number of gates at LAX if passenger activity levels rose to 75 MAP.[33]

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27 Throughput refers to the number of aircraft operations processed by an airfield system given actual demand variability under a combination of specific operating conditions. For a given demand profile, throughput varies depending on the specific runway operating configuration and procedures. Computation of throughput is inherently more complex than computation of capacity because the demand inputs are not generalized; therefore, the computation is accomplished through computer simulation modeling techniques. At sufficiently high levels of activity, the highest throughput achieved while maintaining an acceptable level of delay is a good indicator of the capacity of the airspace and airfield systems.

28 Delay refers to the difference between the actual time it takes an aircraft to conduct an arrival or departure and the typical time it would take to conduct the same operation with no interference from other aircraft. Delay is a measure of a system's operating performance, indicating the efficiency with which throughput is achieved.

29 See U.S. Department of Transportation, Federal Aviation Administration, Record of Decision Proposed LAX Master Plan Improvements, p. 19, May 20, 2005.

30 Stipulated Settlement, Recital D; LAX Master Plan EIS/EIR, p. 3-57.

31 LAX Master Plan EIS/EIR, pp. 3-13 and 3-15 (Table F3-1).

32 LAX Master Plan EIS/EIR, pp. 3-57 and 3-62.

33 Section IV "Passenger Gate Provisions" of the Stipulated Settlement requires LAWA to gradually discontinue operations at narrow body equivalent gates ("NBEG") at LAX such that the total number of passenger gates would be reduced to 153 by the end of 2015. However, the requirement does not apply if either (1) total passenger operations at LAX are below 75 MAP, or (2) the LAX Master Plan Program were substantially revised pursuant to the SPAS process such that the total number of gates were reduced to 153 or less. (Settlement, Sec. IV.C.) While the Stipulated Settlement expires in December 2015, it provides the Gate Reduction provisions are to remain in effect until December 31, 2020. (Settlement, Sec. I.D.)

If LAX were to reach that 75 MAP threshold, the terms of the Stipulated Settlement would require LAWA to reduce passenger gates over time to no more than 153 by December 31, 2015.[34] The Settlement Agreement calls for these Passenger Gate Provisions to be operative through December 31, 2020.[35]

When the City approved the LAX Master Plan in 2004, passenger levels at LAX were projected to reach 78.9 MAP sometime between 2005 and 2006.[36] Since that time, significant increases in the cost of aviation fuel, the ongoing global economic downturn, increased security requirements, concerns about terrorism, and other market conditions have caused significant reductions in demand for air services.[37] As a result, at no time since 2004 has LAX reached 75 MAP. In fact, passenger activity levels at LAX over the past three years have ranged from 56.5 MAP to 61.8 MAP. (See passenger activity for the past five years summarized in **Table 6-1**.)

**Table 6-1**

**Summary of Passenger Activity at LAX - 2007 through 2011**

| Year | Passenger Activity Level (MAP) |
|---|---|
| 2007 | 62,438,583 |
| 2008 | 59,815,646 |
| 2009 | 56,520,843 |
| 2010 | 59,069,409 |
| 2011 | 61,862,052 |

Source: Los Angeles World Airports, Statistics - Ten Year Summary - Passengers, 2012.

Current projections by both LAWA and the FAA (i.e., FAA's 2011 Terminal Area Forecast [TAF]) reflect LAX is not expected to reach either 75 MAP or 78.9 MAP by the end of 2020.[38] Appendix F-1, *LAX 2009-2025 Passenger Forecast and Design Day Flight Schedule Development*, shows that current LAWA projections reflect LAX is not expected to reach 75 MAP until 2022 and 78.9 MAP until 2024.[39] As noted above, the Stipulated Settlement gate reduction provisions are operative until no later than the end of 2020. Nonetheless, all nine SPAS alternatives are designed with only 153 gates.

While the passenger activity projections are based upon the best available evidence and expert opinion, history demonstrates it is possible that over the next ten to twelve years, currently unexpected fluctuations in the economy, aviation industry practices, passenger demand, and other known and unknown factors may result in LAX annual passengers increasing (or decreasing) at a different rate than expected. Therefore, in addition to alternatives with physical configurations of no more than 153 gates, this Specific Plan Amendment Study considers a potential amendment to Section 7.H of the LAX Specific Plan.

34 Stipulated Settlement, Sec. IV B.1. That same Settlement section also states that implementation of the Settlement will not restrict access at LAX to levels below those disclosed in FAA's Final EIS and ROD for the No Action and the approved project scenario in 2015.

35 Settlement, Sec. I. D.

36 LAX Master Plan EIS/EIR, pp. 2-4 (Table F2-1) and 2-6 (Figure F2-10).

37 City of Los Angeles, Los Angeles World Airports, LAX 2009-2025 Passenger Forecast and Design Day Flight Schedule Development, prepared by Ricondo & Associates, Inc., July 2012 (provided in Appendix F-1).

38 City of Los Angeles, Los Angeles World Airports, LAX 2009-2025 Passenger Forecast and Design Day Flight Schedule Development, prepared by Ricondo & Associates, Inc., Table 4, July 2012 (provided in Appendix F-1).

39 City of Los Angeles, Los Angeles World Airports, LAX 2009-2025 Passenger Forecast and Design Day Flight Schedule Development, prepared by Ricondo & Associates, Inc., Table 4, July 2012 (provided in Appendix F-1).

The Section 7.H amendment, (applicable to all alternatives, including the existing LAX Master Plan) would provide opportunities for adjustments, if LAX reaches 75 or 78.9 MAP earlier than expected. This amendment, set forth in detail in Chapter 7, *LAX Specific Plan Amendments*, would address potential variations over time, first, by requiring action to encourage further shifts in passenger and airline activity to other regional airports if the annual aviation activity analysis forecasts that the annual passengers for that year at LAX are anticipated to exceed 75 MAP, and, second, by requiring a Specific Plan Amendment Study if the annual aviation activity analysis forecasts that LAX annual passengers for that year are anticipated to exceed 78.9 MAP.

These amendments (SPAS alternatives with 153 gates and a new Section 7.H) are consistent with a practical capacity for LAX at 78.9 MAP in 2025 and are also designed to maintain LAWA's acknowledged unique and important regional economic role as an International Gateway,[40] while encouraging domestic passengers and the airlines that serve them to increase their use of other airports in the region.

The revised Section 7.H would state:

"H. Additional Study Requirements.

1. Specific Plan Amendment Study. LAWA shall initiate a Specific Plan Amendment Study with corresponding environmental analysis in compliance with CEQA, in the following two circumstances:

(a) If the annual traffic generation report required in Section G.1 above, and/or the annual traffic generation report considered together with any project-specific traffic study, shows that any Master Plan Projects will be generating net new airport peak hour Trips in excess of 8,236 (unless the total Trips for that year are related to construction or phasing impacts).

(b) If the annual aviation activity analysis required in Section G.1 above forecasts that the annual passengers for that year are anticipated to exceed 78.9 million.

2. LAX Domestic Passenger and Airline Market Survey/Study. LAWA shall initiate an LAX Domestic Passenger Survey/Study and corresponding Airline Survey/Study, if the annual aviation activity analysis required in Section G.1 above forecasts that the annual passengers for that year are anticipated to exceed 75 million.

(a) LAX Domestic Passenger Survey and Study. LAWA shall conduct a survey and study of LAX domestic passengers (those passengers not flying internationally or connecting to international flights) designed to identify, at a minimum, (i) those LAX domestic passengers with origination or destination locations closer to other commercial airports in the region, (ii) why those domestic passengers chose to fly out of, or into, LAX rather than another commercial airport closer to their location of origin or destination, and (iii) what actions, consistent with federal, state and local laws, LAWA could take to encourage those domestic passengers to use an airport closer to their location of origin or destination for domestic flights.

(b) Airline Survey and Study. Upon completion of the LAX Domestic Passenger Survey and Study described in 2(a) above, LAWA shall conduct a survey and study of Airlines then serving the Southern California commercial air travel market designed to identify what action(s), consistent with federal, state and local laws, LAWA could take to encourage those airlines to provide increased Domestic service at other airports in the region, particularly those owned or operated by LAWA."

[40] See the LAX Specific Plan (Section 2) and the SPAS Draft EIR Chapter 2; Objective 3) International Gateways are more than airports with international flights. They are large enough to have many domestic connecting flights that can move international passengers to their final destinations within the destination country. They also have built up around them well-developed specialized and investment-intensive import-export facilities such as custom processing, warehouses, and international packing services.

## 6.3 Alternative Projects

The primary focus of the SPAS is on potential alternatives to the following LAX Master Plan improvements defined in the Stipulated Settlement as the Yellow Light Projects:

- Development of the Ground Transportation Center (GTC), including the baggage tunnel, associated structures and equipment;
- Construction of the Automated People Mover (APM) 2 from the GTC to the Central Terminal Area (CTA), including its stations and related facilities and equipment;
- Demolition of CTA Terminals 1, 2, and 3;
- North Runway re-configuration as contemplated in the LAX Master Plan, including center taxiways; and
- On-site road improvements associated with development of the GTC and construction of APM 2.

Nine alternatives offering various options to the Yellow Light Projects have been identified as the SPAS Alternative Projects. The alternatives are intended to provide solutions to the problems that the Yellow Light Projects were designed to address, which are described in Chapter 3, *LAX Master Plan Elements*.

The types of improvements used to define the key characteristics of each SPAS alternative can be grouped into the following three categories:

- Airfield Improvements - Airfield improvements include changes to the runways, taxiways, navigational aids, and service and maintenance roads associated with the north airfield. The primary differences in airfield improvements associated with the various SPAS alternatives pertain to:
  - Separation distances between runways and taxiways. Separation distances largely determine the maximum size aircraft that can freely operate on that system under various visibility conditions, and, in certain visibility conditions, would either require FAA approval of special operating procedures (i.e., Modifications of Standards or other forms of operational waivers) or would be prohibited;
  - Whether an increase in the separation distance between Runway 6L/24R and Runway 6R/24L would allow for the construction of a centerfield parallel taxiway between the runways, to enable aircraft arriving on the outboard (6L/24R) runway to exit onto the center taxiway and hold while aircraft are departing on the inboard (6R/24L) runway, thereby allowing the departing aircraft to safely pass before the arriving aircraft proceeds to the terminal gates;
  - The extent to which the Lincoln Boulevard and the Argo Drainage Channel would have to be modified in order to accommodate a northerly shift in the alignment of Runway 6L/24R;
  - Whether Runway 6R/24L would be extended 1,250 feet eastward to provide greater departure length in west flow condition that would better accommodate departures of large aircraft on long-haul flights and improve the balance between the north airfield and the south airfield relative to such departures;
  - Whether Runway 6L/24R would be reconfigured or extended to relocate its associated Runway Protection Zone (RPZ) with respect to residential uses, and/or to improve the north airfield and the south airfield relative to the operation of aircraft;

- How Runway Safety Area (RSA) requirements would be met, in terms of runway extensions, declared distances,[41] displaced thresholds,[42] or a combination thereof; and
- Separation distances between Runway 6R/24L, Taxiway E, Taxilane D, the adjacent vehicle service road, and the aircraft gates/parking positions at the north end of the CTA, which largely determine the maximum size aircraft that can either freely operate on that system or would be subject to certain limitations, particularly as related to the interface between aircraft going to or from the gates at Terminals 1 through 3 and aircraft taxiing to the east end of Runway 6R/24L for departure.

- Terminal Improvements - Terminal improvements consist primarily of additions/demolitions to existing terminals/concourses, and, for most SPAS alternatives, the construction of a new terminal - Terminal 0 ("zero"). The primary differences in terminal improvements for the various SPAS alternatives are directly related to the movement of runways and taxiways under each alternative. Specifically, the alternatives differ in the location of their building limit lines (i.e., the "object free" safety area along runways and taxiways where no part of a structure can be present) and their aircraft parking limit lines (APLL) (i.e., the safety clearance setback area along runways and taxiways into which no part of an aircraft parked at a gate can extend). The northernmost limit of concourse building area and/or aircraft gate parking positions is defined by the southernmost safety clearance distance for the runways and taxiways in the north airfield. Depending on the location and design of the runways and taxiways associated with each alternative, the locations of the building limit line and APLL may differ between alternatives.

  In general, the building lines and APLLs associated with most of the alternatives extend southward, overlapping, to varying degrees, portions of the concourse areas for Terminals 1 through 3, which would require removal (demolition) of those building areas that encroach past the building limit line and/or the elimination or reduction in aircraft size capability of gate parking positions that encroach past the parking limit line. Conversely, the building and parking limit lines associated with several alternatives do not extend as far south as the limit lines defined in the LAX Master Plan, which assumed the movement of Runway 6R/24L 340 feet south and defined the northerly building limits for the Tom Bradley International Terminal (TBIT) West Gates, currently under construction as part of the Bradley West Project, and the future Midfield Satellite Concourse (MSC). In those cases, establishing building and parking limit lines farther north than the current LAX Master Plan limit lines would allow the opportunity for a future northward extension (i.e., an addition to) the north concourses for Bradley West and the MSC.

  While the amount of concourse area and the layout of aircraft gates vary between alternatives, none of the SPAS alternatives includes more than 153 passenger gates.

  Certain alternatives propose a westerly realignment of the Terminal 3 concourse to provide a wider alleyway between the concourses at Terminals 2 and 3 for aircraft taxiing.

  For those alternatives that include development of the new Terminal 0, the existing alignment of Sky Way (the primary access road connecting CTA to southbound Sepulveda and 96th Street Bridge) would be shifted east, into the area now occupied by the Park One parking lot, providing an improved entrance roadway into the CTA.

- Ground Access Improvements - Ground access improvements consist of changes to on-airport and off-airport roads, addition of specific transportation facilities, development of dedicated access (i.e., busway or APM) into the CTA, and changes in parking locations. While the focus of SPAS is on alternatives to the Yellow Light Projects, such as the GTC and its associated roadways and one of the two APM systems proposed under the LAX Master Plan (APM 2), the ground access improvements proposed under the various SPAS alternatives also take into consideration key non-

[41] Declared distances are the distances the airport operator declares available for an aircraft's take-off run, take-off distance, accelerate-stop distance, and landing distance requirements to obtain a standard safety area.

[42] A displaced threshold is a threshold that is located on a point on the runway other that the designated beginning of the runway to satisfy approach surface criteria and/or RSA length requirements.

Yellow Light projects that are integral parts of the overall ground access system. Such projects include the CONRAC, the ITC, the APM connecting the ITC and CONRAC to the CTA, and the West Employee Parking facility. The ground access improvements proposed under the various SPAS alternatives represent different combinations of options to the Yellow Light Projects. Due to integral nature of these key non-Yellow Light projects with the overall ground access system, the SPAS alternatives include proposed modifications to, or proposed deletion of, these non-Yellow Light projects.

Provided below is an overview of the nine SPAS alternatives. The details of each alternative are provided after the overview.

Alternatives 1 through 4 are "fully-integrated" alternatives that include specific improvements in all three categories: airfield improvements, terminal improvements, and ground access improvements. Alternatives 5 through 7 focus on variations to the airfield improvements, which, in turn, affect the terminal improvements. Alternatives 8 and 9 focus on variations to the ground access improvements.

Although the primary focus of Alternatives 5 through 9 is on specific categories of improvements, there is a certain amount of compatibility or "interchangeability" between the SPAS alternatives. Specifically, the airfield and terminal improvements in Alternatives 5 through 7 are equally compatible with the ground access improvements in Alternatives 1, 2, 8, and 9. Likewise, the ground access improvements in Alternatives 8 and 9 are equally compatible with the airfield and terminal improvements in Alternatives 1, 2, 5, 6, and 7. In other words, the proposed ground transportation system incorporated into Alternatives 1 and 2 could function in the same manner with Alternatives 5, 6, or 7. That would also be the case for the ground transportation systems under Alternatives 8 and 9, which could be developed under Alternatives 5, 6, or 7, and could also replace the ground transportation system currently proposed for Alternatives 1 and 2. On the other hand, Alternatives 3 and 4 are unique "fully-integrated" alternatives and are not considered to have elements that are "interchangeable" with the other SPAS alternatives. While Alternatives 5, 6, and 7 focus on options for airfield/terminal improvements and Alternatives 8 and 9 focus on options for ground access improvements, these five alternatives (Alternatives 5 through 9) would only address all of the problems that the Yellow Light Projects were designed to address in conjunction with another alternative (Alternatives 1 through 4), or portion thereof.

The following describes each of the nine SPAS alternatives, including an overview of the alternative and details regarding the specific improvements and characteristics associated with that alternative. A summary of the key characteristics of the nine alternatives is presented in **Table 6-2**. It is anticipated that all of the improvements proposed under each alternative would be completed by 2025, with construction beginning in 2015.

**Table 6-2**

**Summary of SPAS Alternatives**

| | Baseline Conditions | Applicable SPAS Alternative | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
| **Airfield Elements - Key Components** | | | | | | | | | | |
| **Runways** | | | | | | | | | | |
| Relocate Runway 6L/24R to north | | 260' | -- | -- | -- | 350' | 100' | -- | NA | NA |
| Extend Runway 6L/24R to west | | 604' | -- | 1,495' | -- | 604' | 604' | -- | NA | NA |
| Relocate Runway 6R/24L to south | | -- | -- | 340' | -- | -- | -- | 100' | NA | NA |
| Extend Runway 6R/24L to east | | 1,250' | 1,250' | 1,280' | 835' | 1,250' | 1,250' | 1,250' | NA | NA |
| Extend Runway 6R/24L to west | | -- | -- | 135' | -- | -- | -- | -- | NA | NA |
| **Taxiways** | | | | | | | | | | |
| Centerfield Taxiway | N | Y | N | Y | N | Y | Y | Y | NA | NA |
| Relocate Taxiway E to south | | | | | | | | | | |
| Between D7 and Q (TBIT and Terminals 1, 2, and 3) | | -- | -- | 340' | -- | 100' | -- | 200' | NA | NA |
| Between Q and E13 (MSC) | | -- | -- | 290' | -- | 50' | -- | 150' | NA | NA |
| Between E13 and AA | | -- | -- | 290' | -- | 50' | -- | 150' | NA | NA |
| Between AA and E17 | | 0'-64' | 0'-64' | 290'-354' | -- | 50'-114' | 0'-64' | 150'-214' | NA | NA |
| Extend Taxiway E to east | | 950' | 950' | 980' | 535' | 950' | 950' | 950' | NA | NA |
| Relocate Taxilane D to north | | | | | | | | | | |
| Between D7 and Q (TBIT and Terminals 1, 2, and 3) | | 15' | 15' | -- | -- | -- | 15' | -- | NA | NA |
| Between Q and E13 (MSC) | | 19' | 19' | -- | -- | -- | 19' | -- | NA | NA |
| Relocate Taxilane D to south | | | | | | | | | | |
| Between D7 and Q (TBIT and Terminals 1, 2, and 3) | | -- | -- | 409' | -- | 124' | -- | 185' | NA | NA |
| Between Q and E13 (MSC) | | -- | -- | 355' | -- | 70' | -- | 119' | NA | NA |
| Extend Taxilane D to east | | 745' | 745' | 90' | -- | 675' | 745' | 650' | NA | NA |
| Extend Taxilane D to west | | 5,145' | 5,145' | 5,145' | -- | 5,145' | 5,145' | 5,145' | NA | NA |
| **Service Road** | | | | | | | | | | |
| Construct New Service Road (South of Taxilane D) | | Y | Y | Y | -- | Y | Y | Y | NA | NA |
| Construct New Service Road (Between Taxiway E and Taxilane D) | | -- | -- | Y | -- | -- | -- | -- | NA | NA |
| **Terminal Elements - Key Components** | | | | | | | | | | |
| **Central Terminal Area (CTA)** | | | | | | | | | | |
| Terminal 0 Concourse and Passenger Processing | | | | | | | | | NA | NA |
| Proposed New | | 330,000 | 330,000 | -- | -- | 330,000 | 330,000 | 325,000 | NA | NA |
| Terminal 1 Concourse | 138,000 | | | | | | | | NA | NA |
| Demolition | | (24,000) | (24,000) | See Below | -- | (24,000) | (24,000) | (24,000) | NA | NA |
| Proposed Remaining | | 114,000 | 114,000 | | 138,000 | 114,000 | 114,000 | 114,000 | NA | NA |

**Table 6-2**

**Summary of SPAS Alternatives**

| | Baseline Conditions | Applicable SPAS Alternative | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
| Terminal 2 Concourse | 306,000 | | | | | | | | NA | NA |
| Demolition | | (0) | (0) | See Below | (0) | (0) | (0) | (0) | NA | NA |
| Proposed Remaining | | 306,000 | 306,000 | | 306,000 | 306,000 | 306,000 | 306,000 | NA | NA |
| Terminal 3 Concourse | 279,000 | | | | | | | | NA | NA |
| Demolition | | (242,000) | (242,000) | See Below | (0) | (242,000) | (242,000) | (242,000) | NA | NA |
| Proposed Reconfigured | | 223,000 | 223,000 | | 279,000 | 223,000 | 223,000 | 205,000 | NA | NA |
| Terminals 1 through 3 Concourses & Passenger Processing | | See Above | See Above | | See Above | See Above | See Above | See Above | NA | NA |
| Concourses Demolition/Reconfiguration | | | | (723,000) | | | | | NA | NA |
| Passenger Processing Demolition/Reconfiguration | | | | (522,000) | | | | | NA | NA |
| Total Demolition | | | | (1,245,000) | | | | | NA | NA |
| New Linear Concourse | | | | 1,400,000 | | | | | NA | NA |
| **Bradley West - North Concourse Extension** | | | | | | | | | NA | NA |
| North Extension | | 113,800 | 113,800 | -- | -- | 73,300 | 113,800 | 64,400 | NA | NA |
| **Midfield Satellite Concourse (MSC) - North Concourse Extension** | | | | | | | | | NA | NA |
| North Extension | | 249,400 | 249,400 | -- | -- | 204,800 | 249,400 | 190,700 | NA | NA |
| **New Processing Facilities 1-4 within CTA** | | | | | | | | | NA | NA |
| Demolition of Existing Parking Structures | | | | (2,980,000) | | | | | NA | NA |
| New Passenger Processing Facilities | | | | 2,151,000 | | | | | NA | NA |
| | | | | | | | | | NA | NA |
| **Ground Access Elements - Key Components** | | | | | | | | | | |
| **Transportation Facilities** | | | | | | | | | | |
| Intermodal Transportation Facility (ITF) | | X | X | -- | -- | NA | NA | NA | X | X |
| Ground Transportation Center (GTC) | | -- | -- | X | -- | NA | NA | NA | -- | -- |
| Intermodal Transportation Center (ITC) | | -- | -- | X | -- | NA | NA | NA | -- | -- |
| CONRAC - Parking Lot C | | -- | -- | X | X | NA | NA | NA | -- | -- |
| CONRAC - Manchester Square | | -- | -- | -- | -- | NA | NA | NA | X | X |
| **Circulation System Improvements** | | | | | | | | | | |
| Sky Way Realignment | | X | X | -- | -- | NA | NA | NA | X | X |
| Busway Between Manchester Square and CTA | | X | X | -- | -- | NA | NA | NA | X | -- |
| APM - Between Manchester Square and CTA | | -- | -- | -- | -- | NA | NA | NA | -- | X |
| APM - Dual Systems/Routes | | -- | -- | X | -- | NA | NA | NA | -- | -- |
| East On-Airport Access Roads | | -- | -- | X | -- | NA | NA | NA | -- | -- |

**Table 6-2**

**Summary of SPAS Alternatives**

| | Baseline Conditions | Applicable SPAS Alternative | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
| **Parking** | | | | | | | | | | |
| CTA[1,2] | | | | | | | | | | |
| Public | 8,577 | 7,041 | 7,041 | 0 | 7,041 | NA | NA | NA | 7,041 | 7,041 |
| Employee | 420 | 420 | 420 | 0 | 420 | NA | NA | NA | 420 | 460 |
| Subtotal | 8,997 | 7,461 | 7,461 | 0 | 7,461 | NA | NA | NA | 7,461 | 7,461 |
| Parking Lot C[3] | | | | | | | | | | |
| Public | 7,300 | 7,300 | 7,300 | 0 | 0 | NA | NA | NA | 7,300 | 7,300 |
| Employee | 0 | 0 | 0 | 0 | 0 | NA | NA | NA | 0 | 0 |
| Subtotal | 7,300 | 7,300 | 7,300 | 0 | 0 | NA | NA | NA | 7,300 | 7,300 |
| Parking Lot D[4] and Jenny Lot | | | | | | | | | | |
| Public | 0 | 0 | 0 | 0 | 0 | NA | NA | NA | 0 | 0 |
| Employee | 0 | 4,344 | 4,344 | 0 | 0 | NA | NA | NA | 4,344 | 4,344 |
| Subtotal | 0 | 4,344 | 4,344 | 0 | 0 | NA | NA | NA | 4,344 | 4,344 |
| Park One | | | | | | | | | | |
| Public | 2,728 | 0 | 0 | 0 | 2,728 | NA | NA | NA | 0 | 0 |
| Employee | 0 | 0 | 0 | 0 | 0 | NA | NA | NA | 0 | 0 |
| Subtotal | 2,728 | 0 | 0 | 0 | 2,728 | NA | NA | NA | 0 | 0 |
| Manchester Square | | | | | | | | | | |
| Public | 0 | 4,200 | 4,200 | See GTC below | 0 | NA | NA | NA | 4,200 | 4,200 |
| Employee | 0 | 3,500 | 3,500 | See GTC below | 0 | NA | NA | NA | 0 | 0 |
| Subtotal | 0 | 7,700 | 7,700 | See GTC below | 0 | NA | NA | NA | 4,200 | 4,200 |
| Avis Rental Car Lot | | | | | | | | | | |
| Public | 0 | 0 | 0 | 0 | 0 | NA | NA | NA | 0 | 0 |
| Employee | 0 | 0 | 0 | 0 | 0 | NA | NA | NA | 2,750 | 2,750 |
| Subtotal | 0 | 0 | 0 | 0 | 0 | NA | NA | NA | 2,750 | 2,750 |
| Proposed Parking Structure at ITF | | | | | | | | | | |
| Public | 0 | 4,900 | 4,900 | - | - | NA | NA | NA | 4,900 | 4,900 |
| Employee | 0 | 0 | 0 | - | - | NA | NA | NA | 0 | 0 |
| Subtotal | 0 | 4,900 | 4,900 | - | - | NA | NA | NA | 4,900 | 4,900 |
| Proposed West Employee Parking (Structure) | | | | | | | | | | |
| Public | | - | - | 0 | - | NA | NA | NA | - | - |
| Employee | | - | - | 12,400 | - | NA | NA | NA | - | - |
| Subtotal | | - | - | 12,400 | - | NA | NA | NA | - | - |
| Parking Lot F (Parking Structure at the SE corner of Avion Dr. & Century Blvd.)[5] | | | | | | | | | | |
| Public | 0 | 0 | 0 | 0 | 0 | NA | NA | NA | 0 | 0 |
| Employee | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | NA | NA | NA | 1,200 | 1,200 |
| Subtotal | 1,200 | 1,200 | 1,200 | 1,200 | 1,200 | NA | NA | NA | 1,200 | 1,200 |

**Table 6-2**

**Summary of SPAS Alternatives**

| | Baseline Conditions | Applicable SPAS Alternative | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
| Proposed Parking Structures at GTC | | | | | | | | | | |
| Public | | - | - | 7,515 | - | NA | NA | NA | - | - |
| Employee | | - | - | 0 | - | NA | NA | NA | - | - |
| Subtotal | | - | - | 7,515 | - | NA | NA | NA | - | - |
| Southeast Surface Parking[6] | | | | | | | | | | |
| Public | 0 | - | - | 5,470 | 0 | NA | NA | NA | - | - |
| Employee | 5,470 | - | - | 0 | 5,470 | NA | NA | NA | - | - |
| Subtotal | 5,470 | - | - | 5,470 | 5,470 | NA | NA | NA | - | - |
| Proposed Parking Structure at ITC | | | | | | | | | | |
| Public | | - | - | 9,127 | 9,127 | NA | NA | NA | - | - |
| Employee | | - | - | 0 | 0 | NA | NA | NA | - | - |
| Subtotal | | - | - | 9,127 | 9,127 | NA | NA | NA | - | - |
| **Total** | **25,695** | **32,905** | **32,905** | **35,712** | **25,986** | | | | **32,155** | **32,155** |

[1] Some of the public parking in the CTA is currently used by government employees.

[2] Assumes that the MSC Passenger Processor building (not a SPAS-related project) would require the removal of parking structures 2B and 5 (1,536 total spaces). Any parking spaces that may be included as a component of the Passenger Processor project is not included in these parking totals.

[3] An area of Parking Lot C comprising approximately 850 spaces is currently being used as a limousine and charter bus holding lot. The 7,300 spaces represents the number of potential spaces if this commercial holding lot were relocated.

[4] Parking Lot D opened to employee parking in November 2011 with 1,944 parking spaces. However, there was no parking in this lot in 2010 (baseline year).

[5] This parking structure is currently used primarily by airport tenants; however, LAWA does sell some monthly parking passes to the public who likely work in nearby offices. For purposes of this summary, this structure is considered as employee parking.

[6] For baseline conditions and Alternative 4, this is Parking Lot E located north of 111th Street. For Alternative 3, this is a proposed new parking lot located north and east of Parking Lot E.

Source: LAWA, CDM Smith, Ricondo & Associates, AECOM, 2011.

## 6.3.1 Alternative 1

### Overview

Alternative 1 is a fully-integrated alternative, consisting of airfield, terminal, and ground access components. The distinguishing airfield improvement feature of this alternative is the movement of Runway 6L/24R 260 feet north, along with the addition of a centerfield taxiway, the extension of Runway 6R/24L, improvements to Taxilane D and Taxiway E, and relocation of the service road. Terminal Improvements include addition of new Terminal 0, loss or modifications to concourse areas and/or gates at Terminals 1, 2, and 3, and the modification and potential northward extension of concourse area and gates at TBIT and the future MSC. Ground access improvements include modification of Sky Way; development of an Intermodal Transportation Facility (ITF) at 98th Street west of Airport Boulevard; development of an elevated/dedicated busway along 98th Street, with a bridge over Sepulveda Boulevard and stops at Manchester Square (future surface parking), the future Metro LAX/Crenshaw Light Rail Transit Station at/near Century and Aviation Boulevards, the ITF, and the CTA; and the relocation of Lincoln Boulevard, a portion of which would be below grade and/or tunneled. This alternative is illustrated in **Figure 6-1**.

## 6.3.1.1 Airfield Facilities

Alternative 1 meets FAA runway design standards for Aircraft Design Group (ADG) V, with a Category II/III outboard runway (Runway 6L/24R) and Category I inboard runway (Runway 6R/24L), and provides sufficient space between Runway 6R/24L and the centerfield taxiway for ADG V aircraft to hold prior to crossing the runway with a pilot line-of-sight of the end of Runway 24L. This alternative provides the FAA standard ADG VI runway-to-taxiway separation between Runway 6L/24R and the centerfield taxiway for approach visibility at or above one-half mile (Category I approaches). Taxiway E and Taxilane D dimensions would meet ADG V standards.

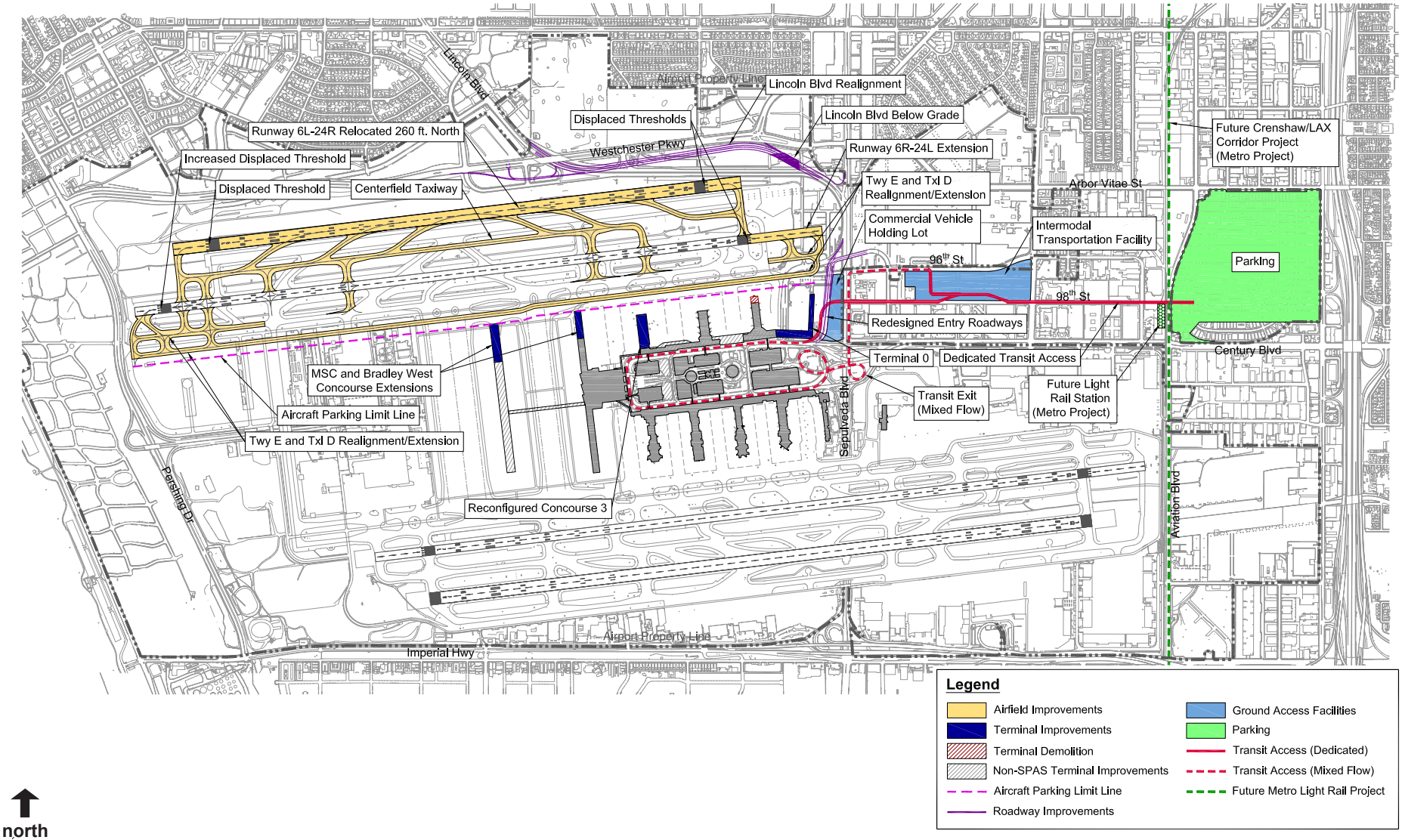
### Runway Modifications

#### Runway 6L/24R

- Relocate 260 feet north of current location to accommodate a new centerfield parallel taxiway (see below) and to provide for ADG V separation distances
- Extend 604 feet west so that the RPZ no longer extends over residential areas
- Establish dual displaced thresholds to remove existing residences from the RPZ (east end displaced threshold) and maintain existing westerly aircraft landing heights (west end displaced threshold)
- Widen to 200 feet to meet FAA standards

#### Runway 6R/24L

- Remains in its current location
- Extend 1,250 feet east to meet RSA requirements and maximize aircraft takeoff length
- Shift 6R landing threshold 104 feet east to meet RSA requirements
- Reconstruct east 2,000 feet for grade compliance




north

Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 1 | Figure 6-1 |
|---|---|---|

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## Taxiway Modifications

### Centerfield Taxiway

- Construct an 82-foot-wide centerfield taxiway between Runways 6L/24R and 6R/24L, with a centerline separation distance of 500 feet to Runway 6L/24R and 460 feet to Runway 6R/24L, to enhance safety and reduce incursions and other airfield hazards, while providing for ADG V separation distances; also provide exit taxiways from Runway 6L/24R to the centerfield taxiway, taxiways from the centerfield taxiway to and across Runway 6R/24L, and other related airfield taxiway improvements

### Taxiway E

- Rebuild western 2,190 feet to straighten alignment (0 to 64 feet southerly relocation)
- Extend 950 feet east to support easterly extension of Runway 6R/24L and to provide additional hold area for departing aircraft

### Taxilane D

- Relocate varying distances (ranging from 15 to 19 feet) north to provide ADG V separation distances between the taxiway and APLL
- Extend 745 feet east to support easterly extension of Runway 6R/24L and 5,145 feet west to provide for dual full-length taxiways in the north airfield

## Other Airfield-Related Features

- Cover the entire length of the Argo Drainage Channel (9,857 linear feet) such that the weight of an aircraft could be supported within the RSA by converting the existing open unlined channel to a concrete box culvert
- Relocate Lincoln Boulevard northward between Sepulveda Boulevard and Westchester Parkway, and depress the eastern portion of the road segment to be compatible with the object free area requirements for the east end of Runway 6L/24R, which would require approximately 540 linear feet of the road segment to be tunneled
- Relocate the service road that currently lies between Taxiway E and Taxilane D to a location 142 feet south of Taxilane D centerline to increase the separation between the two taxiways to allow for simultaneous operations with larger aircraft than currently accommodated, improve safety and efficiency, and meet FAA standards
- Taxiway E and Taxilane D dimensions, based on proposed improvements, would meet ADG V standards
- In the eastern portion of the airfield, the APLL would move south to a location 852 feet south of the existing Runway 6R/24L centerline. Beginning just west of Taxiway S, the APLL would move south an additional 50 feet (902 feet south of the Runway 6R/24L centerline).

# 6.3.1.2 Terminal Facilities

Proposed modifications to terminal facilities, including aircraft gates, under Alternative 1 would include the following:

- Construct a new Terminal 0 with seven gates in the western portion of the area now occupied by Park One to replace gates lost or downsized at Terminals 1 through 3
- Demolish approximately 177 feet of the Terminal 1 concourse to accommodate the southerly movement of the APLL
- Demolish and reconstruct the Terminal 3 concourse and associated gates, with the building centerline shifted 40 feet to the west to increase the width of the alleyway between Terminals 2 and 3 to allow for dual-directional aircraft movement and comply with FAA standards

- Demolish and replace the northerly end of the TBIT concourse and associated gates (with new concourse and gates in line with the new Bradley West concourse) to the Alternative 1 APLL
- Provide the opportunity to extend the northerly end of the future MSC to the Alternative 1 APLL
- As a result of moving the APLL south to meet ADG V standards, several gates would be eliminated or downsized (i.e., would accommodate smaller aircraft types)
- The commuter facility currently in use east of Sepulveda Boulevard would be maintained
- West remote gates would be eliminated upon completion of the airfield and terminals improvements
- The total number of gates used at LAX for scheduled passenger service would be 153

### 6.3.1.3 Ground Access Facilities

#### Ground Access

Under Alterative 1, the characteristics of the airport ground access system would be as follows:

- Maintain private vehicle access to the CTA
- Relocate Sky Way (upper and lower level roadways) eastward between the future Terminal 0 and Sepulveda Boulevard to provide additional roadway and curbfront in the CTA, while allowing the development of Terminal 0
- Add new curbside space at Terminal 0
- Relocate the commercial vehicle holding lot south of 96th Street, between Sepulveda Boulevard and the relocated Sky Way to meet RSA and RPZ requirements
- Construct a new ITF on 14 acres between 96th and 98th streets and between Vicksburg Avenue and Airport Boulevard. Key features of the ITF include public parking and remote passenger pick up/drop off. In addition, arriving passengers could travel to the ITF to board door-to-door shuttles or scheduled buses.
- Construct public and employee parking in Manchester Square
- Construct a dedicated busway between Manchester Square and the CTA, primarily using the 98th Street corridor, including a bridge over Sepulveda Boulevard and stops at the future Metro LAX/Crenshaw Light Rail Transit Station at/near Century and Aviation Boulevards and the new ITF. The busway would be grade-separated into the CTA, where it would merge with mixed-flow traffic on the upper-level roadway; exiting the CTA, buses would be in mixed-flow, re-entering the elevated busway east of Vicksburg Avenue.
- Provide connectivity to public transit via the LAX dedicated busway, with a stop/connection at the new Metro transit station at Aviation/Century. LAX shuttle bus from the Metro Green Line Aviation Station would be discontinued.
- Relocate Lincoln Boulevard to the north, outside of the Runway 6L/24R RSA, with a portion below grade and/or tunneled

#### Parking

Under Alternative 1, the characteristics of airport parking within the control of LAWA would be as follows:

- Generally, no changes to existing CTA parking conditions would occur as a result of SPAS, although future pricing structures may change long-term/short-term composition
- Parking Lot E, would no longer be used for employee parking, although this property could be used for other airport purposes in the future. Changes to the use of this parking area would occur independently from SPAS.
- No changes are proposed to Public Parking Lot C
- Parking Lot D would provide approximately 1,944 employee parking spaces. The Jenny Lot east of Parking Lot D would provide approximately 2,000 employee parking spaces. These parking areas

were not in use in the 2010 baseline year; however, their use for parking is occurring independently from SPAS.

- Development of the ITF would include approximately 4,900 short-term public parking spaces to facilitate passenger drop off and pick up outside of CTA
- Construct parking within Manchester Square, including 4,200 long-term spaces and 3,500 employee parking spaces
- No public or employee parking is proposed for the area referred to as Continental City
- The existing Park One parking would be eliminated to allow development of Terminal 0 and the relocated entry roadway
- The West Employee Parking facility would not be constructed

### 6.3.1.4 Elimination of Master Plan Components

Under Alternative 1, the following non-Yellow Light projects approved as part of the LAX Master Plan would be fully or partially eliminated:

- Demolition of all CTA parking structures and replacement with passenger terminals (partially eliminated)
- West Employee Parking facility
- CONRAC in Parking Lot C
- Parking north of 111th Street
- ITC in the area referred to as Continental City
- APM between ITC, CONRAC, and CTA (APM 1)

### 6.3.1.5 Provision of Solutions to the Problems the Yellow Light Projects were Designed to Address

Alternative 1, as a fully integrated alternative with airfield, terminal, and ground transportation elements, contains a complete set of improvements that would provide solutions to the problems that the Yellow Light Projects were designed to address.

#### Provision of Solutions to the Problems the North Airfield Reconfiguration Was Designed to Address

As explained in Chapter 3, one problem that the north airfield reconfiguration was designed to address is the fact that LAX does not currently have an airfield that is fully designed for ADG V and VI aircraft (e.g., the Boeing 747-400 and the Airbus A380, respectively). The configuration of the north airfield runways under Alternative 1 would meet FAA runway design standards for ADG V aircraft. The separation distance between Runway 6L/24R and the centerfield taxiway would accommodate ADG VI aircraft in good visibility conditions.[43] Alternative 1 would permit the standardized operation of ADG V aircraft in all visibility conditions and ADG VI aircraft in good visibility conditions. This is an improvement over current airfield operating conditions, but would not permit the standardized operation of ADG VI aircraft on the centerfield taxiway in all visibility conditions.

Another problem with the existing north airfield is that the existing north airfield configuration requires non-standard operating procedures, which are not optimal for safety and increase aircraft delay. Alternative 1 would reduce the non-standard operating procedures associated with the north airfield, although certain aspects of Alternative 1 would require a Modification of Standards (MOS) from the FAA. Specifically, with the airfield dimensions provided by Alternative 1, ADG VI aircraft operating on the

[43] Defined as visibility at or above one-half mile per Federal Aviation Administration, Advisory Circular 150/5300-13 *Airport Design Change 18*, December 30, 2011.

airfield during poor visibility conditions would be required to follow non-standard operating procedures. In such cases, air traffic control would restrict the movement of other aircraft on the airfield when an ADG VI aircraft is transitioning from arriving on Runway 6L/24R until the aircraft crosses and clears Runway 6R/24L.

A third problem with the existing north airfield is that the primary north airfield departure runway (6R/24L) is too short for certain large aircraft to depart on long-haul flights, requiring those aircraft to taxi to the south airfield, resulting in less efficient operations and disproportionate environmental impacts. Alternative 1 addresses the limited length of Runway 6R/24L by extending the runway by 1,250 feet. With the extension of this runway, more departing aircraft would be able to use the north airfield, thereby reducing the number of aircraft taxiing to the south airfield and increasing the efficiency of airfield operations at LAX.

An additional problem with the existing north airfield is that the outdated airfield design creates a situation where aircraft are at increased risks to hazards. Alternative 1 contains several features designed to reduce airfield hazards. Implementation of Alternative 1 would increase the separation distance between Runways 6L/24R and 6R/24L from 700 feet to 960 feet. The increased separation would enable the addition of a centerfield parallel taxiway that connects to reconfigured high-speed exits from Runway 6L/24R, providing more time and options for FAA air traffic controllers to manage aircraft exiting Runway 6L/24R and crossing Runway 6R/24L. The centerfield taxiway would enable aircraft to taxi and hold between the two runways without penetrating object free zone (OFZ) and RSA surfaces. ] Increased separation between runways and the centerfield parallel taxiway would reduce the risk of a runway collision or incursion and enhance safety, particularly as related to future operations involving a greater number of ADG V and VI aircraft. Additionally, safety would be improved with the relocated and redesigned runways crossing points along the last third of Runway 6R/24L, which would bring the airfield into compliance with FAA Engineering Brief No. 75. The geometry provided by those same crossing points would additionally enhance pilots' visibility to the end of the runway prior to crossing.

A further problem with the existing north airfield is that it does not provide sufficient areas at the ends of the runways for holding arriving flights and sequencing departing aircraft. Proposed improvements to Taxiway E include a 950-foot extension to the east (in conjunction with the easterly extension of Runway 6R/24L) and realigning 2,190 feet of the western end to provide a true parallel alignment. Proposed improvements to Taxilane D would include extending it approximately 5,145 feet west to provide a full-length taxilane and realigning various eastern segments to provide for ADG V separation distance and capability along its entire length. The Taxiway E and Taxilane D eastern and western extensions would provide more aircraft holding areas near the ends of runways, thereby improving the ability of the Airport Traffic Control Tower (ATCT) to sequence departures. Additionally, maintaining a constant separation distance between Taxiway E and Taxilane D would decrease the potential for aircraft collisions when taxiing on parallel taxiways.

In conjunction with these taxiway/lane improvements, the adjacent vehicle service road would be relocated from between Taxiway E and Taxilane D to the northerly limit of the aircraft parking apron, south of Taxilane D. The service road would be outside the Taxilane D Object Free Area (OFA), which would reduce the risk of collision involving vehicles circulating in the airfield and taxiway/taxilane movement areas.

An additional problem with the existing north airfield configuration is that it does not comply with FAA RSA requirements. In addition, residential uses are located with the existing Runway 24R RPZ. The runway improvements proposed under Alternative 1 would modify several existing safety clearance areas, including the RSA and RPZ, as well as the runway OFA and runway Obstacle Free Zone (OFZ). For Runway 6L/24R, the 260-foot northerly relocation would shift the safety clearance areas accordingly, which, in turn, would require the realignment of Lincoln Boulevard and the covering of the Argo Drainage Channel. Although the RPZs would also shift northward, the establishment of dual displaced landing thresholds would maintain the existing approach RPZ for Runway 6L and would shift the existing approach RPZ for Runway 24R westward by 604 feet. That westward shift would place the RPZ outside of any existing residential development (i.e., residences located east of Runway 24R would no longer be

within the RPZ) and outside of the vehicle staging area west of Sepulveda Boulevard. Similarly, the establishment of dual displaced thresholds for Runway 6R/24L would maintain the length of the existing RPZ for Runway 24L even though the runway pavement would be extended eastward. With the combination of the runway improvements (including the easterly extension of Runway 6R/24L and improvements to 6L/24R), associated improvements to Lincoln Boulevard and the Argo Drainage Channel, and establishment of displaced thresholds, the Alternative 1 north airfield configuration would be fully compliant with FAA RSA standards for Runways 6L/24R and 6R/24L, addressing hazards relating to the potential for aircraft to overshoot, undershoot, or experience excursions from the runways.

The Alternative 1 north airfield configuration would provide solutions, in whole or in part, to all of the problems the LAX Master Plan north airfield reconfiguration was designed to address. As noted above, the Alternative 1 north airfield configuration would not fully meet FAA runway design standards for ADG VI aircraft in all weather conditions. However, these aircraft can be accommodated with modifications to operating procedures during these weather conditions.

## Provision of Solutions to the Problems the Terminal Reconfiguration Was Designed to Address

As explained in Chapter 3, implementation of the LAX Master Plan would require substantial portions of Terminals 1, 2, and 3 to be demolished to provide room for the relocation of Runway 6R/24L 340 feet to the south of the existing runway centerline. Without the southerly relocation of Runway 6R/24L, there would be no need to demolish the piers/concourses associated with Terminals 1, 2, and 3, with the exception of a small portion of the Terminal 1 concourse. Alternative 1 would provide solutions to the requirement to accommodate airfield improvements and provide adequate passenger processing capacity without the need to demolish substantial portions of Terminals 1, 2, and 3. Under Alternative 1, improved passenger processing capacity, concourse area, and aircraft gates would be provided through the development of Terminal 0, the replacement of Terminal 3, and the ability to extend the northern end of TBIT and the MSC to the new APLL. This alternative would provide 153 passenger gates, which is consistent with the number of gates provided under the approved LAX Master Plan terminal reconfiguration.

## Provision of Solutions to the Problems the Ground Transportation Center and APM 2 Were Designed to Address

As explained in Chapter 3, the function of the GTC under the existing LAX Master Plan is to replace CTA curb front for passenger drop off and pick up and to replace a portion of the private vehicle parking area and all of the commercial vehicle staging area. The role of APM 2 is to provide a connection between the planned GTC and the CTA. Alternative 1 would address the existing ground access problems by retaining and enhancing the CTA roadways and curb front, and supplementing these facilities with new parking and ground transportation facilities located outside the CTA.

The GTC was designed to address a number of problems associated with the CTA roadway system, as discussed in Chapter 3. The CTA roadway system design currently creates queuing, weaving, and conflict points at various locations that impede traffic flow. In addition, during peak travel times, inbound airport traffic currently extends out of the CTA roadways onto public streets, and curbside demand is unevenly distributed and does not accommodate demand, especially during peak periods. Moreover, as cumulative regional traffic increases, there will be less time certainty for airport users without easy access to the airport from the regional transit system, and the roadway system is not designed to efficiently accommodate security screening of vehicles entering the CTA. Alternative 1 includes the realignment of Sky Way, a primary mode of access for airport users seeking to access the CTA from the north and from the 98th Street Bridge. The change in design is intended to ease the queuing at Terminal 1 caused, in part, by the close proximity of the intersection of Sky Way and World Way North to Terminal 1. The reconfiguration would provide additional curb front for Terminal 0 and could also allow for the set aside of additional space for screening checkpoints, currently implemented by LAWA police with temporary facilities.

Alternative 1 also creates new facilities outside of the CTA with the aim of reducing traffic and curbside congestion in the CTA. The new ITF would provide public parking, remote passenger pick up/drop off, and would be the primary airport access point for some door-to-door shuttles or scheduled buses. Parking would also be provided at Manchester Square. These facilities would be connected to the CTA via a grade-separated, dedicated busway. Additionally, the dedicated busway would provide an improved connection to public transit, through an integrated facility with the new Metro transit station at Century and Aviation Boulevards, and connectivity to the existing bus facility in the vicinity of Lot C. Together, these ground access facilities would provide alternative airport access for passengers, thereby reducing traffic volumes within the CTA. A detailed discussion of the performance of the on-airport roadway system under Alternative 1 is provided in Chapter 4.12.1, *On-Airport Transportation*, of the SPAS EIR.

Alternative 1 would provide solutions to the problems posed by the existing CTA without the need to restrict access to the CTA and replace the functions of the CTA with a GTC and associated APM.

### 6.3.1.6 Security

The SPAS Security Evaluation, provided in Appendix I, assesses the security characteristics of the Alternative 1 airfield, terminal, and ground access elements in comparison to existing conditions. The SPAS Security Evaluation concluded that Alternative 1 would meet existing and future federal security requirements and security of the improvements would be addressed with appropriate review and implementation of security precautions and measures.[44] A summary of the findings is provided below.

The evaluation found that some components of the Alternative 1 airfield configuration would increase security, some components would reduce security, and others would be neutral. Specifically, with appropriate design, placing a portion of Lincoln Boulevard below grade would enhance security by reducing the "field of fire"[45] for potential attackers using rocket propelled grenades (RPGs) or firearms. However, locating Runways 6L/24R and 6R/24L and some taxiways closer to the perimeter fence and adjoining public roadways would increase the vulnerability of the airport to low-risk threats. The evaluation identified several measures, including additional video surveillance, intrusion detection measures, additional crash-rated fencing, and increased perimeter patrols, that could be included in the future design of Alternative 1 to maintain an adequate level of security.

Under Alternative 1, Terminal 0 would be located closer to the entry roadway than the existing terminals (i.e., Terminal 1). The SPAS Security Evaluation determined that this could result in a potential decrease in security. However, the evaluation identified measures that could be included in the future design of Alternative 1 to maintain an adequate level of security, including security bollards[46], curbside inspection for passengers and baggage arriving on shuttles and buses from remote sites that do not have screening capabilities, and additional video surveillance with video analytics and object tracking capabilities.

The SPAS Security Evaluation determined that the addition of new ground access improvements outside the CTA, including the ITF, remote parking, and the dedicated busway, would reduce vulnerability and increase security by decreasing the number of vehicles entering the CTA. The SPAS Security Evaluation determined that security could be further increased in the future design of Alternative 1 by implementation of screening measures for passengers and baggage, vehicle inspection measures at the ITF including under-vehicle inspection, additional video surveillance, and physical protections at the ITF including vehicle barriers and bollards, and blast suppression films on exposed glass surfaces. Security could also be further enhanced by using in-road traffic calming measures[47] to control traffic entering the CTA and using video surveillance at parking facilities.

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44 See Specific Plan Amendment Study: A Security Assessment, Chapter 6, provided in Appendix I.

45 The field of fire is the area around a weapon that can be reached by gunfire.

46 Security bollards are short vertical posts placed in the ground at intervals which protect critical infrastructure by presenting a barrier to vehicles.

47 Traffic calming measures are physical features intended to slow or otherwise direct motor-vehicle traffic.

### 6.3.1.7 Traffic

As noted above, the primary traffic characteristics associated with Alternative 1 include maintaining public and private vehicle access to the CTA, and providing new ground access facilities outside of the CTA to reduce congestion within the CTA. The new ground access facilities would include an ITF, remote parking in Manchester Square, and a dedicated busway linking these facilities to the CTA. This alternative includes connectivity with regional transit through connection of the dedicated busway to the planned Metro transit station at Aviation and Century Boulevards.

As detailed in Section 4.12.1, *On-Airport Transportation*, and Section 4.12.2, *Off-Airport Transportation*, of the Draft EIR, and summarized below, traffic associated with the implementation of Alternative 1 would result in significant impacts to roadway links and an intersection within the CTA, and to off-airport intersections and Los Angeles County Congestion Management Plan (CMP) facilities, including an arterial monitoring intersection and freeway monitoring stations. However, these operational impacts result from the increase in airport-related trips associated with the projected increase in passenger activity levels at LAX. The increase in passenger activity levels is anticipated to occur irrespective of the SPAS alternatives as is a result of the natural growth in passenger activity.

When evaluating the impacts from the physical improvements associated with Alternative 1 compared to baseline conditions, Alternative 1 would have fewer significant impacts to off-airport intersections after mitigation than would occur with implementation of the LAX Master Plan. Specifically, Alternative 1 would result in only 1 significantly-impacted intersection compared to 11 under Alternative 3, which represents implementation of the LAX Master Plan, and fewer impacts than Alternative 4 (2 significantly-impacted intersections), which represents future conditions with minimal changes in the ground access system (i.e., the only change in ground access under Alternative 4 would be the addition of a CONRAC in the Lot C area, and the relocation of parking to the Continental City site). When considering future (2025) airport growth and regional background traffic, Alternative 1 would have significant impacts to 39 intersections after mitigation, as compared to 37 under Alternative 3 and 40 under Alternative 4. As noted above, the increase in the number of impacted intersections is associated with regional growth and the increase in airport activity unrelated to SPAS.

### 6.3.1.8 Aviation Activity

A detailed forecast of aviation activity associated with Alternative 1 is provided in Appendix F-1, *LAX 2009-2025 Passenger Forecast and Design Day Flight Schedule Development*. As indicated in the appendix, Alternative 1 is designed for a practical capacity of 78.9 million annual passengers, with 153 gates, the same number of gates associated with the approved LAX Master Plan. The forecast projects 2,053 peak month average day aircraft operations at buildout of this alternative in 2025.

### 6.3.1.9 Potential Environmental Impacts and Mitigation Measures

A detailed analysis of the potential environmental impacts of Alternative 1 is provided in the SPAS Draft EIR. These impacts are summarized in **Table 6-3**. Mitigation measures that would address the impacts of Alternative 1 are identified in **Table 6-4.** This table includes LAX Master Plan commitments and mitigation measures that are applicable to Alternative 1 as well as new mitigation measures specific to SPAS.

**Table 6-3**

**Summary of Impacts By Alternative**

| Topic | Alternative | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
| Aesthetics | LS | LS | LS | LS | LS | LS | LS | LS | LS |
| Air Quality | SU | SU | SU | SU | SU | SU | SU | SU | SU |
| Biological Resources | SM | SM | SM | SM | SM | SM | SM | SM | SM |
| Coastal Resources | SM | SM | SM | SM | SM | SM | SM | NI | NI |
| Cultural Resources | | | | | | | | | |
| Historical Resources | LS | LS | SM | NI | LS | LS | LS | LS | SM |
| Archaeological Resources | SM | SM | SM | SM | SM | SM | SM | SM | SM |
| Greenhouse Gases | SU | SU | SU | SU | SU | SU | SU | SU | SU |
| Human Health Risk Assessment | SU | SU | SU | SU | SU | SU | SU | SU | SU |
| Safety | LS | LS | LS | LS | LS | LS | LS | LS | LS |
| Hazardous Materials | LS | LS | LS | LS | LS | LS | LS | LS | LS |
| Hydrology/Water Quality | SM | SM | LS | SM | SM | SM | SM | SM | SM |
| Land Use and Planning | | | | | | | | | |
| Plan Consistency | LS | LS | LS | LS | LS | LS | LS | LS | LS |
| Aircraft Noise Exposure | SU | SU | SU | SU | SU | SU | SU | NA[1] | NA[1] |
| Aircraft Noise | SU | SU | SU | SU | SU | SU | SU | NA[1] | NA[1] |
| Road Traffic Noise | LS | LS | LS | LS | NA[2] | NA[2] | NA[2] | LS | LS |
| Construction Traffic and Equipment Noise | SU | SU | SU | SU | SU | SU | SU | SU | SU |
| Transit Noise and Vibration | SM | SM | LS | NI | NA[3] | NA[3] | NA[3] | SM | LS |
| Fire Protection | LS | LS | LS | LS | LS | LS | LS | LS | LS |
| Law Enforcement | SM | SM | SM | LS | SM | SM | SM | SM | SM |
| On-Airport Transportation | SU | SU | NI | SU | NA[4] | NA[4] | NA[4] | SU | SU |
| Off-Airport Transportation | SU | SU | SU | SU | NA[4] | NA[4] | NA[4] | SU | SU |
| Energy | LS | LS | LS | LS | LS | LS | LS | LS | LS |
| Solid Waste | LS | LS | LS | LS | LS | LS | LS | LS | LS |
| Wastewater Generation | LS | LS | LS | LS | LS | LS | LS | LS | LS |
| Water Supply | LS | LS | LS | LS | LS | LS | LS | LS | LS |

Notes:

NA = Not Applicable
NI = No Impact
LS = Less Than Significant Impact
SM = Significant Impact (but mitigable to Less Than Significant)
SU = Significant Unavoidable Impact

[1] Alternatives 8 and 9 focus on ground access improvements, which do not pertain to aircraft noise; however, assuming the ground access improvements under those alternatives would be paired with airfield improvements proposed under Alternative 1, 2, 5, 6, or 7, there would be significant unavoidable aircraft noise impacts, as shown for Alternatives 1, 2, 5, 6, and 7.

[2] Alternatives 5, 6, and 7 focus on airfield improvements, which do not pertain to road traffic noise; however, assuming the airfield improvements under those alternatives would be paired with ground access improvements proposed under Alternative 1, 2, 8, or 9, there would be less than significant road traffic noise impacts, as shown Alternatives 1, 2, 8, and 9.

[3] Alternatives 5, 6, and 7 focus on airfield improvements, which do not pertain to transit noise; however, assuming the airfield improvements under those alternatives would be paired with ground access improvements proposed under Alternative 1, 2, 8, or 9, there would be significant but mitigable transit noise impacts or less than significant transit noise impacts, as shown for Alternatives 1, 2, 8, and 9, depending upon which alternatives are paired.

[4] Alternatives 5, 6, and 7 focus on airfield improvements, which do not pertain to on- or -off-airport surface transportation; however, assuming the airfield improvements under those alternatives would be paired with ground access improvements proposed under Alternative 1, 2, 8, or 9, there would be significant unavoidable traffic impacts, as shown for Alternatives 1, 2, 8, and 9.

Source: CDM Smith, 2012.

**Table 6-4**

**LAX Master Plan Commitments, LAX Master Plan Mitigation Measures, and SPAS-Specific Mitigation Measures as Related to the SPAS Alternatives**

| | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
|---|---|---|---|---|---|---|---|---|---|
| **Aesthetics** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| DA-1. Provide and Maintain Airport Buffer Areas | X | X | X | X | X | X | X | X | X |
| DA-2. Update and Integrate Design Plans and Guidelines | X | X | X | X | X | X | X | X | X |
| LU-2. Establishment of a Landscape Maintenance Program for Parcels Acquired Due to Airport Expansion | X | X | X | X | | | | X | X |
| LU-4. Neighborhood Compatibility Program | X | X | X | X | X | X | X | X | X |
| LI-2. Use of Non-Glare Generating Building Materials | X | X | X | X | X | X | X | X | X |
| LI-3. Lighting Controls | X | X | X | X | X | X | X | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM-DA-1. Construction Fencing | X | X | X | X | X | X | X | X | X |
| **SPAS Mitigation Measures** | | | | | | | | | |
| MM-HA (SPAS)-1. Preservation of Historic Resources: Theme Building and Setting | | | X | | | | | | |
| MM-HA (SPAS)-2. Preservation of Historic Resources: Theme Building and Setting | | | | | | | | | X |
| **Air Quality** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| None | | | | | | | | | |
| **LAX Master Plan Mitigation Measures**[1] | | | | | | | | | |
| MM-AQ-1. LAX Master Plan Mitigation Plan for Air Quality, Framework | X | X | X | X | X | X | X | X | X |
| MM-AQ-2. LAX Master Plan Mitigation Plan for Air Quality, Construction-Related Mitigation Measures | X | X | X | X | X | X | X | X | X |
| MM-AQ-3. LAX Master Plan Mitigation Plan for Air Quality, Transportation-Related Mitigation Measures | X | X | X | X | X[2] | X[2] | X[2] | X | X |
| MM-AQ-4. LAX Master Plan Mitigation Plan for Air Quality, Operations-Related Mitigation Measures | X | X | X | X | X | X | X | X | X |
| Community Benefits Agreement, Section X.A., Electrification of Passenger Gates[1] | X | X | X | X | X | X | X | X[3] | X[3] |
| Community Benefits Agreement, Section X.F., Construction Equipment[1] | X | X | X | X | X | X | X | X | X |
| Community Benefits Agreement, Section X.K., PM2.5[1] | X | X | X | X | X | X | X | X | X |
| Community Benefits Agreement, Section X.L., Rock-Crushing Operations and Construction Materials Stockpiles[1] | X | X | X | X | X | X | X | X | X |
| Community Benefits Agreement, Section X.M., Limits on Diesel Idling[1] | X | X | X | X | X | X | X | X | X |
| Community Benefits Agreement, Section X.N., Provision of Alternative Fuel[1] | X | X | X | X | X | X | X | X | X |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **Biological Resources** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| None | | | | | | | | | |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM-BC-1. Conservation of State-Designated Sensitive Habitat Within and Adjacent to the El Segundo Blue Butterfly Habitat Restoration Area | X | X | X | X | X | X | X | | |

**Table 6-4**

**LAX Master Plan Commitments, LAX Master Plan Mitigation Measures, and SPAS-Specific Mitigation Measures as Related to the SPAS Alternatives**

| | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
|---|---|---|---|---|---|---|---|---|---|
| MM-BC-3. Conservation of Floral Resources: Mature Tree Replacement | X | X | X | X | X | X | X | X | X |
| MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control | X | X | X | X | X | X | X | | |
| MM-ET-4. El Segundo Blue Butterfly Conservation: Habitat Restoration | X | X | X | X | X | X | X | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| MM-BIO (SPAS)-1. Replacement of State-Designated Sensitive Habitats | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-2. Conservation of Floral Resources: South Coast Branching Phacelia | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-3. Conservation of Floral Resources: Lewis' Evening Primrose | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-4. Conservation of Floral Resources: California Spineflower | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-5. Conservation of Floral Resources: Mesa Horkelia | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-6. Conservation of Floral Resources: Orcutt's Pincushion | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-7. Conservation of Floral Resources: Southern Tarplant | X | X | X | X | X | X | X | X | X |
| MM-BIO (SPAS)-8. Conservation of Faunal Resources: Sensitive Reptiles, Arthropods, and Gastropods | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-9. Conservation of Faunal Resources: Loggerhead Shrike | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-10. Conservation of Faunal Resources: Burrowing Owl | X | X | X | X | X | X | X | X | X |
| MM-BIO (SPAS)-11. Conservation of Floral Resources: Mature Tree Replacement - Nesting Raptors | X | X | X | X | X | X | X | X | X |
| MM-BIO (SPAS)-12. Conservation of Faunal Resources: Nesting Birds/Raptors | X | X | X | X | X | X | X | X | X |
| MM-BIO (SPAS)-13. Replacement of Jurisdictional Aquatic Features | X | | | | X | X | | | |
| MM-BIO (SPAS)-14. Replacement of Habitat Units | X | X | X | X | X | X | X | X | X |
| **Coastal Resources** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| None | | | | | | | | | |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM-BC-1. Conservation of State-Designated Sensitive Habitat Within and Adjacent to the El Segundo Blue Butterfly Habitat Restoration Area | X | X | X | X | X | X | X | | |
| MM-ET-3. El Segundo Blue Butterfly Conservation: Dust Control | X | X | X | X | X | X | X | | |
| MM-ET-4. El Segundo Blue Butterfly Conservation: Habitat Restoration | X | X | X | X | X | X | X | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| MM-BIO (SPAS)-1. Replacement of State-Designated Sensitive Habitats | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-2. Conservation of Floral Resources: South Coast Branching Phacelia | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-3. Conservation of Floral Resources: Lewis' Evening Primrose | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-4. Conservation of Floral Resources: California Spineflower | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-5. Conservation of Floral Resources: Mesa Horkelia | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-6. Conservation of Floral Resources: Orcutt's Pincushion | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-8. Conservation of Faunal Resources: Sensitive Reptiles and Arthropods | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-9. Conservation of Faunal Resources: Loggerhead Shrike | X | X | X | X | X | X | X | | |
| MM-BIO (SPAS)-10. Conservation of Faunal Resources: Burrowing Owl | X | X | X | X | X | X | X | | |

**Table 6-4**

**LAX Master Plan Commitments, LAX Master Plan Mitigation Measures, and SPAS-Specific Mitigation Measures as Related to the SPAS Alternatives**

| | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
|---|---|---|---|---|---|---|---|---|---|
| **Cultural Resources** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| HR-1. Preservation of Historic Resources | X | X | X | | X | X | X | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| MM-HA (SPAS)-1. Preservation of Historic Resources: Theme Building and Setting | | | X | | | | | | |
| MM-HA (SPAS)-2. Preservation of Historic Resources: Theme Building and Setting | | | | | | | | | X |
| MM-HA (SPAS)-3. Preservation of Historic Resources: Union Savings and Loan Building | | | X | | | | | | |
| MM-HA (SPAS)-4. Conformance with LAX Master Plan Archaeological Treatment Plan | X | X | X | X | X | X | X | X | X |
| **Greenhouse Gases** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| None | | | | | | | | | |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM-AQ-1. LAX Master Plan Mitigation Plan for Air Quality, Framework | X | X | X | X | X | X | X | X | X |
| MM-AQ-2. LAX Master Plan Mitigation Plan for Air Quality, Construction-Related Mitigation Measures | X | X | X | X | X | X | X | X | X |
| MM-AQ-3. LAX Master Plan Mitigation Plan for Air Quality, Transportation-Related Mitigation Measures | X | X | X | X | X[2] | X[2] | X[2] | X | X |
| MM-AQ-4. LAX Master Plan Mitigation Plan for Air Quality, Operations-Related Mitigation Measures | X | X | X | X | X | X | X | X | X |
| Community Benefits Agreement, Section X.A., Electrification of Passenger Gates[1] | X | X | X | X | X | X | X | X[3] | X[3] |
| Community Benefits Agreement, Section X.N., Provision of Alternative Fuel[1] | X | X | X | X | X | X | X | X | X |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **Human Health Risk Assessment** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| None | | | | | | | | | |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM-AQ-1. LAX Master Plan Mitigation Plan for Air Quality, Framework | X | X | X | X | X | X | X | X | X |
| MM-AQ-2. LAX Master Plan Mitigation Plan for Air Quality, Construction-Related Mitigation Measures | X | X | X | X | X | X | X | X | X |
| MM-AQ-3. LAX Master Plan Mitigation Plan for Air Quality, Transportation-Related Mitigation Measures | X | X | X | X | X[2] | X[2] | X[2] | X | X |
| MM-AQ-4. LAX Master Plan Mitigation Plan for Air Quality, Operations-Related Mitigation Measures | X | X | X | X | X | X | X | X | X |
| Community Benefits Agreement, Section X.A., Electrification of Passenger Gates[1] | X | X | X | X | X | X | X | X[3] | X[3] |
| Community Benefits Agreement, Section X.F., Construction Equipment[1] | X | X | X | X | X | X | X | X | X |
| Community Benefits Agreement, Section X.K., PM2.5[1] | X | X | X | X | X | X | X | X | X |
| Community Benefits Agreement, Section X.L., Rock-Crushing Operations and Construction Materials Stockpiles[1] | X | X | X | X | X | X | X | X | X |
| Community Benefits Agreement, Section X.M., Limits on Diesel Idling[1] | X | X | X | X | X | X | X | X | X |
| Community Benefits Agreement, Section X.N., Provision of Alternative Fuel[1] | X | X | X | X | X | X | X | X | X |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |

**Table 6-4**

**LAX Master Plan Commitments, LAX Master Plan Mitigation Measures, and SPAS-Specific Mitigation Measures as Related to the SPAS Alternatives**

| | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
|---|---|---|---|---|---|---|---|---|---|
| **Safety** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| None | | | | | | | | | |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| MM-SAF (SPAS)-1. Runway Protection Zone Reviews[4] | X | | | | X | X | | | |
| **Hazardous Materials** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| HM-1. Ensure Continued Implementation of Existing Remediation Efforts | X | X | X | X | X | X | X | X | X |
| HM-2. Handling of Contaminated Materials Encountered During Construction | X | X | X | X | X | X | X | X | X |
| C-1. Establishment of a Ground Transportation/Construction Coordination Office | X | X | X | X | | | | X | X |
| ST-9. Construction Deliveries | X | X | X | X | | | | X | X |
| ST-12. Designated Truck Delivery Hours | X | X | X | X | | | | X | X |
| ST-14. Construction Employee Shift Hours | X | X | X | X | | | | X | X |
| ST-17. Maintenance of Haul Routes | X | X | X | X | | | | X | X |
| ST-18. Construction Traffic Management Plan | X | X | X | X | | | | X | X |
| ST-19. Closure Restrictions of Existing Roadways | X | X | X | X | | | | X | X |
| ST-21. Construction Employee Parking Locations | X | X | X | X | | | | X | X |
| ST-22. Designated Truck Routes | X | X | X | X | | | | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **Hydrology/Water Quality** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| HWQ-1. Conceptual Drainage Plan | | | X | | | | | | |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| MM-HWQ (SPAS)-1. Conceptual Drainage Plan Revision and Update | X | X | | X | X | X | X | X | X |
| **Land Use and Planning** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| LU-2. Establishment of a Landscape Maintenance Program for Parcels Acquired Due to Airport Expansion | X | X | X | X | | | | X | X |
| LU-4. Neighborhood Compatibility Program | X | X | X | X | X | X | X | X | X |
| LU-5. Comply with City of Los Angeles Transportation Element Bicycle Plan | X | X | X | X | X | X | X | X | X |

**Table 6-4**

**LAX Master Plan Commitments, LAX Master Plan Mitigation Measures, and SPAS-Specific Mitigation Measures as Related to the SPAS Alternatives**

| | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
|---|---|---|---|---|---|---|---|---|---|
| RBR-1. Residential and Business Relocation Program | X | X | X | X | | | | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM-LU-1. Implement Revised Aircraft Noise Mitigation Program | X | X | X | X | X | X | X | | |
| MM-RBR-1. Phasing for Business Relocations | X | X | X | X | | | | X | X |
| MM-RBR-2. Relocation Opportunities through Aircraft Noise Mitigation Program | X | X | X | X | | | | X | X |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| | | | | | | | | | |
| **Aircraft Noise (in addition to noise-related measures listed above in Land Use)** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| N-1. Maintenance of Applicable Elements of Existing Aircraft Noise Abatement Program | X | X | X | X | X | X | X | | |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM-N-4. Update the Aircraft Noise Abatement Program Elements as Applicable to Adapt to the Future Airfield Configuration | X | X | X | X | X | X | X | | |
| MM-N-5. Conduct Part 161 Study to Make Over-Ocean Procedures Mandatory | X | X | X | X | X | X | X | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| | | | | | | | | | |
| **Road Traffic Noise** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| None | | | | | | | | | |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| | | | | | | | | | |
| **Construction Traffic and Equipment Noise** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| ST-16. Designated Haul Routes | X | X | X | X | X | X | X | X | X |
| ST-18. Construction Traffic Management Plan | X | X | X | X | X | X | X | X | X |
| ST-22. Designated Truck Routes | X | X | X | X | X | X | X | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM-N-7. Construction Noise Control Plan | X | X | X | X | X | X | X | X | X |
| MM-N-8. Construction Staging | X | X | X | X | X | X | X | X | X |
| MM-N-9. Equipment Replacement | X | X | X | X | X | X | X | X | X |
| MM-N-10. Construction Scheduling | X | X | X | X | X | X | X | X | X |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |

**Table 6-4**

**LAX Master Plan Commitments, LAX Master Plan Mitigation Measures, and SPAS-Specific Mitigation Measures as Related to the SPAS Alternatives**

| | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
|---|---|---|---|---|---|---|---|---|---|
| **Transit Noise** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| None | | | | | | | | | |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM-N-11. Automated People Mover (APM) Noise Assessment and Control Plan | | | X | | | | | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| MM-N (SPAS)-1. Elevated/Dedicated Busway Noise Assessment and Control Plan | X | X | | | | | | X | |
| **Fire Protection** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| FP-1. LAFD Design Recommendations | X | X | X | X | X | X | X | X | X |
| PS-1. Fire and Police Facility Relocation Plan | X | X | X | X | X | X | X | X | X |
| PS-2. Fire and Police Facility Space and Siting Requirements | X | X | X | X | X | X | X | X | X |
| C-1. Establishment of a Ground Transportation/Construction Coordination Office | X | X | X | X | X | X | X | X | X |
| ST-9. Construction Deliveries | X | X | X | X | X | X | X | X | X |
| ST-12. Designated Truck Delivery Hours | X | X | X | X | X | X | X | X | X |
| ST-14. Construction Employee Shift Hours | X | X | X | X | X | X | X | X | X |
| ST-17. Maintenance of Haul Routes | X | X | X | X | X | X | X | X | X |
| ST-18. Construction Traffic Management Plan | X | X | X | X | X | X | X | X | X |
| ST-19. Closure Restrictions of Existing Roadways | X | X | X | X | X | X | X | X | X |
| ST-21. Construction Employee Parking Locations | X | X | X | X | X | X | X | X | X |
| ST-22. Designated Truck Routes | X | X | X | X | X | X | X | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **Law Enforcement** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| LE-1. Routine Evaluation of Manpower and Equipment Needs | X | X | X | X | X | X | X | X | X |
| LE-2. Plan Review | X | X | X | X | X | X | X | X | X |
| PS-1. Fire and Police Facility Relocation Plan | X | X | X | | X | X | X | X | X |
| PS-2. Fire and Police Facility Space and Siting Requirements | X | X | X | | X | X | X | X | X |
| C-1. Establishment of a Ground Transportation/Construction Coordination Office | X | X | X | X | X | X | X | X | X |
| ST-9. Construction Deliveries | X | X | X | X | X | X | X | X | X |
| ST-12. Designated Truck Delivery Hours | X | X | X | X | X | X | X | X | X |
| ST-14. Construction Employee Shift Hours | X | X | X | X | X | X | X | X | X |
| ST-17. Maintenance of Haul Routes | X | X | X | X | X | X | X | X | X |
| ST-18. Construction Traffic Management Plan | X | X | X | X | X | X | X | X | X |
| ST-19. Closure Restrictions of Existing Roadways | X | X | X | X | X | X | X | X | X |

**Table 6-4**

**LAX Master Plan Commitments, LAX Master Plan Mitigation Measures, and SPAS-Specific Mitigation Measures as Related to the SPAS Alternatives**

| | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
|---|---|---|---|---|---|---|---|---|---|
| ST-21. Construction Employee Parking Locations | X | X | X | X | X | X | X | X | X |
| ST-22. Designated Truck Routes | X | X | X | X | X | X | X | X | X |
| **LAX Master Plan Mitigation Measures** | X | X | X | X | X | X | X | X | X |
| None | | | | | | | | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| MM-LE (SPAS)-1. LAWAPD Replacement Facilities | X | X | X | | X | X | X | X | X |
| **On-Airport Transportation** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| ST-2. Non-Peak CTA Deliveries | X | X | | X | | | | X | X |
| ST-8. Limited Short-Term Lane Closures | X | X | | X | | | | X | X |
| ST-9. Construction Deliveries | X | X | | X | | | | X | X |
| ST-18. Construction Traffic Management Plan | X | X | | X | | | | X | X |
| ST-19. Closure Restrictions of Existing Roadways | X | X | | X | | | | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM-ST-1. Require CTA Construction Vehicles to Use Designated Lanes | X | X | | X | | | | X | X |
| MM-ST-2. Modify CTA Signage | X | X | | X | | | | X | X |
| MM-ST-3. Develop Designated Shuttle Stops for Labor Buses and ITC-CTA Buses | X | X | | X | | | | X | X |
| **Bradley West Project Mitigation Measures** | | | | | | | | | |
| MM-ST (BWP)-2. Improve the Intersection of Center Way and World Way South | X | X | | X | | | | X | X |
| MM-ST (BWP)-3. Widen World Way Across from TBIT | X | X | | X | | | | X | X |
| **SPAS Mitigation Measures** | | | | | | | | | |
| MM-ST (SPAS)-1. Relocate Existing Taxi Loading Zone at TBIT | X | X | | X | | | | X | X |
| MM-ST (SPAS)-2. Change Departures and Arrivals Level Commercial Vehicle Curbside Operations | X | X | | X | | | | X | X |
| **Off-Airport Transportation** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| ST-9. Construction Deliveries | X | X | X | X | | | | X | X |
| ST-12. Designated Truck Delivery Hours | X | X | X | X | | | | X | X |
| ST-14. Construction Employee Shift Hours | X | X | X | X | | | | X | X |
| ST-17. Maintenance of Haul Routes | X | X | X | X | | | | X | X |
| ST-18. Construction Traffic Management Plan | X | X | X | X | | | | X | X |
| ST-19. Closure Restrictions of Existing Roadways | X | X | X | X | | | | X | X |
| ST-20. Stockpile Locations | X | X | X | X | | | | X | X |
| ST-21. Construction Employee Parking Locations | X | X | X | X | | | | X | X |
| ST-22. Designated Truck Routes | X | X | X | X | | | | X | X |
| ST-24. Fair Share Contribution to CMP Improvements | X | X | X | X | | | | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM-ST-14. Ground Transportation/Construction Coordination Office Outreach Program | X | X | X | X | | | | X | X |
| **SPAS Mitigation Measures** | | | | | | | | | |
| MM-ST (SPAS)-1. Transportation Demand Management Program | X | X | X | X | | | | X | X |

**Table 6-4**

**LAX Master Plan Commitments, LAX Master Plan Mitigation Measures, and SPAS-Specific Mitigation Measures as Related to the SPAS Alternatives**

| | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
|---|---|---|---|---|---|---|---|---|---|
| MM-ST (SPAS)-2. Modify the Intersection of Airport Boulevard and Arbor Vitae Street/Westchester Parkway (Intersection 6) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-3. Modify the Intersection of Airport Boulevard and Century Boulevard (Intersection 7) | X | X | | X | | | | X | X |
| MM-ST (SPAS)-4. Modify the Intersection of Arbor Vitae Street and Inglewood Avenue (Intersection 11) | X | X | | X | | | | X | X |
| MM-ST (SPAS)-5. La Brea Avenue and Arbor Vitae Street (Intersection 12) | X | X | | | | | | X | X |
| MM-ST (SPAS)-6. Modify the Intersection of Aviation Boulevard and El Segundo Boulevard (Intersection 15) | | | X | | | | | | |
| MM-ST (SPAS)-7. Modify the Intersection of Aviation Boulevard and Imperial Highway (Intersection 16) | | | X | X | | | | | |
| MM-ST (SPAS)-8. Modify the Intersection of Aviation Boulevard/Florence Avenue and Manchester Avenue (Intersection 17) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-9. Modify the Intersection of La Brea Avenue and Centinela Avenue (Intersection 25) | X | X | X | | | | | X | X |
| MM-ST (SPAS)-10. Modify the Intersection of La Cienega Boulevard and Centinela Avenue (Intersection 26) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-11. Modify the Intersection of Sepulveda Boulevard and Centinela Avenue (Intersection 28) | | | X | | | | | | |
| MM-ST (SPAS)-12. La Brea Avenue/Hawthorne Boulevard and Century Boulevard (Intersection 34) | X | X | | X | | | | X | X |
| MM-ST (SPAS)-13. Inglewood Avenue and Century Boulevard (Intersection 35) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-14. Prairie Avenue and Century Boulevard (Intersection 37) | X | X | | X | | | | X | X |
| MM-ST (SPAS)-15. Modify the Intersection of Sepulveda Boulevard and Century Boulevard (Intersection 38) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-16. Modify the Intersection of La Cienega Boulevard and El Segundo Boulevard (Intersection 53) | | | X | | | | | | |
| MM-ST (SPAS)-17. Modify the Intersection of La Brea Avenue and Florence Avenue (Intersection 57) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-18. Modify the Intersection of La Cienega Boulevard and Florence Avenue (Intersection 58) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-19. Modify the Intersection of Sepulveda Boulevard and Grand Avenue (Intersection 60) | X | X | | | | | | X | X |
| MM-ST (SPAS)-20. Modify the Intersection of Hawthorne Boulevard and Imperial Avenue (Intersection 62) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-21. Modify the Intersection of Inglewood Avenue and Imperial Highway (Intersection 66) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-22. Prairie Avenue and Imperial Highway (Intersection 70) | | | X | | | | | | |
| MM-ST (SPAS)-23. Modify the Intersection of Sepulveda Boulevard and Imperial Highway (Intersection 71) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-24. Modify the Intersection of I-105 Ramps (east of Aviation Boulevard) and Imperial Highway (Intersection 74) | | | X | | | | | | |
| MM-ST (SPAS)-25. Modify the Intersection of La Brea Avenue and Manchester Boulevard (Intersection 85) | | | X | | | | | X | X |
| MM-ST (SPAS)-26. Modify the Intersection of La Brea Avenue and Slauson Avenue (Intersection 87) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-27. Modify the Intersection of La Cienega Boulevard and Manchester Boulevard (Intersection 90) | | | X | | | | | X | X |
| MM-ST (SPAS)-28. Modify the intersection of La Cienega Boulevard and Southbound I-405 Ramps (north of Century Boulevard) (Intersection 96) | X | X | | | | | | X | X |
| MM-ST (SPAS)-29. Modify the Intersection of Sepulveda Boulevard and La Tijera Boulevard (Intersection 101) | | | X | X | | | | | |
| MM-ST (SPAS)-30. Modify the Intersection of Lincoln Boulevard and Manchester Boulevard (Intersection 105) | | | X | | | | | | |
| MM-ST (SPAS)-31. Modify the Intersection of Ash Avenue and Manchester Avenue (Intersection 115) | X | X | | | | | | X | X |
| MM-ST (SPAS)-32. Vicksburg Avenue and 96th Street (Intersection 143) | X | X | | | | | | X | X |
| MM-ST (SPAS)-33. Modify the Intersection of Sepulveda Eastway and Westchester Parkway (Intersection 146) | | | X | X | | | | | |
| MM-ST (SPAS)-34. Modify the Intersection of Hindry Avenue and Manchester Boulevard (Intersection 159) | X | X | X | X | | | | X | X |
| MM-ST (SPAS)-35. Modify the Intersection of Prairie Avenue and Manchester Boulevard (Intersection 169) | X | X | X | X | | | | X | X |

**Table 6-4**

**LAX Master Plan Commitments, LAX Master Plan Mitigation Measures, and SPAS-Specific Mitigation Measures as Related to the SPAS Alternatives**

| | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
|---|---|---|---|---|---|---|---|---|---|
| MM-ST (SPAS)-36. Modify the Intersection of Prairie Avenue and Lennox Boulevard (Intersection 197) | X | X | X | X | | | | X | X |
| **Energy** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| E-1. Energy Conservation and Efficiency Program | X | X | X | X | X | X | X | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **Solid Waste** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| SW-1. Implement an Enhanced Recycling Program | X | X | X | X | X | X | X | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| MM SW-1. Provide Landfill Capacity[5] | X | X | X | X | X | X | X | X | X |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **Wastewater Generation** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| W-2. Enhance Existing Water Conservation Program | X | X | X | X | X | X | X | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **Water Supply** | | | | | | | | | |
| **LAX Master Plan Commitments** | | | | | | | | | |
| W-1. Maximize Use of Reclaimed Water | X | X | X | X | X | X | X | X | X |
| W-2. Enhance Existing Water Conservation Program | X | X | X | X | X | X | X | X | X |
| **LAX Master Plan Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |
| **SPAS Mitigation Measures** | | | | | | | | | |
| None | | | | | | | | | |

**Table 6-4**

**LAX Master Plan Commitments, LAX Master Plan Mitigation Measures, and SPAS-Specific Mitigation Measures as Related to the SPAS Alternatives**

| | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Alt. 5 | Alt. 6 | Alt. 7 | Alt. 8 | Alt. 9 |
|---|---|---|---|---|---|---|---|---|---|

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

[2] Alternatives 5, 6, and 7 focus on airfield improvements, and would not have any impacts related to ground transportation; however, assuming the airfield improvements under those alternatives would be paired with ground access improvements proposed under Alternative 1, 2, 8, or 9, there would be impacts to ground transportation that would subject to this mitigation measure.

[3] Alternatives 8 and 9 focus on ground access improvements, and would not have any impacts associated with aircraft gates; however, assuming the ground access improvements under those alternatives would be paired with airfield improvements proposed under Alternative 1, 2, 5, 6, or 7, there would be impacts to gates that would be subject to this mitigation measure.

[4] This measure would reduce the cumulatively considerable contribution to impacts to aviation safety from building/structural penetrations of FAR Part 77 imaginary surfaces.

[5] This measure would address cumulatively significant impacts associated with solid waste generation and disposal.

Source: CDM Smith, 2012.

## 6.3.2 Alternative 2

### Overview

Alternative 2 is a fully-integrated alternative, consisting of airfield, terminal, and ground access components. This alternative is distinguished by the fact that it does not propose a northerly relocation of Runway 6L/24R or a southerly relocation of Runway 6R/24L. This alternative does not include a centerfield taxiway, but does include the modification and addition of high-speed runway exits (taxiways) to enhance the safe and efficient movement of arriving aircraft.

Many of the improvements associated with Alternative 2 are the same as those associated with Alternative 1, including Runway 6R/24L, Taxiway E and Taxilane D, service road relocation, terminal and gate modifications, and ground access components. Improvements associated with Runway 6L/24R under this alternative, including connecting taxiways, are different than Alternative 1. Because there would be no northerly relocation of Runway 6L/24R under Alternative 2, it does not require the modifications to the Argo Drainage Channel (other than those required under existing conditions to meet federal RSA requirements) and Lincoln Boulevard described above for Alternative 1. This alternative is illustrated in **Figure 6-2**.

## 6.3.2.1 Airfield Facilities

Alternative 2 meets FAA runway design standards for ADG V with a Category II/III outboard runway (Runway 6L/24R) and Category I inboard runway (Runway 6R/24L), and provides sufficient space to hold ADG IV aircraft or smaller on crossing-taxiways (e.g., AA, Z, W), but is not sufficient to hold larger ADG V and VI aircraft. The restrictions and operating procedures in place today would remain with this alternative. This alternative includes taxiway improvements between the two runways to meet taxiway and runway interface recommendations. The recommendations call for taxiways used for runway crossing to be located in the first or last third of a runway to enhance the safety of crossing operations. Taxiway E and Taxilane D dimensions would meet ADG V standards. This alternative would not require modifications to the Argo Drainage Channel (other than those required under existing conditions to meet federal RSA requirements) and would not require relocation of Lincoln Boulevard.

### Runway Modifications

#### Runway 6L/24R

- No relocation, extension, or widening of Runway 6L/24R
- Existing RPZ for Runway 6L/24R, which includes residential uses, would remain

#### Runway 6R/24L

- Improvements are the same as Alternative 1

### Taxiway Modifications

- No centerfield taxiway
- Reconfigure taxiways connecting Runways 6L/24R and 6R/24L to meet federal safety standards
- Improvements to Taxiway E, Taxilane D, and the service road are the same as Alternative 1
- The APLL would be the same as Alternative 1

## 6.3.2.2 Terminal Facilities

Proposed modifications to terminal facilities, including aircraft gates, under Alternative 2 would include the following:

- The terminal facilities would be the same as Alternative 1
- The gate configuration would be the same as Alternative 1

### 6.3.2.3 Ground Access Facilities

Ground access facilities and parking would be the same as Alternative 1, with the exception of Lincoln Boulevard, which would not be relocated.

### 6.3.2.4 Elimination of Master Plan Components

This alternative would eliminate the same non-Yellow Light projects approved as part of the LAX Master Plan as would Alternative 1.

### 6.3.2.5 Provision of Solutions to the Problems the Yellow Light Projects were Designed to Address

Alternative 2, as a fully integrated alternative with airfield, terminal, and ground transportation elements, contains a range of improvements that would provide partial solutions to the problems that the Yellow Light Projects were designed to address.

#### Provision of Solutions to the Problems the North Airfield Reconfiguration Was Designed to Address

As explained in Chapter 3, LAX does not currently have an airfield that is fully designed for ADG V and VI aircraft (e.g., the Boeing 747-400 and the Airbus A380, respectively). The existing north airfield configuration requires non-standard operating procedures, which are not optimal for safety and increase aircraft delay. The configuration of the north airfield runways under Alternative 2 would not alter this condition.

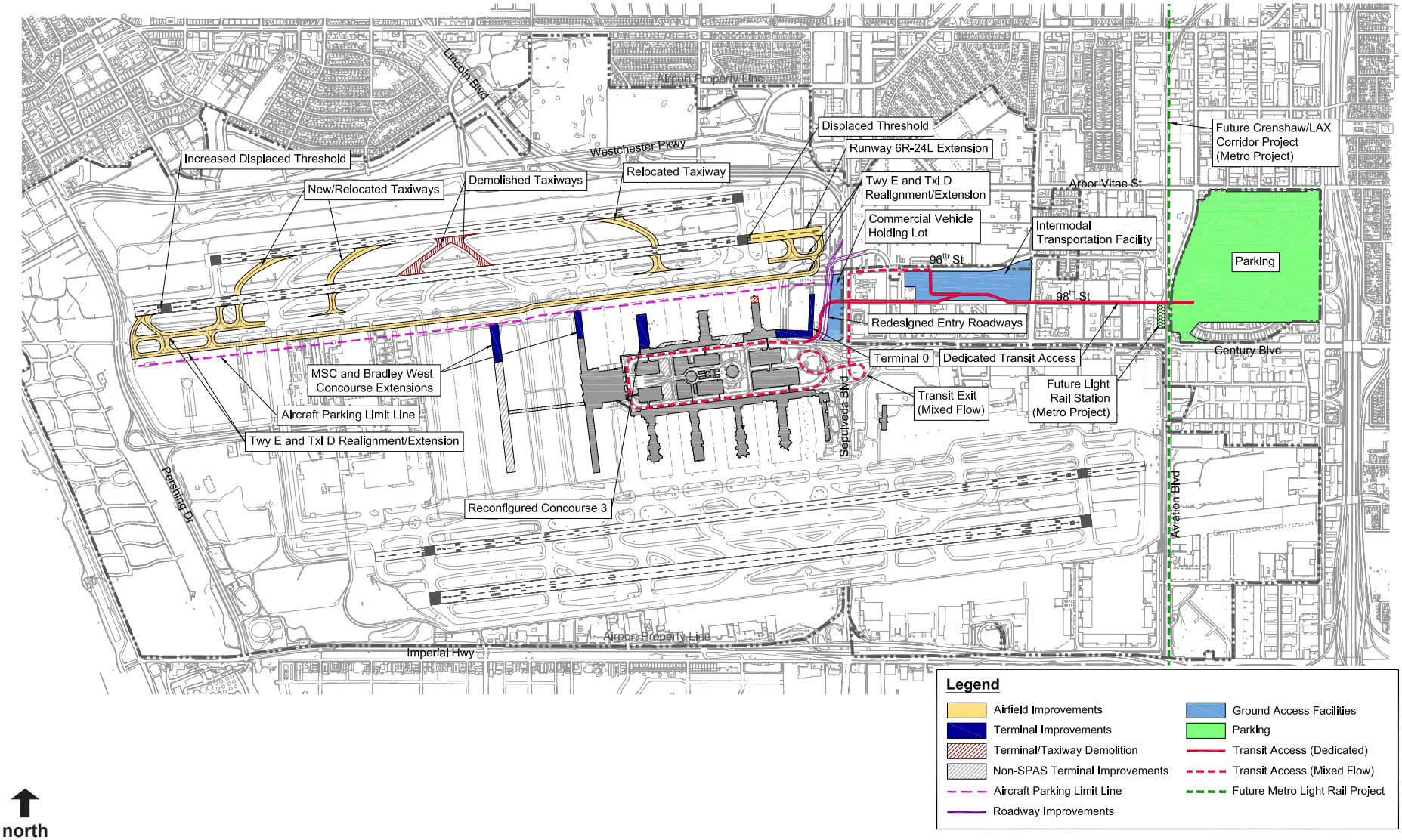
Additionally, as Alternative 2 would not increase the separation between the two north airfield runways, and would not provide for a centerfield taxiway, Alternative 2 would not provide an airfield that is designed for ADG V and VI aircraft. Therefore, under Alternative 2, the north airfield would continue to require non-standard operating procedures for ADG V and ADG VI aircraft. In such cases, air traffic control would restrict the movement of other aircraft on the airfield when ADG V or VI aircraft are transitioning from arriving on Runway 6L/24R until the aircraft crosses and clears Runway 6R/24L.

Alternative 2 addresses the limited length of Runway 6R/24L, which restricts the ability of certain large aircraft from utilizing it for departure when fully loaded, by extending the runway by 1,250 feet. With the extension of this runway, more departing aircraft would be able to use the north airfield, thereby reducing the number of aircraft taxiing to the south airfield and increasing the efficiency of airfield operations at LAX.

By maintaining current separation distances and not providing a centerfield taxiway, Alternative 2 would not fully address many of the existing airfield hazards associated with the north airfield, including incursions and risks of collision, and would not allow pilots to see to the end of the runway.

The existing north airfield high speed taxiways are not in compliance with FAA Engineering Brief No. 75. Alternative 2 would enhance safety associated with the Runway 6L/24R exit taxiways and improve pilot situational awareness by relocating the high-speed exits and improving crossing angles at Runway 6R/24L. The revised exit taxiway locations would comply with FAA Engineering Brief No. 75.

The existing north airfield does not provide sufficient areas at the ends of the runways for holding arriving flights and sequencing departing aircraft. This alternative would include the same modifications to Taxiway E and Taxilane D as would Alternative 1. As with Alternative 1, these modifications would provide more aircraft holding areas near the ends of runways, thereby improving the ability of the ATCT to sequence departures, and would maintain a constant separation distance between Taxiway E and Taxilane D, thereby decreasing the potential for aircraft collisions when taxiing on parallel taxiways. As with Alternative 1, the relocated adjacent vehicle service road would be outside the Taxilane D OFA, which would reduce the risk of collision involving vehicles circulating in the airfield and taxiway/taxilane movement areas.




north

Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 2 | Figure 6-2 |
|---|---|---|

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The existing north airfield configuration does not comply with FAA RSA requirements. In addition, residential uses are located with the existing Runway 24R RPZ. The runway improvements proposed under Alternative 2 would modify some of the existing safety clearance areas, but would not change the RPZ for Runway 24R. With the easterly extension of Runway 6R/24L, establishment of displaced thresholds on this runway, and improvements to the Argo Drainage Channel (which would occur independently of SPAS), the Alternative 2 north airfield configuration would be fully compliant with FAA RSA standards for Runways 6L/24R and 6R/24L, addressing hazards relating to the potential for aircraft to overshoot, undershoot, or experience excursions from the runways.

Alternative 2 would provide solutions to some of the problems the LAX Master Plan north airfield reconfiguration was designed to address. However, as Alternative 2 would not increase the separation between the two north airfield runways, and would not provide for a centerfield taxiway, Alternative 2 would not solve many of the problems the Yellow Light north airfield reconfiguration was designed to address. Alternative 2 would not provide an airfield that is designed for ADG V and VI aircraft. Rather, this alternative would still require non-standard operating procedures when large aircraft are operating on the airfield. By maintaining current separation distances and not providing a centerfield taxiway, Alternative 2 would not fully address many of the existing airfield hazards associated with the north airfield, including incursions and risks of collision and would not allow pilots to see to the end of the runway. In addition, this alternative would not modify the Runway 24R RPZ and, therefore, residences would continue to be located within the RPZ.

## Provision of Solutions to the Problems the Terminal Reconfiguration Was Designed to Address

As explained in Chapter 3, implementation of the LAX Master Plan would require substantial portions of Terminals 1, 2, and 3 to be demolished to provide room for the relocation of Runway 6R/24L 340 feet to the south of the existing runway centerline. Alternative 2 would provide solutions to the requirement to accommodate airfield improvements and provide adequate passenger processing capacity without the need to demolish substantial portions of Terminals 1, 2, and 3. As with Alternative 1, without the southerly relocation of Runway 6R/24L, there would be no need to demolish the piers/concourses associated with Terminals 1, 2, and 3, with the exception of a small portion of the Terminal 1 concourse. Under Alternative 2, improved passenger processing capacity, concourse area, and aircraft gates would be provided through the development of Terminal 0, replacement of Terminal 3, and the ability to extend the northern end of TBIT and the MSC to the new APLL. This alternative would provide 153 passenger gates, which is consistent with the number of gates provided under the approved LAX Master Plan.

## Provision of Solutions to the Problems the Ground Transportation Center and APM 2 Were Designed to Address

As explained in Chapter 3, the function of the GTC under the existing LAX Master Plan is to replace CTA curb front for passenger drop off and pick up and to replace a portion of the private vehicle parking area and all of the commercial vehicle staging area. The role of APM 2 is to provide a connection between the planned GTC and the CTA. Alternative 2 would provide the same solutions to ground access as would Alternative 1. Alternative 2 would address the existing ground access problems by retaining and enhancing the CTA roadways and curb front, and supplementing these facilities with new parking and ground transportation facilities located outside the CTA.

The GTC was designed to address a number of problems associated with the CTA roadway system, as discussed in Chapter 3. The CTA roadway system design currently creates queuing, weaving, and conflict points at various locations that impede traffic flow. In addition, during peak travel times, inbound airport traffic currently extends out of the CTA roadways onto public streets, and curbside demand is unevenly distributed and does not accommodate demand, especially during peak periods. Moreover, as cumulative regional traffic increases, there will be less time certainty for airport users without easy access to the airport from the regional transit system, and the roadway system is not designed to efficiently accommodate security screening of vehicles entering the CTA. Alternative 2 includes the realignment of Sky Way, a primary mode of access for airport users seeking to access the CTA from the north and from

the 98th Street Bridge. The change in design is intended to ease the queuing at Terminal 1 caused, in part, by the close proximity of the intersection of Sky Way and World Way North to Terminal 1. The reconfiguration would provide additional curb front for Terminal 0 and could also allow for the set aside of additional space for screening checkpoints, currently implemented by LAWA police with temporary facilities.

Alternative 2 also creates new facilities outside of the CTA with the aim of reducing traffic and curbside congestion in the CTA. The new ITF would provide public parking, remote passenger pick up/drop off, and would be the primary airport access point for some door-to-door shuttles or scheduled buses. Parking would also be provided at Manchester Square. These facilities would be connected to the CTA via a grade-separated, dedicated busway. Additionally, the dedicated busway would provide an improved connection to public transit, through an integrated facility with the new Metro transit station at Century and Aviation Boulevards, and connectivity to the existing bus facility in the vicinity of Lot C. Together, these ground access facilities would provide alternative airport access for passengers, thereby reducing traffic volumes within the CTA. A detailed discussion of the performance of the on-airport roadway system under Alternative 2 is provided in Chapter 4.12.1, *On-Airport Transportation*, of the SPAS EIR.

Alternative 2 would provide solutions to the problems posed by the existing CTA without the need to restrict access to the CTA and replace the functions of the CTA with a GTC and associated APM.

### 6.3.2.6 Security

The SPAS Security Evaluation, provided in Appendix I, assesses the security characteristics of the Alternative 2 airfield, terminal, and ground access elements in comparison to existing conditions. The SPAS Security Evaluation concluded that Alternative 2 would meet existing and future federal security requirements and security of the improvements would be addressed with appropriate review and implementation of security precautions and measures. A summary of the findings is provided below.

The evaluation found that some components of the Alternative 2 airfield configuration would decrease security and other components would be neutral. Specifically, the easterly and westerly extensions of Runway 6R/24L would decrease security by decreasing the setback distance between the runway and perimeter roads. The evaluation identified several measures, including additional video surveillance, intrusion detection measures, additional crash-rated fencing, and increased perimeter patrols, that could be included in the future design of Alternative 2 to maintain an adequate level of security.

Under Alternative 2, Terminal 0 would be located closer to the entry roadway than the existing terminals (i.e., Terminal 1). The SPAS Security Evaluation determined that this could result in a potential decrease in security. However, the evaluation identified measures that could be included in the future design of Alternative 2 to maintain an adequate level of security, including security bollards, curbside inspection for passengers and baggage arriving on shuttles and buses from remote sites that do not have screening capabilities, and additional video surveillance with video analytics and object tracking capabilities.

The SPAS Security Evaluation determined that the addition of new ground access improvements outside the CTA, including the ITF, remote parking, and the dedicated busway, would reduce vulnerability and increase security by decreasing the number of vehicles entering the CTA. The SPAS Security Evaluation determined that security could be further increased in the future design of Alternative 2 by implementation of screening measures for passengers and baggage, vehicle inspection measures at the ITF including under-vehicle inspection, additional video surveillance, and physical protections at the ITF including vehicle barriers and bollards, and blast suppression films on exposed glass surfaces. Security could also be further enhanced by using in-road traffic calming measures to control traffic entering the CTA and using video surveillance at parking facilities.

### 6.3.2.7 Traffic

As with Alternative 1, the primary traffic characteristics associated with Alternative 2 include maintaining public and private vehicle access to the CTA, and providing new ground access facilities outside of the CTA to reduce congestion within the CTA. The new ground access facilities would include an ITF,

remote parking in Manchester Square, and a dedicated busway linking these facilities to the CTA. This alternative includes connectivity with regional transit through connection of the dedicated busway to the planned Metro transit station at Aviation and Century Boulevards.

As detailed in Section 4.12.1, *On-Airport Transportation*, and Section 4.12.2, *Off-Airport Transportation*, of the Draft EIR, and summarized below, the traffic associated with implementation of Alternative 2 would result in significant impacts to roadway links and an intersection within the CTA, and to off-airport intersections and Los Angeles County Congestion Management Plan (CMP) facilities, including an arterial monitoring intersection and freeway monitoring stations. However, these operational impacts would result from the increase in airport-related trips associated with the projected increase in passenger activity levels at LAX. The increase in passenger activity levels is anticipated to occur irrespective of the SPAS alternatives as is a result of the natural growth in passenger activity.

When evaluating the impacts from the physical improvements associated with Alternative 2 compared to baseline conditions, Alternative 2 would have fewer significant impacts to off-airport intersections after mitigation than would occur with implementation of the LAX Master Plan. Specifically, Alternative 2 would result in only 1 significantly-impacted intersection compared to 11 under Alternative 3, which represents implementation of the LAX Master Plan, and fewer impacts than Alternative 4 (2 significantly-impacted intersections), which represents future conditions with minimal changes in the ground access system. When considering future (2025) airport growth and regional background traffic, Alternative 2 would have significant impacts to 39 intersections after mitigation, as compared to 37 under Alternative 3 and 40 under Alternative 4. As noted above, the increase in the number of impacted intersections is associated with regional growth and the increase in airport activity unrelated to SPAS.

### 6.3.2.8 Aviation Activity

A detailed forecast of aviation activity associated with Alternative 2 is provided in Appendix F-1, *LAX 2009-2025 Passenger Forecast and Design Day Flight Schedule Development*. As indicated in the appendix, Alternative 2 is designed for a practical capacity of 78.9 million annual passengers, with 153 gates, the same number of gates associated with the approved LAX Master Plan. The forecast projects 2,053 peak month average day aircraft operations at buildout of this alternative in 2025.

### 6.3.2.9 Potential Environmental Impacts and Mitigation Measures

A detailed analysis of the potential environmental impacts of Alternative 2 is provided in the SPAS Draft EIR. These impacts are summarized in **Table 6-3**. Mitigation measures that would address the impacts of Alternative 2 are identified in **Table 6-4**. This table includes LAX Master Plan commitments and mitigation measures that are applicable to Alternative 2 as well as new mitigation measures specific to SPAS.

## 6.3.3 Alternative 3

### Overview

Alternative 3 is the CEQA "No Project" Alternative and represents what would reasonably be expected to occur in the foreseeable future if the LAX Master Plan (i.e., "Alternative D") and all of the LAX Master Plan improvements, including the Yellow Light Projects, were implemented as originally envisioned. Analysis of Alternative 3 will allow decision-makers and the public to compare the impacts of implementing alternatives to the LAX Master Plan with the impacts that would occur under the LAX Master Plan.

Alternative 3 is a fully-integrated alternative, consisting of airfield, terminal, and ground access components. The distinguishing airfield improvement related to this alternative is the movement of Runway 6R/24L 340 feet south, along with the addition of a new centerfield taxiway, extension of Runway 6L/24R, and relocation and improvements to Taxiway E, Taxilane D, and service roads. Related terminal improvements include demolition of the concourses/gates at Terminals 1, 2, and 3 and replacement with a new linear concourse, elimination of the northernmost gates at TBIT, and replacement of the existing CTA parking structures with new passenger processing terminals. Key ground access improvements

include closure of the CTA to private vehicles; development of a GTC at Manchester Square, an ITC at the area referred to as Continental City with a pedestrian bridge to the existing Metro Green Line Station, and a CONRAC at Parking Lot C; development of two APM systems to link the ITC, CONRAC, and CTA and link the GTC and CTA; construction of new on-airport roads east of and parallel to Aviation Boulevard; reconfiguration and expansion of Parking Lot E located west of La Cienega Boulevard; and construction of a West Employee Parking facility. There would be no modifications to the Argo Drainage Channel (other than those required under existing conditions to meet federal RSA requirements) or Lincoln Boulevard under this alternative. This alternative is illustrated in **Figure 6-3**.

Details regarding this alternative are provided below. It is not necessary to analyze the ability of Alternative 3 to solve the problems that the Yellow Lights Projects were designed to address as Alternative 3 represents implementation of the approved LAX Master Plan, including the Yellow Light Projects, and does not propose alternative designs, technologies, or configurations to the Yellow Light Projects. The security of Alternative 3 was evaluated in the SPAS Security Evaluation that is included in Appendix I. The traffic and aviation activity associated with this alternative are analyzed in the Draft EIR, as are potential environmental impacts and mitigation measures.

## 6.3.3.1 Airfield Facilities

Alternative 3 meets FAA runway design standards for ADG V with a Category II/III outboard runway (Runway 6L/24R) and Category I inboard runway (Runway 6R/24L), and provides sufficient space between Runway 6R/24L and the centerfield taxiway for ADG VI aircraft to hold prior to crossing the runway with a pilot line-of-sight of the end of Runway 24L. This alternative provides ADG VI runway-to-taxiway separation between Runway 6L/24R and the centerfield taxiway for approach visibility at or above one-half mile (Category I approaches). Taxiway E and Taxilane D would meet ADG V standards.

### Runway Modifications

#### Runway 6L/24R

- Remains in its current location
- Extend 1,495 feet west to maximize runway length
- Establish displaced threshold on 6L to meet RSA requirements

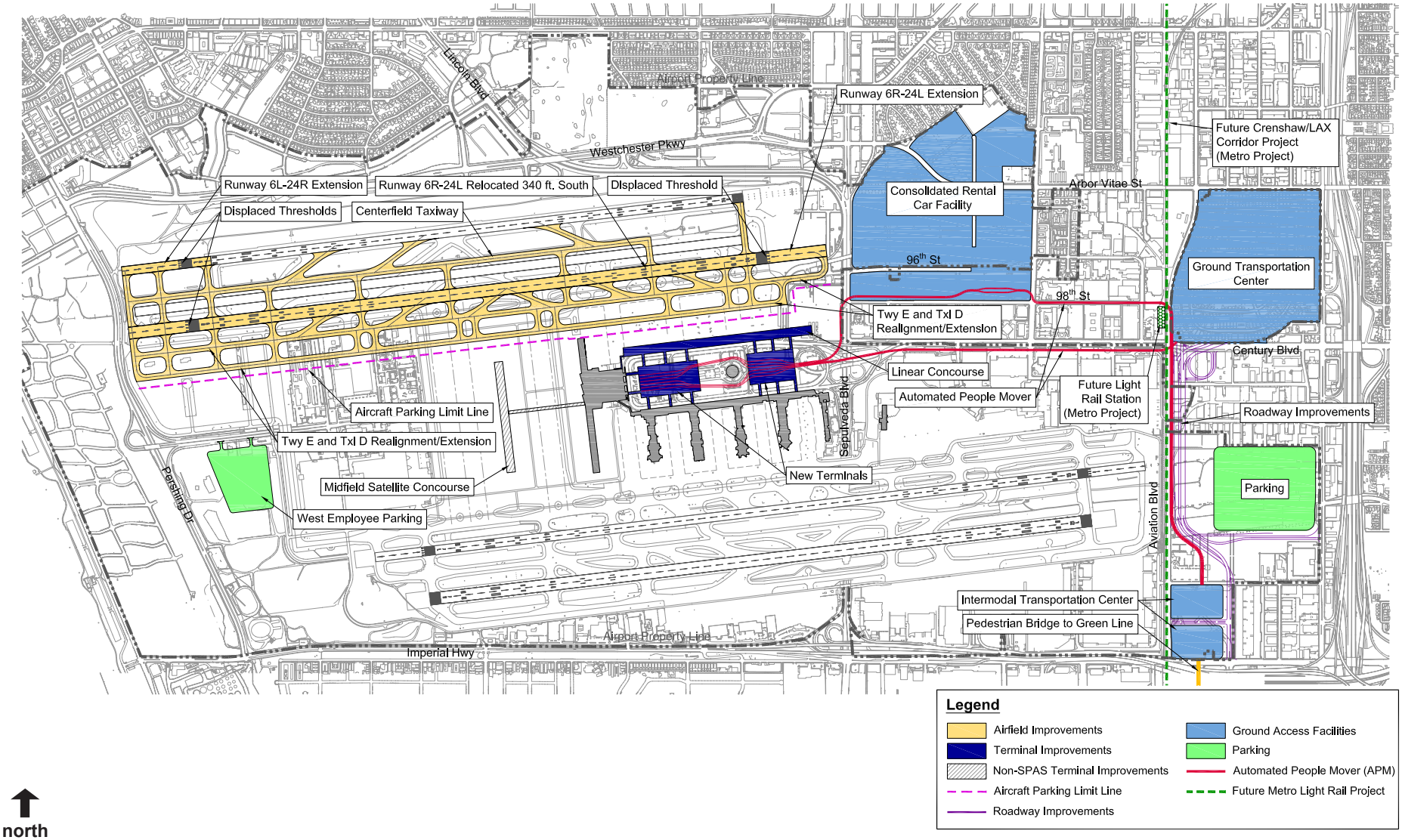
#### Runway 6R/24L

- Relocate 340 feet south of the current location to accommodate a new centerfield parallel taxiway (see below) and to provide for ADG VI separation distances consistent with the LAX Master Plan ALP
- Extend 135 feet west and 1,280 feet east to maximize runway length
- Establish dual displaced thresholds to meet RSA requirements
- Widen to 200 feet to meet FAA standards

### Taxiway Modifications

#### Centerfield Taxiway

- Construct a 100-foot-wide centerfield taxiway between Runways 6L/24R and 6R/24L, with a separation distance of 520 feet from each runway to enhance safety and reduce incursions and other airfield hazards, while providing for modified ADG VI separation distances; also provide exit taxiways from Runway 6L/24R to the centerfield taxiway, taxiways from the centerfield taxiway to and across Runway 6R/24L, and other related airfield taxiway improvements




north

Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 3 | Figure 6-3 |
|---|---|---|

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### Taxiway E

- Relocate varying distances (ranging from 290 to 340 feet) south to meet ADG V separation distances
- Extend 980 feet east to support easterly extension of Runway 6R/24L
- Widen to 100 feet to meet ADG VI standards in place when Alternative D was proposed

### Taxilane D

- Relocate varying distances (ranging from 355 to 409 feet) south to meet ADG VI separation distances
- Extend 90 feet east to support easterly extension of Runway 6R/24L and 5,145 feet west to provide for dual full-length taxiways in the north airfield
- Widen to 100 feet to meet ADG VI standards in place when Alternative D was proposed

### Other Airfield-Related Features

- Construct a new service road between Taxiway E and Taxilane D
- Construct a second service road south of Taxilane D
- Taxiway E and Taxilane D dimensions would meet ADG V standards
- The APLL would move south to a location 1,165 feet south of the existing Runway 6R/24L centerline (825 feet south of the future Runway 6R/24L centerline)
- Existing RPZ for Runway 6L/24R, which includes residential uses, would remain

## 6.3.3.2 Terminal Facilities

Proposed modifications to terminal facilities, including aircraft gates, under Alternative 3 would include the following:

- Demolish concourses associated with Terminals 1 through 3 and construct linear concourse
- Demolish existing parking structures within the CTA and replace with four new passenger processors
- As a result of moving Runway 6R/25L south, all of the gates at Terminals 1, 2, and 3 would be demolished and replaced with a linear concourse with 20 gates
- The taxiway and runway relocations would also result in the reconfiguration of gates at TBIT
- A total of 23 commuter gates would be located east of Sepulveda Boulevard, at or near the location of the existing commuter terminal, for a total of 153 gates used at LAX for scheduled passenger service
- All of the west remote gates would be eliminated

## 6.3.3.3 Ground Access Facilities

### Ground Access

- Eliminate private vehicle access to the CTA
- Construct new on-airport ground access system east of the CTA, consisting of a GTC, ITC, CONRAC, and a surface parking facility (i.e., reconfiguration and expansion of Parking Lot E), connected by two separate APM systems and a new roadway network
- CTA access would be provided via the APM systems and FlyAway buses
- Consolidate employee parking in a West Employee Parking facility

### Transportation Centers

- Construct GTC at Manchester Square as a primary access center for most private and commercial vehicles. The GTC would provide passenger drop off and pick up and private vehicle parking.
- Construct ITC at the area referred to as Continental City to serve as the primary connection point between the airport, the Metro Green Line, and regional bus service. The ITC would provide public parking and curbside for charter, regional, and other buses.
- Construct a pedestrian connection between the ITC and the Metro Green Line Aviation Station

### Consolidated Rental Car Facility

- Construct a CONRAC at Parking Lot C (inclusive of Parking Lot D and the Jenny Lot), including a 150,000-square-foot customer service building, an APM station, and a 9,000-space ready/return garage

### Automated People Mover Systems

- Construct APM 1 between the ITC and the CTA, along Aviation Boulevard and 96th Street, with a stop at the CONRAC
- Construct APM 2 between the GTC and the CTA, along Century Boulevard

### On-Airport Roadway System

- Develop a new roadway system at the east end of the airport, between ITC and GTC
- Remove Sky Way and 96th Street access to the CTA to accommodate the easterly extension of Runway 6R/24L, Taxiway E, and Taxilane D
- Close existing CTA curbside and replace with curbsides within GTC and ITC

### Parking

- Demolish all CTA parking structures and lots
- Eliminate Park One parking facility to accommodate airfield and terminal improvements
- Eliminate Parking Lots C, D, and the Jenny Lot to accommodate CONRAC
- Provide 7,515 public parking spaces in the GTC
- Provide 9,127 public parking spaces in the ITC
- Reconfigure and expand Parking Lot E to provide a surface lot north of 111th Street with 5,470 public parking spaces
- Construct a West Employee Parking facility with approximately 12,400 employee parking spaces
- Maintain an additional 1,200 employee spaces at Avion Drive/Century Boulevard

## 6.3.4 Alternative 4

### Overview

Alternative 4 represents what would reasonably be expected to occur if all ongoing and reasonably foreseeable non-Yellow Light improvements identified in the LAX Master Plan (i.e., "Alternative D") were implemented, and none of the Yellow Light Projects or any of the identified alternatives to the LAX Master Plan Program were constructed or implemented. Analysis of Alternative 4 will allow decision-makers and the public to evaluate the impacts of simply eliminating the Yellow Light Projects from the LAX Master Plan Program.

Alternative 4 is a fully-integrated alternative, consisting of airfield, terminal, and ground access components. Ongoing and reasonably-foreseeable non-Yellow Light projects that would be developed include the Bradley West Project, an extension to Runway 6R/24L for RSA improvements, the MSC and

related new passenger processor and connector within the CTA, and various terminal improvements. In addition, a CONRAC at Parking Lot C would be constructed and a new parking structure would be developed at the ITC site to accommodate the public parking displaced by the CONRAC. A portion of the Argo Drainage Channel would be covered to comply with existing RSA requirements by converting a portion of the existing open unlined channel to an enclosed concrete box culvert. There would be no modifications to Lincoln Boulevard under this alternative. This alternative is illustrated in **Figure 6-4**.

## 6.3.4.1 Airfield Facilities

The Alternative 4 airfield facilities represent existing conditions with an easterly extension to Runway 6R/24L and Taxiway E to meet federal RSA requirements. The existing north airfield meets FAA runway design standards for ADG V, with a Category II/III outboard runway (Runway 6L/24R) and Category I inboard runway (Runway 6R/24L), and provides sufficient space to hold ADG IV aircraft between the runways, but not sufficient to hold ADG V and VI aircraft. No centerfield or connecting taxiway improvements are included with this alternative. The restrictions and operating procedures in place today would remain with this alternative. Taxiway E dimensions meet ADG V standards and Taxilane D dimensions meet ADG IV standards, except in the area adjacent to Terminal 1 where only ADG III standards are met. The RPZ associated with Runway 6L/24R would not move, maintaining the current overlay with residential uses.

### Runway Modifications

#### Runway 6L/24R

- No relocation, extension, or widening of Runway 6L/24R
- Existing RPZ for Runway 6L/24R, which includes residential uses, would remain

#### Runway 6R/24L

- Improve Runway 6R/24L to meet federal RSA requirements, including an 835-foot easterly extension of the runway and a shift in the 6R landing threshold 104 feet east

### Taxiway Modifications

- No centerfield taxiway
- Extend Taxiway E 535 feet east to support the easterly extension of Runway 6R/24L and to provide additional hold area for departing aircraft

## 6.3.4.2 Terminal Facilities

- No proposed changes to terminal facilities
- No proposed changes to gates

## 6.3.4.3 Ground Access Facilities

### Ground Access

- Maintain private vehicle access to the CTA
- Construct CONRAC in Parking Lot C

### Parking

- Public parking within Parking Lot C, and future parking within Parking Lot D and the Jenny Lot, would be displaced by the CONRAC
- Construct new public parking structure in the area referred to as Continental City to replace the lost parking noted above
- Consolidate employee parking to existing Parking Lot E

### 6.3.4.4 Elimination of Master Plan Components

Under this alternative, the following non-Yellow Light projects approved as part of the LAX Master Plan would be fully or partially eliminated:

- Demolition of all CTA parking structures and replacement with passenger terminals (partially eliminated)
- West Employee Parking facility
- Reconfiguration and expansion of Parking Lot E north of 111th Street
- ITC in the area referred to as Continental City
- APM 1 between ITC, CONRAC, and CTA

### 6.3.4.5 Provision of Solutions to the Problems the Yellow Light Projects were Designed to Address

Alternative 4 is an integrated alternative with limited airfield and ground transportation elements, and includes improvements that would provide solutions to only some of the problems that the Yellow Light Projects were designed to address.

#### Provision of Solutions to the Problems the North Airfield Reconfiguration Was Designed to Address

As explained in Chapter 3, LAX does not currently have an airfield that is fully designed for ADG V and VI aircraft (e.g., the Boeing 747-400 and the Airbus A380, respectively). The existing north airfield configuration requires non-standard operating procedures, which are not optimal for safety and increase aircraft delay. The configuration of the north airfield runways under Alternative 4 would not alter this condition.

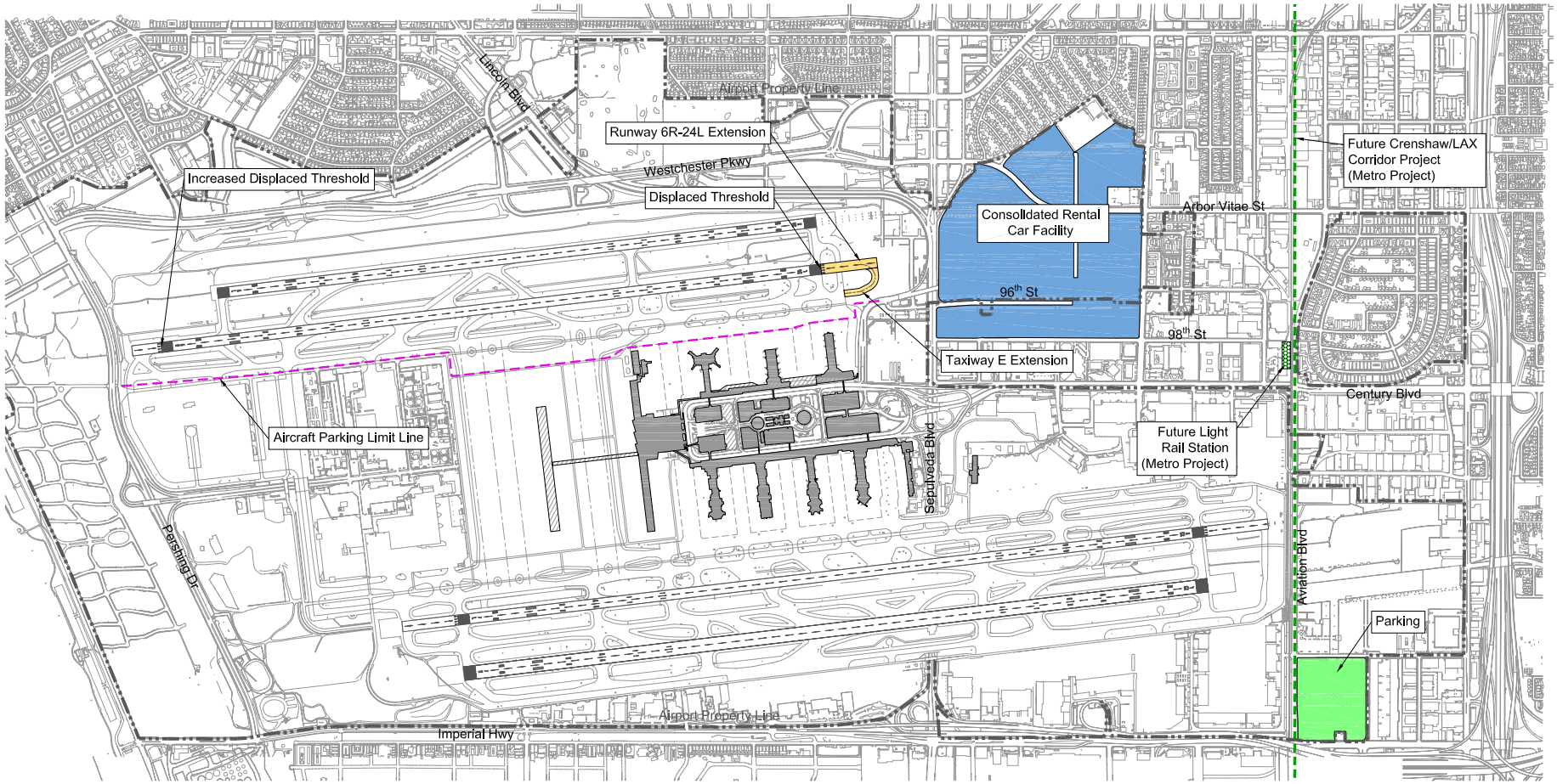
Additionally, as Alternative 4 would not increase the separation between the two north airfield runways, and would not provide for a centerfield taxiway, Alternative 4 would not provide an airfield that is designed for ADG V and VI aircraft. Therefore, under Alternative 4, the north airfield would continue to require non-standard operating procedures for ADG V and ADG VI aircraft. In such cases, air traffic control would restrict the movement of other aircraft on the airfield when ADG V or VI aircraft are transitioning from arriving on Runway 6L/24R until the aircraft crosses and clears Runway 6R/24L.

Alternative 4 would not change the departure length of the runway and, therefore, would not address the problem of certain large aircraft on long-haul flights being unable to use the north airfield for departures.

By maintaining current separation distances and not providing a centerfield taxiway, Alternative 4 would not address most of the existing airfield hazards associated with the north airfield, including incursions and risks of collision, and would not allow pilots to see to the end of the runway.

This alternative would not alter the Runway 6L/24R exit taxiways, which would continue to be out of compliance with FAA Engineering Brief No. 75, and would not correct the varying separation distances between Taxiway E and Taxilane D or relocate the vehicle service road outside the Taxilane D OFA, improvements which aim to reduce potential conflicts between aircraft and ground vehicles and allow for the more efficient management of aircraft taxiing between the runways and the gates.

The existing north airfield does not provide sufficient areas at the ends of the runways for holding arriving flights and sequencing departing aircraft. The easterly extension of Runway 6R/24L and the associated extension of Taxiway E would provide some additional area at the end of the runway for holding arriving flights and sequencing departing aircraft, although not to the same extent as the other alternatives that include north airfield reconfiguration (i.e., Alternatives 1, 2, 3, 5, 6, and 7), as these alternatives would also include the easterly and westerly extension of Taxilane D.




north

Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 4 | Figure 6-4 |
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The existing north airfield configuration does not comply with FAA RSA requirements. In addition, residential uses are located with the existing Runway 24R RPZ. The runway improvements proposed under Alternative 4 would modify some of the existing safety clearance areas, but would not change the RPZ for Runway 24R. With the easterly extension of Runway 6R/24L, establishment of displaced thresholds on this runway, and improvements to the Argo Drainage Channel (which would occur independently of SPAS), the Alternative 4 north airfield configuration would be fully compliant with FAA RSA standards for Runways 6L/24R and 6R/24L, addressing hazards relating to the potential for aircraft to overshoot, undershoot, or experience excursions from the runways.

Alternative 4 would provide solutions to two of the problems the LAX Master Plan north airfield reconfiguration was designed to address. However, as Alternative 4 would not increase the separation between the two north airfield runways, would not provide for a centerfield taxiway, and would not increase the departure length of Runway 6R/24L, many problems would not be addressed by this alternative. Alternative 4 would not provide an airfield that is designed for ADG V and VI aircraft. Rather, this alternative would still require non-standard operating procedures when large aircraft are operating on the airfield. The easterly extension of Runway 6R/24L would meet RSA standards, but would not change the departure length of the runway and, therefore, would not address the problem of certain large aircraft on long-haul flights being unable to use the north airfield for departures. By maintaining current separation distances and not providing a centerfield taxiway, Alternative 4 would not address most of the existing airfield hazards associated with the north airfield, including incursions and risks of collision, and would not enhance pilot visibility when aircraft are holding to cross Runway 6R/24L. This alternative would not alter the Runway 6L/24R exit taxiways, which would continue to be out of compliance with FAA Engineering Brief No. 75, and would not correct the varying separation distances between Taxiway E and Taxilane D or relocate the vehicle service road outside the Taxilane D OFA, improvements which aim to reduce potential conflicts between aircraft and ground vehicles and allow for the more efficient management of aircraft taxiing between the runways and the gates. In addition, Alternative 4 would not modify the Runway 24R RPZ and, therefore, residences would continue to be located within the RPZ.

### Provision of Solutions to the Problems the Terminal Reconfiguration Was Designed to Address

As explained in Chapter 3, implementation of the LAX Master Plan would require substantial portions of Terminals 1, 2, and 3 to be demolished to provide room for the relocation of Runway 6R/24L 340 feet to the south of the existing runway centerline. Without the southerly relocation of Runway 6R/24L, there would be no need to demolish the piers/concourses associated with Terminals 1, 2, and 3. Under Alternative 4, no additional passenger processing capacity or concourse area would be provided. This alternative would provide 153 passenger gates, which is consistent with the number of gates provided under the approved LAX Master Plan.

Alternative 4 would not alter the airfield configuration and, therefore, would avoid the need to demolish substantial portions of Terminals 1, 2, and 3.

### Provision of Solutions to the Problems the Ground Transportation Center and APM 2 Were Designed to Address

As explained in Chapter 3, the function of the GTC under the existing LAX Master Plan is to replace CTA curb front for passenger drop off and pick up and to replace a portion of the private vehicle parking area and all of the commercial vehicle staging area. The role of APM 2 is to provide a connection between the planned GTC and the CTA. Alternative 4 would not alter ground access or curbside use in the CTA and would not provide solutions to the problems posed by the existing CTA.

## 6.3.4.6 Security

The SPAS Security Evaluation, provided in Appendix I, assesses the security characteristics of the Alternative 4 airfield and ground access elements in comparison to existing conditions. The SPAS Security Evaluation concluded that Alternative 4 would meet existing and future federal security

requirements and security of the improvements would be addressed with appropriate review and implementation of security precautions and measures. A summary of the findings is provided below.

The evaluation found that the easterly extension of Runway 6R/24L would decrease security by decreasing the setback distance between the runway and perimeter road. The evaluation identified several measures, including additional video surveillance, intrusion detection measures, additional crash-rated fencing, and increased perimeter patrols, that could be included in the future design of Alternative 4 to maintain an adequate level of security.

The SPAS Security Evaluation determined that the reduction of vehicles in the CTA resulting from the implementation of transportation facilities such as the CONRAC would reduce vulnerability and increase security. The SPAS Security Evaluation determined that security could be further increased in the future design of Alternative 4 by implementation of screening measures for passengers and baggage, vehicle inspection measures at the CONRAC including under-vehicle inspection, additional video surveillance, and physical protections at the CONRAC including vehicle barriers and bollards, and blast suppression films on exposed glass surfaces.

### 6.3.4.7 Traffic

As noted above, the primary traffic characteristics associated with Alternative 4 include maintaining public and private vehicle access to the CTA, and providing limited new ground access facilities outside of the CTA to reduce congestion within the CTA, including construction of a CONRAC in the Lot C area and the relocation of public and employee parking to Continental City. This alternative would not provide improved connectivity with regional transit.

As detailed in Section 4.12.1, *On-Airport Transportation*, and Section 4.12.2, *Off-Airport Transportation*, of the Draft EIR, and summarized below, traffic associated with the implementation of Alternative 4 would result in significant impacts to roadway links and an intersection within the CTA, and to off-airport intersections and Los Angeles County Congestion Management Plan (CMP) facilities, including arterial monitoring intersections and freeway monitoring stations. However, these operational impacts would result from the increase in airport-related trips associated with the projected increase in passenger activity levels at LAX. The increase in passenger activity levels is anticipated to occur irrespective of the SPAS alternatives as is a result of the natural growth in passenger activity.

When evaluating the impacts from the physical improvements associated with Alternative 4 compared to baseline conditions, Alternative 4 would have fewer significant impacts to off-airport intersections after mitigation than would occur with implementation of the LAX Master Plan. Specifically, Alternative 4 would result in only 2 significantly-impacted intersections compared to 11 under Alternative 3, which represents implementation of the LAX Mater Plan. When considering future (2025) airport growth and regional background traffic, this alternative would have greater off-airport traffic impacts after mitigation than would Alternative 3 (i.e., 40 significantly-impacted intersections compared to 37 under Alternative 3). As noted above, the increase in the number of impacted intersections is associated with regional growth and the increase in airport activity unrelated to SPAS.

### 6.3.4.8 Aviation Activity

A detailed forecast of aviation activity associated with Alternative 4 is provided in Appendix F-1, *LAX 2009-2025 Passenger Forecast and Design Day Flight Schedule Development*. As indicated in the appendix, Alternative 4 is designed for a practical capacity of 78.9 million annual passengers, with 153 gates, the same number of gates associated with the approved LAX Master Plan. The forecast projects 2,053 peak month average day aircraft operations at buildout of this alternative in 2025.

### 6.3.4.9 Potential Environmental Impacts and Mitigation Measures

A detailed analysis of the potential environmental impacts of Alternative 4 is provided in the SPAS Draft EIR. These impacts are summarized in **Table 6-3**. Mitigation measures that would address the impacts of Alternative 4 are identified in **Table 6-4**. This table includes LAX Master Plan commitments and

mitigation measures that are applicable to Alternative 4 as well as new mitigation measures specific to SPAS.

## 6.3.5 Alternative 5

### Overview

As noted above in Section 2.3.1, the focus of this alternative is on airfield improvements and associated terminal improvements, as may be compared to such improvements proposed under Alternatives 1 through 4. This alternative is compatible with the ground access improvements associated with Alternatives 1 and 2, as well as the ground access improvements associated with Alternatives 8 and 9, described below. The distinguishing feature of this alternative is the movement of Runway 6L/24R 350 feet north. Similar to Alternative 1, a new centerfield taxiway would be constructed, Runway 6R/24L would be extended, Taxilane D and Taxiway E would be modified/improved, and the service road would be relocated. Under this alternative, the taxilane/taxiway improvements would meet FAA design requirements to fully accommodate ADG VI aircraft. (Under Alternatives 1, 2, and 6, the taxiway configuration would either not meet or only partially meet FAA runway design standards for ADG VI aircraft, which would impose certain limitations and special requirements during the operation of those aircraft.) The increased runway-taxiway separation requirements under this alternative would cause the aircraft taxiway operations area to extend farther south than under Alternatives 1, 2, and 6, which, in turn, would result in comparatively less concourse and/or gate area for the potential TBIT extension and MSC extension. Under this alternative, a greater portion of Lincoln Boulevard would be below grade and/or tunneled than under Alternative 1. This alternative is illustrated in **Figure 6-5**.

## 6.3.5.1 Airfield Facilities

The Alternative 5 airfield meets the minimum design requirements (i.e., runway and taxiway separation distances) for a full ADG VI airfield, including an ADG VI Category II/III outboard runway (Runway 6L/24R) and an ADG VI Category I inboard runway (Runway 6R/24L). Taxiway E and Taxilane D dimensions would meet ADG VI standards.

### Runway Modifications

#### Runway 6L/24R

- Relocate 350 feet north of current location to accommodate a new centerfield parallel taxiway (see below) and to provide for ADG VI separation distances
- Extend 604 feet west so that the RPZ no longer extends over residential areas
- Establish dual displaced thresholds to remove existing residences from the RPZ (east end displaced threshold) and maintain existing westerly aircraft landing heights (west end displaced threshold)
- Widen to 200 feet to meet FAA standards

#### Runway 6R/24L

- Improvements are the same as Alternative 1

### Taxiway Modifications

#### Centerfield Taxiway

- Construct an 82-foot-wide centerfield taxiway between Runways 6L/24R and 6R/24L, with a centerline separation distance of 550 feet to Runway 6L/24R and 500 feet to Runway 6R/24L, to enhance safety and reduce incursions and other airfield hazards, while providing for ADG VI separation distances; also provide exit taxiways from Runway 6L/24R to the centerfield taxiway, taxiways from the centerfield taxiway to and across Runway 6R/24L, and other related airfield taxiway improvements

### Taxiway E

- Relocate varying distances (50 to 114 feet) south to provide ADG VI Category I runway-to-taxiway separation distance
- Extend 950 feet east to support easterly extension of Runway 6R/24L and to provide additional hold area for departing aircraft

### Taxilane D

- Relocate varying distances (70 feet to 124 feet) south to provide ADG VI taxiway-to-taxilane and taxilane to APLL separation distances
- Extend 675 feet east to support easterly extension of Runway 6R/24L and 5,145 feet west to provide for dual full-length taxiways in the north airfield

### Other Airfield-Related Features

- Cover the entire length of the Argo Drainage Channel (9,857 linear feet) such that the weight of an aircraft could be supported within the RSA by converting the existing open unlined channel to an enclosed concrete box culvert
- Relocate Lincoln Boulevard northward between Sepulveda Boulevard and Westchester Parkway. and depress the eastern and western portions of the road segment to be compatible with the object free area requirements for Runway 6L/24R, which would require approximately 765 linear feet of the eastern portion of the road segment to be tunneled
- Improvements to Taxiway E, Taxilane D, and the service road are the same as Alternative 1
- Relocate the service road that currently lies between Taxiway E and Taxilane D to a location south of Taxilane D to increase the separation between the two taxiways to allow for simultaneous operations with larger aircraft than currently accommodated, improve safety and efficiency, and meet FAA standards
- Taxiway E and Taxilane D dimensions would meet ADG VI standards
- The APLL would move south to a location 1,041 feet south of the existing Runway 6R/24L centerline

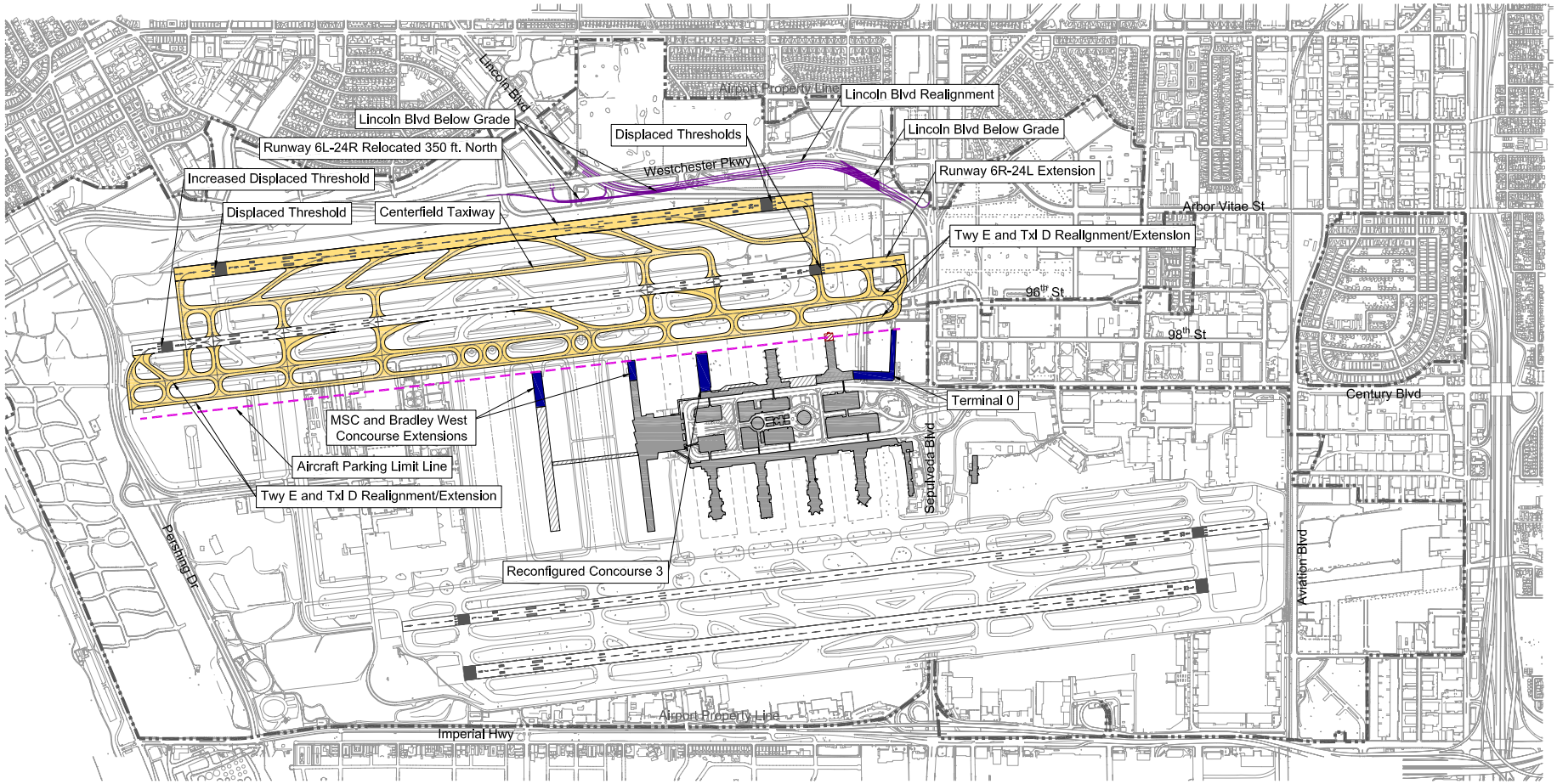
## 6.3.5.2 Terminal Facilities

Proposed modifications to terminal facilities, including aircraft gates, under Alternative 5 would include the following:

- The basic features associated with the terminal components of this alternative would be the same as Alternative 1. However, due to the more southerly APLL, the northerly building limits and/or gating area associated with the potential TBIT concourse extension and MSC extension would be more southerly than under Alternative 1, by approximately 164 feet and 114 feet, respectively.
- As a result of moving the APLL south to meet ADG VI standards, several gates would be eliminated or downsized
- The commuter facility currently in use east of Sepulveda Boulevard would be maintained
- All of the west remote gates would be eliminated
- The total number of gates used at LAX for scheduled passenger service would be 153

## 6.3.5.3 Ground Access Facilities

Alternative 5 focuses on airfield and terminal components. This alternative is compatible with the ground access improvements associated with Alternatives 1, 2, 8, and 9.




Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 5 | Figure 6-5 |
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### 6.3.5.4 Elimination of Master Plan Components

Under this alternative, the following non-Yellow Light terminal project approved as part of the LAX Master Plan would be partially eliminated. (Since this alternative focuses on airfield and terminal components, non-Yellow Light Project ground access components are not considered under this alternative but, rather, would be reflected in whichever other alternative Alternative 5 is paired with - see explanation provided previously in this section.)

- Demolition of all CTA parking structures and replacement with passenger terminals

### 6.3.5.5 Provision of Solutions to the Problems the Yellow Light Projects were Designed to Address

As noted above, Alternative 5 focuses on airfield and terminal components. This alternative would not provide solutions to the problems the ground transportation-related Yellow Light Projects of the LAX Master Plan (i.e., the GTC and APM 2) were designed to address. Instead, the ability of this alternative to provide solutions to these problems would depend upon the ground access alternative with which it is paired.

#### Provision of Solutions to the Problems the North Airfield Reconfiguration Was Designed to Address

As explained in Chapter 3, LAX does not currently have an airfield that is fully designed for ADG V and VI aircraft (e.g., the Boeing 747-400 and the Airbus A380, respectively). The configuration of the north airfield runways under Alternative 5 would fully meet FAA runway design standards for ADG V and VI aircraft in all visibility conditions. With greater separation distances, this alternative would provide for a fully-compliant airfield, which would be an improvement over both current airfield operating conditions and the LAX Master Plan north airfield configuration.

The existing north airfield configuration requires non-standard operating procedures, which are not optimal for safety and increase aircraft delay. With a fully-compliant ADG VI airfield, non-standard operating procedures would not be required under Alternative 5.

Alternative 5 addresses the limited length of Runway 6R/24L, which restricts the ability of certain large aircraft from utilizing it for departure when fully loaded, by extending the runway by 1,250 feet. With the extension of this runway, more departing aircraft would be able to use the north airfield, thereby reducing the number of aircraft taxiing to the south airfield and increasing the efficiency of airfield operations at LAX.

The outdated airfield design creates a situation where aircraft are at increased risks to hazards. Alternative 5 contains several features designed to reduce airfield hazards. Implementation of Alternative 5 would increase the separation distance between Runways 6L/24R and 6R/24L from 700 feet to 1,050 feet. The increased separation would enable the addition of a centerfield parallel taxiway that connects to reconfigured high-speed exits from Runway 6L/24R, providing more time and options for FAA air traffic controllers to manage aircraft exiting Runway 6L/24R and crossing Runway 6R/24L. The centerfield taxiway would enable aircraft to taxi and hold between the two runways without penetrating OFZ and RSA surfaces. Increased separation between runways and the centerfield parallel taxiway would reduce the risk of a runway collision or incursion and enhance safety, particularly as related to future operations involving a greater number of ADG V and VI aircraft. Additionally, safety would be improved with the relocated and redesigned runway crossing points along the last third of Runway 6R/24L, which would bring the airfield into compliance with FAA Engineering Brief No. 75. The geometry provided by those same crossing points would enhance pilots' visibility to the end of the runway for all aircraft types prior to crossing.

The existing north airfield does not provide sufficient areas at the ends of the runways for holding arriving flights and sequencing departing aircraft. As with Alternative 1, proposed improvements to Taxiway E include a 950-foot extension to the east (in conjunction with the easterly extension of Runway 6R/24L)

and realigning 2,190 feet of the western end to provide a true parallel alignment. Proposed improvements to Taxilane D would include extending it approximately 5,145 feet west to provide a full-length taxilane and realigning various eastern segments to provide for ADG VI separation distance and capability along its entire length. The Taxiway E and Taxilane D eastern and western extensions would provide more aircraft holding areas near the ends of runways, thereby improving the ability of the ATCT to sequence departures. Additionally, maintaining a constant separation distance between Taxiway E and Taxilane D would decrease the potential for aircraft collisions when taxiing on parallel taxiways.

In conjunction with these taxiway/lane improvements, the adjacent vehicle service road would be relocated from between Taxiway E and Taxilane D to the northerly limit of the aircraft parking apron, south of Taxilane D. The service road would be outside the Taxilane D OFA, which would reduce the risk of collision involving vehicles circulating in the airfield and taxiway/taxilane movement areas.

The existing north airfield configuration does not comply with FAA RSA requirements. In addition, residential uses are located with the existing Runway 24R RPZ. The runway improvements proposed under Alternative 5 would modify several existing safety clearance areas, including the RSA and RPZ, as well as the runway OFA and runway OFZ. For Runway 6L/24R, the 350-foot northerly relocation would shift the safety clearance areas accordingly, which, in turn, would require the realignment of Lincoln Boulevard and the covering of the Argo Drainage Channel. Although the RPZs would also shift northward, the establishment of dual displaced landing thresholds would maintain the existing approach RPZ for Runway 6L and would shift the existing approach RPZ for Runway 24R westward by 604 feet. That westward shift would place the RPZ outside of any existing residential development (i.e., residences located east of Runway 24R would no longer be within the RPZ) and outside of the vehicle staging area west of Sepulveda Boulevard. Similarly, the establishment of dual displaced thresholds for Runway 6R/24L would maintain the length of the existing RPZ for Runway 24L even though the runway pavement would be extended eastward. With the combination of the runway improvements (including the easterly extension of Runway 6R/24L and improvements to 6L/24R), associated improvements to Lincoln Boulevard and the Argo Drainage Channel, and establishment of displaced thresholds, the Alternative 5 north airfield configuration would be fully compliant with FAA RSA standards for Runways 6L/24R and 6R/24L, addressing hazards relating to the potential for aircraft to overshoot, undershoot, or experience excursions from the runways.

The Alternative 5 north airfield configuration would provide solutions to all of the problems the LAX Master Plan north airfield reconfiguration was designed to address. In fact, with greater separation distances, Alternative 5 would fully meet FAA runway design standards for ADG VI aircraft, whereas the LAX Master Plan north airfield configuration would not.

## Provision of Solutions to the Problems the Terminal Reconfiguration Was Designed to Address

As explained in Chapter 3, implementation of the LAX Master Plan would require substantial portions of Terminals 1, 2, and 3 to be demolished to provide room for the relocation of Runway 6R/24L 340 feet to the south of the existing runway centerline. Without the southerly relocation of Runway 6R/24L, there would be no need to demolish the piers/concourses associated with Terminals 1, 2, and 3, with the exception of a portion of the Terminal 1 concourse. Alternative 5 would provide solutions to the requirement to accommodate airfield improvements and provide adequate passenger processing capacity without the need to demolish substantial portions of Terminals 1, 2, and 3. Under Alternative 5, additional passenger processing capacity, concourse area, and aircraft gates would be provided through the addition of Terminal 0, the replacement of Terminal 3, and the ability to extend the northern end of TBIT and the MSC to the new APLL. This alternative would provide 153 passenger gates, which is consistent with the number of gates provided under the approved LAX Master Plan.

Alternative 5 would provide solutions to the requirement to accommodate airfield improvements and provide adequate passenger processing capacity without the need to demolish substantial portions of Terminals 1, 2, and 3.

### 6.3.5.6 Security

The SPAS Security Evaluation, provided in Appendix I, assesses the security characteristics of the Alternative 5 airfield and terminal elements in comparison to existing conditions. The SPAS Security Evaluation concluded that Alternative 5 would meet existing and future federal security requirements and security of the improvements would be addressed with appropriate review and implementation of security precautions and measures. A summary of the findings is provided below.

The evaluation found that some components of the Alternative 5 airfield configuration would increase security, some components would reduce security, and others would be neutral. Specifically, with appropriate design, placing a portion of Lincoln Boulevard below grade would enhance security by reducing the "field of fire" for potential attackers using RPGs or firearms. However, locating Runways 6L/24R and 6R/24L and some taxiways closer to the perimeter fence and adjoining public roadways would increase the vulnerability of the airport to low-risk threats. The evaluation identified several measures, including additional video surveillance, intrusion detection measures, additional crash-rated fencing, and increased perimeter patrols, that could be included in the future design of Alternative 5 to maintain an adequate level of security.

Under Alternative 5, Terminal 0 would be located closer to the entry roadway than the existing terminals (i.e., Terminal 1). The SPAS Security Evaluation determined that this could result in a potential decrease in security. However, the evaluation identified measures that could be included in the future design of Alternative 5 to maintain an adequate level of security, including security bollards, curbside inspection for passengers and baggage arriving on shuttles and buses from remote sites that do not have screening capabilities, and additional video surveillance with video analytics and object tracking capabilities.

### 6.3.5.7 Traffic

As noted above, Alternative 5 focuses on airfield and terminal components. The traffic characteristics of this alternative would depend upon the ground access alternative with which it is paired.

### 6.3.5.8 Aviation Activity

Alternative 5 is designed for a practical capacity of 78.9 million annual passengers, with 153 gates, the same number of gates associated with the approved LAX Master Plan. The forecast projects 2,053 peak month average day aircraft operations at buildout of this alternative in 2025.

### 6.3.5.9 Potential Environmental Impacts and Mitigation Measures

A detailed analysis of the potential environmental impacts of Alternative 5 is provided in the SPAS Draft EIR. These impacts are summarized in **Table 6-3**. Mitigation measures that would address the impacts of Alternative 5 are identified in **Table 6-4**. This table includes LAX Master Plan commitments and mitigation measures that are applicable to Alternative 5 as well as new mitigation measures specific to SPAS.

## 6.3.6 Alternative 6

### Overview

Similar to Alternative 5, the focus of Alternative 6 is on airfield improvements and associated terminal improvements, as may be compared to such improvements proposed under Alternatives 1 through 4. This alternative is compatible with the ground access improvements associated with Alternatives 1 and 2, as well as the improvements associated with Alternatives 8 and 9. The distinguishing feature of this alternative is the movement of Runway 6L/24R 100 feet north. Similar to Alternative 1, a new centerfield taxiway would be constructed. All other physical aspects of the airfield and terminal improvements associated with this alternative would be essentially the same as those of Alternative 1, described above, with a lesser portion of the Argo Drainage Channel requiring covering (i.e., conversion to a concrete box

culvert) and a lesser portion of Lincoln Boulevard requiring tunneling. This alternative is illustrated in **Figure 6-6**.

## 6.3.6.1 Airfield Facilities

Alternative 6 meets FAA runway design standards for ADG V, with a Category II/III outboard runway (Runway 6L/24R) and Category I inboard runway (Runway 6R/24L). This alternative provides sufficient space between Runway 6R/24L and the centerfield taxiway for ADG V aircraft to hold prior to crossing the runway with approach visibility at or above one-half mile (Category I approaches). Taxiway E and Taxilane D dimensions would meet ADG V standards.

### Runway Modifications

#### Runway 6L/24R

- Relocate 100 feet north of current location to accommodate a new centerfield parallel taxiway (see below) and to provide for ADG V separation distances
- Extend 604 feet west so that the RPZ no longer extends over residential areas
- Establish dual displaced thresholds to remove existing residences from the RPZ (west end) and maintain existing westerly aircraft landing heights (east end)
- Widen to 200 feet to meet FAA standards

#### Runway 6R/24L

- Improvements are the same as Alternative 1

### Taxiway Modifications

#### Centerfield Taxiway

- Construct an 82-foot-wide centerfield taxiway between Runways 6L/24R and 6R/24L, with a centerline separation distance of 400 feet to each runway, to enhance safety and reduce incursions and other airfield hazards, while providing for ADG V separation distances; also provide exit taxiways from Runway 6L/24R to the centerfield taxiway, taxiways from the centerfield taxiway to and across Runway 6R/24L, and other related airfield taxiway improvements

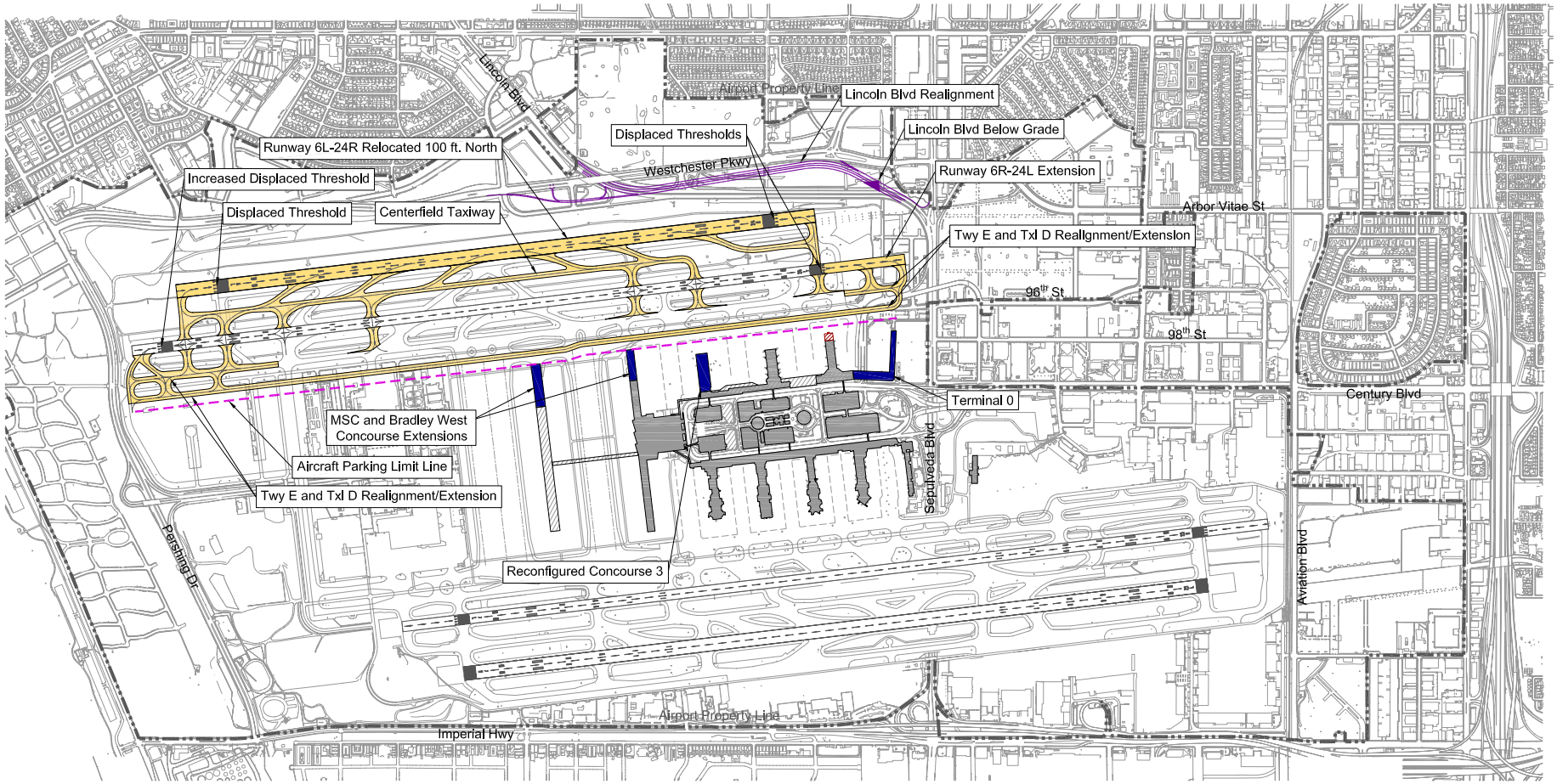
### Other Airfield-Related Features

- Cover a portion of the Argo Drainage Channel (1,400 linear feet) such that the weight of an aircraft could be supported within the RSA by converting the existing open unlined channel to an enclosed concrete box culvert
- Relocate Lincoln Boulevard northward between Sepulveda Boulevard and Westchester Parkway. and depress the eastern and western portions of the road segment to be compatible with the object free area requirements for Runway 6L/24R, which would require approximately 252 linear feet of the eastern portion of the road segment to be tunneled
- Improvements to Taxiway E, Taxilane D, and the service road are the same as Alternative 1
- The APLL would be the same as Alternative 1

## 6.3.6.2 Terminal Facilities

Proposed modifications to terminal facilities, including aircraft gates, under Alternative 6 would include the following:

- The terminal facilities would be the same as Alternative 1
- The gate configuration would be the same as Alternative 1




Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 6 | Figure 6-6 |
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### 6.3.6.3 Ground Access Facilities

Alternative 6 focuses on airfield and terminal components. This alternative is compatible with the ground access improvements associated with Alternatives 1, 2, 8, and 9.

### 6.3.6.4 Elimination of Master Plan Components

Under this alternative, the following non-Yellow Light terminal project approved as part of the LAX Master Plan would be partially eliminated. (Since this alternative focuses on airfield and terminal components, non-Yellow Light Project ground access components are not considered under this alternative, but rather would be reflected in whichever other alternative Alternative 6 is paired with - see explanation in provided previously in this section.)

- Demolition of all CTA parking structures and replacement with passenger terminals

### 6.3.6.5 Provision of Solutions to the Problems the Yellow Light Projects were Designed to Address

As noted above, Alternative 6 focuses on airfield and terminal components. This alternative would not provide solutions to the problems the ground transportation-related Yellow Light Projects of the LAX Master Plan (i.e., the GTC and APM 2) were designed to address. Instead, the ability of this alternative to provide solutions to these problems would depend upon the ground access alternative with which it is paired.

#### Provision of Solutions to the Problems the North Airfield Reconfiguration Was Designed to Address

As explained in Chapter 3, LAX does not currently have an airfield that is fully designed for ADG V and VI aircraft (e.g., the Boeing 747-400 and the Airbus A380, respectively). The configuration of the north airfield runways under Alternative 6 would partially meet FAA runway design standards for ADG V aircraft in certain visibility conditions, but not ADG VI aircraft. More specifically, the separation distance between Runway 6L/24R and the centerfield taxiway would accommodate ADG V aircraft in good visibility conditions, but not in instances when visibility is less than half a mile. Alternative 6 would permit the standardized operation of ADG V aircraft only in good visibility conditions, and would only permit ADG VI operations with non-standard operating conditions. This is an improvement over current airfield operating conditions, but would not permit the standardized operation of ADG V and VI aircraft in all visibility conditions.

The existing north airfield configuration requires non-standard operating procedures, which are not optimal for safety and increase aircraft delay. Alternative 6 would reduce the non-standard operating procedures on the north airfield associated with ADG V aircraft although certain aspects of Alternative 6 would require an MOS from the FAA. Specifically, with the airfield dimensions provided by Alternative 6, all ADG VI aircraft operating on the airfield during any weather conditions would be required to follow non-standard operating procedures, as would ADG V aircraft during poor visibility conditions. In such cases, air traffic control would restrict the movement of other aircraft on the airfield when a restricted aircraft is transitioning from arriving on Runway 6L/24R until the aircraft crosses and clears Runway 6R/24L.

Alternative 6 addresses the limited length of Runway 6R/24L, which restricts the ability of certain large aircraft from utilizing it for departure when fully loaded, by extending the runway by 1,250 feet. With the extension of this runway, more departing aircraft would be able to use the north airfield, thereby reducing the number of aircraft taxiing to the south airfield and increasing the efficiency of airfield operations at LAX.

The outdated airfield design creates a situation where aircraft are at increased risks to hazards. Alternative 6 contains several features designed to reduce airfield hazards. Implementation of Alternative 6 would increase the separation distance between Runways 6L/24R and 6R/24L from 700 feet to 800 feet. The increased separation would enable the addition of a centerfield parallel taxiway that connects to

reconfigured high-speed exits from Runway 6L/24R, providing more time and options for FAA air traffic controllers to manage aircraft exiting Runway 6L/24R and crossing Runway 6R/24L. The centerfield taxiway would enable aircraft to taxi and hold between the two runways without penetrating RSA surfaces. The same would be true relative to the ability of most aircraft to taxi and hold between the two runways without penetrating OFZ surfaces for Runways 6L/24R and/or 6R/24L, the exceptions being some ADG V and VI aircraft (B777-300ER, Boeing B747-400ER, B747-8 and A380-800) which would have tail penetrations while taxiing, holding or turning. Increased separation between runways and the centerfield parallel taxiway would reduce the risk of a runway collision or incursion and enhance safety, particularly as related to future operations involving a greater number of ADG V and VI aircraft. Additionally, safety would be improved with the relocated and redesigned runway crossing points along the last third of Runway 6R/24L, which would bring the airfield into compliance with FAA Engineering Brief No. 75. The geometry provided by those same crossing points would enhance pilots' visibility, however, crossing improvements would be more limited than for Alternatives 1, 3, and 5 because large aircraft would not have enough distance to turn and reach the crossing point at a sufficient angle to allow for the pilot of an ADG V or larger aircraft to see down the length of that runway.

The existing north airfield does not provide sufficient areas at the ends of the runways for holding arriving flights and sequencing departing aircraft. As with Alternative 1, proposed improvements to Taxiway E include a 950-foot extension to the east (in conjunction with the easterly extension of Runway 6R/24L) and realigning 2,190 feet of the western end to provide a true parallel alignment. Proposed improvements to Taxilane D would include extending it approximately 5,145 feet west to provide a full-length taxilane and realigning various eastern segments to provide for ADG V separation distance and capability along its entire length. The Taxiway E and Taxilane D eastern and western extensions would provide more aircraft holding areas near the ends of runways, thereby improving the ability of the ATCT to sequence departures. Additionally, maintaining a constant separation distance between Taxiway E and Taxilane D would decrease the potential for aircraft collisions when taxiing on parallel taxiways.

In conjunction with these taxiway/lane improvements, the adjacent vehicle service road would be relocated from between Taxiway E and Taxilane D to the northerly limit of the aircraft parking apron, south of Taxilane D. The service road would be outside the Taxilane D OFA, which would reduce the risk of collision involving vehicles circulating in the airfield and taxiway/taxilane movement areas.

The existing north airfield configuration does not comply with FAA RSA requirements. In addition, residential uses are located with the existing Runway 24R RPZ. The runway improvements proposed under Alternative 6 would modify several existing safety clearance areas, including the RSA and RPZ, as well as the runway OFA and runway OFZ. For Runway 6L/24R, the 100-foot northerly relocation would shift the safety clearance areas accordingly, which, in turn, would require the realignment of Lincoln Boulevard and the covering of the eastern 1,400 feet of the Argo Drainage Channel. Although the RPZs would also shift northward, the establishment of dual displaced landing thresholds would maintain the existing approach RPZ for Runway 6L and would shift the existing approach RPZ for Runway 24R westward by 604 feet. That westward shift would place the RPZ outside of any existing residential development (i.e., residences located east of Runway 24R would no longer be within the RPZ) and outside of the vehicle staging area west of Sepulveda Boulevard. Similarly, the establishment of dual displaced thresholds for Runway 6R/24L would maintain the length of the existing RPZ for Runway 24L even though the runway pavement would be extended eastward. With the combination of the runway improvements (including the easterly extension of Runway 6R/24L and improvements to 6L/24R), associated improvements to Lincoln Boulevard and the Argo Drainage Channel, and establishment of displaced thresholds, the Alternative 6 north airfield configuration would be fully compliant with FAA RSA standards for Runways 6L/24R and 6R/24L, addressing hazards relating to the potential for aircraft to overshoot, undershoot, or experience excursions from the runways.

The Alternative 6 north airfield configuration would provide solutions to many of the problems the LAX Master Plan north airfield reconfiguration was designed to address. However, as noted above, the Alternative 6 north airfield configuration would not meet FAA runway design standards for ADG V aircraft in all weather conditions and would not meet FAA runway design standards for ADG VI aircraft in any

weather conditions. In addition, Alternative 6 would not achieve pilot visibility to the end of the runway for all aircraft as would the approved LAX Master Plan north airfield configuration.

**Provision of Solutions to the Problems the Terminal Reconfiguration Was Designed to Address**

As explained in Chapter 3, implementation of the LAX Master Plan would require substantial portions of Terminals 1, 2, and 3 to be demolished to provide room for the relocation of Runway 6R/24L 340 feet to the south of the existing runway centerline. Alternative 6 would provide solutions to the requirement to accommodate airfield improvements and provide adequate passenger processing capacity without the need to demolish substantial portions of Terminals 1, 2, and 3. As with Alternative 1**,** without the southerly relocation of Runway 6R/24L, there would be no need to demolish the piers/concourses associated with Terminals 1, 2, and 3, with the exception of a small portion of the Terminal 1 concourse. Under Alternative 6, improved passenger processing capacity, concourse area, and aircraft gates would be provided through the development of Terminal 0, replacement of Terminal 3, and the ability to extend the northern end of TBIT and the MSC to the new APLL. This alternative would provide 153 passenger gates, which is consistent with the number of gates provided under the approved LAX Master Plan.

## 6.3.6.6 Security

The SPAS Security Evaluation, provided in Appendix I, assesses the security characteristics of the Alternative 6 airfield and terminal elements in comparison to existing conditions. The SPAS Security Evaluation concluded that Alternative 6 would meet existing and future federal security requirements and security of the improvements would be addressed with appropriate review and implementation of security precautions and measures. A summary of the findings is provided below.

The evaluation found that some components of the Alternative 6 airfield configuration would increase security, some components would reduce security, and others would be neutral. Specifically, with appropriate design, placing a portion of Lincoln Boulevard below grade would enhance security by reducing the "field of fire" for potential attackers using RPGs or firearms. However, locating Runways 6L/24R and 6R/24L and some taxiways closer to the perimeter fence and adjoining public roadways would increase the vulnerability of the airport to low-risk threats. The evaluation identified several measures, including additional video surveillance, intrusion detection measures, additional crash-rated fencing, and increased perimeter patrols, that could be included in the future design of Alternative 6 to maintain an adequate level of security.

Under Alternative 6, Terminal 0 would be located closer to the entry roadway than the existing terminals (i.e., Terminal 1). The SPAS Security Evaluation determined that this could result in a potential decrease in security. However, the evaluation identified measures that could be included in the future design of Alternative 6 to maintain an adequate level of security, including security bollards, curbside inspection for passengers and baggage arriving on shuttles and buses from remote sites that do not have screening capabilities, and additional video surveillance with video analytics and object tracking capabilities.

## 6.3.6.7 Traffic

As noted above, Alternative 6 focuses on airfield and terminal components. The traffic characteristics of this alternative would depend upon the ground access alternative with which it is paired.

## 6.3.6.8 Aviation Activity

Alternative 6 is designed for a practical capacity of 78.9 million annual passengers, with 153 gates, the same number of gates associated with the approved LAX Master Plan. The forecast projects 2,053 peak month average day aircraft operations at buildout of this alternative in 2025.

### 6.3.6.9 Potential Environmental Impacts and Mitigation Measures

A detailed analysis of the potential environmental impacts of Alternative 6 is provided in the SPAS Draft EIR. These impacts are summarized in **Table 6-3**. Mitigation measures that would address the impacts of Alternative 6 are identified in **Table 6-4**. This table includes LAX Master Plan commitments and mitigation measures that are applicable to Alternative 6 as well as new mitigation measures specific to SPAS.

## 6.3.7 Alternative 7

### Overview

Similar to Alternatives 5 and 6, the focus of Alternative 7 is on airfield improvements and associated terminal improvements, as may be compared to such improvements proposed under Alternatives 1 through 4. This alternative is compatible with the ground access improvements associated with Alternatives 1 and 2, as well as the improvements associated with Alternatives 8 and 9. The distinguishing feature of this alternative is the movement of Runway 6R/24L 100 feet south. Similar to Alternative 1, a new centerfield taxiway would be constructed, Runway 6R/24L would be extended, Taxiway E and Taxilane D would be modified/improved, and the service road would be relocated. The southward movement of the runway and associated southerly relocation of Taxiway E and Taxilane D would cause the aircraft taxiway operations area to extend farther south than under Alternatives 1, 2, 5, and 6, which, in turn, would result in comparatively less concourse and/or gate area for Terminal 3, potential TBIT extension, and potential MSC extension. There would be no modifications to the Argo Drainage Channel (other than those required under existing conditions to meet federal RSA requirements) or Lincoln Boulevard under this alternative. The RPZ currently associated with Runway 6L/24R would continue to overlay existing residential uses. This alternative is illustrated in **Figure 6-7**.

### 6.3.7.1 Airfield Facilities

Alternative 7 meets FAA runway design standards for ADG V, with a Category II/III outboard runway (Runway 6L/24R) and Category I inboard runway (Runway 6R/24L). This alternative provides sufficient space between Runway 6R/24L and the centerfield taxiway for ADG V aircraft to hold prior to crossing the runway with approach visibility at or above one-half mile (Category I approaches). Taxiway E dimensions would meet ADG VI standards and Taxilane D dimensions would meet ADG V standards.

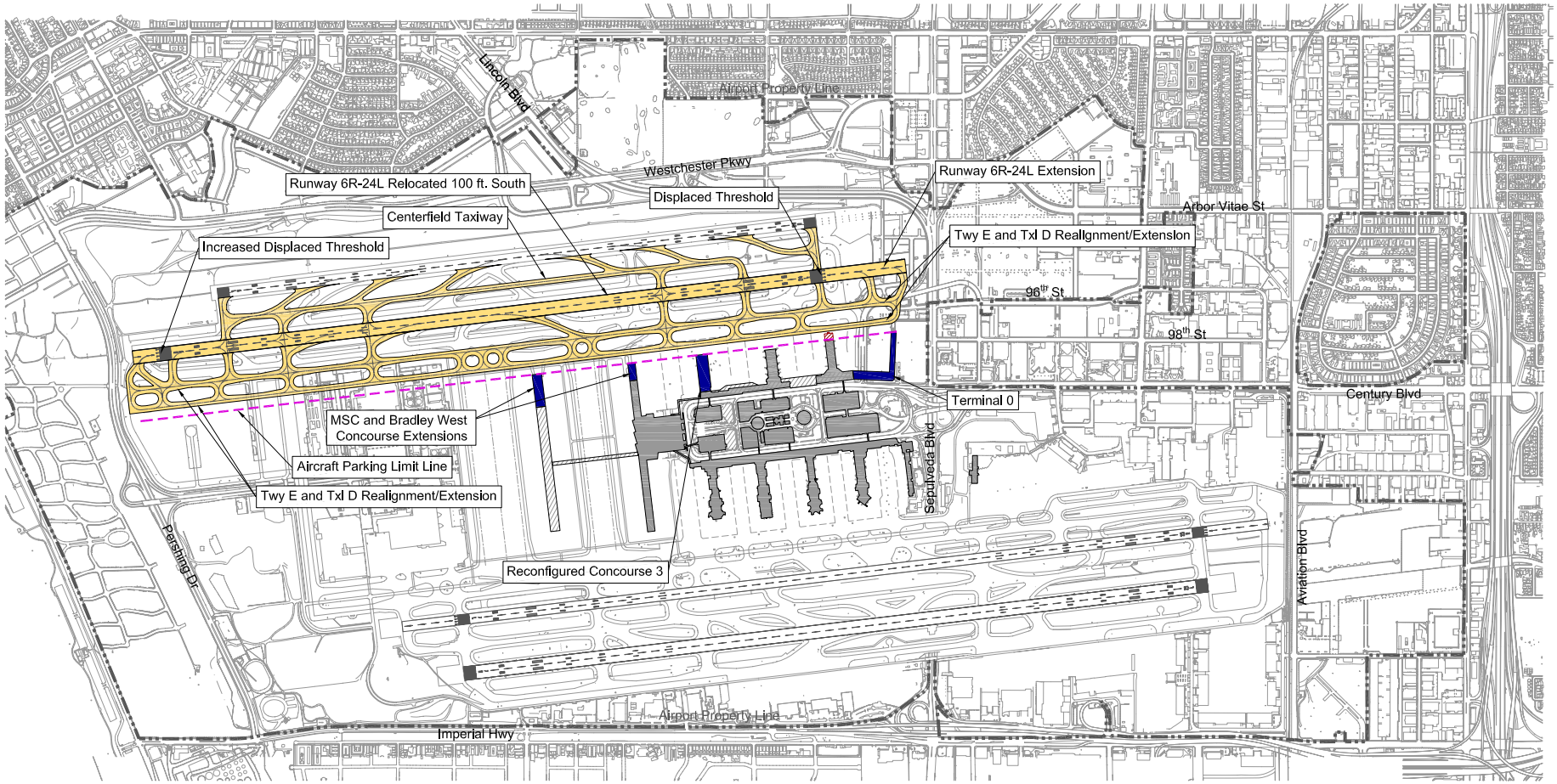
### Runway Modifications

#### Runway 6L/24R

- No relocation, extension, or widening of Runway 6L/24R

#### Runway 6R/24L

- Relocate 100 feet south of current location to accommodate a new centerfield parallel taxiway (see below) and to provide for ADG V separation distances
- Extend 1,250 feet east to meet RSA requirements and maximize aircraft takeoff length
- Shift 6R landing threshold 104 feet east to meet RSA requirements
- Widen to 200 feet to meet FAA standards




Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 7 | Figure 6-7 |
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**Taxiway Modifications**

### Centerfield Taxiway

- Construct an 82-foot-wide centerfield taxiway between Runways 6L/24R and 6R/24L, with a centerline separation distance of 400 feet to each runway, to enhance safety and reduce incursions and other airfield hazards, while providing for ADG V separation distances; also provide exit taxiways from Runway 6L/24R to the centerfield taxiway, taxiways from the centerfield taxiway to and across Runway 6R/24L, and other related airfield taxiway improvements

### Taxiway E

- Relocate varying distances (ranging from 150 to 214 feet) south to provide ADG VI runway-to-taxiway separation distances
- Extend 950 feet east to support easterly extension of Runway 6R/24L and to provide additional hold area for departing aircraft

### Taxilane D

- Relocate varying distances (ranging from 119 to 185 feet) south to provide ADG VI taxiway-to-ADG V taxilane separation distances
- Extend 650 feet east to support easterly extension of Runway 6R/24L and 5,145 feet west to provide for dual full-length taxiways in the north airfield

**Other Airfield-Related Features**

- Relocate the service road that currently lies between Taxiway E and Taxilane D to a location south of Taxilane D to increase the separation between the two taxiways to allow for simultaneous operations with larger aircraft than currently accommodated and meet FAA standards
- Taxiway E dimensions would meet ADG VI standards and Taxilane D dimensions would meet ADG V standards
- The APLL would move south to a location 1,052 feet south of the existing Runway 6R/24L centerline (952 feet south of the future Runway 6R/24L centerline)
- Existing RPZ for Runway 6L/24R, which includes residential uses, would remain

## 6.3.7.2 Terminal Facilities

Proposed modifications to terminal facilities, including aircraft gates, under Alternative 7 would include the following:

- The basic features associated with the terminal components of this alternative would be the same as Alternative 1. However, due to the more southerly APLL, the northerly building limits and/or gating area associated with Terminal 3, TBIT concourse potential extension, and MSC potential extension would be more southerly than under Alternative 1.
- As a result of moving the APLL south to meet ADG VI standards, several gates would be eliminated
- The commuter facility currently in use east of Sepulveda Boulevard would be maintained
- All of the west remote gates would be eliminated
- The total number of gates used at LAX for scheduled passenger service would be 153

## 6.3.7.3 Ground Access Facilities

Alternative 7 focuses on airfield and terminal components. This alternative is compatible with the ground access improvements associated with Alternatives 1, 2, 8, and 9.

### 6.3.7.4 Elimination of Master Plan Components

Under this alternative, the following non-Yellow Light terminal project approved as part of the LAX Master Plan would be partially eliminated. (Since this alternative focuses on airfield and terminal components, non-Yellow Light Project ground access components are not considered under this alternative, but rather would be reflected in whichever other alternative that Alternative 7 is paired with - see explanation provided previously in this section.)

- Demolition of all CTA parking structures and replacement with passenger terminals

### 6.3.7.5 Provision of Solutions to the Problems the Yellow Light Projects were Designed to Address

As noted above, Alternative 7 focuses on airfield and terminal components. This alternative would not provide solutions to the problems the ground transportation-related Yellow Light Projects of the LAX Master Plan (i.e., the GTC and APM 2) were designed to address. Instead, the ability of this alternative to provide solutions to these problems would depend upon the ground access alternative with which it is paired.

#### Provision of Solutions to the Problems the North Airfield Reconfiguration Was Designed to Address

As explained in Chapter 3, LAX does not currently have an airfield that is fully designed for ADG V and VI aircraft (e.g., the Boeing 747-400 and the Airbus A380, respectively). The configuration of the north airfield runways under Alternative 7 would meet FAA runway design standards for ADG V aircraft in certain visibility conditions, but not ADG VI aircraft. More specifically, the separation distance between Runway 6L/24R and the centerfield taxiway would accommodate ADG V aircraft in good visibility conditions, but not in instances when visibility is less than half a mile. Alternative 7 would permit the standardized operation of ADG V aircraft only in good visibility conditions, and would only permit ADG VI operations with non-standard operating conditions. This is an improvement over current airfield operating conditions, but would not permit the standardized operation of ADG V and VI aircraft in all visibility conditions.

The existing north airfield configuration requires non-standard operating procedures, which are not optimal for safety and increase aircraft delay. Alternative 7 would reduce the non-standard operating procedures on the north airfield associated with ADG V aircraft although certain aspects of Alternative 7 would require an MOS from the FAA. Specifically, with the airfield dimensions provided by Alternative 7, all ADG VI aircraft operating on the airfield during any weather conditions would be required to follow non-standard operating procedures, as would ADG V aircraft during poor visibility conditions. In such cases, air traffic control would restrict the movement of other aircraft on the airfield when a restricted aircraft is transitioning from arriving on Runway 6L/24R until the aircraft crosses and clears Runway 6R/24L.

Alternative 7 addresses the limited length of Runway 6R/24L, which restricts the ability of certain large aircraft from utilizing it for departure when fully loaded, by extending the runway by 1,250 feet. With the extension of this runway, more departing aircraft would be able to use the north airfield, thereby reducing the number of aircraft taxiing to the south airfield and increasing the efficiency of airfield operations at LAX.

The outdated airfield design creates a situation where aircraft are at increased risks to hazards. Alternative 7 contains several features designed to reduce airfield hazards. Implementation of Alternative 7 would increase the separation distance between Runways 6L/24R and 6R/24L from 700 feet to 800 feet. The increased separation would enable the addition of a centerfield parallel taxiway that connects to reconfigured high-speed exits from Runway 6L/24R, providing more time and options for FAA air traffic controllers to manage aircraft exiting Runway 6L/24R and crossing Runway 6R/24L. The centerfield taxiway would enable aircraft to taxi and hold between the two runways without penetrating RSA surfaces. The same would be true relative to the ability of most aircraft to taxi and hold between the two

runways without penetrating OFZ surfaces for Runways 6L/24R and/or 6R/24L, the exceptions being some ADG V and VI aircraft (B777-300ER, Boeing B747-400ER, B747-8 and A380-800) which would have tail penetrations while taxiing, holding or turning. Increased separation between runways and the centerfield parallel taxiway would reduce the risk of a runway collision or incursion and enhance safety, particularly as related to future operations involving a greater number of ADG V and VI aircraft. Additionally, safety would be improved with the relocated and redesigned runway crossing points along the last third of Runway 6R/24L, which would bring the airfield into compliance with FAA Engineering Brief No. 75. The geometry provided by those same crossing points would enhance pilots' visibility, however, crossing improvements would be more limited than for Alternatives 1, 3, and 5 because large aircraft would not have enough distance to turn and reach the crossing point at a sufficient angle to allow for the pilot of an ADG V or larger aircraft to see down the length of that runway.

The existing north airfield does not provide sufficient areas at the ends of the runways for holding arriving flights and sequencing departing aircraft. Proposed improvements to Taxiway E include relocation south and a 950-foot extension to the east (in conjunction with the easterly extension of Runway 6R/24L). Proposed improvements to Taxilane D would include relocation south and a 5,145-foot extension to the west to provide a full-length taxilane. The Taxiway E and Taxilane D design would accommodate ADG VI aircraft on Taxiway E and ADG V aircraft on Taxilane D. The Taxiway E and Taxilane D eastern and western extensions would provide more aircraft holding areas near the ends of runways, thereby improving the ability of the ATCT to sequence departures. Additionally, maintaining a constant separation distance between Taxiway E and Taxilane D would decrease the potential for aircraft collisions when taxiing on parallel taxiways.

In conjunction with these taxiway/lane improvements, the adjacent vehicle service road would be relocated from between Taxiway E and Taxilane D to the northerly limit of the aircraft parking apron, south of Taxilane D. The service road would be outside the Taxilane D OFA, which would reduce the risk of collision involving vehicles circulating in the airfield and taxiway/taxilane movement areas.

The existing north airfield configuration does not comply with FAA RSA requirements. In addition, residential uses are located with the existing Runway 24R RPZ. The runway improvements proposed under Alternative 7 would modify some of the existing safety clearance areas, but would not change the RPZ for Runway 24R. With the easterly extension of Runway 6R/24L, establishment of displaced thresholds on this runway, and improvements to the Argo Drainage Channel (which would occur independently of SPAS), the Alternative 7 north airfield configuration would be fully compliant with FAA RSA standards for Runways 6L/24R and 6R/24L, addressing hazards relating to the potential for aircraft to overshoot, undershoot, or experience excursions from the runways.

The Alternative 7 north airfield configuration would provide solutions to many of the problems the LAX Master Plan north airfield reconfiguration was designed to address. However, as noted above, the Alternative 7 north airfield configuration would not meet FAA airport runway standards for ADG V aircraft in all weather conditions and would not meet FAA runway design standards for ADG VI aircraft in any weather conditions. In addition, Alternative 7 would not achieve pilot visibility to the end of the runway for all aircraft as would the approved LAX Master Plan north airfield configuration. This alternative would not modify the Runway 24R RPZ and, therefore, residences would continue to be located within the RPZ.

## Provision of Solutions to the Problems the Terminal Reconfiguration Was Designed to Address

As explained in Chapter 3, implementation of the LAX Master Plan would require substantial portions of Terminals 1, 2, and 3 to be demolished to provide room for the relocation of Runway 6R/24L 340 feet to the south of the existing runway centerline. Alternative 7 would provide solutions to the requirement to accommodate airfield improvements and provide adequate passenger processing capacity without the need to demolish substantial portions of Terminals 1, 2, and 3. With a lesser southerly relocation of Runway 6R/24L as compared to the LAX Master Plan (100 feet versus 340 feet), there would be no need to demolish the piers/concourses associated with Terminals 1, 2, and 3, with the exception of a small portion of the Terminal 1 concourse. Under Alternative 7, additional passenger processing capacity,

concourse area, and aircraft gates would be provided through the addition of Terminal 0, the replacement of Terminal 3, and the ability to extend the northern end of TBIT and the MSC to the new APLL. This alternative would provide 153 passenger gates, which is consistent with the number of gates provided under the approved LAX Master Plan.

### 6.3.7.6 Security

The SPAS Security Evaluation, provided in Appendix I, assesses the security characteristics of the Alternative 7 airfield and terminal elements in comparison to existing conditions. The SPAS Security Evaluation concluded that Alternative 7 would meet existing and future federal security requirements and security of the improvements would be addressed with appropriate review and implementation of security precautions and measures. A summary of the findings is provided below.

The evaluation found that some components of the Alternative 7 airfield configuration would decrease security and other components would be neutral. Specifically, the easterly and westerly extensions of Runway 6R/24L would decrease security by decreasing the setback distance between the runway and perimeter roads. The evaluation identified several measures, including additional video surveillance, intrusion detection measures, additional crash-rated fencing, and increased perimeter patrols, that could be included in the future design of Alternative 7 to maintain an adequate level of security.

Under Alternative 7, Terminal 0 would be located closer to the entry roadway than the existing terminals (i.e., Terminal 1). The SPAS Security Evaluation determined that this could result in a potential decrease in security. However, the evaluation identified measures that could be included in the future design of Alternative 7 to maintain an adequate level of security, including security bollards, curbside inspection for passengers and baggage arriving on shuttles and buses from remote sites that do not have screening capabilities, and additional video surveillance with video analytics and object tracking capabilities.

### 6.3.7.7 Traffic

As noted above, Alternative 7 focuses on airfield and terminal components. The traffic characteristics of this alternative would depend upon the ground access alternative with which it is paired.

### 6.3.7.8 Aviation Activity

Alternative 7 is designed for a practical capacity of 78.9 million annual passengers, with 153 gates, the same number of gates associated with the approved LAX Master Plan. The forecast projects 2,053 peak month average day aircraft operations at buildout of this alternative in 2025.

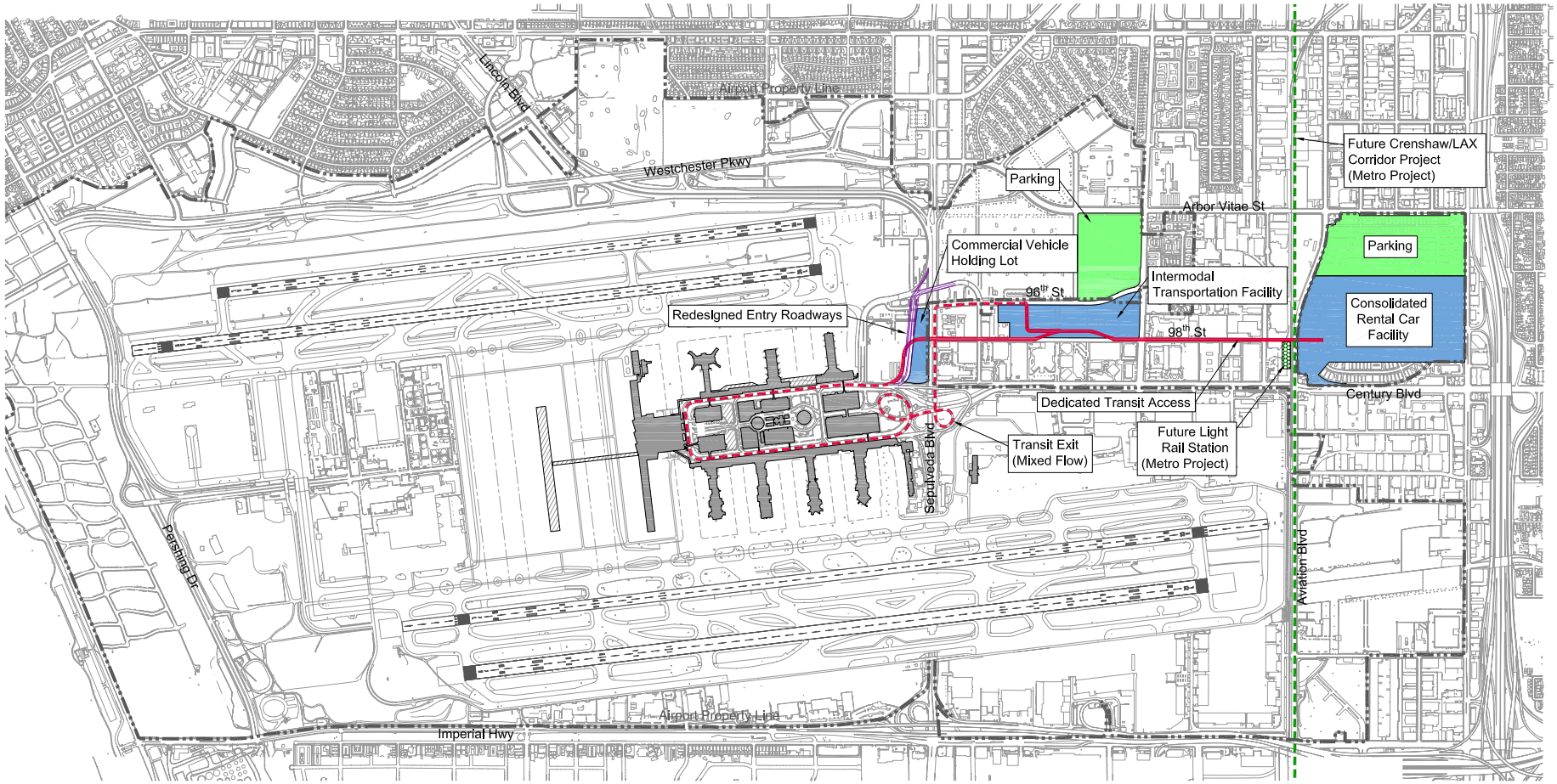
### 6.3.7.9 Potential Environmental Impacts and Mitigation Measures

A detailed analysis of the potential environmental impacts of Alternative 7 is provided in the SPAS Draft EIR. These impacts are summarized in **Table 6-3**. Mitigation measures that would address the impacts of Alternative 7 are identified in **Table 6-4**. This table includes LAX Master Plan commitments and mitigation measures that are applicable to Alternative 7 as well as new mitigation measures specific to SPAS.

## 6.3.8 Alternative 8

### Overview

Alternative 8 includes ground access improvements that could be integrated in place of the improvements proposed under Alternatives 1 through 4. This alternative is compatible with the airfield and terminal improvements associated with Alternatives 1, 2, 5, 6, and 7. The distinguishing feature of this alternative is the development of a CONRAC in addition to parking at Manchester Square, and the development of parking at the Avis facility (east of Parking Lot C). All other ground access aspects of this alternative are comparable to those of Alternatives 1 and 2, with the exception of the realignment of Lincoln Boulevard, which is only associated with the airfield improvement alternatives. This alternative is illustrated in **Figure 6-8**.




north

Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 8 | Figure 6-8 |
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### 6.3.8.1 Airfield Facilities

Alternative 8 focuses on ground access and parking components. This alternative is compatible with the airfield improvements associated with Alternatives 1, 2, 5, 6, and 7.

### 6.3.8.2 Terminal Facilities

Alternative 8 focuses on ground access and parking components. This alternative is compatible with the terminal improvements associated with Alternatives 1, 2, 5, 6, and 7.

### 6.3.8.3 Ground Access Facilities

#### Ground Access

- Maintain private vehicle access to the CTA
- Improvements associated with Sky Way, curbside at Terminal 0, the relocated commercial vehicle holding lot, and the new ITF are the same as Alternative 1
- Construct a CONRAC in a portion of Manchester Square, including a customer service area and a structured parking facility to accommodate approximately 1,000 stalls for quick turn-around and 5,800 stalls for ready return. Additional surface parking would be constructed to accommodate a portion of the total demand for staging and storage of rental vehicles by the various operators.
- Construct a dedicated busway between Manchester Square and the CTA, primarily using the 98th Street corridor, with a stop at the new ITF. The busway would have the same features as Alternative 1.
- Provide connectivity to public transit via the LAX dedicated busway, with the same features as Alternative 1

#### Parking

- Parking associated with the CTA, Parking Lots C, D, and E, the Jenny lot, and the ITF would be the same as Alternative 1
- Construct approximately 2,750 employee parking spaces in the existing Avis rental car lot
- Construct approximately 4,200 public parking spaces in a portion of Manchester Square
- No public or employee parking is proposed for the area referred to as Continental City
- The existing Park One parking would be eliminated
- The West Employee Parking facility would not be constructed

### 6.3.8.4 Elimination of Master Plan Components

Under this alternative, the following non-Yellow Light projects approved as part of the LAX Master Plan would be eliminated. (Since this alternative focuses on ground access components, non-Yellow Light Project terminal components are not considered under this alternative, but rather would be reflected in whichever other alternative Alternative 8 is paired with - see explanation provided previously in this section.)

- West Employee Parking facility
- CONRAC in Parking Lot C (would be developed in Manchester Square instead)
- Reconfiguration and expansion of Parking Lot E north of 111th Street
- ITC in the area referred to as Continental City
- APM 1 between ITC, CONRAC, and CTA

### 6.3.8.5 Provision of Solutions to the Problems the Yellow Light Projects were Designed to Address

As noted above, Alternative 8 focuses on ground access components. This alternative would not provide solutions to the problems the airfield and terminal-related Yellow Light Projects of the LAX Master Plan were designed to address. Instead, the ability of this alternative to provide solutions to these problems would depend upon the airfield/terminal alternative with which it is paired.

#### Provision of Solutions to the Problems the Ground Transportation Center and APM 2 Were Designed to Address

As explained in Chapter 3, the function of the GTC under the existing LAX Master Plan is to replace CTA curb front for passenger drop off and pick up and to replace a portion of the private vehicle parking area and all of the commercial vehicle staging area. The role of APM 2 is to provide a connection between the planned GTC and the CTA. Alternative 8 would address the existing ground access problems by retaining and enhancing the CTA roadways and curb front, and supplementing these facilities with new parking and ground transportation facilities located outside the CTA.

The GTC was designed to address a number of problems associated with the CTA roadway system, as discussed in Chapter 3. The CTA roadway system design currently creates queuing, weaving, and conflict points at various locations that impede traffic flow. In addition, during peak travel times, inbound airport traffic currently extends out of the CTA roadways onto public streets, and curbside demand is unevenly distributed and does not accommodate demand, especially during peak periods. Moreover, as cumulative regional traffic increases, there will be less time certainty for airport users without easy access to the airport from the regional transit system, and the roadway system is not designed to efficiently accommodate security screening of vehicles entering the CTA. Alternative 8 includes the realignment of Sky Way, a primary mode of access for airport users seeking to access the CTA from the north and from the 98th Street Bridge. The change in design is intended to ease the queuing at Terminal 1 caused, in part, by the close proximity of the intersection of Sky Way and World Way North to Terminal 1. The reconfiguration would provide additional curb front for Terminal 0 and could also allow for the set aside of additional space for screening checkpoints, currently implemented by LAWA police with temporary facilities.

Alternative 8 also creates new facilities outside of the CTA with the aim of reducing traffic and curbside congestion in the CTA. The new ITF would provide public parking, remote passenger pick up/drop off, and would be the primary airport access point for some door-to-door shuttles or scheduled buses. A CONRAC and parking would also be provided at Manchester Square. These facilities would be connected to the CTA via a grade-separated, dedicated busway. Additionally, the dedicated busway would provide an improved connection to public transit through an integrated facility with the new Metro transit station at Century and Aviation Boulevards, and connectivity to the existing bus facility in the vicinity of Lot C. Together, these ground access facilities would provide alternative airport access for passengers, thereby reducing traffic volumes within the CTA. A detailed discussion of the performance of the on-airport roadway system under Alternative 8 is provided in Chapter 4.12.1, *On-Airport Transportation*, of the SPAS EIR.

Alternative 8 would provide solutions to the problems posed by the existing CTA without the need to restrict access to the CTA and replace the functions of the CTA with a GTC and associated APM.

### 6.3.8.6 Security

The SPAS Security Evaluation, provided in Appendix I, assesses the security characteristics of the Alternative 8 ground access elements in comparison to existing conditions. The SPAS Security Evaluation concluded that Alternative 8 would meet existing and future federal security requirements and security of the improvements would be addressed with appropriate review and implementation of security precautions and measures. A summary of the findings is provided below.

The evaluation found that some components of the Alternative 8 ground access configuration would increase security and some components would be neutral. Specifically, the SPAS Security Evaluation determined that the addition of new ground access improvements outside the CTA, including the ITF, CONRAC, remote parking, and dedicated busway, would reduce vulnerability and increase security by decreasing the number of vehicles entering the CTA. The SPAS Security Evaluation determined that security could be further increased in the future design of Alternative 8 by implementation of screening measures for passengers and baggage, vehicle inspection measures at the ITF and CONRAC including under-vehicle inspection, additional video surveillance, and physical protections at the ITF and CONRAC including vehicle barriers and bollards, and blast suppression films on exposed glass surfaces. Security could also be further enhanced by using in-road traffic calming measures to control traffic entering the CTA and using video surveillance at parking facilities.

### 6.3.8.7 Traffic

As noted above, the primary traffic characteristics associated with Alternative 8 include maintaining public and private vehicle access to the CTA, and providing new ground access facilities outside of the CTA to reduce congestion within the CTA. The new ground access facilities would include an ITC, a CONRAC in a portion of Manchester Square, remote parking in Manchester Square and in the Avis rental car lot, and a dedicated busway linking these facilities to the CTA. This alternative includes connectivity with regional transit through connection of the dedicated busway to the planned Metro transit station at Aviation and Century Boulevards.

As detailed in Section 4.12.1, *On-Airport Transportation*, and Section 4.12.2, *Off-Airport Transportation*, of the Draft EIR, and summarized below, traffic associated with the implementation of Alternative 8 would result in significant impacts to roadway links an intersection within the CTA, and to off-airport intersections and Los Angeles County Congestion Management Plan (CMP) facilities, including an arterial monitoring intersection and freeway monitoring stations. In part, these operational impacts would result from the increase in airport-related trips associated with the projected increase in passenger activity levels at LAX. The increase in passenger activity levels is anticipated to occur irrespective of the SPAS alternatives as is a result of the natural growth in passenger activity.

When evaluating the impacts from the physical improvements associated with Alternative 8 compared to baseline conditions, Alternative 8 would have fewer significant impacts to off-airport intersections after mitigation than would occur with implementation of the LAX Master Plan. Specifically, Alternative 8 would result in only 2 significantly-impacted intersections compared to 11 under Alternative 3, which represents implementation of the LAX Master Plan, and the same number of significant impacts as Alternative 4, which represents future conditions with minimal changes in the ground access system. When considering future (2025) airport growth and regional background traffic, Alternative 8 would have greater significant off-airport intersection impacts after mitigation than would occur with Alternatives 1, 2, 3 or 4, with impacts to 44 intersections as compared to 37 intersections under Alternative 3, 39 intersections under Alternatives 1 and 2, and 40 intersections under Alternative 4.

### 6.3.8.8 Aviation Activity

As noted above, Alternative 8 focuses on ground access components. All of the SPAS alternatives would accommodate the same level of aviation activity--specifically, 78.9 million annual passengers and 2,053 peak month average day aircraft operations in 2025--regardless of the airfield/terminal alternative with which Alternative 8 is paired.

### 6.3.8.9 Potential Environmental Impacts and Mitigation Measures

A detailed analysis of the potential environmental impacts of Alternative 8 is provided in the SPAS Draft EIR. These impacts are summarized in **Table 6-3**. Mitigation measures that would address the impacts of Alternative 8 are identified in **Table 6-4**. This table includes LAX Master Plan commitments and mitigation measures that are applicable to Alternative 8 as well as new mitigation measures specific to SPAS.

## 6.3.9 Alternative 9

### Overview

Similar to Alternative 8, Alternative 9 includes ground access improvements that could be integrated in place of the improvements proposed under Alternatives 1 through 4. This alternative is compatible with the airfield and terminal improvements associated with Alternatives 1, 2, 5, 6, and 7. The distinguishing features of this alternative are the development of an APM system, instead of a busway, along 98th Street, and development of a CONRAC in addition to parking at Manchester Square. The APM would be located within an elevated/dedicated corridor on the same alignment as the busway under the other alternatives. Within the CTA, the APM would be located on a new elevated guideway. All other ground access aspects of this alternative are comparable to those of Alternatives 1 and 2, with the exception of the realignment of Lincoln Boulevard, which is only associated with the airfield improvement alternatives. This alternative is illustrated in **Figure 6-9**.

## 6.3.9.1 Airfield Facilities

Alternative 9 focuses on ground access and parking components. This alternative is compatible with the airfield improvements associated with Alternatives 1, 2, 5, 6, and 7.

## 6.3.9.2 Terminal Facilities

Alternative 9 focuses on ground access and parking components. This alternative is compatible with the terminal improvements associated with Alternatives 1, 2, 5, 6, and 7.

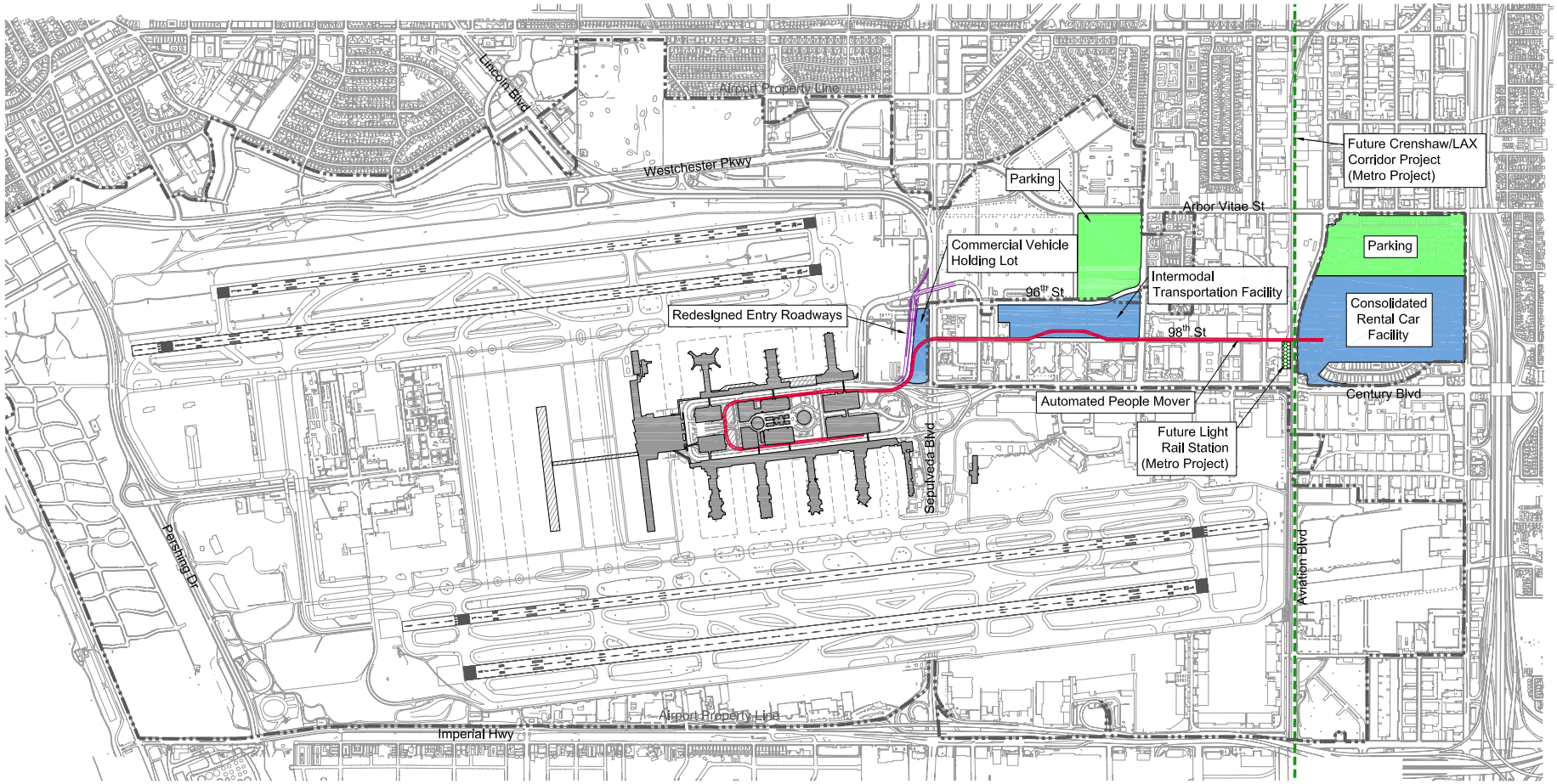
## 6.3.9.3 Ground Access Facilities

### Ground Access

- The ground access facilities associated with this alternative would be the same as Alternative 8, with the exception of the busway between Manchester Square and the CTA, which would be an APM instead
- Construct an elevated APM between Manchester Square and the CTA, primarily using the 98th Street corridor, including a bridge over Sepulveda Boulevard and stops at the future Metro LAX/Crenshaw Light Rail Transit Station at/near Century and Aviation Boulevards and the new ITF. Within the CTA, the APM would be located on an elevated guideway above the upper level roadway, existing parking structures, or Center Way. The number of stations in the CTA has yet to be determined but could range from 3 to 5.
- An APM maintenance facility would be constructed, likely in Manchester Square

### Parking

- The parking components of this alternative would be the same as Alternative 8




Source: Ricondo & Associates, Inc., 2012.
Prepared by: CDM Smith, 2012.

| LAX Specific Plan Amendment Study Report | Alternative 9 | Figure 6-9 |
|---|---|---|

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### 6.3.9.4 Elimination of Master Plan Components

Under this alternative, the following non-Yellow Light projects approved as part of the LAX Master Plan would be eliminated. (Since this alternative focuses on ground access components, non-Yellow Light Project terminal components are not considered under this alternative, but rather would be reflected in whichever other alternative Alternative 9 is paired with - see explanation provided previously in this section.)

- West Employee Parking facility
- CONRAC in Parking Lot C (would be developed in Manchester Square instead)
- Reconfiguration and expansion of Parking Lot E north of 111th Street
- ITC in the area referred to as Continental City
- APM 1 between ITC, CONRAC, and CTA

### 6.3.9.5 Provision of Solutions to the Problems the Yellow Light Projects were Designed to Address

As noted above, Alternative 9 focuses on ground access components. This alternative would not provide solutions to the problems the airfield and terminal-related Yellow Light Projects of the LAX Master Plan were designed to address. Instead, the ability of this alternative to provide solutions to these problems would depend upon the airfield/terminal alternative with which it is paired.

#### Provision of Solutions to the Problems the Ground Transportation Center and APM 2 Were Designed to Address

As explained in Chapter 3, the function of the GTC under the existing LAX Master Plan is to replace CTA curb front for passenger drop off and pick up and to replace a portion of the private vehicle parking area and all of the commercial vehicle staging area. The role of APM 2 is to provide a connection between the planned GTC and the CTA. Alternative 9 would address the existing ground access problems by retaining and enhancing the CTA roadways and curb front, and supplementing these facilities with new parking and ground transportation facilities located outside the CTA.

The GTC was designed to address a number of problems associated with the CTA roadway system, as discussed in Chapter 3. The CTA roadway system design currently creates queuing, weaving, and conflict points at various locations that impede traffic flow. In addition, during peak travel times, inbound airport traffic currently extends out of the CTA roadways onto public streets, and curbside demand is unevenly distributed and does not accommodate demand, especially during peak periods. Moreover, as cumulative regional traffic increases, there will be less time certainty for airport users without easy access to the airport from the regional transit system, and the roadway system is not designed to efficiently accommodate security screening of vehicles entering the CTA. Alternative 9 includes the realignment of Sky Way, a primary mode of access for airport users seeking to access the CTA from the north and from the 98th Street Bridge. The change in design is intended to ease the queuing at Terminal 1 caused, in part, by the close proximity of the intersection of Sky Way and World Way North to Terminal 1. The reconfiguration would provide additional curb front for Terminal 0 and could also allow for the set aside of additional space for screening checkpoints, currently implemented by LAWA police with temporary facilities.

Alternative 9 also creates new facilities outside of the CTA with the aim of reducing traffic and curbside congestion in the CTA. The new ITF would provide public parking, remote passenger pick up/drop off, and would be the primary airport access point for some door-to-door shuttles or scheduled buses. A CONRAC and parking would also be provided at Manchester Square. These facilities would be connected to the CTA via an APM. (The APM associated with Alternative 9 is not the same as the Yellow Light APM in the LAX Master Plan.) Additionally, the APM would provide an improved connection to public transit through an integrated facility with the new Metro transit station at Century and Aviation

Boulevards, and connectivity to the existing bus facility in the vicinity of Lot C. Together, these ground access facilities would provide alternative airport access for passengers, thereby reducing traffic volumes within the CTA. A detailed discussion of the performance of the on-airport roadway system under Alternative 9 is provided in Chapter 4.12.1, *On-Airport Transportation*, of the SPAS EIR.

Alternative 9 would provide solutions to the problems posed by the existing CTA without the need to restrict access to the CTA and replace the functions of the CTA with a GTC and associated APM.

### 6.3.9.6 Security

The SPAS Security Evaluation, provided in Appendix I, assesses the security characteristics of the Alternative 9 ground access elements in comparison to existing conditions. The SPAS Security Evaluation concluded that Alternative 9 would meet existing and future federal security requirements and security of the improvements would be addressed with appropriate review and implementation of security precautions and measures. A summary of the findings is provided below.

The evaluation found that some components of the Alternative 9 ground access configuration would increase security and some components would be neutral. Specifically, the SPAS Security Evaluation determined that the addition of new ground access improvements outside the CTA, including the ITF, CONRAC, remote parking, and APM, would reduce vulnerability and increase security by decreasing the number of vehicles entering the CTA. The SPAS Security Evaluation determined that security could be further increased in the future design of Alternative 9 by implementation of screening measures for passengers and baggage, vehicle inspection measures at the ITF and CONRAC including under-vehicle inspection, additional video surveillance, and physical protections at the ITF and CONRAC including vehicle barriers and bollards, and blast suppression films on exposed glass surfaces. Security could also be further enhanced by using in-road traffic calming measures to control traffic entering the CTA and using video surveillance at parking facilities.

### 6.3.9.7 Traffic

As noted above, the primary traffic characteristics associated with Alternative 9 include maintaining public and private vehicle access to the CTA, and providing new ground access facilities outside of the CTA to reduce congestion within the CTA. The new ground access facilities would include an ITC, a CONRAC in a portion of Manchester Square, remote parking in Manchester Square and in the Avis rental car lot, and an APM linking these facilities to the CTA. This alternative includes connectivity with regional rail through connection of the APM to the planned Metro transit station at Aviation and Century Boulevards.

As detailed in Section 4.12.1, *On-Airport Transportation*, and Section 4.12.2, *Off-Airport Transportation*, of the Draft EIR, and summarized below, traffic associated with the implementation of Alternative 9 would result in significant impacts to a roadway link and an intersection within the CTA, and to off-airport intersections and Los Angeles County Congestion Management Plan (CMP) facilities, including an arterial monitoring intersection and freeway monitoring stations. In part, these operational impacts would result from the increase in airport-related trips associated with the projected increase in passenger activity levels at LAX. The increase in passenger activity levels is anticipated to occur irrespective of the SPAS alternatives as is a result of the natural growth in passenger activity.

When evaluating the impacts from the physical improvements associated with Alternative 9 compared to baseline conditions, Alternative 9 would have fewer significant impacts to off-airport intersections after mitigation than would occur with implementation of the LAX Master Plan. Specifically, Alternative 9 would result in only 2 significantly-impacted intersections compared to 11 under Alternative 3, which represents implementation of the LAX Master Plan, and the same number of significant impacts as Alternative 4, which represents future conditions with minimal changes in the ground access system. When considering future (2025) airport growth and regional background traffic, Alternative 9 would have greater significant off-airport intersection impacts after mitigation than would occur with Alternatives 1, 2, 3 or 4, with impacts to 44 intersections as compared to 37 intersections under Alternative 3, 39 intersections under Alternatives 1 and 2, and 40 intersections under Alternative 4.

### 6.3.9.8 Aviation Activity

As noted above, Alternative 9 focuses on ground access components. All of the SPAS alternatives would accommodate the same level of aviation activity--specifically, 78.9 million annual passengers and 2,053 peak month average day aircraft operations in 2025--regardless of the airfield/terminal alternative with which Alternative 9 is paired.

### 6.3.9.9 Potential Environmental Impacts and Mitigation Measures

A detailed analysis of the potential environmental impacts of Alternative 9 is provided in the SPAS Draft EIR. These impacts are summarized in **Table 6-3**. Mitigation measures that would address the impacts of Alternative 9 are identified in **Table 6-4**. This table includes LAX Master Plan commitments and mitigation measures that are applicable to Alternative 9 as well as new mitigation measures specific to SPAS.

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# 7. LAX SPECIFIC PLAN AMENDMENTS

As set forth below, LAWA has identified potential LAX Specific Plan amendments that plan for the modernization and improvement of LAX in a manner that is designed for a practical capacity of 78.9 million annual passengers (MAP) while enhancing safety and security, minimizing environmental impacts on the surrounding communities, and creating conditions that encourage airlines to go to other airports in the region, particularly those owned and operated by LAWA.

## 7.1 LAX Specific Plan Section 7.H Amendments

As discussed in detail in Chapter 6, *SPAS Alternative Projects*, in conjunction with potential LAX Specific Plan amendments arising from the physical and operational configurations of SPAS Alternatives 1 through 9, this SPAS considers a potential amendment to Section 7.H. The following amendments, applicable to all SPAS alternatives, would revise existing LAX Specific Plan Section 7.H to (a) delete Specific Plan Amendment Study requirements satisfied by this LAX Specific Plan Amendment Study and (b) add a Passenger and Airline Market survey and study requirement when the annual aviation activity analysis required in LAX Specific Plan Subsection 7.G(1) forecasts that passengers at LAX for that year are anticipated to exceed 75 million.

LAX Specific Plan Section 7.H (as previously amended by Ordinance No. 179,148) currently requires LAWA to initiate an LAX Specific Plan Amendment Study in three circumstances. It states:

> "H. Specific Plan Amendment Study. LAWA shall initiate a complete LAX Specific Plan Amendment Study comprehensively addressing security, traffic, aviation activity and corresponding environmental analysis consistent with CEQA, in the following three circumstances:
>
> 1. Prior to seeking an LAX Plan Compliance determination for any one of the following projects:
>
>    (a) Development of the Ground Transportation Center, including baggage tunnel, associated structures and equipment;
>
>    (b) APM 2 from GTC to CTA, including its stations and related facilities and equipment;
>
>    (c) Demolition of CTA Terminals 1, 2 and 3;
>
>    (d) North Runway re-configuration as contemplated in the Master Plan, including center taxiways; and
>
>    (e) On-site road improvements associated only with (a) and (b) above.
>
> 2. If the annual traffic generation report required in Subsection G.1 above, and/or the annual traffic generation report considered together with any project-specific traffic study, shows that any Master Plan Projects will be generating net new airport peak hour Trips in excess of 8,236 (unless the total Trips for that year are related to construction or phasing impacts).
>
> 3. If the annual aviation activity analysis required in Subsection G.1 above forecasts that the annual passengers for that year are anticipated to exceed 78.9 million."

LAWA's current Specific Plan Amendment Study satisfies Subsection 7.H(1). Subsection 7.H(1) and related text would, therefore, be deleted. The remaining triggers to conduct a specific plan amendment study (currently contained in Subsections 7.H(2) and 7.H(3)) would be renumbered and the introductory text correspondingly revised and folded into a newly formatted Subsection 7.H(1) titled "Specific Plan

Amendment Study." A new subsection -- 7.H(2) -- would be inserted requiring LAWA to initiate a Domestic Passenger and Airline Market Survey and Study triggered upon LAX reaching 75 MAP.[48]

The revised Section 7.H would state:

"H. Additional Study Requirements.

1. Specific Plan Amendment Study. LAWA shall initiate a Specific Plan Amendment Study with corresponding environmental analysis in compliance with CEQA, in the following two circumstances:

(a) If the annual traffic generation report required in Section G.1 above, and/or the annual traffic generation report considered together with any project-specific traffic study, shows that any Master Plan Projects will be generating net new airport peak hour Trips in excess of 8,236 (unless the total Trips for that year are related to construction or phasing impacts).

(b) If the annual aviation activity analysis required in Section G.1 above forecasts that the annual passengers for that year are anticipated to exceed 78.9 million.

2. LAX Domestic Passenger and Airline Market Survey/Study. LAWA shall initiate an LAX Domestic Passenger Survey/Study and corresponding Airline Survey/Study, if the annual aviation activity analysis required in Section G.1 above forecasts that the annual passengers for that year are anticipated to exceed 75 million.

(a) LAX Domestic Passenger Survey and Study. LAWA shall conduct a survey and study of LAX domestic passengers (those passengers not flying internationally or connecting to international flights) designed to identify, at a minimum, (i) those LAX domestic passengers with origination or destination locations closer to other commercial airports in the region, (ii) why those domestic passengers chose to fly out of, or into, LAX rather than another commercial airport closer to their location of origin or destination, and (iii) what actions, consistent with federal, state and local laws, LAWA could take to encourage those domestic passengers to use an airport closer to their location of origin or destination for domestic flights.

(b) Airline Survey and Study. Upon completion of the LAX Domestic Passenger Survey and Study described in 2(a) above, LAWA shall conduct a survey and study of Airlines then serving the Southern California commercial air travel market designed to identify what action(s), consistent with federal, state and local laws, LAWA could take to encourage those airlines to provide increased Domestic service at other airports in the region, particularly those owned or operated by LAWA."

## 7.2 Other LAX Specific Plan Amendments

Development of any of the potential SPAS alternatives would require various administrative amendments to the LAX Specific Plan. These amendments would be necessary to ensure precise consistency from a land use and zoning perspective. Following is a summary of the potential amendments organized by sections within the LAX Specific Plan. The exact language of the amendments would be determined during the land use entitlement process for SPAS, and reviewed and approved by various decision-making bodies, including the Los Angeles City Council.

### Section 1. Establishment of the LAX Specific Plan

No amendments are anticipated to be required to this section.

[48] This 75 million annual passenger trigger reflects the Passenger Gate Reduction trigger set forth in Stipulated Settlement Section IV.C. It states, "LAWA need not reduce the number of passenger gates at LAX down to 153 by 2015 if either (1) the total passenger operations at LAX are below 75 million annual passengers or (2) the LAX Master Plan Program is substantially revised pursuant to the LAX Specific Plan Amendment Process such that the total number of gates is reduced to 153 or less." As discussed herein, all SPAS alternatives currently contemplate a total of no more than 153 gates.

## Section 2. Purposes

No amendments are anticipated to be required to this section.

## Section 3. Relationship to the Los Angeles Municipal Code and Other Ordinances

This section would be revised, as necessary, to ensure that the Los Angeles Municipal Code references are consistent with the current Municipal Code. Any outdated references would be corrected accordingly. Also, any new Municipal Code requirements that have become effective since the LAX Specific Plan was adopted in December of 2004, but which are not applicable to airport use or development, would be included and acknowledged as such. These amendments would occur under all nine SPAS alternatives.

## Section 4. Application of Specific Plan to Development in Specific Plan Area

No amendments are anticipated to be required to this section.

## Section 5. Definitions

This section would be revised to remove definitions for those facilities and improvements that are no longer planned as part of the various SPAS alternatives and add definitions for new facilities and improvements proposed under the various SPAS alternatives. The nature and extent of improvements associated with each alternative would determine the precise amendments that are required. The definitions of the Ground Transportation Center (GTC) and Intermodal Transportation Center (ITC), as well as all references to these facilities in other definitions, would be deleted under all SPAS alternatives except Alternative 3. The Automated People Mover (APM) System would be redefined under all alternatives except Alternative 3. The APM would be redefined under Alternative 9 to accurately describe the route to and from the affected facilities. The APM would be redefined under Alternatives 1, 2, 4, 5, 6, 7, and 8 to include only that segment of the APM planned between the Central Terminal Area (CTA), the Tom Bradley International Terminal, and West Satellite Concourse,[49] as other segments would no longer be implemented under these alternatives. The CTA would be redefined under all SPAS alternatives except Alternative 3, as it would no longer be a true transition point to and from landside facilities as envisioned under the approved LAX Master Plan. The definition of the Mitigation Monitoring and Reporting Program (MMRP) would be expanded to include both the LAX Master Plan MMRP, as well as the SPAS MMRP, which would include new mitigation measures developed as a result of the SPAS EIR. A new definition would be added for the Intermodal Transportation Facility (ITF) under Alternatives 1, 2, 8, and 9. A definition for the dedicated busway may be added, if determined necessary, under Alternatives 1, 2, and 8. Lastly, the West Satellite Concourse would be re-named the Midfield Satellite Concourse.

## Section 6. Safety of Airport Operations

No amendments are anticipated to be required to this section.

## Section 7. LAX Plan Compliance Review

This section would be revised, as necessary, to ensure that the Los Angeles Municipal Code references are consistent with the current Municipal Code. Subsection 7.D(2) would be revised to refer to both the applicable LAX Master Plan commitments and mitigation measures, and any applicable mitigation measures from the SPAS MMRP. Subsection 7.F(5) would be revised to delete the reference to Subsection 7.H(1), as this section would be revised as noted above. Subsection 7.G(1)(c) would be revised to refer to both the Master Plan MMRP and the SPAS MMRP. Subsection 7.G(3) would be deleted, as this requirement will have been completed as part of the LAX Specific Plan Amendment Study. Subsection 7.H(1), which outlines the requirement for initiation of a Specific Plan Amendment Study prior to seeking approval for any Yellow Light project, would be revised as discussed above. Section 7.I would be deleted due to the fact that LAWA already has in place a Design and Construction Handbook, dated May 2012, which establishes broad design and construction guidelines for all

[49] The West Satellite Concourse was subsequently renamed the Midfield Satellite Concourse.

infrastructure, terminal buildings, renovations, and other facilities. These amendments would occur under all nine SPAS alternatives.

Subsection 7.F(3)(b) would also be revised to delete the references to the GTC and ITC under all SPAS alternatives except Alternative 3.

## Section 8. Land Use

No amendments are anticipated to be required to this section.

## Section 9. Airport Airside Sub-Area

This section would be revised, as necessary, to incorporate any uses currently relevant to the airport or anticipated under the SPAS alternatives, but which are not already included in the list of permitted uses. These amendments would occur under all SPAS alternatives except Alternative 3.

## Section 10. Airport Landside Sub-Area

This section would be revised, as necessary, to incorporate any uses currently relevant to the airport or anticipated under the SPAS alternatives, but which are not already included in the list of permitted uses. These amendments would occur under all SPAS alternatives except Alternative 3.

## Section 11. LAX Northside Sub-Area

No amendments are anticipated to be required to this section.

## Section 12. Transportation Regulations

Subsection 12.A(1) would be revised, as necessary, to ensure that the list of major and secondary highways in the LAX Specific Plan area are consistent with the current street designations in the City of Los Angeles General Plan. Any streets no longer designated as major or secondary highways would be deleted from the list and any streets within the LAX Specific Plan area that have been designated as major or secondary highways since the LAX Specific Plan was originally adopted would be added to the list. Section 12.B would be revised to reference both the certified LAX Master Plan Final EIS/EIR and the SPAS Final EIR. These amendments would occur under all nine SPAS alternatives.

The first paragraph of Section 12.D would also be deleted under Alternatives 1, 2, 4, 5, 6, 7, and 8, as it pertains to the interface between the APM and public roadways, and this condition no longer exists under these alternatives. Alternatively, under Alternatives 1, 2, and 8, language regarding the APM may be substituted with that appropriate to the dedicated busway in order to address the interface of the dedicated busway with public roadways.

## Section 13. Parking Regulations

Subsection 13.A(1) would be revised to state the maximum number of off-street parking spaces that would be provided under the various SPAS alternatives. The exact number stated would depend on the alternative, however, it is anticipated that this amendment would be required under all alternatives except Alternative 3.

## Section 14. Sign Regulations

No amendments are anticipated to be required to this section.

## Section 15. Severability

No amendments are anticipated to be required to this section.

## Appendix A

No amendments are anticipated to be required to this section.

## Map 1

This map would be revised to reflect the current boundary of the airport, as well as any changes to the boundary that may occur as a result of a SPAS alternative, including any property proposed for acquisition under that alternative. It is the intent that the LAX Specific Plan boundary include all property owned by Los Angeles World Airports with the exception of the Los Angeles Airport/El Segundo Dunes Specific Plan Area and the Belford Special Study Area. No amendment to this map would be required under Alternative 3. Amendments to this map under Alternatives 1, 2, 8, and 9 would include, but are not limited to, the removal of a portion of the property currently within the LAX Specific Plan area between 96th and 98th Streets and between Sepulveda Boulevard east of Vicksburg Avenue, and along the north side of Century Boulevard between Aviation Boulevard and La Cienega Boulevard. In addition, amendments to this map under Alternatives 1, 2, 4, 8, and 9 would remove a portion of the property currently within the LAX Specific Plan area between Century Boulevard and approximately 104th Street east of Aviation Boulevard.

## Map 2

This map would be revised to be consistent with the LAX Specific Plan boundary shown on Map 1, as may be amended as described above. In addition, the limits of the Airport Airside and Airport Landside Sub-Areas depicted on the map would be revised to reflect any changes that may occur as a result of a SPAS alternative. No amendment to this map would be required under Alternative 3. No amendment to the Sub-Area limits would be required under Alternatives 4 and 7. Under Alternatives 1, 2, 8, and 9, the area along the west side of Sepulveda Boulevard between 96th Street and Sky Way where the commercial vehicle holding lot is proposed would become part of the Airport Landside Sub-Area. The Airport Airside Sub-Area would also be expanded to the northeast to follow the realignment of Lincoln Boulevard under Alternatives 1, 5, and 6.

## Map 3

No amendments are anticipated to be required to this map as part of SPAS.

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# 8. FINANCIAL ANALYSIS

This chapter presents financial information regarding LAX development alternatives being analyzed as part of the LAX Specific Plan Amendment Study (SPAS) as well as estimated financial impacts of the alternatives relative to one another. The SPAS development alternatives discussed in this chapter are described in detail in Chapter 6, *SPAS Alternative Projects*, of this report, and Chapter 2, *Project Description*, of the SPAS Draft Environmental Impact Report (Draft EIR).

This chapter presents estimated costs and an approximation of funding sources for the SPAS alternatives. This chapter evaluates estimated impacts of the alternatives in terms of capital costs, operating costs, revenues, and impacts on key financial metrics (such as airline cost per enplaned passenger). The analysis also accounts for capital development projects at LAX (separate from the SPAS alternatives) that have been or are expected to be completed at LAX through fiscal year (FY) 2025--referred to in this chapter as the LAX Base Development Projects. LAX Base Development Projects are described in Section 5.3, *Development Projects At/Adjacent to LAX*, of the SPAS Draft EIR, where they are identified as cumulative development projects at LAX. The analysis did not examine the financial impacts of potential development projects adjacent to LAX, such as gas stations, housing, office buildings, and other facilities and improvements described in Sections 5.2, *Regional Projections and Background Development Projects*, and 5.3.5, *Other Related (Non-LAWA) Projects*, of the SPAS Draft EIR.

The SPAS financial analysis is based on a series of assumptions and order-of-magnitude estimates--including operation and maintenance (O&M) expenses for space or facilities not yet built, funding sources, revenue impacts, required debt service, and other important factors. This analysis provides a comparison of estimated financial impacts of SPAS alternatives relative to one another; it is not a feasibility analysis for the alternatives or the LAX Base Development Projects and does not reflect how LAWA would actually decide to finance any of the actual developments it may choose to pursue. The analysis did not assess compliance of various requirements in governing bond documents related to the issuance of future bonds. The analysis also did not examine the direct or indirect costs and benefits associated with each alternative, such as aircraft delay costs, passenger time savings, etc.

This chapter includes sections regarding:

- Methodology for the analysis and the specific alternatives analyzed
- LAWA's current financial framework, providing context within which capital improvements at LAX are funded and financed
- Key assumptions incorporated in the analysis
- Estimated project costs for the SPAS alternatives
- Anticipated funding sources for the SPAS alternatives
- Estimated financial impacts by alternative

## 8.1 Financial Analysis Methodology

Financial analysis of the SPAS alternatives generally involved incorporating various information related to improvements included in the alternatives and the LAX Base Development Projects into a financial projection model for LAX. This information included, among other things, estimates of project costs, debt service, expense and revenue impacts, and changes in facilities (size, layout, location, etc.). The estimated FY 2025 impacts on key financial metrics were developed for each alternative. The alternatives were then assessed relative to one another for each key financial metric.

The financial projections derived for the analysis used LAWA's FY 2012 Budget as the base. Airport activity projections prepared for SPAS were also incorporated into financial projections.

Information obtained from LAWA in connection with the financial analysis included:

- Descriptions and data for alternatives and specific improvements
- Projects to be included as LAX Base Development Projects
- Estimated costs for alternative improvements as well as LAX Base Development Projects
- Cost escalation methodology and assumptions
- Historical and budgeted revenue, expense, debt service, fund balance, and rates and charges information

## 8.2 Alternatives and Variations Analyzed

As described in Chapter 6, *SPAS Alternative Projects*, there are nine alternatives being studied as part of the SPAS Process. Alternatives 1 through 4 are "fully-integrated" alternatives that consist of airfield, terminal, and ground access improvements. Alternatives 5 through 7 focus on airfield and terminal improvements only. Alternatives 8 and 9 focus on ground access improvements only.

For purposes of the financial analysis, alternatives (or combinations thereof) including airfield, terminal, and ground transportation improvements were analyzed—so that comparisons of estimated financial impacts would be direct comparisons.

**Figure 8-1** reflects the nine SPAS alternatives and the specific variations that were used for the financial analysis, as follows:

- Alternatives 1, 2, 3, and 4 were analyzed individually.
- Alternatives 1 and 2 were also analyzed incorporating the ground access improvements of Alternatives 8 and 9.
- Alternatives 5, 6, and 7 were analyzed incorporating the ground access improvements of Alternatives 1-2, 8, and 9.

The airfield, terminal, and ground access improvements of Alternatives 3 and 4 are specific to each of those alternatives and were not paired with other alternatives. As stated in Chapter 6, these two alternatives are unique "fully-integrated" alternatives that do not have elements that are "interchangeable" with the other SPAS alternatives.

## 8.3 Financial Framework at LAX

This section describes LAWA's current financial framework to provide context within which LAX capital improvements are funded and financed. Included are brief discussions of governance and structure of LAWA, accounting practices and cost center structure, key LAX business agreements, and general requirements and provisions of the LAWA's governing bond documents.

### 8.3.1 Governance and Structure of LAWA

LAX is owned and operated by the City, acting through LAWA. The City, acting through LAWA, also operates and maintains LA/Ontario International Airport (LA/ONT) and Van Nuys Airport (VNY). LAWA also maintains property that is not currently used for airport purposes, known as LA/Palmdale Regional Airport (together with LAX, LA/ONT, and VNY, this is referred to as the Airport System). LAWA is under the management and control of a seven-member Board of Airport Commissioners (BOAC) appointed by the Mayor. An Executive Director administers LAWA and reports to BOAC.

Under the Los Angeles City Charter, BOAC has the general power to, among other things: (a) acquire, develop and operate all property, plant, and equipment as it may deem necessary or convenient for the promotion and accommodation of air commerce; (b) borrow money to finance the development of airports owned, operated, or controlled by the City; and (c) fix, regulate, and collect rates and charges for use of the Airport System.

**SPAS ALTERNATIVES 1 THROUGH 9 WITHIN GRAY SHADED AREA**

| ALTERNATIVE 1 | | |
|---|---|---|
| Alternative 1 Airfield Improvements | Alternative 1 Terminal Improvements | Alternative 1-2* Ground Access Improvements |

| ALTERNATIVE 2 | | |
|---|---|---|
| Alternative 2 Airfield Improvements | Alternative 2 Terminal Improvements | Alternative 1-2* Ground Access Improvements |

| ALTERNATIVE 3 | | |
|---|---|---|
| Alternative 3 Airfield Improvements | Alternative 3 Terminal Improvements | Alternative 3 Ground Access Improvements |

| ALTERNATIVE 4 | | |
|---|---|---|
| Alternative 4 Airfield Improvements | No Terminal Improvements | Alternative 4 Ground Access Improvements |

| ALTERNATIVE 5 ** | | |
|---|---|---|
| Alternative 5 Airfield Improvements | Alternative 5 Terminal Improvements | No Ground Access Improvements |

| ALTERNATIVE 6 ** | | |
|---|---|---|
| Alternative 6 Airfield Improvements | Alternative 6 Terminal Improvements | No Ground Access Improvements |

| ALTERNATIVE 7 ** | | |
|---|---|---|
| Alternative 7 Airfield Improvements | Alternative 7 Terminal Improvements | No Ground Access Improvements |

Two variations of Alternative 1 also analyzed financially

Two variations of Alternative 2 also analyzed financially

Three "full impact" variations of Alt. 5 were analyzed financially

Three "full impact" variations of Alt. 6 were analyzed financially

Three "full impact" variations of Alt. 7 were analyzed financially

| Alt. 5 With Alt. 1-2 Ground Access | | |
|---|---|---|
| Alternative 5 Airfield Improvements | Alternative 5 Terminal Improvements | Alternative 1-2* Ground Access Improvements |

| Alt. 6 With Alt. 1-2 Ground Access | | |
|---|---|---|
| Alternative 6 Airfield Improvements | Alternative 6 Terminal Improvements | Alternative 1-2* Ground Access Improvements |

| Alt. 7 With Alt. 1-2 Ground Access | | |
|---|---|---|
| Alternative 7 Airfield Improvements | Alternative 7 Terminal Improvements | Alternative 1-2* Ground Access Improvements |

| Alt. 1 With Alt. 8 Ground Access | | |
|---|---|---|
| Alternative 1 Airfield Improvements | Alternative 1 Terminal Improvements | Alternative 8 Ground Access Improvements |

| Alt. 2 With Alt. 8 Ground Access | | |
|---|---|---|
| Alternative 2 Airfield Improvements | Alternative 2 Terminal Improvements | Alternative 8 Ground Access Improvements |

| ALTERNATIVE 8 ** |
|---|
| Alternative 8 Ground Access Improvements Only |

| Alt. 5 With Alt. 8 Ground Access | | |
|---|---|---|
| Alternative 5 Airfield Improvements | Alternative 5 Terminal Improvements | Alternative 8 Ground Access Improvements |

| Alt. 6 With Alt. 8 Ground Access | | |
|---|---|---|
| Alternative 6 Airfield Improvements | Alternative 6 Terminal Improvements | Alternative 8 Ground Access Improvements |

| Alt. 7 With Alt. 8 Ground Access | | |
|---|---|---|
| Alternative 7 Airfield Improvements | Alternative 7 Terminal Improvements | Alternative 8 Ground Access Improvements |

| Alt. 1 With Alt. 9 Ground Access | | |
|---|---|---|
| Alternative 1 Airfield Improvements | Alternative 1 Terminal Improvements | Alternative 9 Ground Access Improvements |

| Alt. 2 With Alt. 9 Ground Access | | |
|---|---|---|
| Alternative 2 Airfield Improvements | Alternative 2 Terminal Improvements | Alternative 9 Ground Access Improvements |

| ALTERNATIVE 9 ** |
|---|
| Alternative 9 Ground Access Improvements Only |

| Alt. 5 With Alt. 9 Ground Access | | |
|---|---|---|
| Alternative 5 Airfield Improvements | Alternative 5 Terminal Improvements | Alternative 9 Ground Access Improvements |

| Alt. 6 With Alt. 9 Ground Access | | |
|---|---|---|
| Alternative 6 Airfield Improvements | Alternative 6 Terminal Improvements | Alternative 9 Ground Access Improvements |

| Alt. 7 With Alt. 9 Ground Access | | |
|---|---|---|
| Alternative 7 Airfield Improvements | Alternative 7 Terminal Improvements | Alternative 9 Ground Access Improvements |

* "Alternative 1-2" refers to the ground access improvements being identical in both Alternative 1 and Alternative 2.

** For the purposes of the financial analysis, alternatives including airfield, terminal, and ground access improvements were analyzed for a direct comparison.

Source: LAWA, CDM Smith, and Ricondo & Associates, 2012.
Prepared by: Ricondo & Associates, Inc., 2012.

**LAX Specific Plan Amendment Study Report**

**Financial Analysis of SPAS Alternatives**

Figure **8-1**

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## 8.3.2 Accounting and Cost Center Structure

Each of the airports in the Airport System is accounted for separately by LAWA. LAX is reported as a single enterprise fund and maintains its records on the accrual basis of accounting. The accounting and financial reporting policies of LAWA conform to generally-accepted accounting principles for local governmental units set forth by the Government Accounting Standards Board as well as Financial Accounting Standards Board. Enterprise funds are used to account for operations that are financed and operated in a manner similar to private business enterprises where the intent of the governing body is that the costs of providing goods and services to the general public be financed or recovered primarily through user charges.

O&M expenses at LAX are categorized into Cost Centers. Cost Centers include those areas or functional activities used for the purposes of accounting for the financial performance of LAX. There are five direct revenue-producing Cost Centers and two indirect Cost Centers included in the financial structure for LAX, as described below.

The five direct revenue-producing Cost Centers are as follows:

- Terminal Cost Center. The Terminal Cost Center is comprised of all passenger terminal buildings, other related facilities, and associated land, whether owned, operated, or maintained by LAWA. Facilities include the passenger terminal buildings located in the Central Terminal Area (CTA), passenger terminal buildings located outside the CTA, associated concourses, holdrooms, passenger tunnels, and all other facilities that are integral parts of the passenger terminal buildings.
- Apron Cost Center. The Apron Cost Center is comprised of the land and paved areas primarily adjacent to passenger terminal buildings, but also includes remote areas that provide for the exclusive and non-exclusive parking, loading, and unloading of passenger aircraft. The Apron Cost Center does not include aprons associated with general aviation, cargo, or aircraft maintenance facilities.
- Airfield Cost Center. The Airfield Cost Center is comprised of the land and facilities that support air navigation and flight activities, including aircraft access to, and egress from, apron areas. Land and facilities include runways, taxiways, approach and clear zones, navigation and related easements, infield areas, safety areas, and landing and navigational aids.
- Aviation Cost Center. The Aviation Cost Center is comprised of the land and facilities related to air cargo, general aviation, fixed base operator (FBO) operations, aircraft fueling, aircraft maintenance, airline services, and other aviation related activities.
- Commercial Cost Center. The Commercial Cost Center is comprised of the land and facilities not located in passenger terminal buildings that provide for non-aeronautical commercial and industrial activities, including for example, public automobile parking, car rental service centers, the golf course, and the Theme Building.

The two indirect Cost Centers are as follows:

- General Administration Cost Center. The General Administration Cost Center includes the general administrative and support costs related to providing, maintaining, operating, and administering LAX that cannot be directly allocated to cost centers.
- Access Cost Center. The Access Cost Center includes the costs of providing, maintaining, operating, and administering facilities and services for on-airport and off-airport ground access for vehicles and pedestrians, including airside and landside access, and airport access generally. It also includes the costs of increasing, preserving, or managing the throughput capacity of the airport's access facilities, that is, the volume of, and rate at which, users can be accommodated.

## 8.3.3 Governing Bond Documents

Pursuant to the terms of a Master Trust Indenture and a Master Subordinate Trust Indenture (referred to as the Indentures in this chapter), LAWA may issue Los Angeles International Airport Revenue Bonds

secured by airport revenues. The Indentures establish the requirements for LAWA to issue bonds, create certain funds and accounts, establish the principal function and uses of each fund and account, and establish certain covenant requirements of LAWA. LAWA has issued airport revenue bonds from time to time under the Indentures. In the Master Trust Indenture, LAWA agrees that it will establish and collect rates, fees, and charges at LAX so that net revenues in each Fiscal Year will be equal to at least 125 percent of senior annual debt service for that Fiscal Year (referred to as the rate covenant). Also, pursuant to the Master Trust Indenture, LAWA may use passenger facility charge (PFC) revenues (discussed in Sections 8.4 and 8.6.3 below) to pay debt service on bonds issued to finance approved PFC projects. Pursuant to the Master Trust Indenture, the definition of aggregate annual debt service excludes debt service on senior bonds paid with PFC revenues that have been irrevocably deposited with the Trustee and set aside to pay such debt service for purposes of meeting the rate covenant.

As discussed in the introductory text for this chapter, the financial analysis for the SPAS alternatives is meant only to provide a comparison of estimated financial impacts of the SPAS alternatives relative to one another. It is not a feasibility analysis for the alternatives or the LAX Base Development Projects and most likely does not reflect how LAWA would actually decide to finance any of the actual development it may choose to pursue. The analysis did not assess compliance of various requirements in governing bond documents related to the issuance of future bonds.

### 8.3.4 Key Business Agreements

LAWA derives a substantial portion of its revenues from airline rentals, fees, and charges pursuant to various agreements with airlines operating at LAX, an air carrier operating permit for the use of landing facilities at LAX, and a Passenger Terminal Tariff. The agreements, operating permit, and the Tariff provide a basis for calculating, charging, and collecting airline terminal building rents, landing fees, aircraft parking fees, and other charges so that LAX revenues are sufficient to meet the requirements of the rate covenant described in Section 8.3.3 above. As defined in these various agreements and other documents, capital costs and O&M expenses allocable to the direct airline cost centers (i.e., Terminal, Airfield, and Apron) are recovered (in part or in whole) through airline rates, charges, and fees. As such, the costs associated with the various SPAS alternatives that are allocable to, and recovered from, the airlines were modeled and used to estimate future airline revenues.

LAWA has entered into numerous agreements with other tenants and concessionaires in connection with building rentals, ground leases, concessions, and other services at LAX. LAWA receives various privilege fees, space rentals, and ground lease payments from tenants including food and beverage and retail merchandise concessionaires, rental car companies, air cargo operators, and other tenants.

## 8.4 Key Assumptions

The analysis reflected in this chapter is based on a series of assumptions and order-of-magnitude estimates related to, among other things, O&M expense and/or revenue impacts related to new or modified facilities, debt service related to future bonds, cost center allocations for alternative improvements, collection and use of PFC revenues, and funding sources.

Key assumptions, estimates, and constraints incorporated in the financial analysis included, among other things:

- SPAS Passenger Forecast: Financial projections developed for this analysis incorporated future aviation activity from the SPAS passenger forecast (provided in Appendix F, *Operational Analysis*), reflecting 78.9 million annual total passengers (assumed to equate to 39.45 million enplaned passengers for purposes of the financial analysis).
- Project Cost Escalation: Estimated costs of alternative improvements (in 2010 dollars) were escalated to future dollars as described in Section 8.5 below.
- PFC Revenues: PFC Level at LAX remains at $4.50 through FY 2025; LAWA uses up to 80 percent of its annual PFC revenues to pay terminal debt service; it was assumed that the PFC Fund ending

balance must always be at least equal to the annual amount of PFC revenues being used to pay debt service.

- LAWA Funds: At all times, LAWA maintains at least 300 days of O&M expenses between the O&M reserve fund balance and available unrestricted LAX cash.
- For those SPAS alternatives that include an APM system, APM system costs were assumed to include the APM guideway structure, APM stations, APM maintenance facility, APM cars/trains, and associated systems/equipment. APM system costs are considered order-of-magnitude estimates and were provided by LAWA.
- Consolidated Rental Car Facility (CONRAC) Costs: For each applicable SPAS alternative, the CONRAC is assumed to open in 2025. For purposes of this analysis, CONRAC project costs were assumed to be funded with rental car customer facility charge (CFC) revenues on a pay-as-you-go basis and special facility bond proceeds that would be secured and paid for with CFC revenues. This analysis also assumes that annual transportation expenses related to moving rental car customers between the CTA and the CONRAC (by shuttle bus or APM) would be paid for with CFC revenues. Similarly, depending on the alternative, a portion of the shuttle bus or APM system capital costs (i.e., acquisition of buses or APM cars and construction of the CONRAC APM station and associated guideway) are also allocated to the CONRAC and are assumed to be paid for with CFC revenues. In addition to CFC revenues, it was assumed that the CONRAC tenants would pay a ground rent directly to LAWA and that such revenues would not be used to cover debt service or transportation-related O&M expenses allocated to the CONRAC.
- Future Revenue Bond Debt Service: For most facilities included in this analysis, future bond debt service was based on an assumed 6.0 percent interest rate, 30-year level debt service, with capitalized interest during construction and a debt service reserve fund deposit equal to annual debt service funded from bond proceeds. Estimated future debt service associated with the SPAS alternatives was allocated to Cost Centers based on project descriptions. Future revenue bond debt service associated with the CONRAC was based on an assumed 7.0 percent interest rate, with 30-year level debt service. Future revenue bond debt service associated with the purchase of shuttle buses and APM equipment (i.e., cars/trains) was based on an assumed 6.0 percent interest rate, 15-year level debt service, with no capitalized interest period.
- O&M Expenses: Base projections of future LAX O&M expenses are based on an assumed 5.0 percent annual growth rate for all categories of expenses to account for the anticipated impacts of inflation, staffing and operational requirements, and activity increases. Order of magnitude estimates of future O&M expenses associated with facilities included in alternatives (such as new terminal space, ground transportation facilities, parking structures, APM systems, etc.) were developed based on FY 2012 expenses for similar facilities and, among other things, estimated square footage for various types of space; parking spaces by type (remote vs. CTA, structure vs. surface); and shuttle bus distances relative to current conditions. Estimated future O&M expenses associated with the SPAS alternatives were allocated to Cost Centers based on project descriptions.
- Airline Revenues: Estimates of future airline landing and apron fees were based on the current methodology (i.e., cost center residual landing and apron fees). Estimates of future terminal rentals were assumed, for purposes of this analysis, to be based generally on a commercial compensatory methodology with certain terminal revenue offsets. Changes in terminal space associated with the SPAS alternatives were incorporated into terminal rental calculations.
- Nonairline Revenues: Generally, projections of nonairline revenues were based on historical trends, budgeted FY 2012 amounts, future airport passenger activity, assumed inflation, assumed impacts of the Bradley West Project, and order-of-magnitude assumptions regarding the Midfield Satellite Concourse and improvements included in the SPAS alternatives.

# 8.5 Estimated Alternative Costs

**Table 8-1** presents estimated costs, estimated funding sources, and a summary of key elements for the SPAS alternatives and variations analyzed for purposes of this chapter. Amounts reflected in **Table 8-1** are shown in $1,000s.

Estimated alternative costs are reflected both in 2010 dollars and based on escalation to the assumed mid-point of construction for alternative improvements (FY 2020). Escalation is based on 2.0 percent for the first two years, 3.0 percent for the third year, and 3.5 percent for remaining years. Estimated costs in 2010 dollars include contingency costs equal to 10.0 percent of construction costs and soft costs equal to 27.0 percent of construction costs. Costs associated with land acquisition under the alternatives are order-of-magnitude estimates and were not escalated.

The estimated cost of LAX Base Development Projects for FY 2012 to FY 2025 is also reflected on **Table 8-1**. LAX Base Development Projects are estimated to cost $6.5 billion, including approximately $2.1 billion for projects underway (the majority of which have already been funded). The remaining $4.4 billion is an approximation of costs associated with projects planned for LAX between FY 2012 and FY 2025 separate from the SPAS alternatives (such as, but not limited to, the Midfield Satellite Concourse, existing terminal renovations, and continued soundproofing).

As reflected on **Table 8-1**, in addition to costs associated with the LAX Base Development Projects, escalated costs for the "fully-integrated" alternatives and variations analyzed (as reflected on **Figure 8-1**) range from $1.7 billion for Alternative 4 to $16.8 billion for Alternative 3. For all of the other alternative variations reflected on **Table 8-1**, escalated costs range from $2.6 billion to $4.8 billion. As shown, the SPAS alternative improvements include various airfield, terminal, ground access, APM system, CONRAC, and land acquisition costs described previously in Sections 8.2 and 8.4.

# 8.6 Approximation of Funding Sources

**Table 8-1** also presents an approximation of funding sources for the alternatives and variations analyzed. The principal sources of funding for alternative improvements are expected to include Federal Aviation Administration (FAA) Airport Improvement Program (AIP) grants; Transportation Security Administration (TSA) grants; PFC funding (on a pay-as-you-go basis); LAWA funds; other funding including, but not limited to, CFC revenues and other LAX tenant funds; and future revenue bond proceeds.

The actual amount of funding available from these sources in the future will depend on future aviation activity at LAX, future economic development in the region surrounding LAX, future LAWA decisions regarding the development of LAX facilities, potential third-party investment, FAA priorities for the national airport system, and future federal funding availability. As described in the following sections, certain sources of funds, such as federal grants, PFCs, and CFCs, have restrictions on how they can be used. If the assumed funding sources are not available in the future, certain projects would need to be deferred until funds become available or LAX users or tenants agree to support funding of the projects or other sources.

## 8.6.1 Airport Improvement Program Funds

The FAA AIP provides federal discretionary and entitlement grants for eligible airport projects. The entitlement funds are based upon airport passenger enplanement and cargo activity, with entitlement and discretionary funding subject to annual Congressional appropriations levels. AIP grants are distributed to airport operators on a reimbursement basis.

AIP funds are distributed by the FAA to airport operators in the form of (1) entitlement grants, based on enplanement levels and cargo activity, and (2) discretionary grants, based on FAA determinations of priority for enhancing the capacity of the national air transportation system. For medium- and large-hub airports, AIP grants cannot fund over 75 percent of project costs.

In February 2011, LAWA received an FAA Letter of Intent (LOI) for approximately $105 million in future discretionary and entitlement funding related to runway improvements completed at LAX. Also in 2011, LAWA received approximately $38 million in other AIP grants for apron, noise abatement, and taxiway improvements.

For the purpose of this financial analysis, FAA AIP funding (including both discretionary and entitlement grants) of $250 million or 50 percent of total airfield costs, whichever is lower, was assumed for each alternative between FY 2012 and FY 2025. As shown on **Table 8-1**, the maximum AIP funding of $250 million was assumed for airfield improvements in Alternatives 1, 3, 5, 6, and 7, and AIP funding of approximately $140 million and $22 million was assumed for Alternatives 2 and 4, respectively.

## 8.6.2 TSA Funds

LAWA has previously received over $450 million in funding from the TSA to help fund certain security-related projects at passenger terminals at LAX.

As reflected on **Table 8-1**, in connection with terminal improvements in certain alternatives, it was assumed that LAWA would receive TSA funding ranging from $80 million to $200 million between FY 2012 and FY 2025 for the installation of Explosive Detection Systems (EDS) and other security projects. No TSA funding was assumed for Alternative 4 (in which there are no terminal improvements).

TSA funding was generally not assumed for costs associated with modifications to certain portions of terminal concourses, but was assumed in connection with improvements related to passenger processing portions of terminal buildings—with the amount of such assumed funding based on historical TSA funding at LAX.

## 8.6.3 Passenger Facility Charge Funds

LAWA received its first approval from the FAA to impose a PFC in April 1993, and began collecting a $3.00 PFC per eligible enplaned passenger on July 1, 1993. LAWA subsequently received FAA approval to increase its PFC level to $4.50 per eligible enplaned passenger and began collecting at the $4.50 level on August 1, 2003. Pursuant to FAA regulations, the current $4.50 PFC level collected by LAWA results in a 75 percent reduction in AIP passenger entitlement grants.

LAWA is currently authorized by the FAA, pursuant to eight PFC application approvals, to impose and use approximately $2.4 billion of PFC revenues (at the $4.50 PFC level) for various projects at the airport. Through June 2011, LAWA had collected approximately $1.7 billion of its total approved collection authority for the airport and had spent approximately $928 million on approved projects.

The estimated funding sources, projected airline payments, and other key financial results reflected in this report are based on the assumption that the current $4.50 PFC level at the airport is not increased to a higher PFC level through FY 2025. Based on actual FY 2011 eligible enplaned passengers, annual PFC collections (excluding interest income) are currently approximately $113 million. Based on the SPAS passenger forecast and the current $4.50 PFC level, PFC collections (excluding interest income) are expected to reach approximately $147 million in FY 2025.

As shown on **Table 8-1**, approximately $150 million of pay-as-you-go PFC funding is assumed to be used for various alternative improvements (with the exception of Alternative 4 which does not include a significant amount of PFC-eligible projects). A substantial portion of PFC funding is also being used on LAX Base Development Projects.

LAWA currently uses PFC revenues to pay for certain eligible portions of existing revenue bond debt related to terminal projects. For purposes of the financial analysis, it was assumed that LAWA would use up to 80 percent of its annual PFC revenues to pay for a portion of the existing and future terminal debt service. The actual amount of PFC revenues that LAWA ultimately uses to pay debt service may vary from year to year. In order to use PFC revenues for SPAS alternative improvements in the future, LAWA would need to submit future PFC applications to the FAA and receive approval before doing so.

**Table 8-1**

**Estimated Costs and Funding Sources for SPAS Alternatives [1]**

| | Alternative 1 | Alt. 1 With Alt.8 Ground Access | Alt. 1 With Alt.9 Ground Access |
|---|---|---|---|
| **Key Elements of Alternative Improvements** | | | |
| Airfield | Rwy 6L-24R shifts 260 ft. North<br>Extend Rwys 6L-24R and 6R-24L<br>North Centerfield Taxiway<br>Txwy D/E extensions & improvements<br>Lincoln Boulevard Realignment<br>Argo Drainage Channel Modifications (Full) | Same | Same |
| Terminal | New Terminal 0 (7 Gates)<br>Modifications to T1,T3,BW,MSC | Same | Same |
| Ground Access | New Entry Roadways<br>New Intermodal Trans. Facility<br>Busway between CTA and Man.Sq.<br>New Surface Parking (Man.Sq.) | New Entry Roadways<br>New Intermodal Trans. Facility<br>Busway between CTA and Man.Sq.<br>**Public Parking in portion of Man.Sq.**<br>**Add'l Employee Parking East of Lot C**<br>**CONRAC in portion of Man.Sq.** | New Entry Roadways<br>New Intermodal Trans. Facility<br>**APM between CTA and Man.Sq.**<br>Public Parking in portion of Man.Sq.<br>Add'l Employee Parking East of Lot C<br>CONRAC in portion of Man.Sq. |

| **Estimated Costs ($1,000's)** | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] |
|---|---|---|---|---|---|---|
| LAX Base Development Projects [4] | | $ 6,490,000 | | $ 6,490,000 | | $ 6,490,000 |
| SPAS Alternative Improvements | | | | | | |
| Airfield Improvements | $ 713,310 | $ 972,520 | $ 713,310 | $ 972,520 | $ 713,310 | $ 972,520 |
| Terminal Improvements | $ 1,081,640 | $ 1,474,697 | $ 1,081,640 | $ 1,474,697 | $ 1,081,640 | $ 1,474,697 |
| Ground Access Improvements [5] | $ 438,000 | $ 597,165 | $ 489,000 | $ 666,698 | $ 371,000 | $ 505,818 |
| Automated People Mover (APM) System [6] | $ - | $ - | $ - | $ - | $ 729,000 | $ 993,809 |
| Consolidated Rental Car Facility (CONRAC) | $ - | $ - | $ 415,000 | $ 565,807 | $ 415,000 | $ 565,807 |
| Land Acquisition (Assumed Cost) | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 |
| **Total SPAS Alternative Improvements** | **$ 2,482,950** | **$ 3,294,381** | **$ 2,948,950** | **$ 3,929,721** | **$ 3,559,950** | **$ 4,762,650** |
| Total Estimated Costs | | $ 9,784,381 | | $ 10,419,721 | | $ 11,252,650 |
| **Approximation of Funding for SPAS Alternative Improvements ($1,000's)** | | | | | | |
| AIP Grants | | $ 250,000 | | $ 250,000 | | $ 250,000 |
| TSA Grants | | $ 80,000 | | $ 80,000 | | $ 80,000 |
| Passenger Facility Charges (Pay-As-You-Go) | | $ 150,000 | | $ 150,000 | | $ 150,000 |
| LAWA Cash | | $ 1,350,000 | | $ 1,350,000 | | $ 1,350,000 |
| Other Funding [7] | | $ 40,000 | | $ 605,807 | | $ 605,807 |
| Revenue Bond Proceeds | | $ 1,424,381 | | $ 1,493,914 | | $ 2,326,843 |
| **Total Estimated SPAS Alternative Funding Sources** | | **$ 3,294,381** | | **$ 3,929,721** | | **$ 4,762,650** |

1 SPAS Alternative Improvements were added to financial projections which already incorporated the LAX Base Development Projects. Impacts relative to the base projections are shown on Table 8-2.

2 Estimated project costs for Alternative Improvements include Contingency Costs (equal to 10% of construction cost) and Soft Costs (equal to 27% of construction cost).

3 Cost escalation for Alternative Improvements based on number of years to assumed mid-point of construction with 2% escalation for first two years, 3% for third year, and 3.5% for remaining years.

4 Includes approximately $2.1 billion for expenditures FY 2012-on for projects currently underway at LAX (most of which has already been funded). The remaining $4.4 billion is an approximation of costs associated with base projects planned for LAX through FY 2025--including the Midfield Satellite Concourse and associated processing facility, terminal renovations, continued soundproofing, and other projects.

5 Other than the future Consolidated Rental Car Facility (CONRAC) and Automated People Mover (APM) system, which are reflected separately.

6 Includes the APM guideway structure, APM stations, APM maintenance facility, APM cars/trains and associated systems/equipment.

7 Includes funds from Airport tenants for tenant-specific projects, rental car customer facility charge (CFC) revenues (pay-as-you-go), and proceeds from bonds assumed to be issued in connection with the CONRAC (assumed to be secured/paid for by CFC and CONRAC revenues).

Sources: LAWA and Ricondo & Associates, 2012.

**Table 8-1**

**Estimated Costs and Funding Sources for SPAS Alternatives [1]**

| | Alternative 2 | Alt. 2 With Alt.8 Ground Access | Alt. 2 With Alt.9 Ground Access |
|---|---|---|---|
| **Key Elements of Alternative Improvements** | | | |
| Airfield | No movement of Runways<br>Extend Rwy 6R-24L<br>Txwy D/E extensions & improvements | Same | Same |
| Terminal | New Terminal 0 (7 Gates)<br>Modifications to T1,T3,BW,MSC | Same | Same |
| Ground Access | New Entry Roadways<br>New Intermodal Trans. Facility<br>Busway between CTA and Man.Sq.<br>New Surface Parking (Man.Sq.) | New Entry Roadways<br>New Intermodal Trans. Facility<br>Busway between CTA and Man.Sq.<br>**Public Parking in portion of Man.Sq.**<br>**Add'l Employee Parking East of Lot C**<br>**CONRAC in portion of Man.Sq.** | New Entry Roadways<br>New Intermodal Trans. Facility<br>**APM between CTA and Man.Sq.**<br>Public Parking in portion of Man.Sq.<br>Add'l Employee Parking East of Lot C<br>CONRAC in portion of Man.Sq. |

| **Estimated Costs ($1,000's)** | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] |
|---|---|---|---|---|---|---|
| LAX Base Development Projects [4] | | $ 6,490,000 | | $ 6,490,000 | | $ 6,490,000 |
| SPAS Alternative Improvements | | | | | | |
| Airfield Improvements | $ 205,200 | $ 279,768 | $ 205,200 | $ 279,768 | $ 205,200 | $ 279,768 |
| Terminal Improvements | $ 1,081,640 | $ 1,474,697 | $ 1,081,640 | $ 1,474,697 | $ 1,081,640 | $ 1,474,697 |
| Ground Access Improvements [5] | $ 438,000 | $ 597,165 | $ 489,000 | $ 666,698 | $ 371,000 | $ 505,818 |
| Automated People Mover (APM) System [6] | $ - | $ - | $ - | $ - | $ 729,000 | $ 993,809 |
| Consolidated Rental Car Facility (CONRAC) | $ - | $ - | $ 415,000 | $ 565,807 | $ 415,000 | $ 565,807 |
| Land Acquisition (Assumed Cost) | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 |
| **Total SPAS Alternative Improvements** | **$ 1,974,840** | **$ 2,601,629** | **$ 2,440,840** | **$ 3,236,969** | **$ 3,051,840** | **$ 4,069,898** |
| Total Estimated Costs | | $ 9,091,629 | | $ 9,726,969 | | $ 10,559,898 |
| **Approximation of Funding for SPAS Alternative Improvements ($1,000's)** | | | | | | |
| AIP Grants | | $ 140,000 | | $ 140,000 | | $ 140,000 |
| TSA Grants | | $ 80,000 | | $ 80,000 | | $ 80,000 |
| Passenger Facility Charges (Pay-As-You-Go) | | $ 150,000 | | $ 150,000 | | $ 150,000 |
| LAWA Cash | | $ 1,350,000 | | $ 1,350,000 | | $ 1,350,000 |
| Other Funding [7] | | $ 40,000 | | $ 605,807 | | $ 605,807 |
| Revenue Bond Proceeds | | $ 841,629 | | $ 911,162 | | $ 1,744,091 |
| **Total Estimated SPAS Alternative Funding Sources** | | **$ 2,601,629** | | **$ 3,236,969** | | **$ 4,069,898** |

1 SPAS Alternative Improvements were added to financial projections which already incorporated the LAX Base Development Projects. Impacts relative to the base projections are shown on Table 8-2.

2 Estimated project costs for Alternative Improvements include Contingency Costs (equal to 10% of construction cost) and Soft Costs (equal to 27% of construction cost).

3 Cost escalation for Alternative Improvements based on number of years to assumed mid-point of construction with 2% escalation for first two years, 3% for third year, and 3.5% for remaining years.

4 Includes approximately $2.1 billion for expenditures FY 2012-on for projects currently underway at LAX (most of which has already been funded). The remaining $4.4 billion is an approximation of costs associated with base projects planned for LAX through FY 2025--including the Midfield Satellite Concourse and associated processing facility, terminal renovations, continued soundproofing, and other projects.

5 Other than the future Consolidated Rental Car Facility (CONRAC) and Automated People Mover (APM) system, which are reflected separately.

6 Includes the APM guideway structure, APM stations, APM maintenance facility, APM cars/trains and associated systems/equipment.

7 Includes funds from Airport tenants for tenant-specific projects, rental car customer facility charge (CFC) revenues (pay-as-you-go), and proceeds from bonds assumed to be issued in connection with the CONRAC (assumed to be secured/paid for by CFC and ConRAC revenues).

Sources: LAWA and Ricondo & Associates, 2012.

**Table 8-1**

**Estimated Costs and Funding Sources for SPAS Alternatives [1]**

| | Alternative 3 | Alternative 4 |
|---|---|---|
| **Key Elements of Alternative Improvements** | | |
| Airfield | Rwy 6R-24L shifts 340 ft. South<br>Extend Rwys 6L-24R and 6R-24L<br>North Centerfield Taxiway<br>Txwy D/E extensions & improvements | No movement of Runways<br>Extend Rwy 6R-24L<br>Txwy E extension |
| Terminal | Demolish T1, T2, T3 (17 Gates)<br>New North Linear Concourse (20 Gates)<br>New Passenger Processors in CTA | No Terminal Improvements |
| Ground Access | Eliminate Parking Structures in CTA<br>Ground Trans Center/Parking at Man.Sq.<br>Intermodal Trans. Cntr./Parking (S.East)<br>CONRAC at Existing Lot C<br>APM 1 between CTA, CONRAC, and ITC<br>APM 2 between GTC and CTA<br>West Employee Parking Structure<br>New Roadways & Freeway Interchanges | CONRAC at Existing Lot C<br>New Parking Structure (ITC Site) |

| **Estimated Costs ($1,000's)** | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] |
|---|---|---|---|---|
| LAX Base Development Projects [4] | | $ 6,490,000 | | $ 6,490,000 |
| Base Projects Already Covered in Alt. 3 | | $ (1,600,000) | | N/A |
| LAX Base Development Projects | | $ 4,890,000 | | $ 6,490,000 |
| SPAS Alternative Improvements | | | | |
| Airfield Improvements | $ 544,800 | $ 742,775 | $ 32,000 | $ 43,628 |
| Terminal Improvements | $ 4,654,900 | $ 6,346,443 | $ - | $ - |
| Ground Access Improvements [5] | $ 4,282,000 | $ 5,838,035 | $ 328,000 | $ 447,192 |
| Automated People Mover (APM) System [6] | $ 1,829,803 | $ 2,494,734 | $ - | $ - |
| Consolidated Rental Car Facility (CONRAC) | $ 711,000 | $ 969,370 | $ 711,000 | $ 969,370 |
| Land Acquisition (Assumed Cost) | $ 400,000 | $ 400,000 | $ 200,000 | $ 200,000 |
| **Total SPAS Alternative Improvements** | **$ 12,422,503** | **$ 16,791,356** | **$ 1,271,000** | **$ 1,660,190** |
| Total Estimated Costs | | $ 21,681,356 | | $ 8,150,190 |
| **Approximation of Funding for SPAS Alternative Improvements ($1,000's)** | | | | |
| AIP Grants | | $ 250,000 | | $ 22,000 |
| TSA Grants | | $ 200,000 | | $ - |
| Passenger Facility Charges (Pay-As-You-Go) | | $ 150,000 | | $ - |
| LAWA Cash | | $ 1,350,000 | | $ 668,820 |
| Other Funding [7] | | $ 1,169,370 | | $ 969,370 |
| Revenue Bond Proceeds | | $ 13,671,986 | | $ - |
| **Total Estimated SPAS Alternative Funding Sources** | | **$ 16,791,356** | | **$ 1,660,190** |

1 SPAS Alternative Improvements were added to financial projections which already incorporated the LAX Base Development Projects. Impacts relative to the base projections are shown on Table 8-2.

2 Estimated project costs for Alternative Improvements include Contingency Costs (equal to 10% of construction cost) and Soft Costs (equal to 27% of construction cost).

3 Cost escalation for Alternative Improvements based on number of years to assumed mid-point of construction with 2% escalation for first two years, 3% for third year, and 3.5% for remaining years.

4 Includes approximately $2.1 billion for expenditures FY 2012-on for projects currently underway at LAX (most of which has already been funded). The remaining $4.4 billion is an approximation of costs associated with base projects planned through FY 2025--including the Midfield Satellite Concourse and associated processing facility, terminal renovations, continued soundproofing, and other projects.

5 Other than the future Consolidated Rental Car Facility (CONRAC) and Automated People Mover (APM) system, which are reflected separately.

6 Includes the APM guideway structure, APM stations, APM maintenance facility, APM cars/trains and associated systems/equipment.

7 Includes funds from Airport tenants for tenant-specific projects, rental car customer facility charge (CFC) revenues (pay-as-you-go), and proceeds from bonds assumed to be issued in connection with the CONRAC (assumed to be secured/paid for by CFC and CONRAC revenues).

Sources: LAWA and Ricondo & Associates, 2012.

**Table 8-1**

**Estimated Costs and Funding Sources for SPAS Alternatives [1]**

| | Alt. 5 With Alt.1-2 Ground Access | Alt. 5 With Alt.8 Ground Access | Alt. 5 With Alt.9 Ground Access |
|---|---|---|---|
| **Key Elements of Alternative Improvements** | | | |
| Airfield | Rwy 6L-24R shifts 350 ft. North<br>Extend Rwys 6L-24R and 6R-24L<br>North Centerfield Taxiway<br>Txwy D/E extensions & improvements<br>Lincoln Boulevard Realignment<br>ARGO Drainage Channel Modifications (Full) | Same | Same |
| Terminal | New Terminal 0 (7 Gates)<br>Modifications to T1,T3,BW,MSC | Same | Same |
| Ground Access | New Entry Roadways<br>New Intermodal Trans. Facility<br>Busway between CTA and Man.Sq.<br>New Surface Parking (Man.Sq.) | New Entry Roadways<br>New Intermodal Trans. Facility<br>Busway between CTA and Man.Sq.<br>**Public Parking in portion of Man.Sq.**<br>**Add'l Employee Parking East of Lot C**<br>**CONRAC in portion of Man.Sq.** | New Entry Roadways<br>New Intermodal Trans. Facility<br>**APM between CTA and Man.Sq.**<br>Public Parking in portion of Man.Sq.<br>Add'l Employee Parking East of Lot C<br>CONRAC in portion of Man.Sq. |

| **Estimated Costs ($1,000's)** | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] |
|---|---|---|---|---|---|---|
| LAX Base Development Projects [4] | | $ 6,490,000 | | $ 6,490,000 | | $ 6,490,000 |
| SPAS Alternative Improvements | | | | | | |
| Airfield Improvements | $ 806,660 | $ 1,099,792 | $ 806,660 | $ 1,099,792 | $ 806,660 | $ 1,099,792 |
| Terminal Improvements | $ 979,520 | $ 1,335,468 | $ 979,520 | $ 1,335,468 | $ 979,520 | $ 1,335,468 |
| Ground Access Improvements [5] | $ 438,000 | $ 597,165 | $ 489,000 | $ 666,698 | $ 371,000 | $ 505,818 |
| Automated People Mover (APM) System [6] | $ - | $ - | $ - | $ - | $ 729,000 | $ 993,809 |
| Consolidated Rental Car Facility (CONRAC) | $ - | $ - | $ 415,000 | $ 565,807 | $ 415,000 | $ 565,807 |
| Land Acquisition (Assumed Cost) | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 |
| **Total SPAS Alternative Improvements** | **$ 2,474,180** | **$ 3,282,424** | **$ 2,940,180** | **$ 3,917,764** | **$ 3,551,180** | **$ 4,750,693** |
| Total Estimated Costs | | $ 9,772,424 | | $ 10,407,764 | | $ 11,240,693 |
| **Approximation of Funding for SPAS Alternative Improvements ($1,000's)** | | | | | | |
| AIP Grants | | $ 250,000 | | $ 250,000 | | $ 250,000 |
| TSA Grants | | $ 80,000 | | $ 80,000 | | $ 80,000 |
| Passenger Facility Charges (Pay-As-You-Go) | | $ 150,000 | | $ 150,000 | | $ 150,000 |
| LAWA Cash | | $ 1,350,000 | | $ 1,350,000 | | $ 1,350,000 |
| Other Funding [7] | | $ 40,000 | | $ 605,807 | | $ 605,807 |
| Revenue Bond Proceeds | | $ 1,412,424 | | $ 1,481,957 | | $ 2,314,886 |
| **Total Estimated SPAS Alternative Funding Sources** | | **$ 3,282,424** | | **$ 3,917,764** | | **$ 4,750,693** |

1 SPAS Alternative Improvements were added to financial projections which already incorporated the LAX Base Development Projects. Impacts relative to the base projections are shown on Table 8-2.

2 Estimated project costs for Alternative Improvements include Contingency Costs (equal to 10% of construction cost) and Soft Costs (equal to 27% of construction cost).

3 Cost escalation for Alternative Improvements based on number of years to assumed mid-point of construction with 2% escalation for first two years, 3% for third year, and 3.5% for remaining years.

4 Includes approximately $2.1 billion for expenditures FY 2012-on for projects currently underway at LAX (most of which has already been funded). The remaining $4.4 billion is an approximation of costs associated with base projects planned for LAX through FY 2025--including the Midfield Satellite Concourse and associated processing facility, terminal renovations, continued soundproofing, and other projects.

5 Other than the future Consolidated Rental Car Facility (CONRAC) and Automated People Mover (APM) system, which are reflected separately.

6 Includes the APM guideway structure, APM stations, APM maintenance facility, APM cars/trains and associated systems/equipment.

7 Includes funds from Airport tenants for tenant-specific projects, rental car customer facility charge (CFC) revenues (pay-as-you-go), and proceeds from bonds assumed to be issued in connection with the CONRAC (assumed to be secured/paid for by CFC and CONRAC revenues).

Sources: LAWA and Ricondo & Associates, 2012.

**Table 8-1**

**Estimated Costs and Funding Sources for SPAS Alternatives [1]**

| | Alt. 6 With Alt.1-2 Ground Access | Alt. 6 With Alt.8 Ground Access | Alt. 6 With Alt.9 Ground Access |
|---|---|---|---|
| **Key Elements of Alternative Improvements** | | | |
| Airfield | Rwy 6L-24R shifts 100 ft. North<br>Extend Rwys 6L-24R and 6R-24L<br>North Centerfield Taxiway<br>Txwy D/E extensions & improvements<br>Lincoln Boulevard Realignment<br>ARGO Drainage Channel Modifications (Partial) | Same | Same |
| Terminal | New Terminal 0 (7 Gates)<br>Modifications to T1,T3,BW,MSC | Same | Same |
| Ground Access | New Entry Roadways<br>New Intermodal Trans. Facility<br>Busway between CTA and Man.Sq.<br>New Surface Parking (Man.Sq.) | New Entry Roadways<br>New Intermodal Trans. Facility<br>Busway between CTA and Man.Sq.<br>**Public Parking in portion of Man.Sq.**<br>**Add'l Employee Parking East of Lot C**<br>**CONRAC in portion of Man.Sq.** | New Entry Roadways<br>New Intermodal Trans. Facility<br>**APM between CTA and Man.Sq.**<br>Public Parking in portion of Man.Sq.<br>Add'l Employee Parking East of Lot C<br>CONRAC in portion of Man.Sq. |

| **Estimated Costs ($1,000's)** | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] |
|---|---|---|---|---|---|---|
| LAX Base Development Projects [4] | | $ 6,490,000 | | $ 6,490,000 | | $ 6,490,000 |
| SPAS Alternative Improvements | | | | | | |
| Airfield Improvements | $ 616,590 | $ 840,652 | $ 616,590 | $ 840,652 | $ 616,590 | $ 840,652 |
| Terminal Improvements | $ 1,081,640 | $ 1,474,697 | $ 1,081,640 | $ 1,474,697 | $ 1,081,640 | $ 1,474,697 |
| Ground Access Improvements [5] | $ 438,000 | $ 597,165 | $ 489,000 | $ 666,698 | $ 371,000 | $ 505,818 |
| Automated People Mover (APM) System [6] | $ - | $ - | $ - | $ - | $ 729,000 | $ 993,809 |
| Consolidated Rental Car Facility (CONRAC) | $ - | $ - | $ 415,000 | $ 565,807 | $ 415,000 | $ 565,807 |
| Land Acquisition (Assumed Cost) | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 |
| **Total SPAS Alternative Improvements** | **$ 2,386,230** | **$ 3,162,514** | **$ 2,852,230** | **$ 3,797,854** | **$ 3,463,230** | **$ 4,630,783** |
| Total Estimated Costs | | $ 9,652,514 | | $ 10,287,854 | | $ 11,120,783 |
| **Approximation of Funding for SPAS Alternative Improvements ($1,000's)** | | | | | | |
| AIP Grants | | $ 250,000 | | $ 250,000 | | $ 250,000 |
| TSA Grants | | $ 80,000 | | $ 80,000 | | $ 80,000 |
| Passenger Facility Charges (Pay-As-You-Go) | | $ 150,000 | | $ 150,000 | | $ 150,000 |
| LAWA Cash | | $ 1,350,000 | | $ 1,350,000 | | $ 1,350,000 |
| Other Funding [7] | | $ 40,000 | | $ 605,807 | | $ 605,807 |
| Revenue Bond Proceeds | | $ 1,292,514 | | $ 1,362,047 | | $ 2,194,976 |
| **Total Estimated SPAS Alternative Funding Sources** | | **$ 3,162,514** | | **$ 3,797,854** | | **$ 4,630,783** |

1 SPAS Alternative Improvements were added to financial projections which already incorporated the LAX Base Development Projects. Impacts relative to the base projections are shown on Table 8-2.

2 Estimated project costs for Alternative Improvements include Contingency Costs (equal to 10% of construction cost) and Soft Costs (equal to 27% of construction cost).

3 Cost escalation for Alternative Improvements based on number of years to assumed mid-point of construction with 2% escalation for first two years, 3% for third year, and 3.5% for remaining years.

4 Includes approximately $2.1 billion for expenditures FY 2012-on for projects currently underway at LAX (most of which has already been funded). The remaining $4.4 billion is an approximation of costs associated with base projects planned for LAX through FY 2025--including the Midfield Satellite Concourse and associated processing facility, terminal renovations, continued soundproofing, and other projects.

5 Other than the future Consolidated Rental Car Facility (CONRAC) and Automated People Mover (APM) system, which are reflected separately.

6 Includes the APM guideway structure, APM stations, APM maintenance facility, APM cars/trains and associated systems/equipment.

7 Includes funds from Airport tenants for tenant-specific projects, rental car customer facility charge (CFC) revenues (pay-as-you-go), and proceeds from bonds assumed to be issued in connection with the CONRAC (assumed to be secured/paid for by CFC and CONRAC revenues).

Sources: LAWA and Ricondo & Associates, 2012.

**Table 8-1**

**Estimated Costs and Funding Sources for SPAS Alternatives [1]**

| | Alt. 7 With Alt.1-2 Ground Access | Alt. 7 With Alt.8 Ground Access | Alt. 7 With Alt.9 Ground Access |
|---|---|---|---|
| **Key Elements of Alternative Improvements** | | | |
| Airfield | Rwy 6R-24L shifts 100 ft. South<br>Extend Rwy 6R-24L<br>North Centerfield Taxiway<br>Txwy D/E extensions & improvements | Same | Same |
| Terminal | New Terminal 0 (7 Gates)<br>Modifications to T1,T3,BW,MSC | Same | Same |
| Ground Access | New Entry Roadways<br>New Intermodal Trans. Facility<br>Busway between CTA and Man.Sq.<br>New Surface Parking (Man.Sq.) | New Entry Roadways<br>New Intermodal Trans. Facility<br>Busway between CTA and Man.Sq.<br>**Public Parking in portion of Man.Sq.**<br>**Add'l Employee Parking East of Lot C**<br>**CONRAC in portion of Man.Sq.** | New Entry Roadways<br>New Intermodal Trans. Facility<br>**APM between CTA and Man.Sq.**<br>Public Parking in portion of Man.Sq.<br>Add'l Employee Parking East of Lot C<br>CONRAC in portion of Man.Sq. |

| **Estimated Costs ($1,000's)** | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] | Estimated Costs (2010 Dollars) [2] | Escalated Costs [3] |
|---|---|---|---|---|---|---|
| LAX Base Development Projects [4] | | $ 6,490,000 | | $ 6,490,000 | | $ 6,490,000 |
| SPAS Alternative Improvements | | | | | | |
| Airfield Improvements | $ 523,100 | $ 713,189 | $ 523,100 | $ 713,189 | $ 523,100 | $ 713,189 |
| Terminal Improvements | $ 924,320 | $ 1,260,208 | $ 924,320 | $ 1,260,208 | $ 924,320 | $ 1,260,208 |
| Ground Access Improvements [5] | $ 438,000 | $ 597,165 | $ 489,000 | $ 666,698 | $ 371,000 | $ 505,818 |
| Automated People Mover (APM) System [6] | $ - | $ - | $ - | $ - | $ 729,000 | $ 993,809 |
| Consolidated Rental Car Facility (CONRAC) | $ - | $ - | $ 415,000 | $ 565,807 | $ 415,000 | $ 565,807 |
| Land Acquisition (Assumed Cost) | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 |
| **Total SPAS Alternative Improvements** | **$ 2,135,420** | **$ 2,820,562** | **$ 2,601,420** | **$ 3,455,902** | **$ 3,212,420** | **$ 4,288,831** |
| Total Estimated Costs | | $ 9,310,562 | | $ 9,945,902 | | $ 10,778,831 |
| **Approximation of Funding for SPAS Alternative Improvements ($1,000's)** | | | | | | |
| AIP Grants | | $ 250,000 | | $ 250,000 | | $ 250,000 |
| TSA Grants | | $ 80,000 | | $ 80,000 | | $ 80,000 |
| Passenger Facility Charges (Pay-As-You-Go) | | $ 150,000 | | $ 150,000 | | $ 150,000 |
| LAWA Cash | | $ 1,350,000 | | $ 1,350,000 | | $ 1,350,000 |
| Other Funding [7] | | $ 40,000 | | $ 605,807 | | $ 605,807 |
| Revenue Bond Proceeds | | $ 950,562 | | $ 1,020,095 | | $ 1,853,025 |
| **Total Estimated SPAS Alternative Funding Sources** | | **$ 2,820,562** | | **$ 3,455,902** | | **$ 4,288,831** |

1 SPAS Alternative Improvements were added to financial projections which already incorporated the LAX Base Development Projects. Impacts relative to the base projections are shown on Table 8-2.

2 Estimated project costs for Alternative Improvements include Contingency Costs (equal to 10% of construction cost) and Soft Costs (equal to 27% of construction cost).

3 Cost escalation for Alternative Improvements based on number of years to assumed mid-point of construction with 2% escalation for first two years, 3% for third year, and 3.5% for remaining years.

4 Includes approximately $2.1 billion for expenditures FY 2012-on for projects currently underway at LAX (most of which has already been funded). The remaining $4.4 billion is an approximation of costs associated with base projects planned for LAX through FY 2025--including the Midfield Satellite Concourse and associated processing facility, terminal renovations, continued soundproofing, and other projects.

5 Other than the future Consolidated Rental Car Facility (CONRAC) and Automated People Mover (APM) system, which are reflected separately.

6 Includes the APM guideway structure, APM stations, APM maintenance facility, APM cars/trains and associated systems/equipment.

7 Includes funds from Airport tenants for tenant-specific projects, rental car customer facility charge (CFC) revenues (pay-as-you-go), and proceeds from bonds assumed to be issued in connection with the CONRAC (assumed to be secured/paid for by CFC and CONRAC revenues).

Sources: LAWA and Ricondo & Associates, 2012.

### 8.6.4 LAWA Funds

LAWA funds represent cash that is generated annually from airport operations. In general, cash is available to fund future capital projects at the airport. However, in order to protect for unforeseen events or downturns, the use of LAWA funds reflected on **Table 8-1** is based on projections of future cash deposits and a LAWA requirement that cash plus the balance in LAWA's O&M expense reserve fund must be greater than or equal to 300 days' worth of LAX O&M expenses. As such, any excess cash deposits above this requirement are assumed to be applied toward LAX Base Development Projects and SPAS improvements. As required by the FAA's grant assurance requirements and its revenue diversion policy, any excess cash generated at the airport must be used for capital and operating costs of the airport, the local airport system, or other facilities owned and operated by LAWA that are directly related to the air transportation of passengers or property, and may not be used for non-airport purposes.

As reflected on **Table 8-1**, depending on the alternative, a range of approximately $669 million to $1.4 billion of LAWA funds is assumed to be used for SPAS improvements between FY 2015 and FY 2025.

### 8.6.5 Other Funds

Other funds include assumed airline tenant funds for certain terminal improvements as well as various funding sources associated with a potential CONRAC, including CFC revenues used to pay directly for CONRAC capital costs, future special facility bond proceeds assumed to be paid with CFC revenues, and certain CONRAC rents.

### 8.6.6 Future Revenue Bond Proceeds

Bond proceeds are assumed to be the remaining source of funding for SPAS improvement costs. Any additional local funding, beyond what is funded with FAA AIP funds, TSA funds, PFCs, LAWA Funds, CFCs, or other funding sources, are assumed to be funded through the issuance of general airport revenue bonds.

As reflected on **Table 8-1**, for alternatives other than Alternative 4, a range of $842 million to $13.7 billion of revenue bond proceeds is estimated to be required for SPAS improvements between FY 2015 and FY 2025. No future revenue bonds are expected to be required in connection with Alternative 4.

Estimates of debt service associated with future revenue bonds are based on assumptions related to bonds previously discussed in Section 8.4. Debt service for existing and future bonds is incorporated in the financial projections. As mentioned above in Section 8.6.3, for purposes of this analysis, it was assumed that LAWA would use a substantial portion of annual PFC revenues to pay for PFC-eligible debt service (up to 80 percent annually).

## 8.7 Estimated Financial Impacts

As described previously in Section 8.1, the financial analysis of the SPAS alternatives generally involved incorporating various assumptions related to improvements included in the SPAS alternatives and the LAX Base Development Projects into a financial projection model for LAX. This information included, among other things, estimates of project costs, debt service, expense and revenue impacts, and changes in facilities (size, layout, location, etc.). The estimated FY 2025 impacts on key financial metrics were developed for each alternative.

**Table 8-2** reflects escalated cost, facility, and estimated financial impact information for the SPAS alternatives (and combinations) analyzed. Escalated cost and facility information help explain why certain alternatives may cost more than others. As an example, Alternative 4 has the lowest escalated cost, but also includes no terminal improvements and relatively fewer airfield and ground access improvements.

Financial metrics reflected on **Table 8-2** include:

- Amount of investment (or cost) per FY 2025 enplaned passenger
- Estimated cost of SPAS terminal improvements per incremental square foot of terminal space
- Approximation of increase in CFC level per contract necessary to undertake the CONRAC-related projects (relative to the current CFC level of $10 per contract), such that CFC funds all of the costs associated with the construction and operation of the CONRAC and associated facilities
- Approximation of change in Budget FY 2025 O&M expenses per FY 2025 enplaned passenger (relative to base financial projection incorporating only the LAX Base Development Projects)
- Approximation of change in FY 2025 revenue bond principal per enplaned passenger (relative to base financial projection incorporating only the LAX Base Development Projects)
- Approximation of change in FY 2025 passenger airline cost per enplaned passenger (relative to base financial projection incorporating only the LAX Base Development Projects)
- Estimated risk of bond rating downgrade based on an increase in revenue bond principal and passenger airline cost per enplaned passenger

As shown on **Table 8-2**, each alternative was assigned a "Low," "Moderate," or "High" risk of causing a bond rating downgrade, based on various combinations of incremental debt per enplaned passenger and cost per enplaned passenger. Alternatives with incremental debt per enplaned passenger of less than $50 and incremental cost per enplaned passenger of less than $10 were assigned a "Low" risk of causing a bond rating downgrade. Alternatives with incremental debt per enplaned passenger equal to or greater than $50, but less than $100, or incremental cost per enplaned passenger of $10 to less than $20, were assigned a "Moderate" risk of causing a bond rating downgrade. Alternatives with incremental debt per enplaned passenger of $100 or greater or incremental cost per enplaned passenger of $20 or more, was assigned a "High" risk of causing a bond rating downgrade. Bond rating downgrades can result in higher interest rates, higher costs of borrowing, and higher costs to airport users. However, as noted previously, the analysis does not account for any potential increase in interest rates that could result from a bond rating downgrade.

Various estimated financial impacts by alternative, as shown on **Table 8-2**, are presented on **Figures 8-2** through **8-7**. **Figure 8-2** depicts the estimated escalated costs, by component, for each analyzed alternative. As reflected, the estimated cost of Alternative 3, at approximately $16.8 billion, is significantly higher than all other alternatives as a result of more extensive terminal, ground access, and APM improvements. The estimated cost of Alternative 4, at approximately $1.7 billion is substantially lower than other alternatives as it does not include airfield or terminal improvements (other than ongoing and reasonably-foreseeable non-Yellow Light projects). The estimated costs of the remaining alternatives and variations are in the $2.6 billion to $4.8 billion range depending primarily upon the extent of airfield and ground access improvements and whether or not a CONRAC or APM system is included.

**Figure 8-3** depicts the estimated cost of terminal improvements as a function of the net terminal area added for each alternative. As previously indicated, Alternative 4 does not include terminal improvements (other than ongoing and reasonably-foreseeable non-Yellow Light projects). As reflected, the estimated cost per net additional square foot is highest in Alternatives 3 and 7. Alternative 3 includes terminal improvements that are much more extensive than in other alternatives (in terms of both estimated cost and amount of terminal area) and Alternative 7 includes the least amount of net additional terminal area.

**Figure 8-4** depicts an approximate incremental CFC level per contract, as calculated for each alternative that includes a CONRAC, which would be added to the current CFC level of $10 per contract. The incremental CFC levels were estimated assuming that the total CFC level would be sufficient to pay debt service on the CONRAC, as well as a portion of the debt service related to the construction of APM infrastructure and the purchase of APM equipment/systems and buses, for each applicable alternative. The CFC was also assumed to fund a portion of APM and busing operating expenses allocated to the CONRAC, as applicable. A sufficient level of debt service coverage was also assumed to be covered by the estimated CFC. It was assumed that the increased CFC level would take effect upon opening of the

CONRAC (assumed to by FY 2025). As shown on **Figure 8-4**, for alternatives that incorporate Alternative 9 ground access improvements (including a 6,800-space CONRAC at Manchester Square and an APM system), it is estimated that the CFC level per contract would need to increase from $10 currently to approximately $20 in FY 2025. For Alternatives 3 and 4 that include a 9,000-space CONRAC at the Lot C site an APM system, it is estimated that the CFC level per contract would need to increase from $10 currently to approximately $44 and $28, respectively, in FY 2025. For alternatives that incorporate Alternative 8 ground access improvements, it is anticipated that an increase in the existing CFC level would not be required.

**Figure 8-5** presents an approximation of outstanding revenue bond debt in FY 2025. The chart distinguishes between (1) existing debt and estimated future debt associated with the LAX Base Development Projects and (2) estimated future debt associated with each SPAS alternative. As reflected on **Figure 8-5**, future debt estimated for Alternative 3 represents an approximate 400 percent increase relative to outstanding debt estimated for existing revenue bonds and future bonds associated with LAX Base Development Projects. It is anticipated that no future revenue bond debt would be required for Alternative 4. Future debt estimated for other alternatives are anticipated to represent increases ranging from approximately 19 percent to 53 percent relative to outstanding debt estimated for existing revenue bonds and future bonds associated with LAX Base Development Projects. **Figure 8-6** depicts similar information presented on a per enplaned passenger basis.

**Figure 8-7** illustrates an approximation of the change in FY 2025 passenger airline cost per enplaned passenger from the base projection. As reflected, a significant increase of approximately $20.40 per enplaned passenger is associated with Alternative 3 which includes more extensive terminal improvements and terminal costs relative to other alternatives. Alternative 3 also includes more extensive ground access and APM improvements and costs relative to other alternatives, and a portion of those costs are assumed to be allocated to terminal and airfield cost centers, thereby affecting airline costs. As Alternative 4 does not include airfield or terminal improvements (other than ongoing and reasonably-foreseeable non-Yellow Light projects), the estimated $0.40 per enplaned passenger increase in FY 2025 for Alternative 4 is not significant relative to other alternatives. The estimated increase for remaining alternatives ranges from approximately $2.30 to $4.10 per enplaned passenger depending primarily upon the extent of airfield and terminal improvements (and to a lesser extent, ground access and APM improvements) in each alternative.

**Table 8-2**
**Comparison of Alternative Costs, Facilities, and Financial Impacts**

| | | | Alternatives | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Alt. 1 | Alt.1 w/Alt.8 Ground Access | Alt.1 w/Alt.9 Ground Access | Alt. 2 | Alt.2 w/Alt.8 Ground Access | Alt.2 w/Alt.9 Ground Access | Alt. 3 | Alt. 4 | Alt.5 w/Alts.1-2 Ground Access | Alt.5 w/Alt.8 Ground Access | Alt.5 w/Alt.9 Ground Access | Alt.6 w/Alts.1-2 Ground Access | Alt.6 w/Alt.8 Ground Access | Alt.6 w/Alt.9 Ground Access | Alt.7 w/Alts.1-2 Ground Access | Alt.7 w/Alt.8 Ground Access | Alt.7 w/Alt.9 Ground Access |
| **Escalated SPAS Alternative Costs ($1,000's)** | | | | | | | | | | | | | | | | | | | |
| Airfield Improvements | | [a] | $ 972,520 | $ 972,520 | $ 972,520 | $ 279,768 | $ 279,768 | $ 279,768 | $ 742,775 | $ 43,628 | $ 1,099,792 | $ 1,099,792 | $ 1,099,792 | $ 840,652 | $ 840,652 | $ 840,652 | $ 713,189 | $ 713,189 | $ 713,189 |
| Terminal Improvements | | [b] | $ 1,474,697 | $ 1,474,697 | $ 1,474,697 | $ 1,474,697 | $ 1,474,697 | $ 1,474,697 | $ 6,346,443 | $ - | $ 1,335,468 | $ 1,335,468 | $ 1,335,468 | $ 1,474,697 | $ 1,474,697 | $ 1,474,697 | $ 1,260,208 | $ 1,260,208 | $ 1,260,208 |
| Ground Access Improvements Excluding CONRAC and APM | | [c] | $ 597,165 | $ 666,698 | $ 505,818 | $ 597,165 | $ 666,698 | $ 505,818 | $ 5,838,035 | $ 447,192 | $ 597,165 | $ 666,698 | $ 505,818 | $ 597,165 | $ 666,698 | $ 505,818 | $ 597,165 | $ 666,698 | $ 505,818 |
| Automated People Mover (APM) System [1] | | [d] | $ - | $ - | $ 993,809 | $ - | $ - | $ 993,809 | $ 2,494,734 | $ - | $ - | $ - | $ 993,809 | $ - | $ - | $ 993,809 | $ - | $ - | $ 993,809 |
| Consolidated Rental Car Facility (CONRAC) | | [e] | $ - | $ 565,807 | $ 565,807 | $ - | $ 565,807 | $ 565,807 | $ 969,370 | $ 969,370 | $ - | $ 565,807 | $ 565,807 | $ - | $ 565,807 | $ 565,807 | $ - | $ 565,807 | $ 565,807 |
| Land Acquisition (Assumed Order of Magnitude Cost) | | [f] | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 400,000 | $ 200,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 | $ 250,000 |
| **Escalated Cost of SPAS Alternatives ($1,000's)** | | **[g]** | **$ 3,294,381** | **$ 3,929,721** | **$ 4,762,650** | **$ 2,601,629** | **$ 3,236,969** | **$ 4,069,898** | **$ 16,791,356** | **$ 1,660,190** | **$ 3,282,424** | **$ 3,917,764** | **$ 4,750,693** | **$ 3,162,514** | **$ 3,797,854** | **$ 4,630,783** | **$ 2,820,562** | **$ 3,455,902** | **$ 4,288,831** |
| Airfield | Rwy 6L-24R shift | | 260' North | 260' North | 260' North | | | | | | 350' North | 350' North | 350' North | 100' North | 100' North | 100' North | | | |
| | Rwy 6R-24L shift | | | | | | | | 340' South | | | | | | | | 100' South | 100' South | 100' South |
| | Realign Lincoln Boulevard | | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| | Extension of Runways | | 6L-24R, 6R-24L | 6L-24R, 6R-24L | 6L-24R, 6R-24L | 6R-24L | 6R-24L | 6R-24L | 6L-24R, 6R-24L | 6R-24L | 6L-24R, 6R-24L | 6L-24R, 6R-24L | 6L-24R, 6R-24L | 6L-24R, 6R-24L | 6L-24R, 6R-24L | 6L-24R, 6R-24L | 6R-24L | 6R-24L | 6R-24L |
| | North Centerfield Taxiway | | ✓ | ✓ | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Taxiway extensions & improvements | | Txwys D & E | Txwys D & E | Txwys D & E | Txwys D & E | Txwys D & E | Txwys D & E | Txwys D & E | Txwy E | Txwys D & E | Txwys D & E | Txwys D & E | Txwys D & E | Txwys D & E | Txwys D & E | Txwys D & E | Txwys D & E | Txwys D & E |
| | ARGO Drainage Channel Modifications (Full) | | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | | | | | | |
| | ARGO Drainage Channel Modifications (Partial) | | | | | | | | | | | | | ✓ | ✓ | ✓ | | | |
| Terminal | New Terminal 0 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Modifications to T1,T3,BW,MSC | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Demolish T1, T2, T3/Build New Linear Concourse | | | | | | | | ✓ | | | | | | | | | | |
| | Incremental Terminal Square Feet | [h] | 613,200 | 613,200 | 613,200 | 613,200 | 613,200 | 613,200 | 2,306,000 | - | 528,100 | 528,100 | 528,100 | 613,200 | 613,200 | 613,200 | 451,100 | 451,100 | 451,100 |
| Ground Access | Ground Access From Alternative | | Alts. 1-2 | Alt. 8 | Alt. 9 | Alts. 1-2 | Alt. 8 | Alt. 9 | Alt. 3 | Alt. 4 | Alts. 1-2 | Alt. 8 | Alt. 9 | Alts. 1-2 | Alt. 8 | Alt. 9 | Alts. 1-2 | Alt. 8 | Alt. 9 |
| | New Parking Structures | | ITF | ITF | ITF | ITF | ITF | ITF | GTC,ITC,West Emp | ITC site | ITF | ITF | ITF | ITF | ITF | ITF | ITF | ITF | ITF |
| | New Parking Surface Lots | | M.Sq. | M.Sq. | M.Sq. | M.Sq. | M.Sq. | M.Sq. | Southeast | | M.Sq. | M.Sq. | M.Sq. | M.Sq. | M.Sq. | M.Sq. | M.Sq. | M.Sq. | M.Sq. |
| | Eliminate CTA Parking Structures | | | | | | | | ✓ | | | | | | | | | | |
| | Eliminate Lot C/Lot D Surface Parking | | | | | | | | ✓ | ✓ | | | | | | | | | |
| | Eliminate Park One Surface Parking | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Change in Parking Spaces (Public & Employee) | [i] | 9,872 | 9,122 | 9,122 | 9,872 | 9,122 | 9,122 | 12,679 | 2,953 | 9,872 | 9,122 | 9,122 | 9,872 | 9,122 | 9,122 | 9,872 | 9,122 | 9,122 |
| | New Transportation Facility Buildings | | ITF | ITF | ITF | ITF | ITF | ITF | GTC, ITC | | ITF | ITF | ITF | ITF | ITF | ITF | ITF | ITF | ITF |
| | New Roadways | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Add'l Employee Parking East of Lot C | | | ✓ | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ |
| | CONRAC (M.Sq.=6,800 spaces, Lot C=9,000 spaces) | | | M.Sq. | M.Sq. | | M.Sq. | M.Sq. | Lot C site | Lot C site | | M.Sq. | M.Sq. | | M.Sq. | M.Sq. | | M.Sq. | M.Sq. |
| | APM System | | | | CTA-M.Sq. | | | CTA-M.Sq. | 2 APMs | | | | CTA-M.Sq. | | | CTA-M.Sq. | | | CTA-M.Sq. |
| Estimated Amount of Investment (Cost) Per FY 2025 Enplaned Passenger | | | | | | | | | | | | | | | | | | | |
| Airfield Improvements | | [a]/39.45mil | $ 24.65 | $ 24.65 | $ 24.65 | $ 7.09 | $ 7.09 | $ 7.09 | $ 18.83 | $ 1.11 | $ 27.88 | $ 27.88 | $ 27.88 | $ 21.31 | $ 21.31 | $ 21.31 | $ 18.08 | $ 18.08 | $ 18.08 |
| Terminal Improvements | | [b]/39.45mil | $ 37.38 | $ 37.38 | $ 37.38 | $ 37.38 | $ 37.38 | $ 37.38 | $ 160.87 | $ - | $ 33.85 | $ 33.85 | $ 33.85 | $ 37.38 | $ 37.38 | $ 37.38 | $ 31.94 | $ 31.94 | $ 31.94 |
| Ground Access Improvements Excluding CONRAC | | [c]/39.45mil | $ 15.14 | $ 16.90 | $ 12.82 | $ 15.14 | $ 16.90 | $ 12.82 | $ 147.99 | $ 11.34 | $ 15.14 | $ 16.90 | $ 12.82 | $ 15.14 | $ 16.90 | $ 12.82 | $ 15.14 | $ 16.90 | $ 12.82 |
| Automated People Mover (APM) System | | [d]/39.45mil | $ - | $ - | $ 25.19 | $ - | $ - | $ 25.19 | $ 63.24 | $ - | $ - | $ - | $ 25.19 | $ - | $ - | $ 25.19 | $ - | $ - | $ 25.19 |
| Consolidated Rental Car Facility (CONRAC) | | [e]/39.45mil | $ - | $ 14.34 | $ 14.34 | $ - | $ 14.34 | $ 14.34 | $ 24.57 | $ 24.57 | $ - | $ 14.34 | $ 14.34 | $ - | $ 14.34 | $ 14.34 | $ - | $ 14.34 | $ 14.34 |
| Land Acquisition | | [f]/39.45mil | $ 6.34 | $ 6.34 | $ 6.34 | $ 6.34 | $ 6.34 | $ 6.34 | $ 10.14 | $ 5.07 | $ 6.34 | $ 6.34 | $ 6.34 | $ 6.34 | $ 6.34 | $ 6.34 | $ 6.34 | $ 6.34 | $ 6.34 |
| **Total SPAS Alternative Investment Per Enplaned Passenger** | | **[g]/39.45mil** | **$ 83.51** | **$ 99.61** | **$ 120.73** | **$ 65.95** | **$ 82.05** | **$ 103.17** | **$ 425.64** | **$ 42.08** | **$ 83.20** | **$ 99.31** | **$ 120.42** | **$ 80.17** | **$ 96.27** | **$ 117.38** | **$ 71.50** | **$ 87.60** | **$ 108.72** |
| Estimated Cost of SPAS Terminal Improvements Per Incremental Square Foot of Terminal Space | | =[b]*1000/[h] | $ 2,405 | $ 2,405 | $ 2,405 | $ 2,405 | $ 2,405 | $ 2,405 | $ 2,752 | n/a | $ 2,529 | $ 2,529 | $ 2,529 | $ 2,405 | $ 2,405 | $ 2,405 | $ 2,794 | $ 2,794 | $ 2,794 |
| Approximation of Increase in CFC Level per Contract for CONRAC [2] | | | | No Increase | $5 - $10 | | No Increase | $5 - $10 | $29 - $34 | $13 - $18 | | No Increase | $5 - $10 | | No Increase | $5 - $10 | | No Increase | $5 - $10 |
| Approximation of Change in Budget FY 2025 O&M Expenses ($1,000's) [3] | | [j] | $ 55,740,000 | $ 66,740,000 | $ 77,020,000 | $ 55,740,000 | $ 66,740,000 | $ 77,020,000 | $ 317,716,000 | $ 22,000,000 | $ 51,752,000 | $ 62,752,000 | $ 73,032,000 | $ 55,740,000 | $ 66,740,000 | $ 77,020,000 | $ 48,142,000 | $ 59,142,000 | $ 69,422,000 |
| Per FY 2025 Enplaned Passenger [3] | | [j]/39.45mil | $ 1.41 | $ 1.69 | $ 1.95 | $ 1.41 | $ 1.69 | $ 1.95 | $ 8.05 | $ 0.56 | $ 1.31 | $ 1.59 | $ 1.85 | $ 1.41 | $ 1.69 | $ 1.95 | $ 1.22 | $ 1.50 | $ 1.76 |
| Approximation of Change in FY 2025 Revenue Bond Principal (Debt) ($1,000's) [3,4] | | | $ 1,709,000 | $ 1,827,000 | $ 2,761,000 | $ 1,010,000 | $ 1,127,000 | $ 2,062,000 | $ 16,320,000 | $ - | $ 1,695,000 | $ 1,812,000 | $ 2,747,000 | $ 1,551,000 | $ 1,668,000 | $ 2,603,000 | $ 1,141,000 | $ 1,258,000 | $ 2,193,000 |
| Per Enplaned Passenger (FY 2025 SPAS Forecast) [3] | | | $ 43.32 | $ 46.31 | $ 69.99 | $ 25.60 | $ 28.57 | $ 52.27 | $ 413.69 | $ - | $ 42.97 | $ 45.93 | $ 69.63 | $ 39.32 | $ 42.28 | $ 65.98 | $ 28.92 | $ 31.89 | $ 55.59 |
| Approximation of Change in FY 2025 Passenger Airline Cost Per Enplaned Passenger [3] | | | $3.70 | $3.70 | $4.10 | $2.30 | $2.40 | $2.80 | $20.40 | $0.40 | $3.60 | $3.60 | $4.00 | $3.40 | $3.40 | $3.80 | $2.50 | $2.60 | $3.00 |
| Estimated Risk of Bond Rating Downgrade Based on Change in FY 2025 Revenue Bond Principal and Passenger Airline Cost Per Enplaned Passenger [5] | | | Low | Low | Moderate | Low | Low | Moderate | High | Low | Low | Low | Moderate | Low | Low | Moderate | Low | Low | Moderate |

1 Includes the APM guideway structure, APM stations, APM maintenance facility, APM cars/trains and associated systems/equipment.
2 In alternatives where there is no CONRAC, a CFC would ultimately not be required. The increase shown would be added to the current CFC level of $10 per rental car contract.
3 Relative to projection for LAX Base Development Projects only.
4 Approximation of bond principal amount here includes bond issuance costs (including capitalized interest, debt service reserve fund, etc.), and is thus higher than bond proceeds amount reflected on Table 8-1.
5 The analysis does not account for any potential increase in interest rates that could result from a bond rating downgrade.

Sources: LAWA and Ricondo & Associates, 2012.

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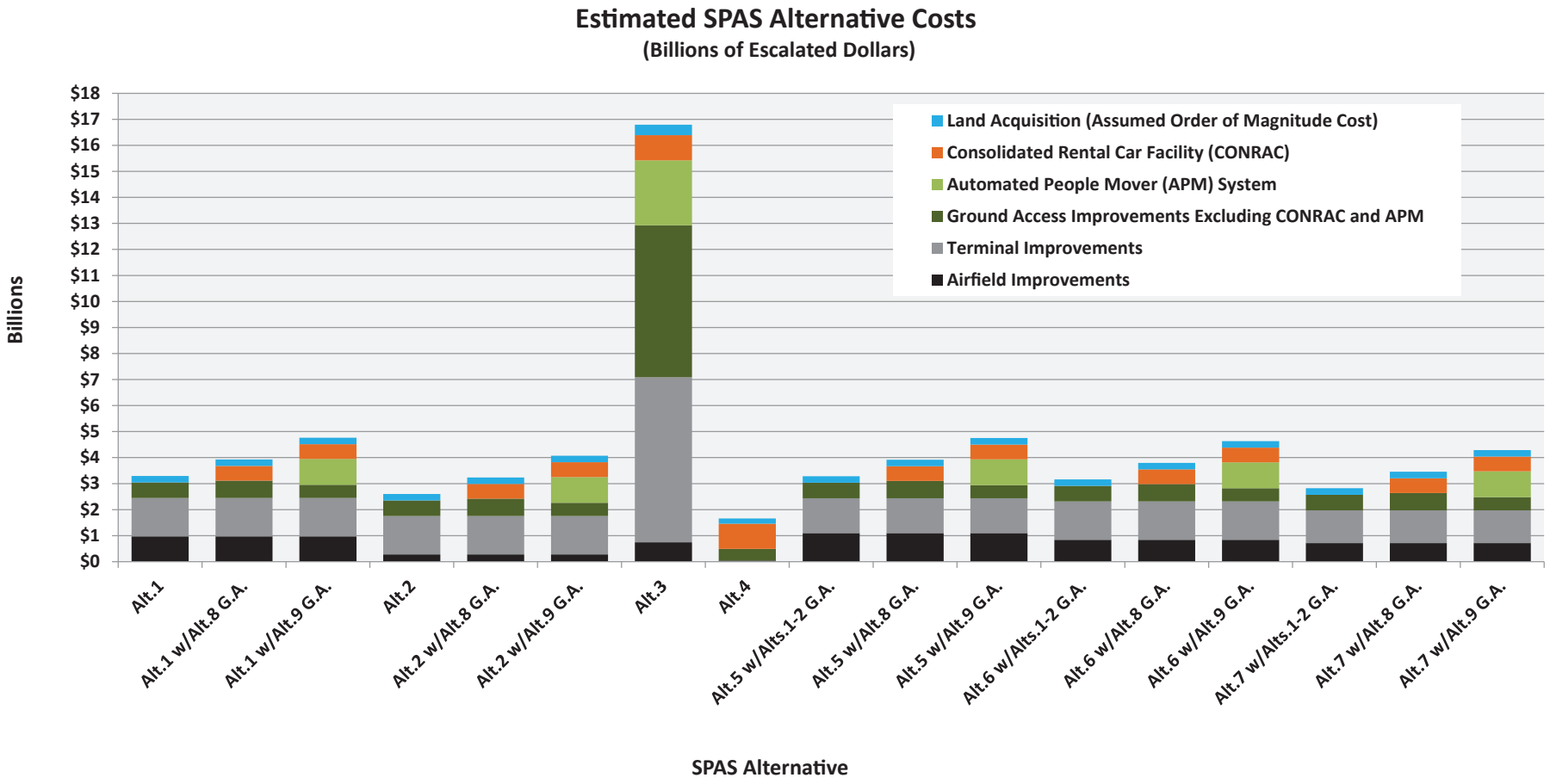


Sources: LAWA, CDM Smith, and Ricondo & Associates, Inc., 2012.
Prepared by: Ricondo & Associates, Inc., 2012.

| LAX Specific Plan Amendment Study Report | Estimated SPAS Alternative Costs | Figure 8-2 |
|---|---|---|

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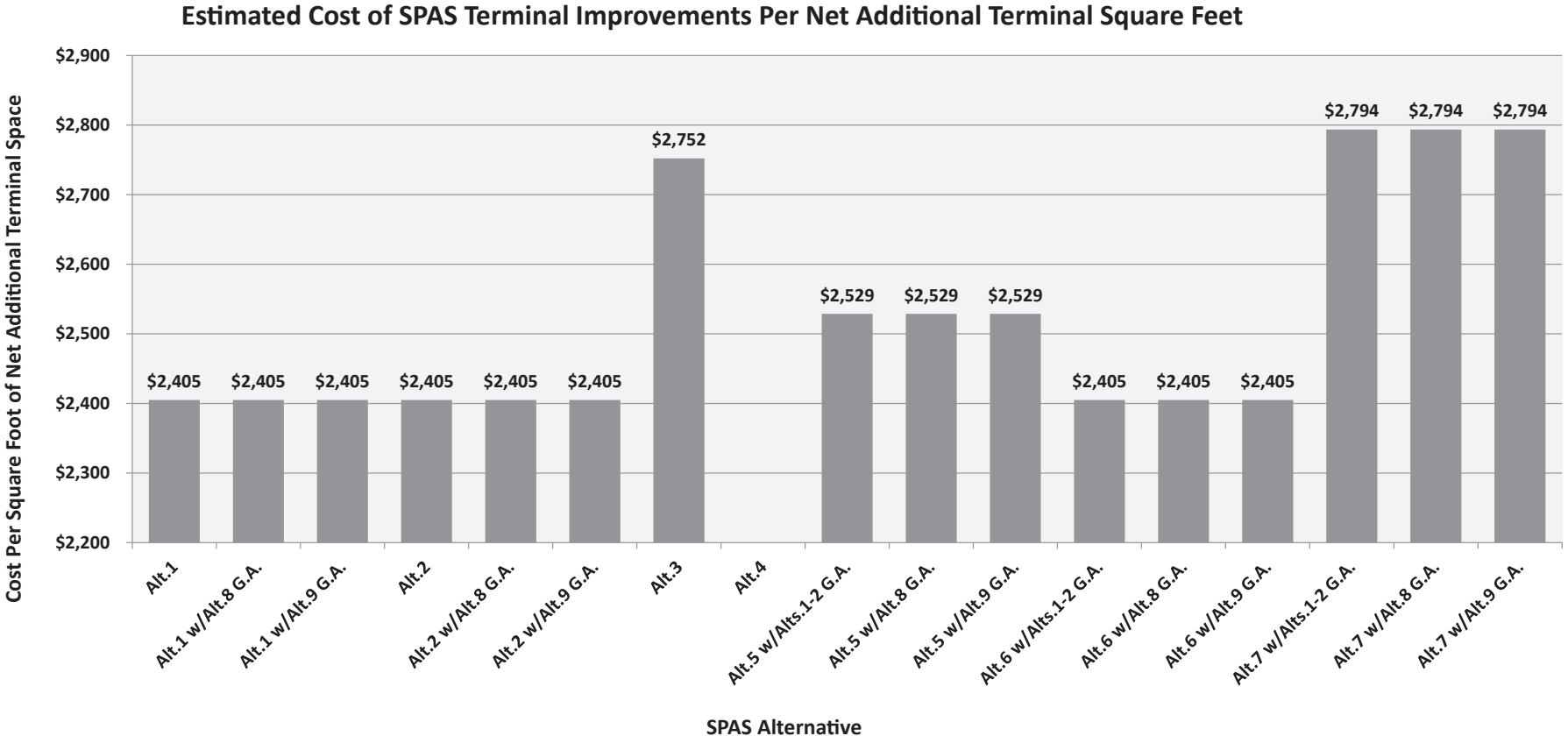


Sources: LAWA, CDM Smith, and Ricondo & Associates, Inc., 2012.
Prepared by: Ricondo & Associates, Inc., 2012.

| LAX Specific Plan Amendment Study Report | Estimated Cost of SPAS Terminal Improvements Per Net Additional Terminal Square Feet | Figure 8-3 |
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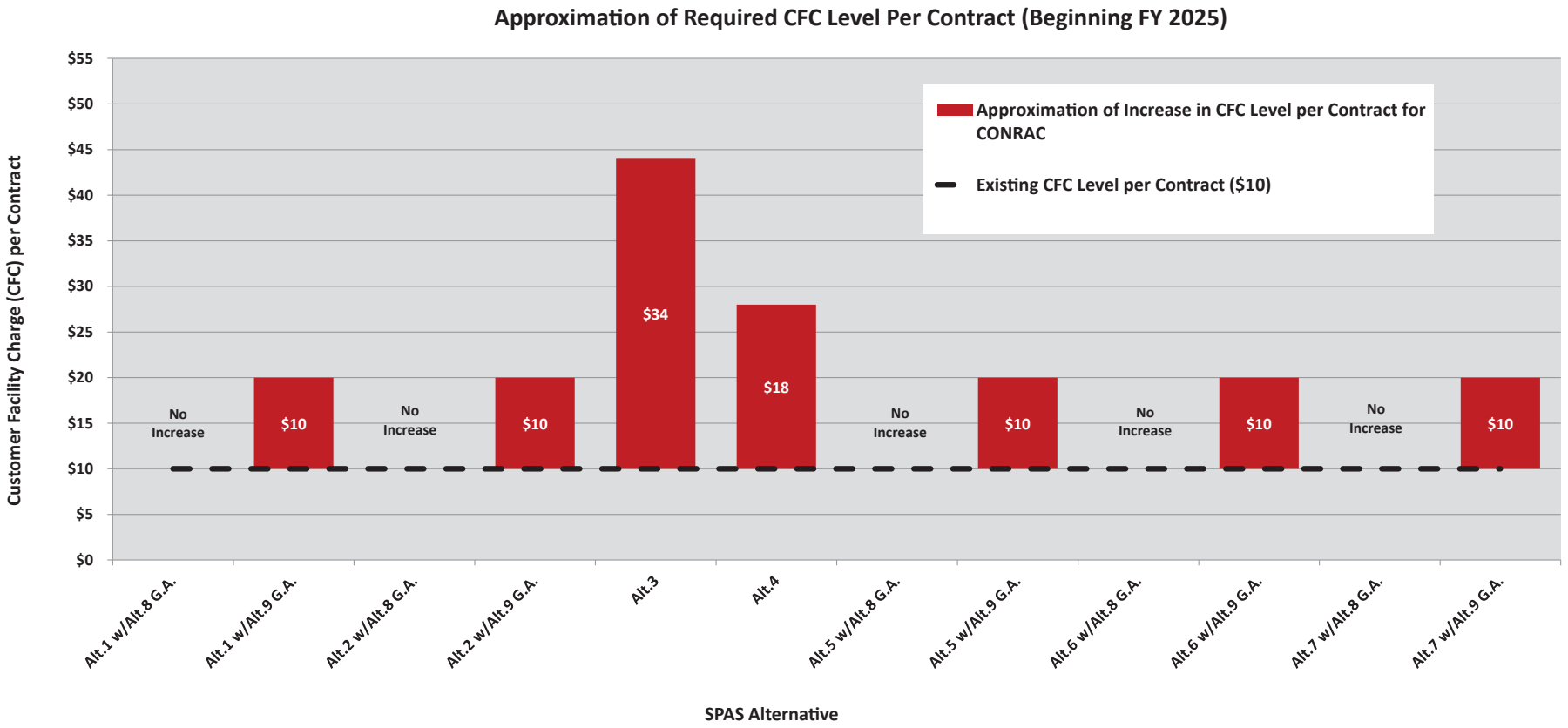


Note: The approximate CFC levels depicted on this chart assume that the CFC would cover ConRAC-related facility debt service, shuttle bus or APM expenses allocated to the CONRAC, a portion of debt service for the purchase of buses or APM cars, and sufficient debt service coverage.

Sources: LAWA and Ricondo & Associates, Inc., 2012.
Prepared by: Ricondo & Associates, Inc., 2012.

| LAX Specific Plan Amendment Study Report | Approximation of Required CFC Level Per Contract (Beginning FY 2025) | Figure 8-4 |
|---|---|---|

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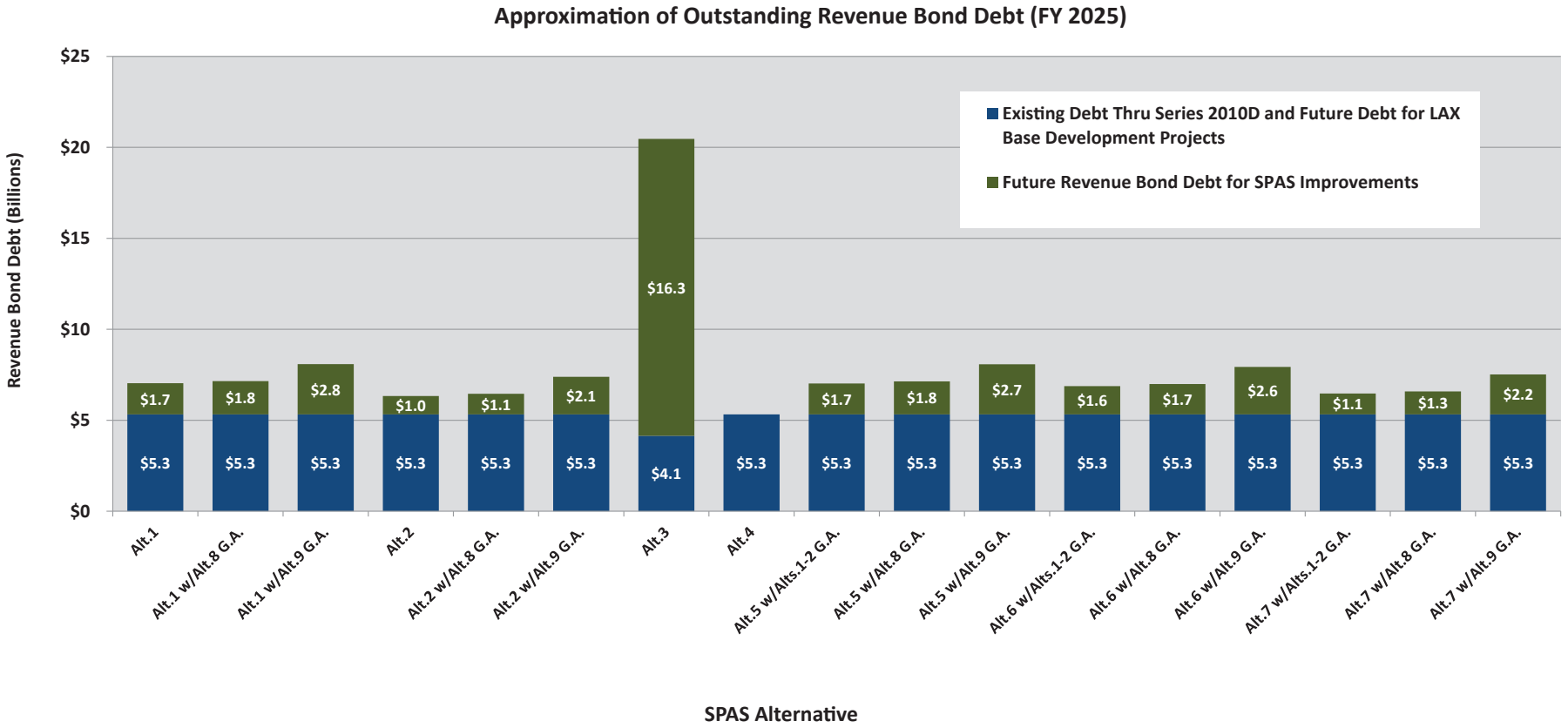


Note: Amount for existing debt through Series 2010D and future debt for LAX Base Development Projects in Alternative 3 for FY 2025 is less than in other Alternatives because certain LAX Base Development Projects are not incorporated in the Base for Alternative 3 (see Table 8-1).

Sources: LAWA and Ricondo & Associates, Inc., 2012.
Prepared by: Ricondo & Associates, Inc., 2012.

| LAX Specific Plan Amendment Study Report | Approximation of Outstanding Revenue Bond Debt (FY 2025) | Figure 8-5 |
|---|---|---|

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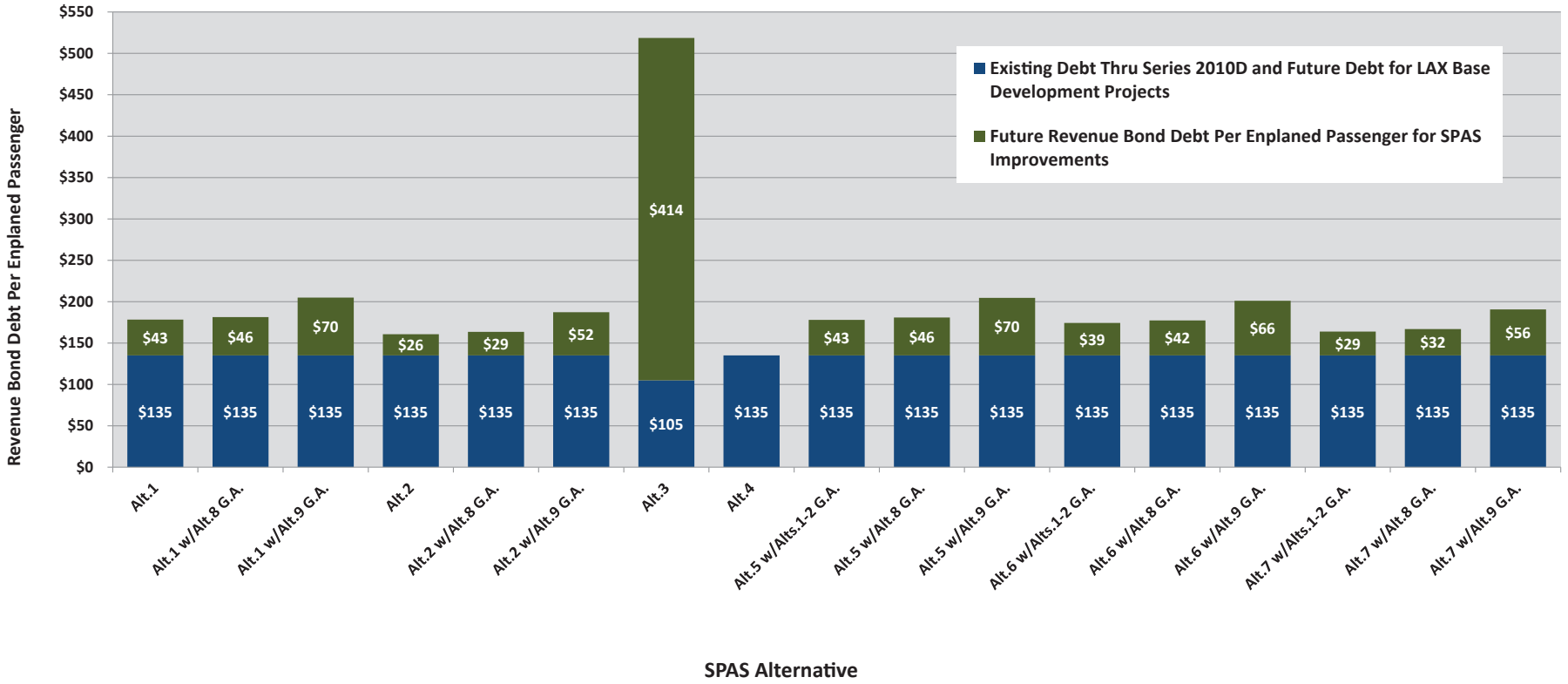
## Approximation of Outstanding Revenue Bond Debt Per Enplaned Passenger (FY 2025)




Note: Amount for existing debt through Series 2010D and future debt for LAX Base Development Projects in Alternative 3 for FY 2025 is less than in other Alternatives because certain LAX Base Development Projects are not incorporated in the Base for Alternative 3 (see Table 8-1).

Sources: LAWA and Ricondo & Associates, Inc., 2012.
Prepared by: Ricondo & Associates, Inc., 2012.

| LAX Specific Plan Amendment Study Report | Approximation of Outstanding Revenue Bond Debt Per Enplaned Passenger (FY 2025) | Figure 8-6 |
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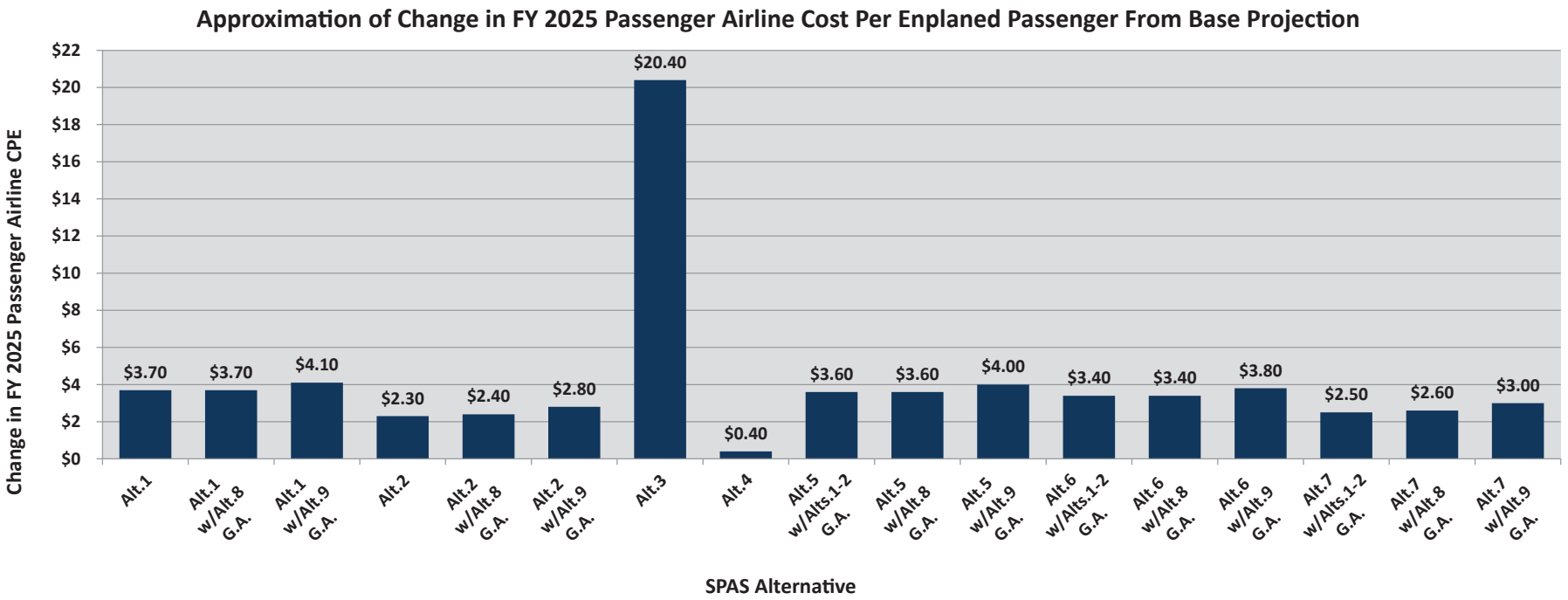


Sources: LAWA and Ricondo & Associates, Inc., 2012.
Prepared by: Ricondo & Associates, Inc., 2012.

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