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# 1 Planning Objectives

The Los Angeles International Airport (LAX) Master Plan is a modernization plan that accounts for the growth of the airport since 1984. In November 2000 and January 2001, respectively, the Draft LAX Master Plan and Draft Environmental Impact Statement and Environmental Impact Report (Draft EIS/EIR) were published and included three project Alternatives (A, B, and C), plus a No Action/No Project Alternative. Los Angeles World Airports (LAWA) received a large number of comments on the alternatives described in these documents and subsequently offered a new alternative for consideration. The new alternative, Alternative D, was developed to offer a regional airport alternative for the LAX Master Plan to ensure representation of the communities' full range of priorities. LAWA simultaneously began master planning efforts at Ontario International Airport (ONT) and Palmdale Regional Airport (PMD). The fifth Master Plan alternative, Alternative D: The Enhanced Safety and Security Plan, is the focus of this proposed Final Master Plan which is based on the Draft LAX Master Plan Addendum that was published in mid-2003. A Supplement to the Draft EIS/EIR was prepared to evaluate the potential environmental impacts of Alternative D and was publicly circulated at that time. The Draft EIS/EIR and Supplement to the Draft EIS/EIR were later integrated into the Final EIS/EIR. **Figure ES-1** provides an illustration of the proposed plan.

## 1.1 POLICY AND PLANNING OBJECTIVES

The planning objectives for the LAX Master Plan have evolved throughout the development of the study. They reflect the future needs of the airport users and community and environmental oversight agency input. At the beginning of the Master Plan process in 1995, seven goals were established to guide the planning effort:

- ◆ **Goal 1:** Continue to satisfy regional demands for global air transport of passengers and cargo by adding new and optimizing existing facilities at LAX, along with distributing commercial service not essential to the LAX international gateway role to other airports in the region.
- ◆ **Goal 2:** Ensure the safety of all airport users.
- ◆ **Goal 3:** Continue to operate efficiently and continue to provide major direct and indirect economic benefits to local, regional and state environments.
- ◆ **Goal 4:** Operate LAX in an environmentally sensitive and responsible manner.

- ◆ **Goal 5:** Through enhanced urban design, maximize compatibility between LAX and the demand for housing, employment, service, and protect surrounding neighborhoods.
- ◆ **Goal 6:** Improve ground access to and around LAX by maximizing the use of regional highway and transit networks and mitigate neighborhood traffic impacts.
- ◆ **Goal 7:** Achieve a balance between increased LAX operations and environmental, social, land use, ground access, economic and air commerce impacts.

In the early stages of the Master Plan, a number of alternatives were developed that reflected these goals. Chapter V, Section 2 of the Draft LAX Master Plan (November 2000) contained a discussion of these alternatives.

As the Master Plan progressed through public review, the original goals remained, however, the weight and emphasis given to each goal has varied over time. In particular, as feedback on the initial alternatives was obtained from the community and oversight agencies, a higher priority was placed on environmental and community objectives than on economic and air service objectives. As a result, the four shortlisted alternatives in the Draft LAX Master Plan contained airside facility limitation that would require air service adjustments to meet the 2015 unconstrained passenger and cargo forecasts. Chapter V, Section 3 of the Draft LAX Master Plan contained the descriptions and evaluations of the shortlisted alternatives. Chapter III of the Draft LAX Master Plan contained the forecast of aviation activity.

The environmental impacts of the four Master Plan alternatives were evaluated in the Draft LAX Master Plan and the Draft EIS/EIR. Following the publication of the Draft LAX Master Plan in November 2000 and the Draft EIS/EIR in January 2001, public comment received during the review period called for a regional approach alternative, whereby growth at LAX would be planned so as to encourage other airports to accommodate future air travel demand. The terrorist attacks that occurred on September 11, 2001 greatly elevated the issue of airport security. In response to these events the newly elected Mayor of Los Angeles directed the Los Angeles Board of Airport Commissioners to develop a new LAX Master Plan alternative that, consistent with public comment calling for a regional approach alternative, would be designed to accommodate passenger and cargo activity levels at LAX that would approximate those of the No Action/No Project Alternative, have fewer environmental impacts than the No Action/No Project Alternative, and in light of the tragic events of September 11, 2001, would be designed to enhance airport safety and security.

Responding to the Mayor's direction, the new alternative is designed to:

1. Enhance safety and security at LAX for users and to protect the airport infrastructure;
2. Encourage the development and use of regional airports to serve local demand by constraining the facility capacity at LAX to approximately the same aviation activity levels identified in the No Action/No Project Alternative;
3. Maintain LAX as the international gateway to Southern California; and
4. Mitigate the impacts of LAX's continued operation.

Based on this direction, LAWA began master planning efforts at Ontario International Airport and Palmdale Regional Airport and simultaneously developed a fifth alternative for the LAX Master Plan, Alternative D: The Enhanced Safety and Security Plan. The latter effort is the focus of this report.

## **1.2 FACILITY CONSTRAINTS**

The most constraining component of an airport defines the practical capacity<sup>1</sup> of the entire airport. The airport is a complex system made up of components through which passengers and aircraft flow in a sequential order. Aircraft arriving at the airport pass through the airspace, land on the runways, travel on the taxiways and proceed to the terminal gates to unload and reload passengers. Once loaded and ready for departure, the aircraft will pass through these same components in reverse order. Passengers move through the system in a similar set of sequential steps. Departing passengers travel on local roadways and on-airport roads, arrive at the terminal from the curbside, parking, or other shuttle facility, are processed in the terminal and proceed to the designated aircraft gate for boarding. Arriving passengers generally proceed through these steps in reverse order upon arrival at an airport. Exceptions for arriving passengers include domestic connecting passengers who board other flights, international arrivals who move through Federal

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<sup>1</sup> Practical Capacity is a term used here to refer to the number of operations (take-offs and landings) that can be accommodated with no more than a given amount of delay, usually expressed in terms of maximum acceptable average delay. Practical annual capacity (PANCAP) is the level of operations that results in a reasonable average delay per aircraft in the normal peak two-hour operating period. Another term used is throughput capacity, which is the rate at which aircraft can be brought into or out of the airfield without regard to any delay they might experience. This definition assumes that aircraft will always be present waiting to take off or land and capacity is measured in terms of the number of such operations that can be accomplished in a given period of time.

Inspection Services (FIS) facilities, and baggage claim before they connect to other flights or use ground transportation facilities.

Each component of the airport system has a throughput capacity level, which is typically a function of the physical characteristics of the component. For example, the number of runways, the size of the terminal buildings, number of gates, and the airport's operating procedures determine the throughput or processing rate of the airport. The capacity of the overall airport system equals the capacity of its weakest component. On the airside, where capacity is measured in terms of aircraft operations, the airport's capacity is driven by the most constraining of its major components: airspace, runway acceptance rate, taxiway accessibility, or available and accessible aircraft parking gates.

Each of the Master Plan alternatives has facility constraints that would limit its ability to accommodate the forecast of unconstrained passenger and cargo demand to varying degrees. Alternatives A and B, which accommodate the forecast for both passengers and cargo, nonetheless require adjustments in airline schedules to do so because of airfield limitations. When an airport system component is operating at capacity, meaning that it is processing a maximum level of hourly operations given its characteristics and procedures, increasing the capacity of other components does not increase the capacity of the system. For example, if a runway is operating at its throughput operational capacity and, by definition, accepting the maximum number of hourly arriving and/or departing flights without regard for delay, increasing the number of gates will not improve the airport's ability to accept more arriving flights. The runway system would have to be expanded to increase the throughput operational rate.

Each Master Plan alternative has an activity level that is determined by the ability of facilities in that alternative to serve the unconstrained passenger and cargo market demand. **Figure 1.2-1** summarizes the Master Plan alternatives and their corresponding activity levels.

The No Action/No Project Alternative is limited by the capacity of the curbside in the Central Terminal Area (CTA) where passengers are dropped off and picked up in front of the existing terminals. The resulting annual passenger performance measure of this alternative is approximately 78 million. Alternatives A and B include a fifth runway and were designed to serve the 2015 passenger demand forecast. Alternative A and B would accommodate 97.9 million annual passengers (MAP).<sup>2</sup> Alternative C's projected annual

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<sup>2</sup> In order to accommodate the 2015 unconstrained passenger forecast of approximately 98 MAP, it would be necessary for the airlines to make air service adjustments, such as

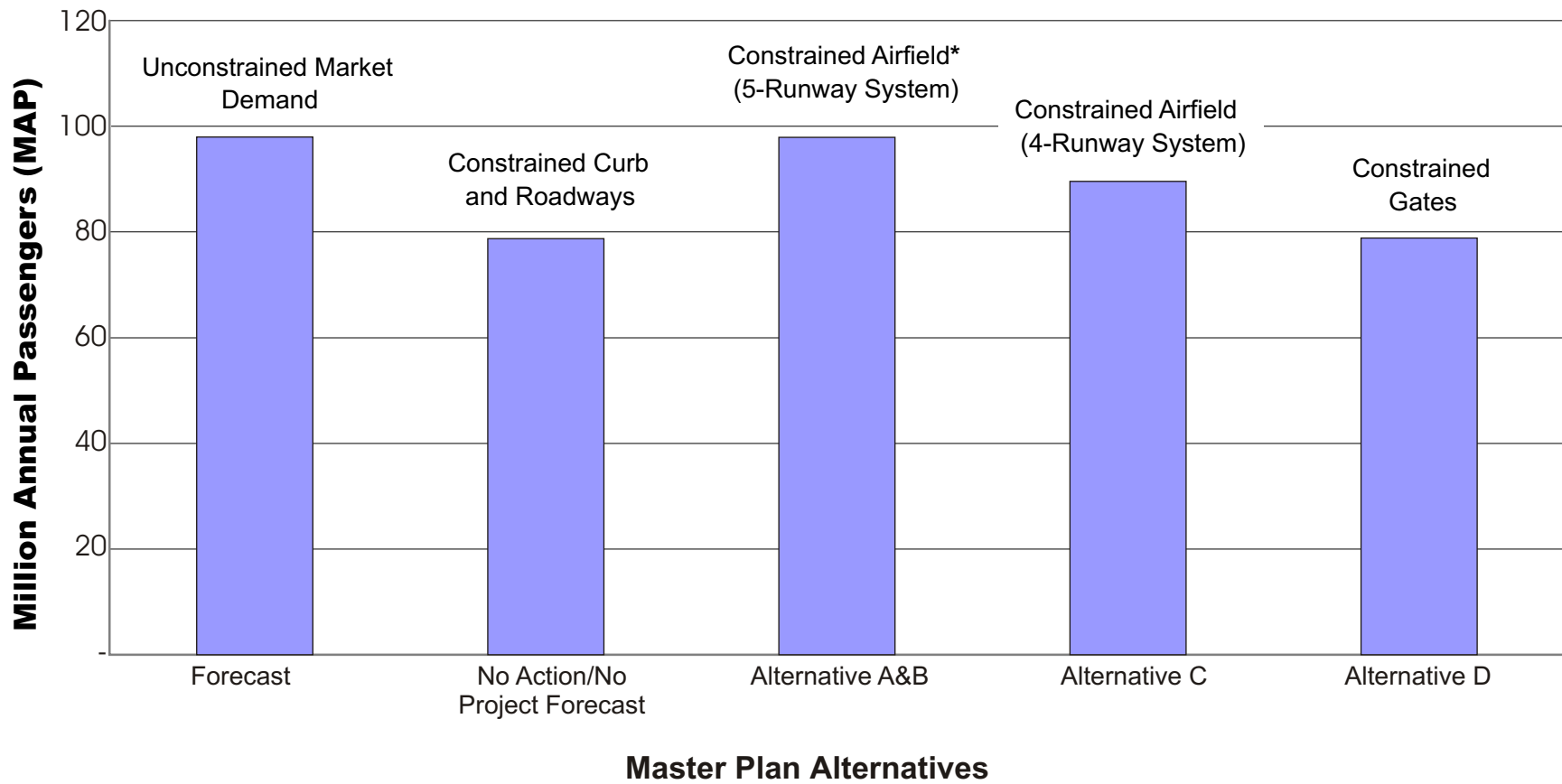
passenger activity level served is limited by the capacity of the four-runway system and is forecast to be 89.6 million. The constrained activity profiles for Master Plan Alternatives A, B, and C were discussed in Chapter V of the Draft LAX Master Plan in Section 3.3.2. Extensive analysis was included in that document, establishing the levels of passengers that each alternative is designed to accommodate. Alternative D was designed to accommodate approximately the same level of passenger activity and design day aircraft operations as the No Action/No Project Alternative.

The passenger activity that would be expected in 2015 with Alternative D was determined based on the design of the Alternative D gate facilities and the projected airline response to the constrained facilities. The ability to increase aircraft size, thereby increasing passenger levels, was limited by the number and type of gates available under the Alternative D terminal design. The design of Alternative D would encourage airlines to choose the most efficient use of the gate facilities at LAX and supplement high-frequency domestic service at other airports in the region.

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reducing the number of daily flights to a destination, limiting the number of non-stop destinations served or adjusting the flights' departure or arrival time to off-peak hours.

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\* In order to accommodate the 2015 unconstrained passenger forecast of 98 MAP, it would be necessary for the airlines to make air service adjustments, such as reducing the number of daily flights to a destination, limiting the number of non-stop destinations served or adjusting the flights' departure or arrival time to off-peak hours.

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Draft: 6/10/03

The Alternative D cargo activity is determined by the amount of cargo space available to process cargo tonnage. This sort space would be measured in square feet of cargo building space. The Alternative D cargo facilities would be sized to accommodate the total cargo volume forecast in the constrained No Action/No Project Alternative.

The effective constraint on cargo activity in Alternative D would be the lack of sufficient cargo building space to process the unconstrained cargo activity forecast. The most effective representation of this constraint is illustrated by the utilization rates, or tons per square foot, for the available warehouse space. A common benchmark in the industry is to process approximately 0.9 to 1.0 annual ton of cargo for each square foot of cargo warehouse space available. Higher space utilization rates, ranging from 1.1 to 1.42 annual tons per square foot, are expected for domestic and express cargo, with lower space utilization rates, ranging from 0.5 to 0.6 annual tons per square foot, expected for international freight due to the added time associated with customs clearing and fewer available flights.

The space utilization rate (excluding air mail) calculated for Alternative D is 1.22 tons per square foot. This rate is based on approximately 2.3 million square feet of cargo building space and approximately 2.85 million annual tons (MAT) of cargo (excluding air mail). It is the weighted average of the domestic and express cargo (approximately 2.09 tons per square foot) and international cargo (approximately 0.8 ton per square foot). Based on current cargo activity, the split is 55 percent domestic and 45 percent international, however cargo space split is 32 percent domestic and 68 percent international. Air mail is projected to be 272,000 tons, resulting in 3.1 MAT of cargo activity.

The utilization rates for Alternative D exceed both the industry standard rates and the high utilization rates already experienced at LAX. Improvements in cargo technologies and efficiencies that may not be realized within the planning horizon would be required to realize the Alternative D utilization rates.



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## 1.3 REGIONAL IMPACT OF ALTERNATIVE D

While the airports in the Los Angeles region operate individually, they combine to form the regional airport system. Proposed projects at one airport must be considered within the context of the regional system. The purpose of this section is to compare the demand for air travel in the Los Angeles region to the capacity of the region's airports with a capacity-constrained LAX.

The Los Angeles region is comprised of five counties in Southern California: Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The residents of the region who travel by air, and people who travel by air to visit the region, are combined to create the demand for air service to and from the region.

The Los Angeles region's airport system is comprised of eight commercial service airports, as well as four existing and former military bases that are either being considered for conversion or have been converted to civilian or joint-use commercial service airports. **Figure 1.3-1** depicts the Los Angeles region and the airports within the region. These facilities contribute individually to the total airport capacity in the region, or the estimated number of passengers the region's airports can accommodate at a reasonable Level of Service (LOS).

### 1.3.1 UNCONSTRAINED REGIONAL PASSENGER DEMAND FORECAST

Based on the projected economic growth in the Los Angeles region, the master plan forecast predicts that total regional passenger demand will rise sharply from approximately 88.6 MAP in 2000 to approximately 146.5 MAP in 2015.

**Table 1.3-1** lists each of the airports in the Los Angeles region and the role each plays within the region. For example, Long Beach Airport (LGB) is listed as a secondary airport. Secondary airports augment the service provided by the region's primary airport (LAX). In other words, these airports enhance the air service to the region but cannot sustain the level of air service provided by the primary airport. Note that Marine Corps Air Station El Toro (NZJ) has been removed from the list of other airports with potential for commercial aviation use as a result of Measure W that amended the general plan of the County of Orange by repealing the aviation reuse designation of Marine Corps Air Station El Toro.

Table 1.3-1

**EXISTING AND POTENTIAL COMMERCIAL SERVICE AIRPORTS  
IN THE LOS ANGELES REGION**

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**Primary Airport** – the region’s dominant international and domestic air service airport providing most of the region’s air service.

- ◆ Los Angeles International Airport (LAX)

**Secondary Airports** – smaller airports that augment air service provided by the primary airport.

- ◆ Ontario International Airport (ONT)
- ◆ John Wayne Airport (SNA)
- ◆ Burbank-Glendale-Pasadena Airport (BUR)
- ◆ Long Beach Airport (LGB)
- ◆ Palm Springs International Airport (PSP)

**Commuter Airports** – provide connecting air service by offering commuter flights to the region’s primary and secondary airports.

- ◆ Oxnard Airport (OXR)
- ◆ Palmdale Regional Airport (PMD)<sup>1/</sup>

**Other Airports with Potential for Commercial Aviation Use<sup>2/</sup>**

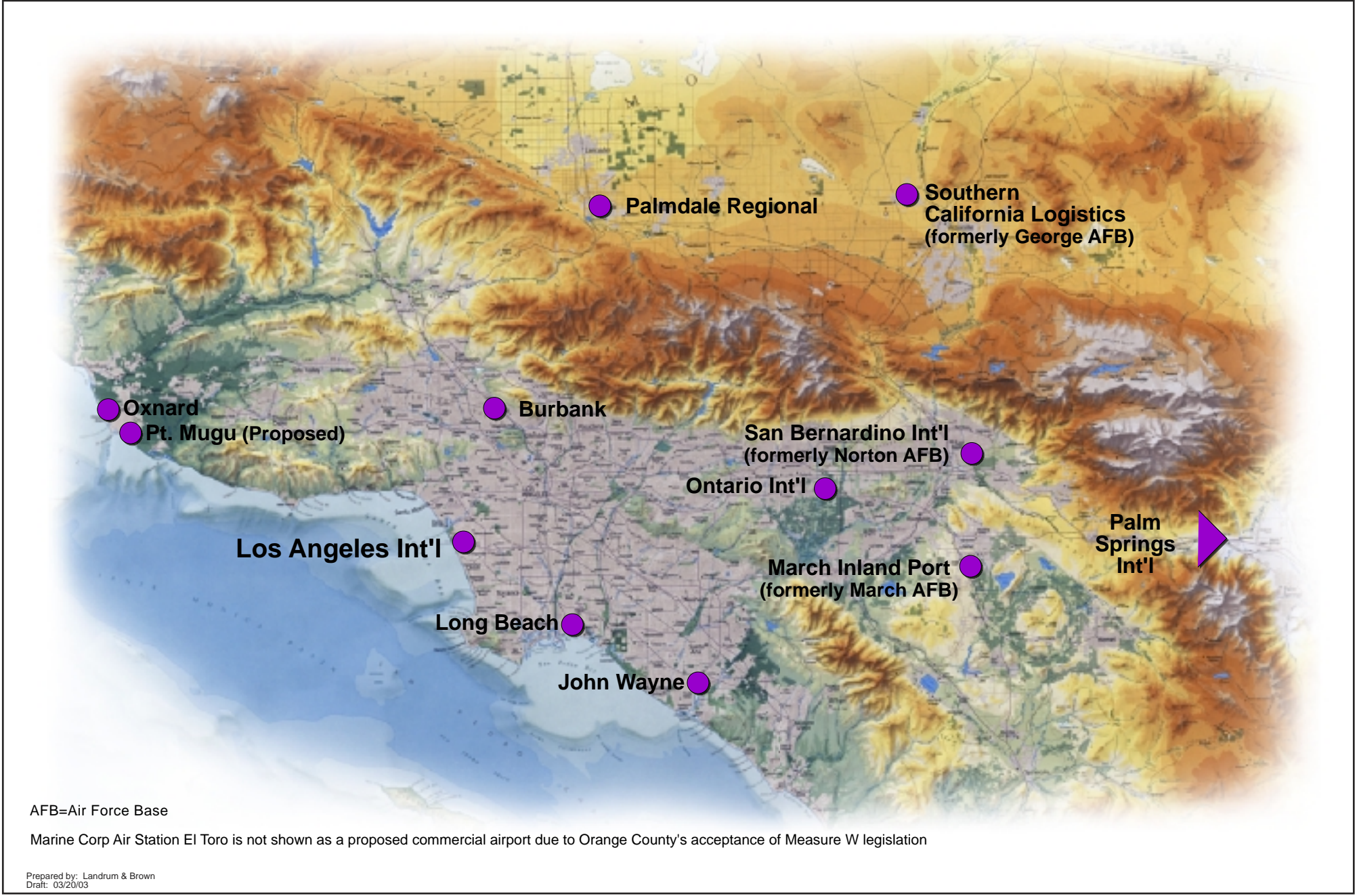
- ◆ San Bernardino International Airport (SBD)
- ◆ March Air Reserve Base (RIV) (March Inland Port)
- ◆ Naval Air Station Point Mugu (NTD) (possible joint-use)
- ◆ Southern California Logistics Airport (VCV)

<sup>1/</sup> There are currently no airlines with scheduled service to Palmdale.

<sup>2/</sup> Marine Corps Air Station (MCAS) El Toro has been removed due to Orange County's acceptance of Measure W legislation.

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The Draft LAX Master Plan forecast assumed that regional demand for air travel would reach approximately 146.5 MAP by 2015. The forecast further assumed that LAX would attract approximately 98 MAP demand by 2015 and that the other regional airports would serve the remaining demand of approximately 48.5 MAP. The forecast did not specify how the remaining demand would be allocated among the region’s other airports (see **Table 1.3-2**). As part of the Master Plan, three forecast scenarios were developed to allocate the remaining demand among the regional airports. Each scenario was based on a different level of demand served by LAX.



Los Angeles International Airport Master Plan

Los Angeles Region's Current and Proposed Commercial Airports

Figure 1.3-1

**Table 1.3-2**

**LOS ANGELES REGION AIRPORT SYSTEM SCENARIOS  
2015 PASSENGER ACTIVITY FORECASTS**

<b>Airport</b>	<b>LAX Master Plan</b>	<b>Additional LAX Master Plan Scenarios</b>			
	<b>Forecast</b>	<b>Scenario 1</b>	<b>Scenario 2</b>	<b>Scenario 3</b>	
Los Angeles	97,960,000	97,500,000	105,700,000	96,500,000	
Ontario	48,510,000	13,862,500	20,750,000	13,875,000	
John Wayne		N/A	11,625,000	7,862,500	
Marine Corps Air Station (MCAS) El Toro		28,750,000	N/A	21,625,000	
Burbank		6,777,778	6,333,333	7,666,667	
Long Beach		1,000,000	1,300,000	860,000	
Palm Springs		1,080,000	900,000	1,100,000	
Oxnard/Point Mugu		344,000	355,000	300,000	
Palmdale		305,000	700,000	230,000	
<b>Regional Total</b>		<b>146,470,000</b>	<b>149,619,278</b>	<b>147,663,333</b>	<b>150,019,167</b>

Landrum & Brown, 2000

In each of the three scenarios, LAX was projected to serve passenger levels higher than those associated with the No Action/No Project Alternative and Alternative D. These alternatives would accommodate approximately 78 MAP producing a potential demand of approximately 13 to 20 MAP that cannot be accommodated by the region’s airports.

**1.3.2 PROJECTED REGIONAL CAPACITY ESTIMATES**

As of 2001, the Southern California Association of Governments (SCAG) estimated the existing airport capacity in the region at approximately 120 MAP.<sup>3</sup> As discussed in the previous section, the 2015 regional demand is expected to total approximately 146.5 MAP. Approximately 73 percent, or 107 MAP, will be origin and destination (O&D) demand by 2015. **Table 1.3-3** summarizes the estimated 2025 capacity and/or passenger forecast of the region’s airports.

<sup>3</sup> SCAG 2001 Regional Aviation Plan for the 2001 Regional Transportation Plan (RTP).

Table 1.3-3

**LOS ANGELES REGION AIRPORTS ESTIMATED 2025 PASSENGERS**

	MAP
<b>Primary</b>	
Los Angeles Int'l.	78
<b>Secondary</b>	
Ontario	30
John Wayne	8
Burbank	9
Long Beach	3
Palm Springs	3
<b>Commuter</b>	
Palmdale	2
Other	4
	<b>137</b>
<b>Total Region</b>	
Potential Unmet Demand	30
<b>Total Passenger Activity</b>	<b>167</b>

Source: SCAG 2001 Regional Transportation Plan, excluding Marine Corps Air Station El Toro

As illustrated in Table 1.3-3, the region’s airports would have a projected shortfall of approximately 30 MAP. Although SCAG’s forecast horizon is 10-years beyond the planning horizon of this Master Plan, there is inadequate existing airport capacity in the region to serve long-term passenger demand.

Lack of capacity in the regional airport system would lead to a loss of connecting passenger demand to airports outside the region. The airlines would encourage connecting passengers to use other hub airports to reach their destination by offering more flight options, more convenient schedules, and lower prices. Serving local passenger demand, both domestic and international, is the airlines’ highest priority. However, connecting passengers allow the airlines to offer more frequent service to many destinations by filling more seats on each flight. If connecting passengers are routed over other hubs, the airlines would likely reduce the number of flights offered, resulting in reduced customer service.

This pattern would be most evident—and the economic impact most strongly felt—in international service. Other regions in the western part of the U.S. compete with Los Angeles for the economic benefits of international air service and have been building the specialized airport facilities required to serve as international gateway airports. A more complete discussion of the status of competing U.S. gateway airports is found in Section 1.3.5 of this document.

A sensitivity analysis conducted by SCAG in 1998 found that if LAX capacity was constrained in an effort to force demand to other regional airports, much of the traffic would relocate to airports outside the region such as San Francisco, Denver, and Dallas rather than to secondary regional airports within the region. This loss of traffic would take place largely because the Los Angeles region's secondary airports are not in a strong enough position, nor do they have the infrastructure necessary, to provide competitive international gateway service by 2015. In the near future, it is unlikely that they will develop the volume of connecting flights, specialized import-export facilities, and other facilities associated with an international gateway. Accordingly, failure to provide facilities to accommodate regional demand would mean increasing levels of congestion and delay, which would result in passenger air service going to other regions.

**1.3.3 SECONDARY REGIONAL AIRPORTS**

Examining passenger activity and scheduled passenger departures reveals a close match between each of the regional airports' share of total regional aviation service and passengers for the year 2000 (see **Table 1.3-4**). This correlation demonstrates that the air transportation marketplace tends to reach a balance between supply and demand. As long as there are adequate airport facilities, the level of service will rise or fall with local demand and airport activity. The existing conditions and published plans for each of the secondary airports in the Los Angeles region are provided in **Appendix C**.

**Table 1.3-4**

**COMPARISON OF AIR SERVICE AND PASSENGER MARKET SHARE**

<b>Airport</b>	<b>2000</b>		<b>Percent (%) Share</b>	
	<b>Passengers<sup>1/</sup></b>	<b>Departures<sup>2/</sup></b>	<b>Passengers<sup>1/</sup></b>	<b>Departures<sup>2/</sup></b>
Los Angeles Int'l.	67,303,000	372,525	76.0%	72.2%
John Wayne	7,773,000	49,779	8.8%	9.6%
Ontario	6,756,000	40,347	7.6%	7.8%
Burbank	4,749,000	27,745	5.4%	5.4%
Long Beach	638,000	4,213	0.7%	0.8%
Palm Springs	1,281,000	17,189	1.4%	3.3%
Commuter Airports	111,000	4,061	0.1%	0.8%
<b>Total</b>	<b>88,611,000</b>	<b>520,000</b>	<b>100.0%</b>	<b>100.0%</b>

Sources:

<sup>1/</sup> SCAG compilation records.

<sup>2/</sup> Official Airline Guides, Scheduled Passenger Aircraft Departures in 2000.

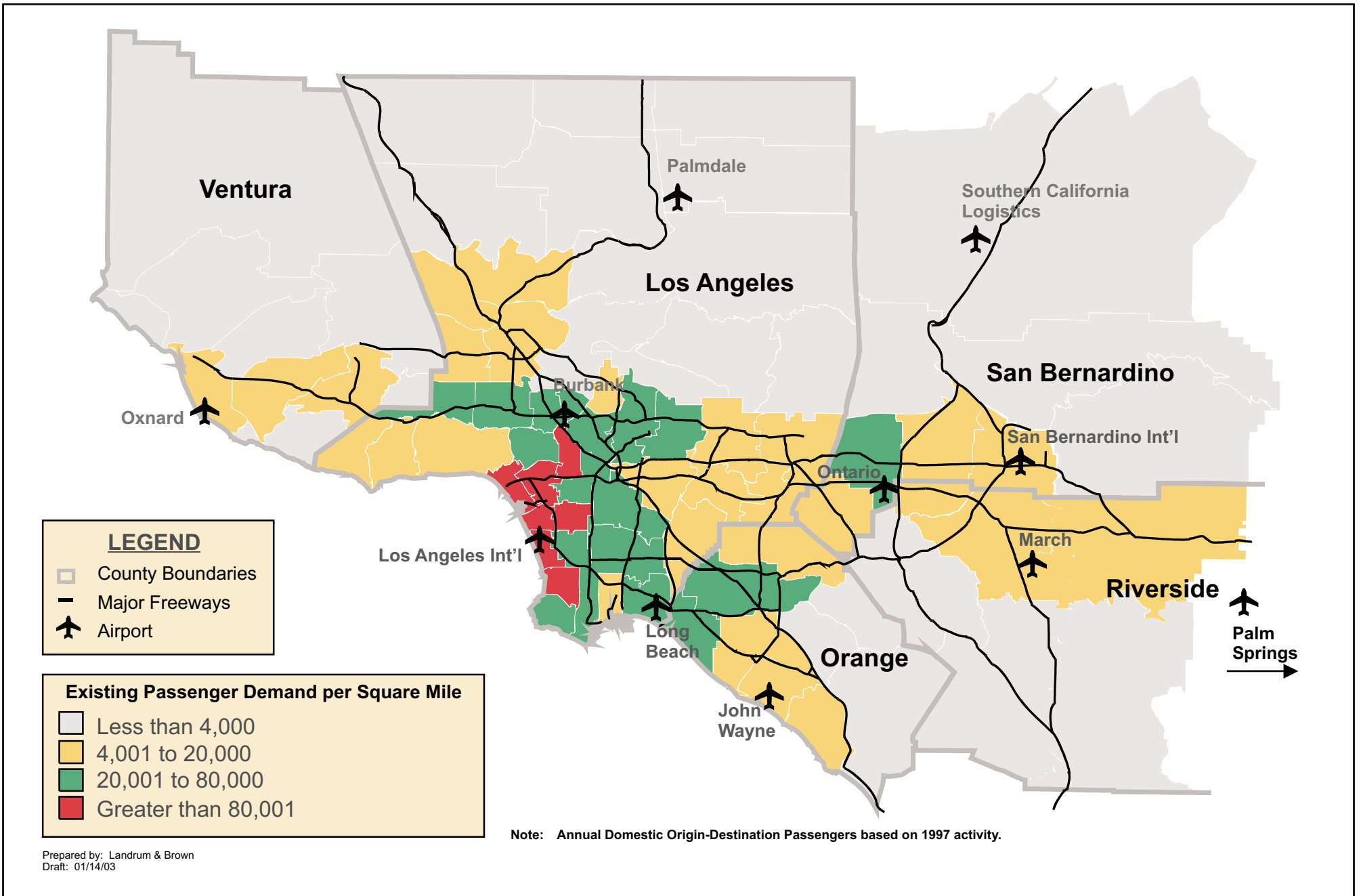
Note: Commuter Airports include Imperial County Airport and Oxnard Airport.

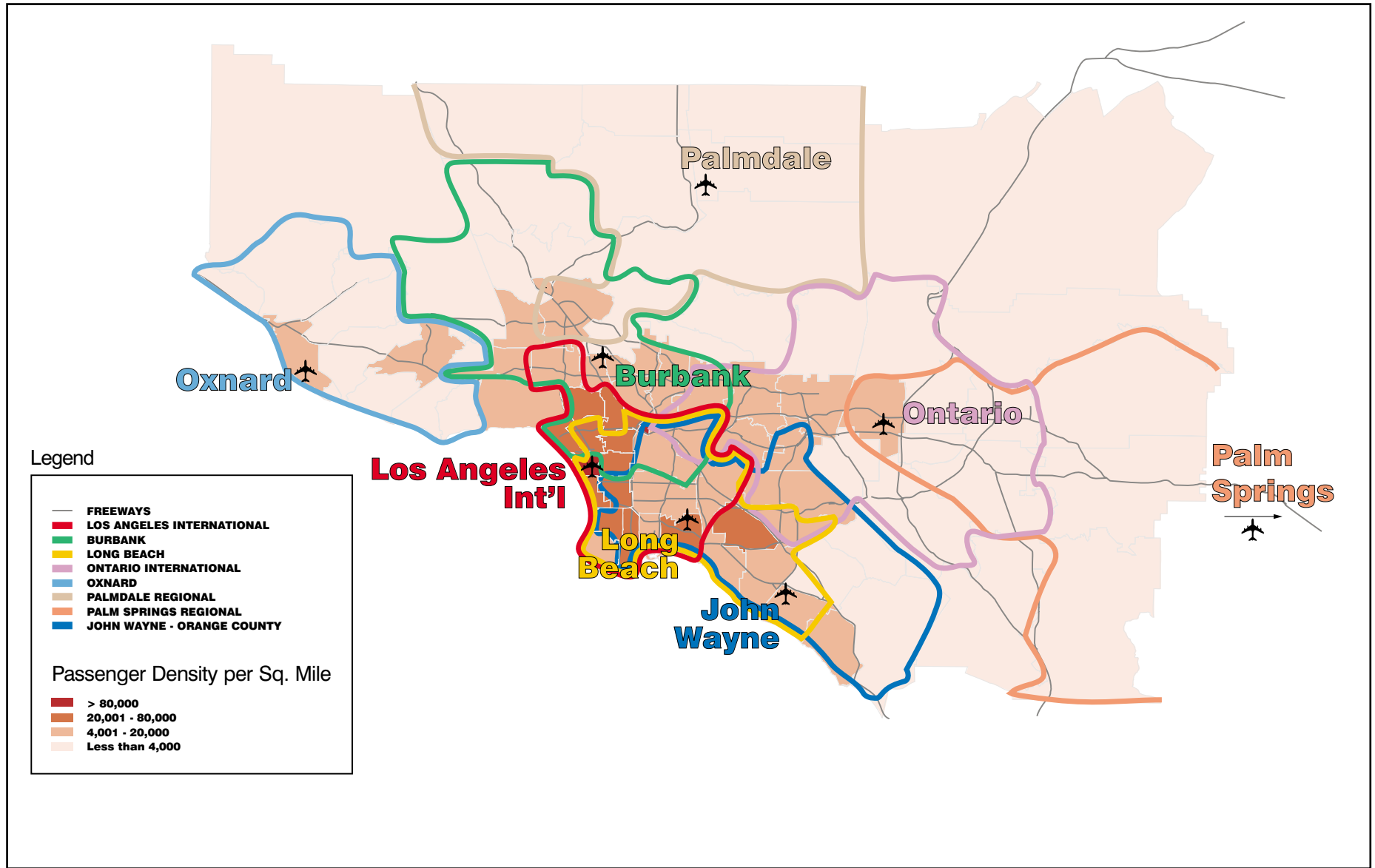
Prepared by Landrum & Brown

Airlines make decisions on which airport to serve based on several factors, including the population within a reasonable travel distance and the cost to introduce service at a new airport. **Figure 1.3-2** shows the population concentration of travel demand, where people are living and working, as it varies throughout the region. **Figure 1.3-3** shows the region's airports and the areas around each airport considered to be within a reasonable travel distance, or a 60-minute travel time. When combined, these figures provide information on the location of the travel demand, and how much time would be necessary to access the airports. This is the type of data the airlines use when selecting which airports to serve. In the case of the Los Angeles region, travel time tends to be a better predictor than travel distance due to congested local traffic conditions.

**Table 1.3-5** presents the top 25 domestic O&D markets for the Los Angeles region in 2000 and the market share of scheduled departures from LAX and each of the close-in secondary airports. The cities representing the domestic market in highest demand, and the relative share of scheduled service for the year 2000, changed very little from the top markets in 1995. Domestic markets are relatively stable and, without outside influence, the airport and destination pairs are unlikely to change dramatically (see Section 1.3.2). Tables that present the O&D demand to the top domestic markets and the scheduled service from each of the regional airports are included in Appendix C.







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**Table 1.3-5**

**AIR SERVICE TO THE TOP DOMESTIC O&D MARKETS**

Rank	City/Airport Name	Airport Code	Miles	Haul	O&D Passengers Regional Total	Scheduled Departures Percentages (%)					
						LAX	ONT	SNA	BUR	LGB	PSP
1	Oakland	OAK	337	S	3,773,020	44.6%	17.5%	18.4%	19.4%	0.0%	0.0%
2	Las Vegas	LAS	235	S	3,354,420	55.5%	14.3%	11.5%	16.1%	0.0%	2.6%
3	San Jose	SJC	308	S	2,915,990	47.9%	14.0%	24.0%	14.2%	0.0%	0.0%
4	San Francisco	SFO	338	S	2,740,820	58.3%	0.0%	23.7%	13.9%	0.0%	4.1%
5	Phoenix	PHX	367	S	2,551,840	43.1%	18.4%	16.5%	11.4%	4.7%	5.9%
6	Sacramento	SMF	375	S	2,273,140	35.5%	30.5%	10.1%	23.9%	0.0%	0.0%
7	Seattle	SEA	955	M	2,263,440	54.8%	12.9%	21.9%	10.3%	0.0%	0.0%
8	New York - John F. Kennedy	JFK	2,467	L	1,803,260	75.5%	3.6%	0.0%	0.0%	20.9%	0.0%
9	Chicago O'Hare	ORD	1,740	M	1,663,210	74.2%	0.0%	21.0%	0.0%	4.8%	0.0%
10	Newark	EWR	2,447	L	1,289,770	82.3%	0.0%	17.7%	0.0%	0.0%	0.0%
11	Portland	PDX	834	M	1,314,130	50.0%	16.7%	16.7%	16.7%	0.0%	0.0%
12	Honolulu	HNL	2,551	L	1,177,600	85.1%	5.0%	5.0%	5.0%	0.0%	0.0%
13	Denver	DEN	860	M	1,174,560	56.2%	20.8%	16.9%	6.1%	0.0%	0.0%
14	Salt Lake City	SLC	590	S	1,117,720	64.1%	15.9%	20.0%	0.0%	0.0%	0.0%
15	Dallas/Fort Worth	DFW	1,247	M	1,117,400	42.1%	18.9%	18.2%	9.1%	9.4%	2.4%
16	Atlanta	ATL	1,940	L	892,540	64.6%	14.3%	21.1%	0.0%	0.0%	0.0%
17	Boston	BOS	2,604	L	824,520	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
18	Baltimore	BWI	2,322	L	765,900	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
19	Detroit Wayne County	DTW	1,971	L	731,980	88.9%	0.0%	11.1%	0.0%	0.0%	0.0%
20	Minneapolis/St. Paul	MSP	1,533	M	705,940	65.6%	13.7%	20.6%	0.0%	0.0%	0.0%
21	Washington, D.C. Dulles	IAD	2,281	L	694,680	84.2%	0.0%	0.0%	0.0%	15.8%	0.0%
22	Reno	RNO	392	S	661,830	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
23	Orlando	MCO	2,209	L	653,770	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
24	Philadelphia	PHL	2,395	L	640,580	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
25	Houston Bush Intercontinental	IAH	1,375	M	558,890	57.0%	12.9%	30.1%	0.0%	0.0%	0.0%
Subtotal of Top 25					37,631,200	57.1%	12.8%	16.1%	10.1%	2.5%	1.5%
All Other					16,031,790	89.3%	2.8%	3.3%	0.0%	0.0%	4.7%
<b>Total All Markets</b>					<b>53,662,990</b>	<b>69.7%</b>	<b>8.9%</b>	<b>11.0%</b>	<b>6.1%</b>	<b>1.5%</b>	<b>2.7%</b>

Note: Ranked by O&D Passengers  
Haul - Short (S) = less than 600 miles  
Haul - Medium (M) = 600 to 1800 miles  
Haul - Long (L) = more than 1800 miles

Source: Department of Transportation, Database, 2000 and OAG data for the month of August, 2002.

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### **1.3.4 AIRLINE DEREGULATION AND COMPETITION**

Since passage of the Federal Airline Deregulation Act of 1978, airlines must decide which airports they will serve and how much they will charge for this service. As a general rule, airlines will choose airports near the highest concentrations of conveniently located customers. In this deregulated environment, the key to airline success has been to provide a better product than the competition. Convenience, price and frequent flier incentives have been the tools used most frequently in this competition. In air travel, convenience involves two key factors:

- ◆ **Airport Accessibility** – Airport locations and ground transportation options that make an airline’s services convenient to the most potential passengers.
- ◆ **Service Frequency** – Flight schedules that most closely match airline service to potential passenger need.

Within this general framework, airlines must make strategic decisions about air service to maximize their investments and gain competitive advantages. Airlines will only provide air service where demand exists. For instance, in regions with multiple airports, airlines tend to concentrate their air service at a single well-located primary airport for economic efficiency. Concentrating service at a dominant airport also facilitates connecting service, which can significantly increase an airline’s market share and allow even greater frequencies to more destinations. In particular, international service relies on the availability of domestic connecting flights to a wide range of destinations.

Airlines consider several factors when making decisions about which airports to serve in a region with multiple airports. The key factors include:

- ◆ **Local Passenger Market Potential** – The potential market is based on the airport’s location and its accessibility or convenience to passengers.
- ◆ **Network Synergy** – A particular airport may play an important role in a particular airline’s air service network, offer opportunities for connecting passenger flows (domestic or international), or encourage competition with other airlines.
- ◆ **Airport Facilities** – A particular airport’s ability to accommodate existing and projected demand may be constrained by one or more of the following:
  - ▶ **Airport Infrastructure** – The size, configuration, and condition of the airfield, aircraft parking gates, terminal

facilities, security screening facilities, ground access facilities, cargo facilities, FIS facilities, freight forwarding facilities, fueling systems and other physical infrastructure elements.

- ▶ **Policy** – The airport owner’s policies regarding future airport development and the utilization of existing facilities.
- ▶ **Environmental** – Significant environmental considerations that may limit airport activity or future development.
- ▶ **Airspace** – Airspace limitations due to terrain or interactions with other airports.

In a multi-airport system, where passengers, cargo operators and airlines have alternatives, these factors may cause certain airports the inability to capture their potential market share.

Airlines will establish additional service at secondary regional airports only if the local market generates sufficient demand and adequate facilities exist. In some cases, secondary airports can offer a competitive advantage over a primary airport by reducing airline costs, or by providing more convenient access to and from a Central Business District (CBD) or tourist destination. However, airlines are generally reluctant to serve secondary airports, even under these circumstances, if doing so would dilute their market share or significantly increase operating costs. An airline that attempts to shift service from one airport to another may instead end up losing that share of the market to a competitor.

Passenger demand cannot simply be moved to another airport. In fact, under federal law, it is very difficult for local, regional or federal officials to force airlines to serve one airport over the other. LAWA has tried subsidies to encourage airlines to serve outlying Palmdale, with only limited temporary success. The airlines provide service at the airports where demand exists. Without demand from the traveling public, airlines deploy their assets to serve the greatest number of passengers and earn the best return on their investment.

### **1.3.5 INTERNATIONAL DEMAND**

Historically, U.S. international air traffic has been concentrated at three entry points, or gateways. John F. Kennedy International Airport in New York City has dominated the Atlantic air routes; Miami International Airport is the main connecting point for Latin American traffic; and LAX has been the primary gateway to the Asia-Pacific region. As a result of this historic position, the regions around each of the three primary gateway airports have developed

specialized industries, including customs processing, warehouses, international packing, storage and other import-export facilities.

Commercial aviation between countries is governed by bilateral air service agreements that have been negotiated between the U.S. and its trading partners. Historically, these bilateral agreements have been restrictive and were designed to protect national flag carriers from competition. Most of these agreements imposed significant restrictions on airline operations by limiting the destinations served, the number of airlines permitted to serve the market and the level of fares levied.

While the basic framework of bilateral agreements remains in effect, the U.S. government has advocated open skies agreements aimed at increasing competition by lowering fares and air cargo rates, which would result in an increase in air service. Open skies agreements permit unrestricted international air service between participating countries, allowing each country's airlines to fly between any city (i.e., origin gateway) in its home country and any city (i.e., destination gateway) in participating countries. This type of agreement maximizes potential competition. So far, the U.S. has signed approximately 60 open skies agreements, which eliminate all restrictions on airline service between the signatory countries. In many cases, air service rights (i.e., bilateral authority) have been granted between the signatory countries and a third country (i.e., Five Freedom Rights) thereby providing additional and liberalized bilateral authority.

As World War II entered its final stages, several prominent members of the international community expressed concern over the postwar development of international civil aviation. In response, 52 nations attended the International Civil Aviation Conference in Chicago in November of 1944. The U.S. promoted a free-market philosophy in which the carriers of all nations would have relatively unrestricted operating rights on international routes. American negotiators called for a multilateral granting of the operating rights known as the "five freedoms," which may be defined as follows:

1. A civil aircraft of one country has the right to fly over the territory of another country without landing, provided the overflown country is notified in advance and approval is given.
2. A civil aircraft of one country has the right to land in another country for technical reasons, such as refueling or maintenance, without offering any commercial service to or from that point.
3. An airline has the right to carry traffic from its country of registry to another country.

4. An airline has the right to carry traffic from another country to its own country of registry.
5. An airline has the right to carry traffic between two countries outside its own country of registry as long as the flight originates or terminates in its own country of registry.

In the years since the Chicago Conference, three other “freedoms” have been identified:

6. An airline has the right to carry traffic between two foreign countries via its own country of registry. Sixth Freedom can also be viewed as a combination of Third and Fourth Freedoms secured by the country of registry from two different countries producing the same effect as the Fifth Freedom vis-à-vis both foreign countries.
7. An airline operating entirely outside one territory of its country of registry, has the right to fly into the territory of another country and there discharge, or take on, traffic coming from, or destined for, a third country or third countries.
8. An airline has the right to carry traffic from one point in the territory of a country to another point in the same country. More commonly known as “cabotage,”<sup>4</sup> this practice is forbidden by many bilaterals, including those concluded by the U.S.<sup>5</sup>

In many U.S. and foreign aviation markets, there are multiple gateway destinations that are capable of sustaining international air service. Dozens of these international gateways exist in the United States. During the post-deregulation era in the U.S., and the subsequent development of new and expanded airport infrastructure (i.e., hubs) and FIS facilities, many new U.S. gateways became eligible for direct international air service. In international markets, emerging economies combined with the break-up of the former Soviet Union and the other former Eastern Bloc countries opened new markets for new and expanded air service.

According to the Air Transport Association of America, the United States has approximately 100 air service bilateral agreements with its trading partners. Named gateways are those that are specifically identified in a bilateral agreement as a point of entry permitted (i.e., requested) to be served by air. Of the approximately 100 air service bilateral agreements, 41 have one or more named

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<sup>4</sup> “Cabotage” is the carriage of air traffic that originates and terminates within the boundaries of a given country by an air carrier of another country. Rights to such traffic are usually entirely denied or severely restricted.

<sup>5</sup> Law and Foreign Policy in International Aviation, Dempsey, Paul Stephen, 1987



gateways. A named gateway is most often a destination that is highly desirable for either the U.S. or foreign flag carriers for its economic, cultural and/or ethnic concentrations as well as other key market features. An analysis of these agreements in the context of the critical importance of the Los Angeles gateway was conducted. LAX is a named gateway in 19, or approximately 46 percent, of the bilateral agreements in which named gateways are specified for U.S. or foreign flag carriers. **Table 1.3-6** provides an accounting of all named gateways, including those specifically identifying LAX.

**Table 1.3-7** compares the top U.S. gateway airports for calendar years 1990, 1995, and 2000. The data in the table highlights the concentration of activity around the nation's top international facilities. In 1990, 17.2 percent of the total U.S. international enplanements departed from the top 3 U.S. gateway facilities, and 33.1 percent from the top 15 facilities. By 2000, the market share for the top 3 U.S. gateway airports had grown to 20.2 percent and the total percentage of U.S. enplanements grew from 33.1 percent at the top 15 airports to 45.7 percent from these same airports. When international air service is expanded, it is typically expanded at these facilities. The second and third sections of this table present international enplanements excluding Canada and transborder (Canada only) enplanements, respectively.

This data is intended to show the importance of the U.S. gateway location relative to the international destination. In the third section, showing only Canadian enplanements, Chicago O'Hare becomes the first ranked city for enplanements to Canada.

**Table 1.3-6**

**U.S. AIR SERVICE AGREEMENT ANALYSIS - NAMED GATEWAYS**

<b>U.S. Air Service Agreements</b>	<b>U.S. Air Service Agreements with Named Gateway</b>	<b>U.S. Air Service Agreements with LAX as Named Gateway</b>
<b>Argentina</b>	<b>X</b>	<b>X</b>
<b>Australia</b>	<b>X</b>	<b>X</b>
Barbados	X	
Bolivia	X	
Brazil	X	
<b>China</b>	<b>X</b>	<b>X</b>
<b>Columbia</b>	<b>X</b>	<b>X</b>
Cote d'Ivoire	X	
Cuba	X	
Dominican Republic	X	
<b>Ecuador</b>	<b>X</b>	<b>X</b>
<b>Egypt</b>	<b>X</b>	<b>X</b>
<b>Fiji</b>	<b>X</b>	<b>X</b>
Greece	X	
Hong Kong	X	
<b>Hungary</b>	<b>X</b>	<b>X</b>
<b>India</b>	<b>X</b>	<b>X</b>
<b>Iran</b>	<b>X</b>	<b>X</b>
<b>Ireland</b>	<b>X</b>	<b>X</b>
Israel	X	
Jamaica	X	
<b>Japan</b>	<b>X</b>	<b>X</b>
Lebanon	X	
Liberia	X	
Macau	X	
<b>Mexico</b>	<b>X</b>	<b>X</b>
Netherlands	X	
Paraguay	X	
<b>Philippines</b>	<b>X</b>	<b>X</b>
<b>Poland</b>	<b>X</b>	<b>X</b>
<b>Russia</b>	<b>X</b>	<b>X</b>
Saudi Arabia	X	
South Africa	X	
<b>Spain</b>	<b>X</b>	<b>X</b>
Thailand	X	
Trinidad and Tobago	X	
<b>Ukraine</b>	<b>X</b>	<b>X</b>
<b>United Kingdom</b>	<b>X</b>	<b>X</b>
Uruguay	X	
Venezuela	X	
Zaire <sup>1/</sup>	X	
<b>Totals</b>	<b>41</b>	<b>19</b>

<sup>1/</sup> Zaire is now formally known as the Republic of Congo.

Source: Air Transport Association of America, Inc. - Air Service Rights in U.S. International Air Transport Agreements

Table 1.3-7

**INTERNATIONAL GATEWAY COMPARISON**  
**U.S. AIRPORTS WITH GREATER THAN 1 MILLION INTERNATIONAL ENPLANEMENTS**  
**CALENDAR YEAR 2000, 1995, and 1990**

Rank	Airport	Code	International Enplanements				Percent (%) Share	
			2000	Percent (%) Share	1995	Percent (%) Share		1990
1	New York Kennedy	JFK	8,661,911	7.1%	8,152,973	8.1%	7,851,101	7.8%
2	Los Angeles International	LAX	8,193,272	6.7%	6,088,838	6.1%	4,291,889	4.3%
3	Miami International	MIA	7,840,523	6.4%	7,364,534	7.3%	5,162,925	5.1%
4	Chicago O'Hare	ORD	5,118,227	4.2%	3,193,141	3.2%	2,235,167	2.2%
5	Newark International	EWR	4,206,049	3.5%	1,727,741	1.7%	1,195,683	1.2%
6	San Francisco International	SFO	3,733,067	3.1%	2,766,313	2.7%	1,849,922	1.8%
7	Atlanta Hartsfield	ATL	2,815,326	2.3%	1,388,189	1.4%	824,445	0.8%
8	Houston Intercontinental	IAH	2,707,086	2.2%	1,366,437	1.4%	979,354	1.0%
9	Honolulu International	HNL	2,643,679	2.2%	3,018,233	3.0%	2,862,381	2.8%
10	Dallas/Ft. Worth International	DFW	2,194,048	1.8%	1,457,443	1.4%	1,241,025	1.2%
11	Washington Dulles	IAD	1,995,118	1.6%	1,346,921	1.3%	617,399	0.6%
12	Boston Logan	BOS	1,925,914	1.6%	1,430,193	1.4%	1,383,141	1.4%
13	Guam International	GUM	1,414,366	1.2%	1,186,534	1.2%	998,257	1.0%
14	Detroit Wayne County	DTW	1,278,650	1.0%	1,287,421	1.3%	705,362	0.7%
15	San Juan Luis Munoz	SJU	1,007,453	0.8%	972,471	1.0%	1,095,493	1.1%
	<b>Total</b>		<b>55,734,687</b>	<b>45.7%</b>	<b>42,747,382</b>	<b>42.5%</b>	<b>33,293,542</b>	<b>33.1%</b>
	<b>Total US Int'l Enp</b>		<b>121,862,000</b>		<b>100,629,964</b>		<b>88,862,892</b>	
International Enplanements Excluding Canada								
Rank	Airport	Code	2000	Percent (%) Share	1995	Percent (%) Share	1990	Percent (%) Share
1	New York Kennedy	JFK	8,377,863	7.5%	8,018,762	8.6%	7,768,382	9.5%
2	Miami International	MIA	7,546,090	6.8%	7,122,874	7.7%	4,938,221	6.0%
3	Los Angeles International	LAX	7,537,717	6.8%	5,628,893	6.1%	3,899,929	4.7%
4	Chicago O'Hare	ORD	3,830,679	3.4%	2,219,132	2.4%	1,540,670	1.9%
5	Newark International	EWR	3,668,656	3.3%	1,435,672	1.5%	927,475	1.1%
6	San Francisco International	SFO	3,246,694	2.9%	2,441,194	2.6%	1,573,427	1.9%
7	Atlanta Hartsfield	ATL	2,533,937	2.3%	1,221,239	1.3%	824,445	1.0%
8	Honolulu International	HNL	2,457,151	2.2%	2,883,630	3.1%	2,718,315	3.3%
9	Houston Intercontinental	IAH	2,439,645	2.2%	1,285,737	1.4%	979,354	1.2%
10	Washington Dulles	IAD	1,871,578	1.7%	1,251,088	1.3%	609,306	0.7%
11	Dallas/Ft. Worth International	DFW	1,791,482	1.6%	1,205,569	1.3%	1,095,316	1.3%
12	Guam International	GUM	1,414,366	1.3%	1,186,534	1.3%	998,257	1.2%
13	Boston Logan	BOS	1,385,011	1.2%	911,716	1.0%	866,124	1.1%
14	San Juan Luis Munoz	SJU	1,007,453	0.9%	972,471	1.0%	1,085,881	1.3%
15	Detroit Wayne County	DTW	932,968	0.8%	750,762	0.8%	306,748	0.4%
	<b>Total</b>		<b>50,041,290</b>	<b>45.1%</b>	<b>38,535,273</b>	<b>41.5%</b>	<b>30,131,850</b>	<b>36.7%</b>
	<b>Total US Intl Enp excluding Canada</b>		<b>111,063,258</b>		<b>92,898,000</b>		<b>82,166,000</b>	
Transborder (Canada Only) Enplanements								
Rank	Airport	Code	2000	Percent (%) Share	1995	Percent (%) Share	1990	Percent (%) Share
1	Chicago O'Hare	ORD	1,287,548	11.9%	974,009	12.6%	694,497	10.4%
2	Los Angeles International	LAX	655,555	6.1%	459,945	5.9%	391,960	5.9%
3	Boston Logan	BOS	540,903	5.0%	518,477	6.7%	517,017	7.7%
4	Newark International	EWR	537,393	5.0%	292,069	3.8%	268,208	4.0%
5	San Francisco International	SFO	486,373	4.5%	325,119	4.2%	276,495	4.1%
6	Dallas/Ft. Worth International	DFW	402,566	3.7%	251,874	3.3%	145,709	2.2%
7	Detroit Wayne County	DTW	345,682	3.2%	536,659	6.9%	398,614	6.0%
8	Miami International	MIA	294,433	2.7%	241,660	3.1%	224,704	3.4%
9	New York Kennedy	JFK	284,048	2.6%	134,211	1.7%	82,719	1.2%
10	Atlanta Hartsfield	ATL	281,389	2.6%	166,950	2.2%	0	0.0%
11	Houston Intercontinental	IAH	267,441	2.5%	80,700	1.0%	0	0.0%
12	Honolulu International	HNL	186,528	1.7%	134,603	1.7%	144,066	2.2%
13	Washington Dulles	IAD	123,540	1.1%	95,833	1.2%	8,093	0.1%
14	Guam International	GUM	0	0.0%	0	0.0%	0	0.0%
15	San Juan Luis Munoz	SJU	0	0.0%	0	0.0%	9,612	0.1%
	<b>Total</b>		<b>5,693,397</b>	<b>52.7%</b>	<b>4,212,109</b>	<b>54.5%</b>	<b>3,161,692</b>	<b>47.2%</b>
	<b>Total Transborder Enp</b>		<b>10,798,742</b>		<b>7,731,964</b>		<b>6,696,892</b>	

Source: Department of Transportation (DOT), T3/T100 Combined/INS Form I-92 Data for Foreign Carrier Enplanements and US Carrier International Enplanements

The Immigration and Naturalization Service (INS) records show that New York is the dominant gateway for travel from the U.S. to the Atlantic Region (Europe, Middle East, and Africa). Miami is the dominant gateway to Latin America (Central and South America and the Caribbean), although Los Angeles is the primary gateway to Central America. Los Angeles is the primary gateway to the Asia-Pacific Region, followed closely by Honolulu. Due to the expansion of international air service at mid-continent airports, New York and Miami lost market share between 1995 and 2000 to their respective world regions. In contrast, Los Angeles' market share of the Asia-Pacific Region increased between 1995 and 2000. Detailed tables of INS international passenger data for 1995 and 2000 are presented in Appendix C.

### **1.3.6 REGIONAL ECONOMIC CONTRIBUTION**

An important function of a gateway airport is to serve both local O&D passengers and connecting passengers with quality air service. The value to the region is better international air service than could be justified based on O&D passengers alone. With 50 percent connecting passengers, an airline can operate twice as many flights as the local market alone could support.

The value of a single international flight can be several times greater than the average domestic flight. LAX Master Plan Alternative D would result in employment gains by 2005 that equal those projected for the other LAX Master Plan alternatives. However, by 2015, Alternative D would yield slightly lower economic contributions due to productivity gains made during the time period. There is a direct correlation between the number of passengers served and the character of the passengers (domestic vs. international) at LAX and the airport's contribution to the local and regional economy.

LAX's international gateway role is crucial to the economies of Los Angeles and Southern California. The international gateway role is threatened in the future by limited facilities at LAX and the other regional airports. Except for Ontario, the other airports in Southern California would have limited market strength and facilities to supplement LAX's role. Other competing U.S. cities and regions stand to benefit from this limitation because of their growing market base and their available or planned infrastructure.