Los Angeles World Airports

LAX Specific Plan Amendment Study (SPAS)
Advisory Committee Meeting

May 5, 2011

Background

- The LAX Master Plan serves as the airport's long range development plan. It establishes the framework for various airport programs and projects, including:
  - Airfield configuration
  - Ground access and regional transit connections
  - Terminal improvements

- The LAX Master Plan was adopted in December 2004
  - However, pursuant to the LAX Specific Plan adopted by the City Council, certain projects required additional study prior to final approval.
  - The Stipulated Settlement Agreement further defined how the study of these "Yellow Light" projects is to be conducted.
  - "Yellow Light" projects cannot be implemented until they are evaluated through Specific Plan Amendment Study (SPAS) process and are approved by the City Council.

SPAS - Objectives

- The LAX Stipulated Settlement states that the purpose of SPAS is to identify 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 will encourage airlines to go to other airports in the region, particularly those owned and operated by LAWA".

- The Settlement Agreement states that SPAS should focus on "solutions to the problems that the Yellow Light projects were designed to address". The "Yellow Light" Designated Projects are:
  - Reconfiguration of North Airfield
  - Ground Transportation Center (GTC)
  - Automated People Mover (APM) between Central Terminal Area (CTA) and GTC
  - Demolition of Terminals 1, 2 and 3
  - Roadways associated with GTC and APM

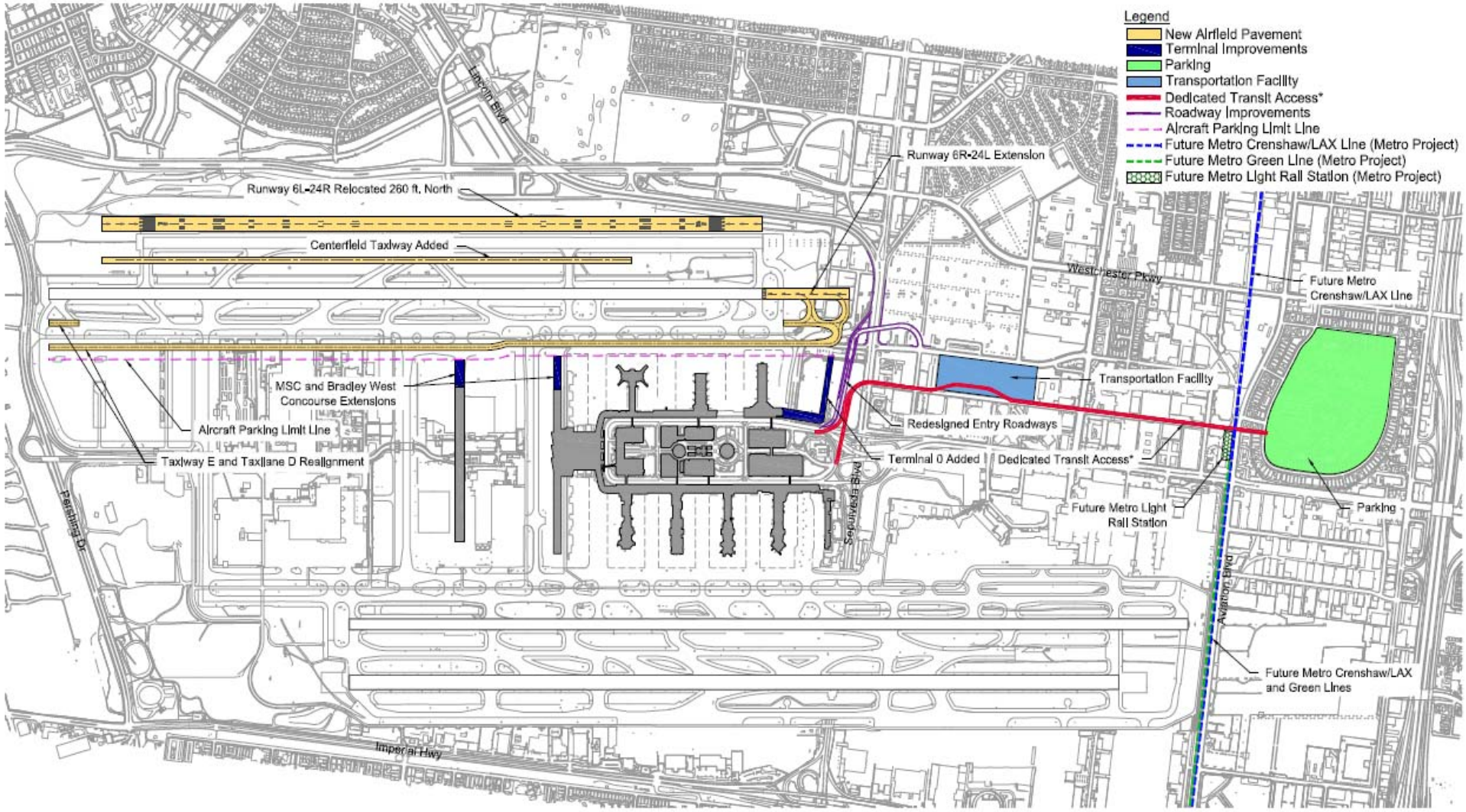
Proposed SPAS Alternatives

- Based on a preliminary review of the airfield, terminal, and ground access options identified in the SPAS EIR NOP, LAWA has refined those options into two alternatives that merit in-depth study through the SPAS process. We will be initiating the preparation of our Draft Environmental Impact Report with study of these Alternatives.

- At the same time, we will continue to study other airfield, terminal, and ground transportation options identified in the NOP as a part of the SPAS process.

- LAWA will also evaluate the Master Plan (i.e., Alternative D) as well as an alternative that evaluates future activity if no Yellow Light Projects or replacements for those projects were implemented.

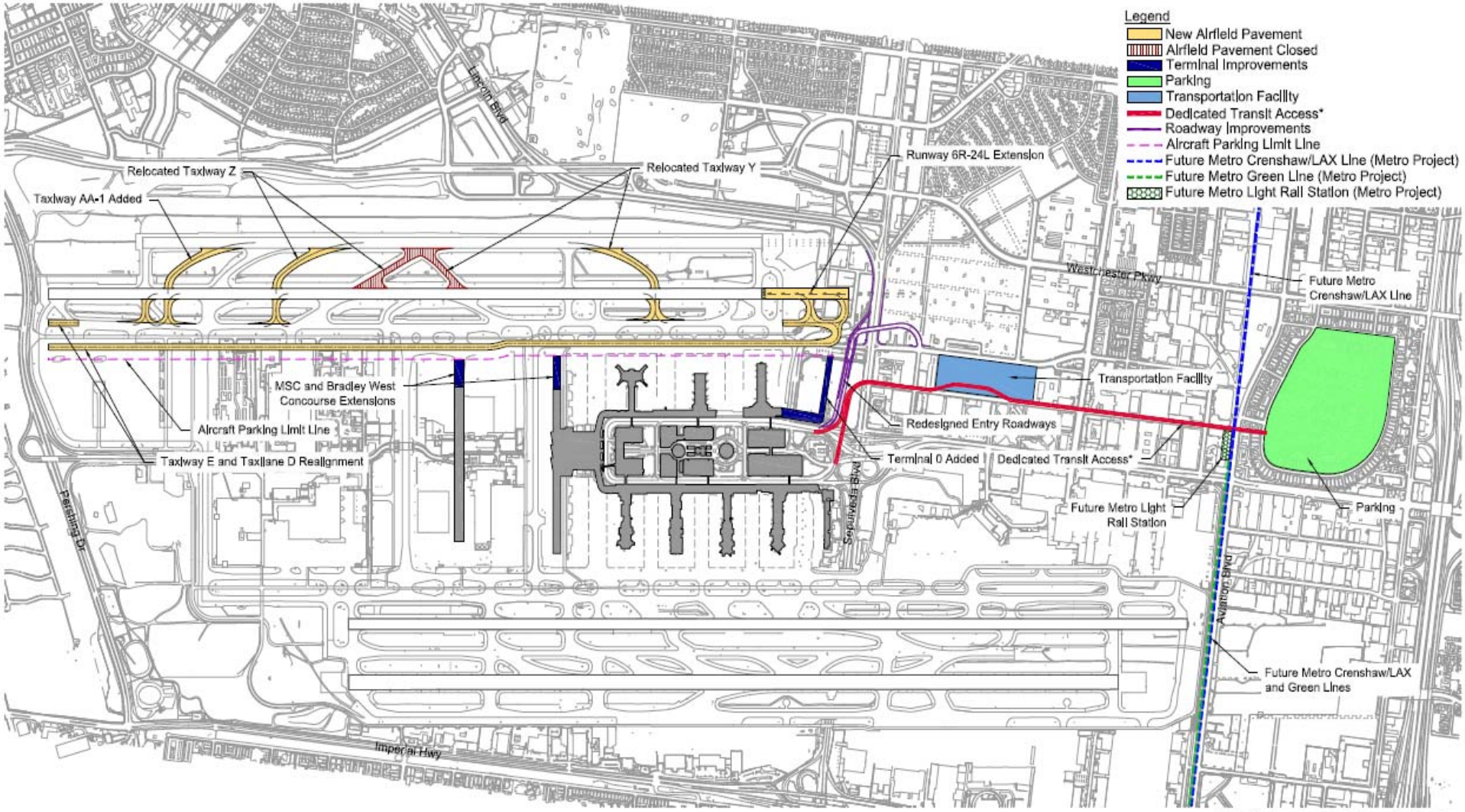
SPAS Alternative 1



Source: HNTB, Los Angeles International Airport Layout Plan, August 2010; FAA, AC 150/5300-13 *Airport Design*, January 3, 2011; Ricondo & Associates, Inc., May 2011.
Prepared by: Ricondo & Associates, Inc., May 2011.

* Note: Such access is also being studied by Metro.

SPAS Alternative 2



Source: HNTB, Los Angeles International Airport Layout Plan, August 2010; FAA, AC 150/5300-13 *Airport Design*, January 3, 2011; URS, ITSIP Design Alternative 6 Exit Geometry, May 2010; Ricondo & Associates, Inc., May 2011.
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Runway Separation Analysis Process

- Review of North Airfield Planning Objectives (Presented at August 16, 2010 Advisory Committee Meeting)

- Review of FAA Runway and Taxiway Separation Standards
  - Current Application
    - Aircraft Design Group
    - Visibility Conditions
  - Functional Intent of the Standards

- Review of FAA Taxiway Design Guidelines
  - Recommended Taxiway Design
  - Functional Intent of Guidelines

- Develop Airfield Option operational profiles

- Applied SPAS future fleet mix data

Proposed North Airfield Planning Objectives

Provides for north airfield improvements that:

- Are consistent with FAA design standards for the largest aircraft types currently in service and anticipated for the future (Group 5 and 6 aircraft) for all weather conditions.
- Minimize if not avoid 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.
- Can accommodate a greater percentage of departing aircraft, thereby increasing airfield efficiency.
- Minimize or eliminate the extent to which the Runway Protection Zone overlays residential areas.
- Minimize construction-related impacts, including disruption to airport operations.
- Provide sufficient areas at the ends of the runways for holding arriving flights and sequencing departing aircraft.

Proposed North Airfield Planning Objectives – Runway Separation

- Planning Objectives specifically related to runway separation provide that alternate designs:
  - Are consistent with FAA design standards for the largest aircraft types currently in service and anticipated for the future (Group 5 and 6 aircraft) for all weather conditions.
  - Minimize if not avoid 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.

FAA Runway-Taxiway Separation Standards

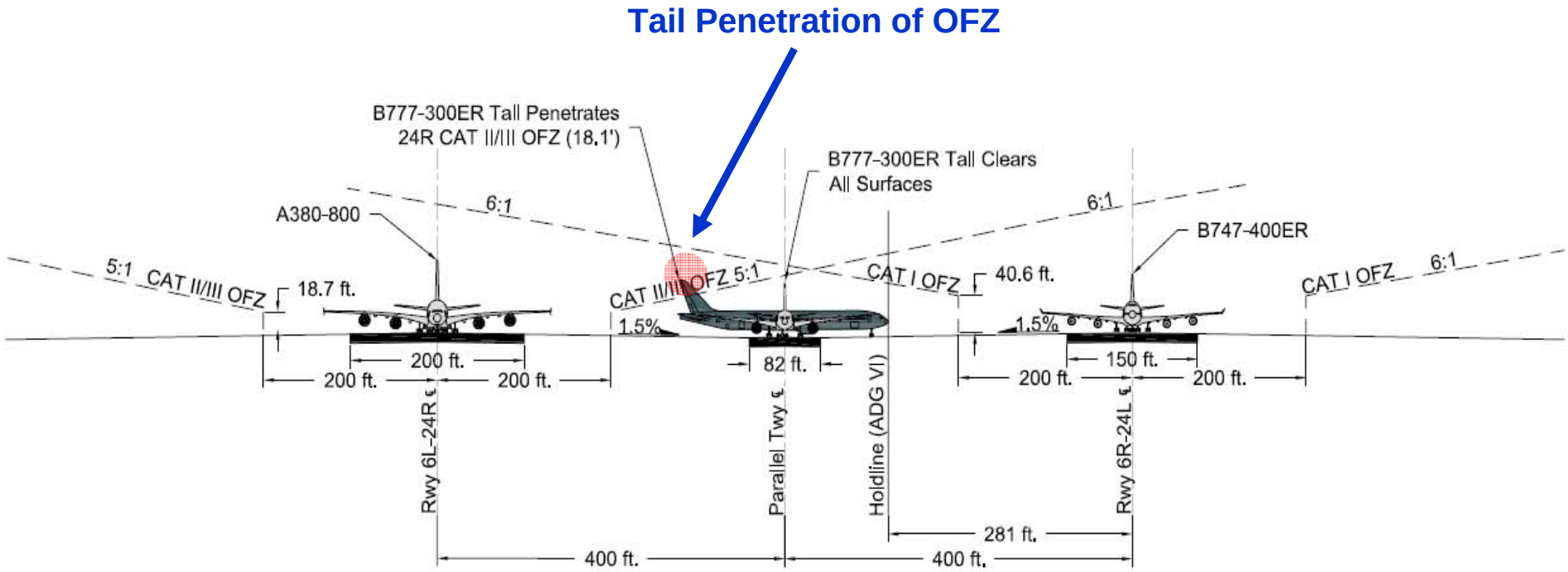
- FAA Runway-Taxiway Separation Standards are designed to protect each runway's Object Free Zone (OFZ) and Runway Safety Area (RSA) from being penetrated by any part of an airplane on a parallel taxiway.
- Standards are based both on FAA-designated Aircraft Design Group and visibility conditions.

	Approach Visibility (statute miles)	
Aircraft Category	>= ½ mile	< ½ mile
ADG 3	400'	400'
ADG 4	400'	400'
ADG 5	400'	500'
ADG 6	500'	550'

Protecting Runway RSA/OFZs

Profile Analysis

- Aircraft/Airfield profiles were used to determine whether LAWA could meet the intent of FAA Standards and Guidelines under non-standard airfield configurations.



Example: Boeing 777-300 ER at 90 degrees on the SPAS 100' North Concept

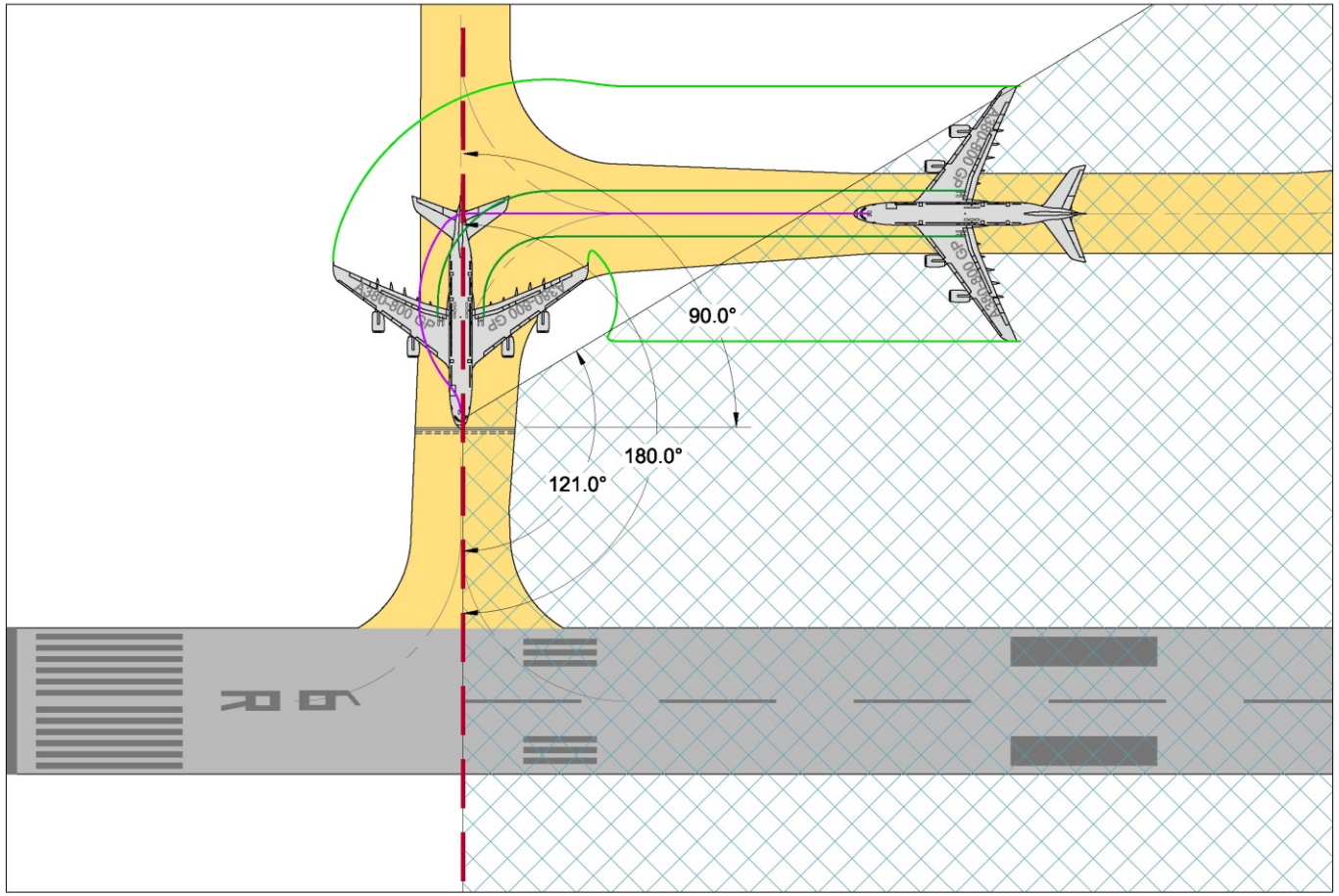
FAA Taxiway Design Guidelines

- FAA makes recommendations* on taxiway design to reduce the risk of incursions and improve situational awareness, including:
  - Centerline Taxiways between parallel runways
  - Right Angle (90 Degrees) Taxiways when crossing runways
  - Design Exit Taxiways in latter third of runway
  - Dual Parallel Taxiways to service terminals, gates, and runway

*Note : Sources of recommendations include: FAA Engineering Brief 75 and letter from the FAA Administrator to City of Los Angeles Mayor Antonio Villaraigosa dated April 2, 2010.

FAA Cross-Taxiway Design Guidelines

- FAA Engineering Brief 75: Recommends right-angle taxiways to provide the best visual perspective to pilots holding to cross in order to optimize pilots' recognition of entry into the runway



Line of Sight Analysis

- To meet the intent of the FAA recommended 90 degree angle crossing taxiway design, “Line of Sight” analyses were conducted to find what angles specific aircraft could reach to increase situational awareness when crossing the inboard runway.

Line of Sight Analysis:
6L-24R 100’/200’ North Options

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Line of Sight Analysis:
6L-24R 300’ North Option

Line of Sight Analysis:
6L-24R 260’ North Option

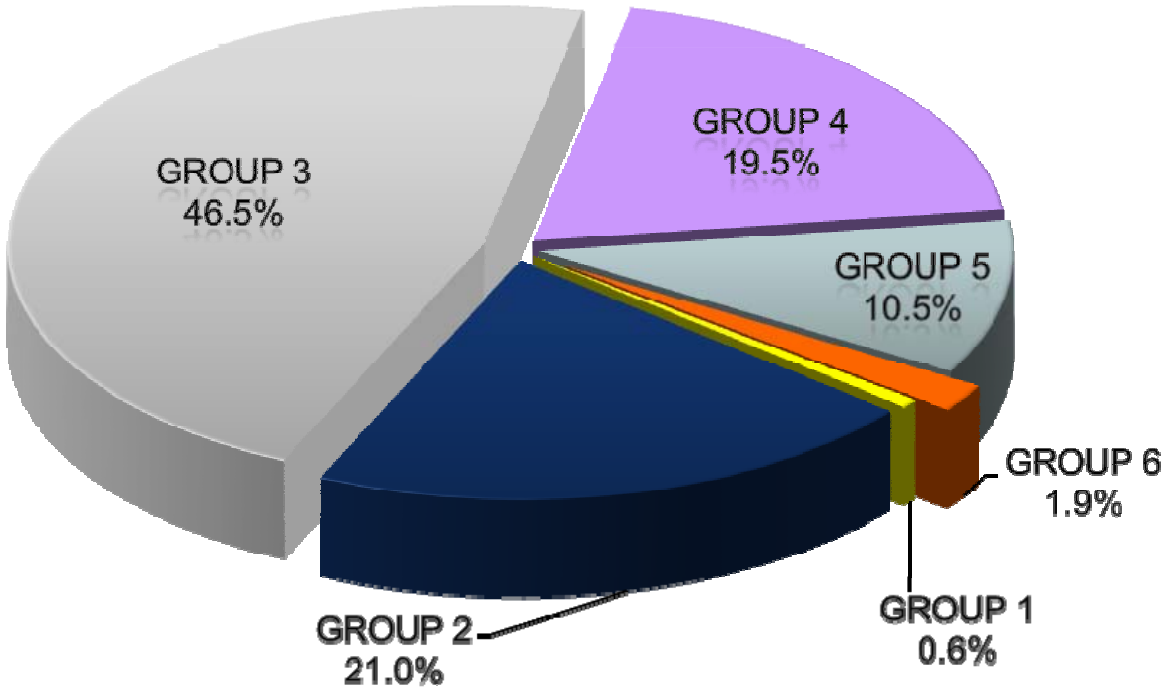
SPAS Fleet Mix

- Based on the SPAS Passenger Forecast, a fleet mix has been developed for the SPAS Planning Horizon

- The forecast anticipates 39 daily Group 6 operations at LAX

Representative Aircraft	
ADG 1	Beechcraft Super King Air 200; Learjet 60
ADG 2	Canadair CRJ-700; Embraer 120
ADG 3	Boeing 737 series; Airbus 320 series
ADG 4	Boeing 757 and 767 series
ADG 5	Boeing 747 and 777 series; Airbus 340 series
ADG 6	Airbus 380-800; Boeing 747-800

Draft LAX Forecasted Design Day Flight Schedule Fleet Mix Percentages by Airplane Design Group



Note: Percentages may not add up to 100% due to rounding.

Proposed Terminal Problem Statements

- Certain North Airfield improvement options, including the approved LAX Master Plan, move Runway 6R-24L and/or its associated taxiways too close to Terminals 1, 2, and 3.

- Larger aircraft wingspans require greater distances between aircraft gates than available today.

Terminal Alternative Designs

- Potential alternative designs to adopted Master Plan Terminal Configurations:
  - Do not demolish Terminals 1, 2, and 3, and alter gate configurations to allow for taxiway improvements.
  - Add new concourse and terminal space to provide replacement gates for those impacted by taxiway improvements and to accommodate larger aircraft wingspans.
- LAWA will conduct in-depth study of terminal configurations that utilize the parking limit line from SPAS Alternatives 1 & 2, and that include a new Terminal in a portion of the Park One parcel (Terminal 0).

Proposed Ground Transportation Problem Statements

- The LAX Master Plan was designed to exclude private vehicle access to the Central Terminal Area (CTA) to meet airport security needs.
- The curb-front and access road system used for passenger drop-off and pick-up was not designed for projected levels of traffic.
- Neither the existing nor the LAX Master Plan ground access system takes advantage of recent changes in planned regional transit projects.
- Passengers and employees need a transportation system that efficiently connects off-airport parking, transportation facilities, and the CTA.

Ground Transportation Alternative Designs

- Potential alternative designs to the LAX Master Plan Ground Transportation System:
  - Redesign CTA entry way by utilizing a portion of “Park One” property, thereby creating additional curbside in the CTA.
  - Reconfigure and develop airport facilities that allow for alternate drop-off and pick-up of passengers outside of the CTA.
  - Provide grade-separated/ dedicated transportation system that connects airport and transit facilities to the CTA.
- Both SPAS Ground Options contained in the NOP (A & B) provide similar designs, with differences in the area of mode and the provision of a Consolidated Rent-A-Car Facility.
- LAWA will conduct in-depth study of Option A along with the aforementioned airfield and terminal components.