
4.4 Social Impacts

4.4.1 Employment/Socio-Economics

4.4.1.1 Introduction

This employment/socio-economics analysis addresses employment and economic output for each of the Master Plan alternatives. The analysis from which this section is summarized is provided in Technical Report 5, *Economic Impacts Technical Report*, and Technical Report S-3, *Supplemental Economic Impacts Technical Report*. Employment and socio-economic effects related to property acquisition are discussed in Section 4.4.2, *Relocation of Residences or Businesses*. Potential indirect impacts of employment-related increases in population and housing are addressed in Section 4.5, *Induced Socio-Economic Impacts (Growth Inducement)*. School enrollment impacts related to new LAX employee households are addressed in Section 4.27, *Schools*.

4.4.1.2 General Approach and Methodology

The CEQA Guidelines state that social and economic effects shall not be treated as significant effects on the environment (Section 15131 of the CEQA Guidelines). However, an EIR may “trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes” (Section 15131(a) of the CEQA Guidelines). Similarly, NEPA considers social effects that have causal relationships to the environment, which may be direct, indirect, and cumulative. Socio-economic effects are most often indirect growth-inducing effects that induce changes in the patterns of land use, population density, or growth rate. This section focuses on the employment and economic effects associated with the Master Plan alternatives, but does not assess physical changes caused by these effects. Potential economic and social effects of the project that may result in physical impacts on the environment are addressed in Section 4.5, *Induced Socio-Economic Impacts (Growth Inducement)*.

To assess the potential effect of the proposed Master Plan alternatives on employment/socio-economics, conditions anticipated under the No Action/No Project Alternative and each of the four build alternatives after implementation are compared with baseline (1996) employment and economic output conditions. In addition, post-project conditions anticipated under each of the four build alternatives are compared with future conditions associated with the No Action/No Project Alternative. Characterization of the environmental baseline includes a description of existing (1996) employment and economic output related to LAX. Updated and Year 2000 conditions are also discussed, where appropriate, for comparison.

The FAA has established an approach for estimating the regional economic effects of airports.¹⁶⁸ This approach involves surveys to determine “direct” and “indirect” employment and spending at on- and off-airport locations, and the use of regional economic “multipliers” to estimate “induced” effects that flow from direct and indirect impacts. “Direct impacts” are consequences of economic activities carried out at the airport and in the immediate vicinity by airlines, airport management, fixed-base operators, and other tenants with a direct involvement in aviation. “Indirect impacts” derive primarily from off-site economic activities that are attributable to the airport. These activities include services provided by travel agencies, hotels, restaurants, and retail establishments. The multiplier effects of direct and indirect impacts create “induced impacts.” These include businesses supplying goods and services to direct and indirect activities, and households supported by jobs created as a consequence of direct and indirect activities.

Economic impacts are usually measured in terms of output, or gross sales, and jobs. The FAA methodology generally proceeds through the following steps:

- ◆ **Determine Direct Airport Impacts.** This task involves the enumeration of all on-airport employment and estimation of its payroll. Enumeration includes both traditional airport employment (e.g., airline and government employees) plus specialized businesses that rely on access to airports, such as aviation maintenance and aircraft manufacturing.

¹⁶⁸ Steward E. Butler, Ph.D. and Laurence J. Kiernan, Federal Aviation Administration, U.S. Department of Transportation (USDOT), *Estimating the Regional Economic Significance of Airports*, January 1992. This is an abbreviated version of a 1986 study by the same authors, *Measuring the Regional Economic Significance of Airports*.

4.4.1 Employment/Socio-Economics

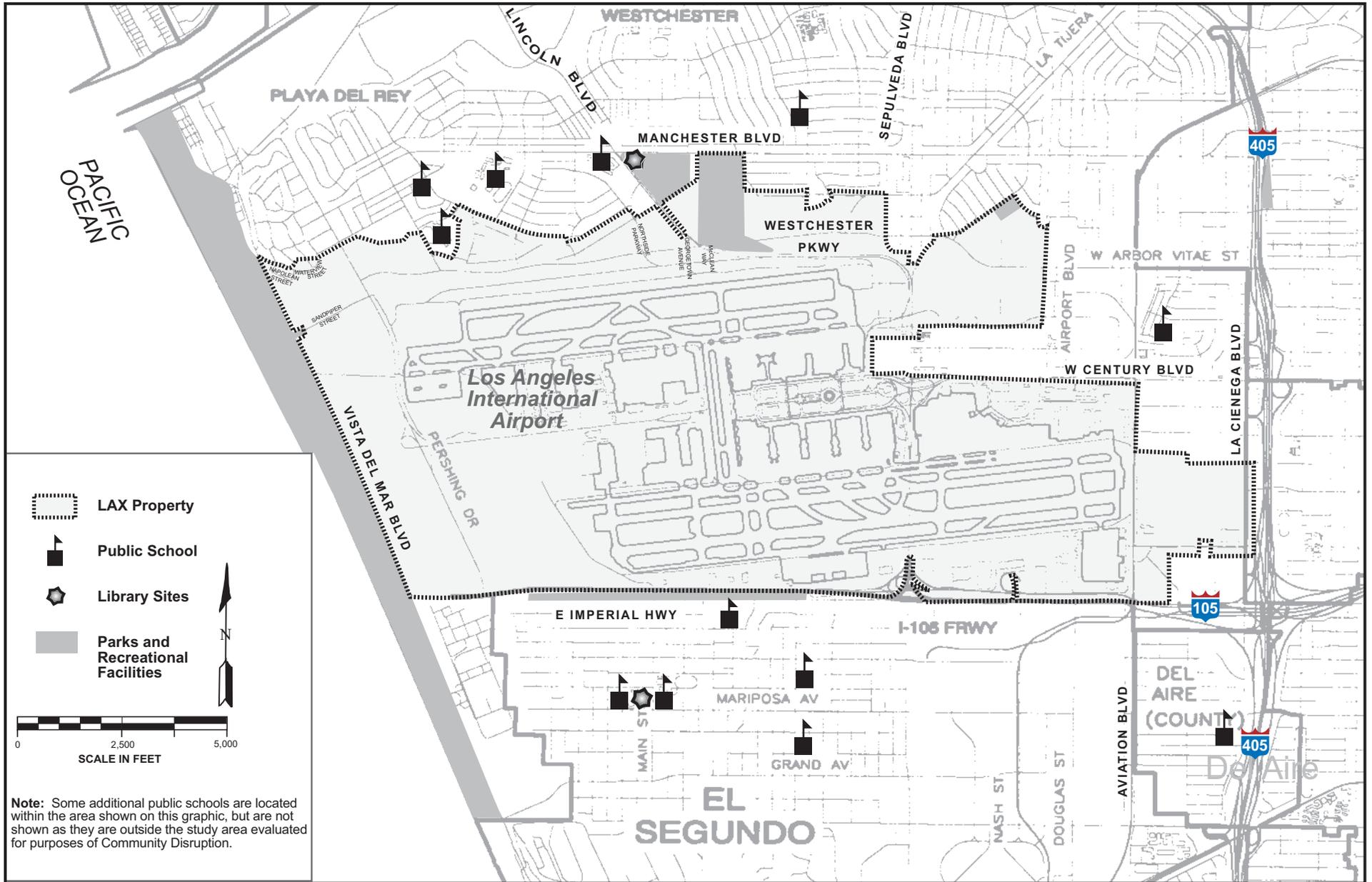
- ◆ **Estimate Indirect Airport Impacts.** Indirect impacts are generally estimated using several approaches. Off-airport air transportation impacts, such as airline crew expenditures and travel agent commissions, are estimated from survey data. Visitor spending impacts are often estimated through surveys of departing passengers that identify trip purpose, trip duration, and spending patterns.
- ◆ **Estimate Induced Impacts of Airport.** Induced impacts are estimated using industry sector-specific multipliers estimated from input-output models.
- ◆ **Calculate Total Economic Impacts.** The total economic impacts of an airport are the sum of the direct, indirect, and induced impacts, using the output and/or employment impact measures.

Although this input-output approach has been used previously by LAWA and other airports in the Los Angeles region to analyze the economic impacts of LAX and the other airports, there are critical definitional and analytic limitations to the traditional approach to airport impact analysis that rendered it inappropriate for the current LAX Master Plan process. These include the need for more dynamic, future-oriented analysis; an approach that more explicitly accounts for the intricate and subtle relationships between airports and the surrounding economy on which they depend; and the ability to account for predictable changes in these future relationships, such as the effects of productivity changes on employment. **Figure F4.4.1-1**, Economic Impact Accounting Framework for LAX Master Plan Alternatives, illustrates the analytic framework used to estimate the direct economic impacts of current and future passenger and cargo activity at LAX in the Southern California regional economy under the alternatives considered.

Two economic models were used in the evaluation of the Master Plan alternatives. The economic impacts associated with construction-related expenditures under Alternatives A, B, C, and D were estimated using the IMPLAN input-output model for Los Angeles County. A model produced by Regional Econometric Models, Inc. (REMI), discussed further below, was used to evaluate the economic impacts associated with airport operations under the No Action/No Project Alternative and Alternatives A, B, C, and D.

The analysis of LAX's contribution to the regional economy, which is based on the REMI model, differs from previous LAX economic studies in the following ways:

- ◆ **Dynamic Modeling to Support the Alternatives Development and Evaluation Process.** The purpose of the LAX economic impact analysis differs from the one-time "snapshot" of LAX's impact on the regional economy that has been prepared in the past and from similar analyses performed for other airports around the nation. A future-oriented impact analysis capable of testing different LAX development scenarios calls for a different modeling approach. A dynamic econometric model, rather than a more conventional static input-output approach, accounts for the complexities of the economic interactions between LAX and the economy over time. An econometric model forecasts employment, wages, output, relative costs, and other variables for industries in a region as the relationships among them and the costs of production change over time.
- ◆ **Accounting for the Network Economics Characteristics of Regional Airports.** Traditionally, airport economic impact analyses have focused on inbound and outbound passenger and freight cargo. In most cases, they have examined the impact of connecting traffic of both types only to the extent that connecting passengers contribute to retail sales at the airport, and hence local sales tax receipts, and to the extent that cargo value was assumed inherently to have some multiplier effect in the region, even if it were merely moving through the airport without being used in the region. This approach underestimates the total economic impact of an airport like LAX, which facilitates a substantial amount of connecting passenger and cargo traffic. The large volume of connecting traffic routed through LAX is what enables the airport to serve efficiently as a major hub. Two broad types of benefits are provided by hub airport to their regions: (a) lower ticket prices for inbound and outbound passengers; and (b) greater frequency of flights into and out of the airport.
- ◆ **Accounting for Productivity Changes Over Time.** All forecasts of the future of the region's economy indicate that there will be erosion in the baseline year number of jobs due to productivity improvements. The region will produce more with fewer people, through technological and other changes in production, particularly in the manufacturing sectors. The econometric modeling approach used in this analysis was designed to account explicitly for these effects.



Analysis using the REMI model was supplemented with a wide range of data to establish the statistical relationship between changes in the regional economy and the principal variables that define alternative LAX Master Plan concepts – volume of air transportation services, passenger volumes by type of passenger, and cargo tonnage by type of cargo. This data was assembled from historical records, surveys of passengers and interviews with a wide range of businesses in the region that depend on air transportation services.

Estimating the economic impacts of the Master Plan alternatives requires establishing characteristics within each of the alternatives that can be recognized by the REMI model and distinguishing among the characteristics of the alternatives that clearly link back to economic impacts. Millions of annual passengers and air cargo tons were determined to be the best common descriptors for each of the alternatives. Technical Report 5, *Economic Impacts Technical Report*, contains a detailed description of the REMI model and how it was used to analyze the effects of the Master Plan on the regional economy.

The following analysis, based on outputs from the REMI model, includes an assessment of direct employment and economic output at the regional level, and an assessment of direct “on-airport” employment at the local level. Direct “on-airport” employment is a subset of direct employment that is more reflective of traditional direct employment. It represents employment associated with activities carried out at the airport by airlines, airport management, fixed base operators, and other tenants on airport property. This subset of direct employment from the project serves as the most predictable basis for the evaluation of physical impacts that could be induced by project employees and their households, as discussed in Section 4.5, *Induced Socio-Economic Impacts (Growth Inducement)*, and Section 4.27, *Schools*.

For purposes of this analysis, the data focuses on the five-county Los Angeles region (also referred to as the Southern California region), including Los Angeles, San Bernardino, Ventura, Riverside, and Orange counties. The geographic scope of the analysis of on-airport employment is limited to the seven census tracts including and immediately surrounding LAX (census tracts: 6014.01, 2766.02, 2772.00, 2774.00, 2780.00, 2781.00, and 6016.00), as shown in **Figure F4.4.1-2**, On-Airport Employment Study Area. The Master Plan boundaries include portions of these seven tracts.

Construction-related economic impacts in Los Angeles County are also presented for each alternative. These impacts were estimated using the IMPLAN input-output model and are based on construction cost estimates prepared for the proposed Master Plan alternatives. The cost estimate line items, excluding land acquisition, were linked with their corresponding industry sectors in the IMPLAN model. The model was then used to produce year-by-year, 1996 through 2015, and cumulative estimates of total economic output and employment for the expenditures associated with construction of each build alternative.

4.4.1.3 Affected Environment/Environmental Baseline

The Los Angeles region, with a Gross Regional Product of over \$400 billion,¹⁶⁹ would rank as the 12th largest economy in the world if it were a separate country. LAX, as a major regional airport, plays an important role in the Southern California economy through employment, generation of taxes and other revenue, and by facilitating the efficient movement of people, goods, and services. Based on the accounting framework shown in **Figure F4.4.1-1**, in 1996, LAX handled approximately 58.0 million annual passengers (MAP) and 1.9 million annual tons (MAT) of air cargo, and was directly related to over \$60 billion in total economic output and about 408,000 jobs, or one out of every 20 jobs in the regional economy.

In Year 2000, when LAX handled 67.3 MAP and 2.2 MAT of air cargo, activity at LAX accounted for \$65 billion in total direct economic output in the region and approximately 425,000 jobs. This increase in direct economic output and jobs, when compared to the 1996 baseline, is generally consistent with the contributions to the regional economy expected from LAX over time.

The estimated 408,000 jobs in the regional economy directly related to LAX in 1996 fall within a variety of sectors, with the greatest emphasis in the manufacturing industries (such as, furniture, metals, machinery, textiles, and equipment), transportation, food, retail, hotels, auto repair, and recreation. About 49,000 of these jobs (12 percent) were in the air transportation and airport government sectors. An additional 109,600 (27 percent) were in the various passenger-spending sectors. The remaining 249,000

¹⁶⁹ All dollar amounts are expressed in constant 1996 dollars, unless otherwise noted.

4.4.1 Employment/Socio-Economics

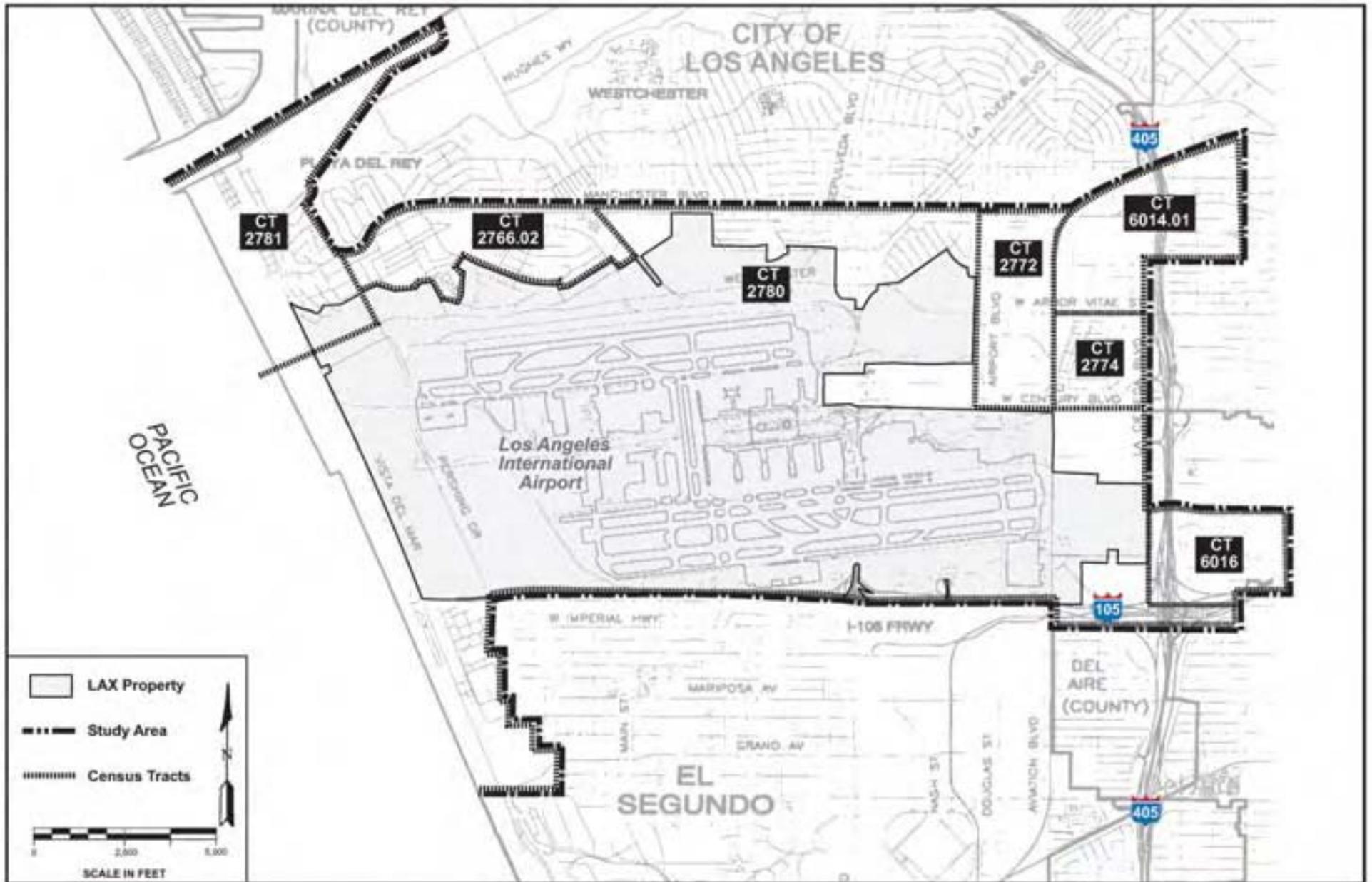
(61 percent) were in the manufacturing sectors. Of the total, about 59,000 (14 percent) were airport jobs, located at or in the area immediately surrounding LAX. A detailed breakdown of the number of employees within each industry is provided in Technical Report 5, *Economic Impacts Technical Report*.

Manufacturing has been, and will continue to be, an important part of the region's economic base because it creates both direct production jobs and jobs in many related industries. However, for more than a decade, manufacturing jobs have been a steadily declining share of the national economic base as well as that of the region. For example, between 1979 and 1993 the U.S. economy added 20 million jobs while the number of manufacturing jobs fell by over 3 million. The region's share of manufacturing employment, after growing steadily since the 1970s, began to decline in 1987. In 1997, there were more than 1 million manufacturing jobs in the region, accounting for over half of the state's manufacturing jobs and for 14.6 percent of the total jobs in the region. The region's share of total U.S. manufacturing jobs, after falling to 5.2 percent in 1995, rose to 5.5 percent in 1997.

Similar to manufacturing, defense-related industries, while an important part of the region's economic base, have also experienced a decline in their share of the regional economic base. The defense-related sector of the region's economic base is no longer large in terms of job levels compared to other sectors. In fact, defense activities have declined substantially. In 1972, the region contained nearly 2.5 jobs in aerospace and defense for every job in tourism and entertainment. By 1995, these roles had reversed, and there are now more than twice as many jobs in tourism and entertainment than exist in aerospace and defense. While both manufacturing and defense-related industries will continue to be key industries in the region, other sectors have and will continue to gain larger shares of the region's economic base.

The major industry sectors of the region's economic base that propelled the state's economy during the 1990's and are fundamental to the future health of the California and regional economy include:

- ◆ **International Trade.** International trade creates jobs in three major areas: (a) goods manufactured in the region; (b) delivery of goods (e.g., trucking, wholesale trade, railroad, and air transportation industries); and (c) trade in services (e.g., air travel for tourist and business travelers, software and entertainment products, professional services, and education and health). The volume of merchandise trade through the Los Angeles Customs District, the largest center for foreign trade in the nation, grew from \$6.2 billion in 1972 to \$185.9 billion in 1997. The region's trade volume increased at an average rate of 13 percent between 1975 and 1996, with total trade volume growing by more than 50 percent between 1990 and 1996. The value of trade volume handled by the region's ports and airports was \$168.8 billion in 1996.
- ◆ **Tourism and Entertainment.** From a base of 107,000 jobs in 1972, the tourism and entertainment sector, which includes hotel, motion picture, and amusement industries, expanded by over 193 percent to include roughly 314,000 jobs in 1997. Tourism creates jobs in other sectors as well, such as restaurants, retail stores, car rental agencies, and air travel. As indicated earlier, this sector now accounts for twice as many jobs in the region as aerospace and defense. Rising incomes nationwide and worldwide will support above-average growth rates in all parts of this industry. Moreover, the industry provides jobs at a variety of wage levels from high wage full-time jobs in motion pictures to lower-wage full- and part-time jobs in the hotel and amusement sectors.
- ◆ **Professional Services.** Professional services industries are now the largest sector in the region's economic base, with roughly 926,000 jobs in 1997, a 10.1 percent increase since 1990. Moreover, professional services will provide the largest component of potential future job growth in the region's economic base. The region serves markets throughout California, the nation, and worldwide in industries like software, engineering and management services, and portions of legal services, business services, and higher education sectors. Professional services often serve manufacturing industries. For example, Southern California is a major center for automobile design despite the absence of substantial automobile production locally.
- ◆ **High Technology.** National and worldwide demand for the products of technology will likely make sales of technology-based goods and services a leading growth market for the foreseeable future. Traditional measures of technology manufacturing include the computer, electronic components, and instruments sectors. Now, however, growth is also occurring in other markets such as environmental technology, bio-technology, and advanced transportation technology.



LAX Master Plan
Final EIS/EIR

On-Airport Employment Study Area

Figure
F4.4.1-2

These sectors are particularly noteworthy because: (a) they are expected to have above-average growth in national and international markets; (b) California has a high and rising share of U.S. jobs and output in these sectors; and (c) all four sectors play an important role in the Southern California economy. As described in more detail in Technical Report 5, *Economic Impacts Technical Report*, each of these sectors has an important relationship and degree of dependence on LAX that have influenced and will continue to influence the regional economy.

4.4.1.4 Thresholds of Significance

4.4.1.4.1 CEQA Thresholds of Significance

The State CEQA Guidelines, Section 15131, Economic and Social Effects, states that "economic or social effects shall not be treated as significant effects on the environment." As a result, there are no CEQA significance thresholds for employment/socio-economic impacts. State CEQA Guidelines, Section 15131(b) does state that the "economic or social effects of a project may be used to determine the significance of physical changes caused by the project." This assessment is provided in Section 4.5, *Induced Socio-Economic Impacts (Growth Inducement)*.

4.4.1.4.2 Federal Standards

There are no federal standards that define significance thresholds for employment/socio-economic impacts. Section 47(e)(4) of FAA Order 5050.4A, *Airport Environmental Handbook*, requires that induced socio-economic impacts associated with major airport development proposals be addressed. As noted above, Section 4.5, *Induced Socio-Economic Impacts (Growth Inducement)*, addresses that issue.

4.4.1.5 Master Plan Commitments

No Master Plan commitments for employment/socio-economics are proposed.

4.4.1.6 Environmental Consequences

As described in the Analytical Framework discussion in the introduction to Chapter 4, the basis for determining impacts under CEQA is different from that of NEPA. Under CEQA, the impacts of a proposed project and alternatives are measured against the "environmental baseline," which is normally the physical conditions that existed at the time the Notice of Preparation was published (i.e., June 1997, or 1996 when a full year of data is appropriate, for the LAX Master Plan Draft EIS/EIR). As such, the CEQA analysis in this Final EIS/EIR uses the environmental baseline, or in some cases an "adjusted environmental baseline," as the basis by which to measure and evaluate the impacts of each alternative. Under NEPA, the impacts of each action alternative (i.e., build alternative) are measured against the conditions that would otherwise occur in the future if no action were to occur (i.e., the "No Action" alternative). As such, the NEPA analysis in this Final EIS/EIR uses the No Action/No Project Alternative as the basis by which to measure and evaluate the impacts of each build alternative (i.e., Alternatives A, B, C, and D) in the future (i.e., at buildout in 2015 or, for construction-related impacts, selected future interim year). Based on this fundamental difference in the approach to evaluating impacts, the nature and significance of impacts determined under CEQA are not necessarily representative of, or applicable to, impacts determined under NEPA. The following presentation of environmental consequences should, therefore, be reviewed and considered accordingly.

4.4.1.6.1 No Action/No Project Alternative

Under the No Action/No Project Alternative, described in Chapter 3, *Alternatives*, cargo and passenger activity characteristics are especially pertinent to the analysis of employment/socio-economic impacts. Annual air passenger volumes would continue to increase from the baseline level of 58.0 MAP in 1996. But, as a result of capacity constraints, annual passenger growth would slow considerably, so that it would reach 78.7 MAP by 2015, or roughly 80 percent of forecasted demand. Air cargo volumes would increase to 3.1 MAT by 2015 from 1.9 MAT in 1996, but no further cargo growth would occur due to operating constraints at LAX.

4.4.1 Employment/Socio-Economics

Employment

The No Action/No Project Alternative would support an estimated 350,110 jobs in the Los Angeles region in 2015. The 1996 base year employment is 407,670. As further described in Technical Report 5, *Economic Impacts Technical Report*, the decline in total jobs over the planning period shows that productivity increases (i.e., producing more economic output per worker) overwhelm net additional jobs associated with the limited growth in annual passengers and cargo tons in this alternative. This effect occurs in nearly every one of the manufacturing sectors, as shown in **Table F4.4.1-1**, Direct LAX-Related Jobs in the Los Angeles Region, No Action/No Project Alternative, by REMI Model Sector.

Table F4.4.1-1

**Direct LAX-Related Jobs in the Los Angeles Region,
No Action/No Project Alternative, by REMI Model Sector**

REMI Model Sector	Base Year	No Action/No Project
	1996	2015
Furniture Mfg.	5,688	5,037
Primary Metals Mfg.	3,438	2,431
Fabricated Metals Mfg.	10,889	7,984
Industrial Machinery Mfg.	38,992	24,348
Electronic Equipment Mfg.	28,280	15,565
Transportation Equipment Mfg.	53,278	49,463
Instruments Mfg.	51,340	32,327
Miscellaneous Mfg.	5,020	3,528
Food & Kindred Products Mfg.	1,559	1,284
Tobacco Products Mfg.	8	5
Textile Mill Products Mfg.	743	488
Apparel Mfg.	24,086	12,220
Paper Products Mfg.	1,597	1,293
Printing And Publishing	6,463	6,232
Chemical And Allied Prods. Mfg.	3,385	2,617
Rubber & Plastics Mfg.	6,653	6,006
Leather Mfg.	495	157
Local Interurban Passenger Transportation	7,476	7,479
Air Transportation	48,711	42,863
Eating/Drinking Establishments	33,990	41,876
Other Retail Trade	12,432	11,617
Hotels	31,369	43,213
Auto Rental	5,345	6,041
Amusement & Recreation	26,436	26,035
Regional Total	407,670	350,110
Los Angeles County Total	327,683	294,237
City of Los Angeles Total	157,657	138,548
Total Annual Passengers (millions)	57.97	78.7
Total Annual Air Cargo Tons (millions)	1.9	3.1

Source: HR&A, Inc., June 2000.

As shown in **Table F4.4.1-2**, LAX On-Airport Employment, it is estimated that the No Action/No Project Alternative would result in a net decrease of about 9,273 on-airport jobs over the entire planning period, 1996-2015.¹⁷⁰ These estimates include the effects of employment contractions in the underlying 1996 base year total due to productivity improvements.

¹⁷⁰ "On-airport" employees are defined as those working at LAX and immediately surrounding locations within Census Tracts 2766.02, 2772.00, 2774.00, 2780.00, 2781.00 (LAX), 6014.00 and 6016.00.

Table F4.4.1-2

LAX On-Airport Employment

Alternative	1996 Baseline ¹	1996-2015 Growth ¹
No Action/No Project	58,966	(9,273)
Alternatives A and B	58,966	11,824
Alternative C	58,966	6,421
Alternative D	58,966	(9,261)

¹ On-airport employees are defined as those working at LAX and immediately surrounding locations within Census Tracts 2766.02, 2772.00, 2774.00, 2780.00, 2781.00 (LAX), 6014.00 and 6016.00.

Source: HR&A, Inc., May 2003.

Economic Output

Under the No Action/No Project Alternative, it is estimated that LAX would have a somewhat greater direct impact on the economy of the Los Angeles region in 2015 than it had in 1996. This pattern of limited direct economic impact would also occur for the County of Los Angeles and City of Los Angeles economies. The economic growth relationships for the region, County of Los Angeles, and the City of Los Angeles are shown in **Table F4.4.1-3**, Direct Economic Impact of LAX in the Los Angeles Economy, No Action/No Project Alternative. The economic impacts of LAX within other jurisdictional and geographic boundaries are described in Technical Report 5, *Economic Impacts Technical Report*.

Table F4.4.1-3

**Direct Economic Impact of LAX in the Los Angeles Economy,
No Action/No Project Alternative (millions of 1996 dollars)**

Geographic Area	1996	2015
Los Angeles Region	\$60,439	\$63,697
Los Angeles County	\$48,603	\$52,271
City of Los Angeles	\$20,868	\$22,186

Source: HR&A, Inc., June 2000.

4.4.1.6.2 Alternative A - Added Runway North

Under Alternative A, described in Chapter 3, *Alternatives*, cargo and passenger activity characteristics are especially pertinent to the analysis of employment/socio-economic impacts. LAX would accommodate approximately 97.9 MAP by 2015. It would be able to accommodate approximately 4.2 MAT of air cargo by 2015, which is 100 percent of the forecast cargo demand for that year.

Employment

Alternative A would support an estimated 448,083 jobs in the Los Angeles region in 2015.¹⁷¹ The incremental growth in passenger and cargo activity would produce a net gain of about 40,413 jobs over 1996 baseline conditions, despite the effects of productivity improvements on most categories of manufacturing employment over the planning period. The estimates for Alternative A are presented in **Table F4.4.1-4**, LAX-Related Jobs in the Los Angeles Region, Alternatives A and B, by REMI Model Sector. As shown in **Table F4.4.1-2**, Alternative A would result in a net increase of about 11,824 on-airport jobs between 1996 and 2015.

¹⁷¹ When these direct employment impacts are combined with indirect and induced impacts, the total employment impact on the regional economy by 2015 would equate to about 850,000 jobs.

4.4.1 Employment/Socio-Economics

Table F4.4.1-4

**LAX-Related Jobs in the Los Angeles Region,
Alternatives A and B, by REMI Model Sector**

REMI Model Sector	Base Year	Alternatives A & B
	1996	2015
Furniture Mfg.	5,688	5,342
Primary Metals Mfg.	3,438	2,578
Fabricated Metals Mfg.	10,889	8,466
Industrial Machinery Mfg.	38,992	25,822
Electronic Equipment Mfg.	28,280	16,506
Transportation Equipment Mfg.	53,278	52,457
Instruments Mfg.	51,340	34,283
Miscellaneous Mfg.	5,020	3,742
Food & Kindred Products Mfg.	1,559	1,363
Tobacco Products Mfg.	8	5
Textile Mill Products Mfg.	743	517
Apparel Mfg.	24,086	12,961
Paper Products Mfg.	1,597	1,371
Printing And Publishing	6,463	6,609
Chemical And Allied Prods. Mfg.	3,385	2,775
Rubber & Plastics Mfg.	6,653	6,370
Leather Mfg.	495	167
Local Interurban Passenger Transportation	7,476	11,019
Air Transportation	48,711	61,658
Eating/Drinking Establishments	33,990	61,472
Other Retail Trade	12,432	16,509
Hotels	31,369	66,752
Auto Rental	5,345	9,107
Amusement & Recreation	26,436	40,230
Total	407,670	448,083
Total Annual Passengers (millions)	57.97	97.9
Total Air Cargo Tons (millions)	1.9	4.2

Source: HR&A, Inc., June 2000.

Compared to the No Action/No Project Alternative, Alternative A is projected to support a substantially increased level of employment in 2015. The forecast of 448,083 jobs in 2015 under Alternative A is approximately 28 percent greater than under the No Action/No Project Alternative in 2015, which is anticipated to employ 350,110.

Economic Output

Under Alternative A, it is estimated that LAX would have a positive \$83.7 billion direct impact on the economy of the Los Angeles region in 2015.¹⁷² The impact in the County of Los Angeles and the City of Los Angeles is lower, but positive. These relationships are shown in **Table F4.4.1-5**, Direct Economic Impact of LAX in the Economy of the Los Angeles Region, Alternatives A and B.

¹⁷² When these direct impacts are combined with indirect and induced impacts, the total impact on the regional economy in 2015 would be about \$127 billion.

Table F4.4.1-5

**Direct Economic Impact of LAX in the Economy of the
Los Angeles Region Alternatives A and B
(millions of 1996 dollars)**

Geographic Area	1996	2015
Los Angeles Region	\$60,439	\$83,726
Los Angeles County	\$48,603	\$72,031
City of Los Angeles	\$20,868	\$31,455

Source: HR&A, Inc., June 2000.

Compared to 1996 baseline conditions, Alternative A is expected to generate an increase of \$23.3 billion (or 38 percent) in economic output to the Los Angeles region in 2015.

Compared to the No Action/No Project Alternative, Alternative A is projected to generate a substantially increased level of economic output in 2015. Anticipated economic output under Alternative A in 2015, \$83.7 billion, is approximately 31 percent greater than under the No Action/No Project Alternative in 2015, which is forecasted to generate \$63.7 billion.

Construction Impacts

Construction costs of Alternative A would total about \$12.8 billion by 2015. This expenditure translates into an estimated 91,337 jobs¹⁷³ directly involved in construction of the improvements in Los Angeles County over the duration of the construction process. When the “multiplier” effect of these direct jobs is taken into account, the total employment impact in the county from the expenditure to construct Alternative A is 191,465 jobs.¹⁷⁴ The direct expenditure of \$11.9 billion¹⁷⁵ to construct Alternative A would also yield a total of \$21.2 billion in economic output in Los Angeles County.

4.4.1.6.3 Alternative B - Added Runway South

Under Alternative B, described in Chapter 3, *Alternatives*, cargo and passenger activity characteristics are especially pertinent to the analysis of employment/socio-economic impacts. Passenger growth assumptions are identical to Alternative A (97.9 MAP in 2015), as are the assumptions about growth in airfreight cargo tonnage (4.2 MAT in 2015).

Employment and Economic Output

Because the estimates of economic impact are linked to each alternative’s annual passenger volumes and annual cargo tonnage, and the volumes for Alternative B are identical to those for Alternative A, all of the economic, employment, and other related impacts of Alternative B are identical to those for Alternative A.

As was the case with Alternative A, Alternative B is projected to support substantially increased levels of employment and economic output compared to both 1996 baseline conditions and the No Action/No Project Alternative in 2015. The levels of increase in both employment and economic output associated with Alternative B in 2015 are identical to those for Alternative A.

¹⁷³ This is the number of individuals involved in the construction process, regardless of how long an individual is actually at work on the project.

¹⁷⁴ The “multiplier effect” includes indirect jobs (i.e., those related to purchases of goods and services by companies directly involved in the construction project) and induced jobs (i.e., those related to the re-spending of earnings by direct and indirect job holders).

¹⁷⁵ The figure stated for “construction costs” includes costs associated with land acquisition. Because land acquisition costs do not get passed through the economy as do other expenditures (e.g., labor and materials), they are not included in the “direct expenditures” figure, which is subjected to multiplier effects to determine economic output. Construction costs are stated in 1997 dollars.

4.4.1 Employment/Socio-Economics

Construction Impacts

Construction costs of Alternative B would total about \$14.8 billion by 2015. Implementation of Alternative B would yield an estimated 102,614 jobs directly involved in construction of LAX improvements in Los Angeles County over the duration of the construction process. When the “multiplier” effect of these direct jobs is taken into account, the total employment impact in the County from the expenditure to construct Alternative B is 215,103 jobs. The direct expenditure of \$13.4 billion to construct Alternative B would also yield a total of \$23.8 billion in economic output in the County of Los Angeles.

4.4.1.6.4 Alternative C - No Additional Runway

As with the other alternatives, under Alternative C, described in Chapter 3, *Alternatives*, cargo and passenger activity characteristics are especially pertinent to the analysis of employment/socio-economic impacts. Improvements would enable LAX to accommodate 89.6 MAP by 2015. Due to lower passenger activity levels in 2015, Alternative C would not provide as favorable economic results as Alternatives A and B (which accommodate 100 percent of demand), although it would accommodate 91 percent of forecast demand. As discussed below, this would still represent a substantial economic gain. Improvements under Alternative C would enable LAX to handle 4.2 MAT of cargo by 2015, or 100 percent of forecast airfreight cargo demand.

Employment

By 2015, Alternative C would yield fewer jobs than Alternatives A and B, due to its lower passenger activity level. Alternative C would support 425,369 jobs in the Los Angeles region by 2015.¹⁷⁶ This represents an increase of 17,699 jobs over 1996 baseline conditions. The estimates for Alternative C are presented in **Table F4.4.1-6**, LAX-Related Jobs in the Los Angeles Region, Alternative C, by REMI Model Sector. As shown in **Table F4.4.1-2**, Alternative C would result in a net increase of about 6,421 on-airport jobs between 1996 and 2015.

¹⁷⁶ When these direct employment impacts are combined with indirect and induced impacts, the total employment impact on the regional economy by 2015 would equate to about 812,000 jobs.

Table F4.4.1-6

**LAX-Related Jobs in the Los Angeles Region,
Alternative C, by REMI Model Sector**

REMI Model Sector	Base Year	Alt. C - No Additional Runway
	1996	2015
Furniture Mfg.	5,688	5,662
Primary Metals Mfg.	3,438	2,737
Fabricated Metals Mfg.	10,889	8,989
Industrial Machinery Mfg.	38,992	27,418
Electronic Equipment Mfg.	28,280	17,526
Transportation Equipment Mfg.	53,278	55,699
Instruments Mfg.	51,340	36,402
Miscellaneous Mfg.	5,020	3,973
Food & Kindred Products Mfg.	1,559	1,447
Tobacco Products Mfg.	8	5
Textile Mill Products Mfg.	743	549
Apparel Mfg.	24,086	13,762
Paper Products Mfg.	1,597	1,456
Printing And Publishing	6,463	7,017
Chemical And Allied Prods. Mfg.	3,385	2,946
Rubber & Plastics Mfg.	6,653	6,764
Leather Mfg.	495	177
Local Interurban Passenger Transportation	7,476	10,151
Air Transportation	48,711	56,122
Eating/Drinking Establishments	33,990	56,654
Other Retail Trade	12,432	16,391
Hotels	31,369	49,797
Auto Rental	5,345	8,318
Amusement & Recreation	26,436	36,406
Total	407,670	425,369
Total Annual Passengers (millions)	57.97	89.6
Total Air Cargo Tons (millions)	1.9	4.2

Source: HR&A, Inc., June 2000.

The employment forecast under Alternative C would be 425,369, or approximately 21 percent greater than the No Action/No Project Alternative in 2015, which is anticipated to employ 350,110.

Economic Output

Similar to employment, the economic output associated with Alternative C would be similar to that of Alternatives A and B. Under Alternative C, LAX would have a \$82.2 billion direct impact on the economy of the Los Angeles region by 2015.¹⁷⁷ Overall economic effects for Los Angeles County and City are positive. These relationships for the region, the County of Los Angeles and the City of Los Angeles are shown in **Table F4.4.1-7**, Direct Economic Impact of LAX in the Economy of the Los Angeles Region, Alternative C.

¹⁷⁷ When these direct impacts are combined with indirect and induced impacts, the total impact on the regional economy in 2015 would be about \$124 billion.

4.4.1 Employment/Socio-Economics

Table F4.4.1-7

**Direct Economic Impact of LAX in the Economy
of the Los Angeles Region
Alternative C (millions of 1996 dollars)**

Geographic Area	1996	2015
Los Angeles Region	\$60,439	\$82,175
Los Angeles County	\$48,603	\$72,652
City of Los Angeles	\$20,868	\$30,196

Source: HR&A, Inc., June 2000.

Alternative C is expected to generate an increase of \$21.7 billion (or 36 percent) in economic output to the Los Angeles region in 2015, compared to 1996 baseline conditions.

Alternative C is expected to generate economic output of \$82.2 billion in 2015, an increase of \$18.5 billion, or 29 percent, over the output associated with the No Action/No Project Alternative.

Construction Impacts

Construction costs of Alternative C would total about \$11.4 billion over the period 1996 to 2015. This expenditure is associated with an estimated 81,279 jobs directly involved in construction of the Alternative C LAX improvements in Los Angeles County over the duration of the construction process. When the “multiplier” effect of these direct jobs is taken into account, the total employment impact in the County from the expenditure to construct Alternative C is 170,380 jobs. The direct expenditure of \$10.6 billion to construct Alternative C would also yield a total of \$18.9 billion in economic output in the County of Los Angeles.

4.4.1.6.5 Alternative D - Enhanced Safety and Security Plan

A complete description of the characteristics of Alternative D is provided in Chapter 3, *Alternatives*. In addition, refer to Technical Report S-3, *Supplemental Economic Impacts Technical Report*, for a discussion of air passenger and cargo levels expected under Alternative D.

Employment

Alternative D would support about 350,557 jobs in the Los Angeles region in 2015,¹⁷⁸ compared with base year (1996) employment of 407,670. Similar to the No Action/No Project Alternative and as further described in Technical Report S-3, *Supplemental Economic Impacts Technical Report*, the decline in total jobs over the planning period shows that productivity increases (i.e., the production of more economic output per worker) over time would outweigh the net additional jobs associated with the limited growth in annual passenger and cargo levels under this alternative. This effect occurs in nearly every one of the manufacturing sectors, as shown in **Table F4.4.1-8**, Direct LAX-Related Jobs in the Los Angeles Region, Alternative D, by REMI Model Sector.

¹⁷⁸ When the direct employment impact is combined with indirect and induced jobs, the total employment impact on the regional economy by 2015 would equate to about 629,000 jobs.

Table F4.4.1-8

**Direct LAX-Related Jobs in the Los Angeles Region,
Alternative D, by REMI Model Sector**

REMI Model Sector	Base Year	Alternative D
	1996	2015
Furniture Mfg.	5,688	5,043
Primary Metals Mfg.	3,438	2,434
Fabricated Metals Mfg.	10,889	7,994
Industrial Machinery Mfg.	38,992	24,379
Electronic Equipment Mfg.	28,280	15,585
Transportation Equipment Mfg.	53,278	49,526
Instruments Mfg.	51,340	32,368
Miscellaneous Mfg.	5,020	3,533
Food & Kindred Products Mfg.	1,559	1,286
Tobacco Products Mfg.	8	5
Textile Mill Products Mfg.	743	489
Apparel Mfg.	24,086	12,236
Paper Products Mfg.	1,597	1,295
Printing And Publishing	6,463	6,240
Chemical And Allied Prods. Mfg.	3,385	2,620
Rubber & Plastics Mfg.	6,653	6,014
Leather Mfg.	495	157
Local Interurban Passenger Transportation	7,476	7,489
Air Transportation	48,711	42,918
Eating/Drinking Establishments	33,990	41,929
Other Retail Trade	12,432	11,632
Hotels	31,369	43,268
Auto Rental	5,345	6,049
Amusement & Recreation	26,436	26,068
Regional Total¹	407,670	350,557
Los Angeles County Total	327,683	294,613
City of Los Angeles Total	157,657	138,725

¹ Totals may not sum precisely due to independent rounding.

Source: HR&A, Inc., May 2003.

As shown in **Table F4.4.1-2**, it is estimated that Alternative D would result in a net decrease of 9,261 on-airport jobs over the entire planning period of 1996 to 2015.¹⁷⁹ These estimates include the effects of employment contractions in the underlying 1996 base year total due to productivity improvements.

Compared to the No Action/No Project Alternative, Alternative D is projected to support roughly the same level of employment in 2015. The forecast of 350,557 jobs in 2015 under Alternative D is 447 jobs or 0.1 percent greater than under the No Action/No Project Alternative in 2015, which is anticipated to employ 350,110 persons.

Economic Output

Under Alternative D, it is estimated that LAX would have a \$63.7 billion direct impact (in terms of gross sales) on the economy of the Los Angeles region in 2015.¹⁸⁰ Compared to the 1996 baseline, by 2015 LAX would have a positive but limited economic impact on the Los Angeles Region, including the County of Los Angeles and City of Los Angeles economies, as shown in **Table F4.4.1-9**, Direct Economic Impact of LAX in the Los Angeles Economy, Alternative D.

¹⁷⁹ The employment estimates were derived from econometric modeling that is based upon historical economic relationships. This modeling did not take into account recent changes in security requirements at airports that will add a substantial number of jobs in local law enforcement and federal security at LAX.

¹⁸⁰ When these direct impacts are combined with indirect and induced impacts, the total impact on the regional economy in 2015 would be about \$93.8 billion.

4.4.1 Employment/Socio-Economics

Table F4.4.1-9

**Direct Economic Impact of LAX in the Los Angeles Economy,
Alternative D (millions of 1996 dollars)**

Geographic Area	1996	2015
Los Angeles Region	\$60,439	\$63,729
Los Angeles County	\$48,603	\$52,298
City of Los Angeles	\$20,868	\$22,198

Source: HR&A, Inc., May 2003.

Compared to the No Action/No Project Alternative, Alternative D is projected to generate about the same level of economic output in 2015. The anticipated economic output under both Alternative D and the No Action/No Project Alternative is approximately \$63.7 billion in 2015.

Construction Impacts

Construction expenditures associated with Alternative D would total approximately \$6.4 billion (in 1997 dollars) by 2015, not including land acquisition and relocation costs.^{181, 182} This expenditure translates into an estimated 48,778 jobs directly involved in design and construction of the improvements in Los Angeles County over the duration of the construction process.¹⁸³ When the "multiplier effect" of these direct jobs is taken into account,¹⁸⁴ the total employment impact in the county from the expenditure to construct Alternative D is 102,244 jobs. The expenditure to construct Alternative D would also yield a total of \$11.3 billion in total economic output in Los Angeles County.

Compared to the No Action/No Project Alternative, which would not entail capital expenditures beyond those already programmed by LAWA and the City of Los Angeles, Alternative D would require greater construction expenditures and would consequently generate a greater number of construction jobs. When accounting for the "multiplier effect" of direct construction jobs, Alternative D would also generate a greater total employment impact and greater total economic output in the County as compared with the No Action/No Project Alternative.

4.4.1.7 Cumulative Impacts

Forecasts established by the Southern California Association of Governments (SCAG) indicate that over 2.8 million jobs will be created in the five-county region between 1996 and 2015, including those associated with Alternatives A, B, and C.¹⁸⁵ This cumulative employment impact and the associated economic output are considered beneficial. Under Alternative D, such regional job growth would occur despite a forecasted decline in employment due to increases in productivity over the planning period. Although overall contributions to the regional economy under Alternative D would on balance be modest, cumulative employment effects and associated economic output in combination with related projects would be beneficial. Although the analysis provided herein has used the most responsible long-term forecasting methods to project job growth and economic output, it is acknowledged that unknown circumstances will continue to influence the economy and could cause these forecasts to go up or down, including the disruption of domestic and international financial markets and changes in productivity and

¹⁸¹ For purposes of estimating construction employment and economic output impacts, the total estimated cost of constructing Alternative D excludes land acquisition and relocation costs, which do not circulate through the economy in the same way as other expenditures (e.g., labor and materials).

¹⁸² The direct expenditure is expressed in 1997 dollars for direct comparison with Alternatives A, B, and C. This figure is equivalent to approximately \$7.2 billion in 2002 dollars. The total construction costs associated with Alternative D, including land acquisition and relocation costs, is approximately \$7.4 billion in 2002 dollars.

¹⁸³ This is the number of individuals involved in the design and construction process, regardless of how long an individual is actually at work on the project.

¹⁸⁴ The "multiplier effect" includes indirect jobs (i.e., those related to purchases of goods and services by companies directly involved in the design and construction of the project) and induced jobs (i.e., those related to the re-spending of earnings by direct and indirect job holders).

¹⁸⁵ Based on SCAG's 1998 Regional Transportation Plan (RTP). The employment growth forecast in SCAG's 2001 RTP is slightly lower.

labor costs. Nonetheless, even with such fluctuations, the cumulative effects of Alternatives A, B, C, and D are considered beneficial.

4.4.1.8 Mitigation Measures

As described in subsection 4.4.1.4, *Thresholds of Significance*, economic or social effects do not constitute a significant effect on the environment. In the absence of significant effects, mitigation would not be required for Alternatives A, B, C, or D.

4.4.1 Employment/Socio-Economics

This page intentionally left blank.