

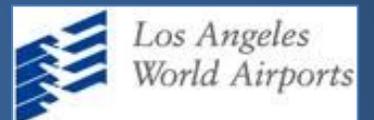


Photo: LAWA, LAX

# LOS ANGELES INTERNATIONAL AIRPORT IN 2011

## ECONOMIC IMPACT ANALYSIS

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This report was commissioned by the Los Angeles World Airports.

The LAEDC Economic and Policy Analysis Group offers objective economic and policy research for public agencies and private firms. The group focuses on economic impact studies, regional industry analyses, economic forecasts and issue studies, particularly in water, transportation, infrastructure and environmental policy.

Every reasonable effort has been made to ensure that the data contained herein reflect the most accurate and timely information possible and they are believed to be reliable.

The report is provided solely for informational purposes and is not to be construed as providing advice, recommendations, endorsements, representations or warranties of any kind whatsoever.

## Executive Summary

Los Angeles International Airport (LAX), located at the western edge of the city where the land meets the Pacific Ocean, is the sixth-busiest airport in the world, with 61 million passengers moving in and out of the airport on 265,000 flights during the 2011 fiscal year. More than 1.9 million tons of air freight and mail was carried.



This activity and other on- and off-airport operations contributes to the local and regional economy by generating business revenues for firms providing passenger and aviation service and all supporting services, and by providing employment for thousands of workers. All this activity, in turn, generates tax revenue for state and local governments.

## Economic and Fiscal Impact

The economic activity in Los Angeles County resulting from activity occurring at LAX in 2011, including its capital spending and its related visitor spending, generated 294,400 jobs in Los Angeles County with labor income of \$13.6 billion and economic output of more than \$39.7 billion. This activity added \$2.5 billion to local and state revenues.

Economic Impact of Los Angeles International Airport in 2011 (Los Angeles County)				
	LAX Ongoing Operations	Capital Expenditures	Visitor Spending	TOTAL *
<b>Direct Economic Activity</b>				
Employment	51,600	5,400	119,100	<b>176,100</b>
Output (\$ millions)	11,100	850	10,000	<b>22,000</b>
<b>Total Economic and Fiscal Impact</b>				
Employment (jobs)	103,100	10,700	180,600	<b>294,400</b>
Labor income (\$ millions)	6,200	600	6,800	<b>13,600</b>
Output (\$ millions)	18,900	1,700	19,000	<b>39,700</b>
State and local taxes (\$ millions)	1,100	60	1,340	<b>2,500</b>

\* May not sum due to rounding  
Source: Estimates by LAEDC

## Distribution of Total Employment Impacts

The total employment impacts are distributed throughout the local and regional economy. Based upon the industrial composition of employment within a variety of geographically defined areas, including LA County Supervisorial Districts, LA City Council Districts, U.S. Congressional districts and regional cities, the total employment impacts of LAX, its capital spending and its related visitor spending are estimated.

## Future Capital Projects

LAWA is in the planning stages of additional capital improvement projects at the airport which they estimate will involve expenditures of at least \$8.5 billion over a period of ten to fifteen years.

It is estimated that this spending will generate 90,500 job-years in Los Angeles County with labor income of \$5.6 billion, and add \$520 million in state and local tax revenues over the project period.

Estimated Economic Impact of LAX Prospective Improvements		
	Los Angeles County	Southern California
<b>Estimated Direct Economic Activity</b>		
Employment (jobs)	44,900	44,900
<b>Total Economic Impact</b>		
Employment (jobs)	90,500	98,800
Labor income (\$ millions)	5,600	6,000
Output (\$ millions)	14,400	15,900
State and local taxes (\$ millions)	520	590

\* May not sum due to rounding  
Sources: LAWA; Estimates by LAEDC

## Catalytic Effects of LAX

The presence and utilization of air transportation services involving the movement of goods and people act as a catalyst to additional economic activity not directly related to the aviation industry, its supply chain or its workers. These include:

- Demand-side catalytic effects relating to the utilization or consumption of air transportation services provided at LAX.
- Supply-side catalytic effects, relating to larger market accessibility and increased productivity of local firms.

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# ECONOMIC IMPACT ANALYSIS

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# 1 Introduction

Los Angeles International Airport (LAX) is the world's sixth-busiest airport and the nation's leading origin-and-destination airport. Flights from LAX connect to more than 80 domestic destinations and 66 international destinations around the globe.

The airport is a complex and vibrant center of diverse activity, much like a small city. On any single day, more than 150,000 passengers walk through one of the terminals, often accompanied by greeting friends or relatives, stopping to purchase a snack or a souvenir on their way to the departure gate, or hailing a cab or shuttle bus to take them to their home, their business appointment, their hotel or their parked car. Thousands of employees arrive at work at the airport each day, booking passengers into departing flights, serving meals or refreshments to passengers and other employees, providing maintenance services to airlines and to the airport administration, guarding against security risks, handling cargo, and providing a myriad other work activities.

This report quantifies the regional economic effects of the airport by analyzing how regional residents and businesses benefit from the services provided at LAX by both on- and off-airport firms that cater to airport users. These firms include domestic and international airlines, cargo services, food and beverage establishments, newsstands and other retailers, ground transportation, off-airport parking, government agencies and maintenance firms. In the region surrounding the airport, additional activity that caters to airport users include hotels, restaurants, freight forwarders, warehouses, small manufacturers, gas stations, travel agencies, cargo handlers and educators. Additional activity is generated in the region by the spending of the domestic and international passengers who arrive to spend a few nights in the region and enjoy local amenities and cultural attractions.

Each of these firms hire workers from around the region, paying wages and benefits which circulate throughout the local and regional economy, and purchase millions of dollars worth of goods and services, much of which is provided by other local suppliers.

The extent to which the original demand from airport users circulates through the economy into additional economic activity in the City of Los Angeles and Los Angeles County is significant, which is shown below.



## Economic Impact Analysis

Economic impact analysis is used to estimate the overall economic activity, including the spill-over and multiplier impacts, which occurs as a result of a particular business, event, or geography.

The initial economic impact of the activity occurring at the airport is the purchase of goods and services from local vendors and the wages and benefits paid to local workers. This injection of funds into the region circulates from the initial recipients to the owners and employees of establishments that help supply them with goods and services for purchase.

For example, airlines purchase large amounts of jet fuel, food and catering supplies, janitorial services and operating supplies, from paper goods to computer services. They also pay the wages and benefits of their own workers, including ticket agents and flight crews.

The suppliers of all the goods and services sold to the airlines in turn hire their own staff and purchase parts and other inputs in order to fill the orders received from the airlines.

Workers at the airlines and at the supplier companies spend a portion of their incomes on groceries, rent, vehicle expenses, healthcare, entertainment, and so on. The recirculation of the original expenditures multiplies the initial impact through these indirect and induced effects.

The extent to which the initial expenditures multiply is estimated using economic models that depict the relationships between industries (such as construction and its suppliers) and among different economic agents (such as industries and their employees). These models are built upon actual data of expenditure patterns that are reported to the U.S. Bureau of Labor Statistics, the U.S. Census Bureau and the Bureau of Economic Analysis of the U.S. Department of Commerce. Data is regionalized so that it reflects and incorporates local conditions such as prevailing wages rates, idiosyncratic expenditure patterns, and resource availability and costs.

The magnitude of the multiplying effect differs from one region to another depending on the extent to which the local region can fill the demand for all rounds of supplying needs. For example, the automobile manufacturing industry has high multipliers in Detroit and Indiana since these regions have deep and wide supplier networks, while the same industry multiplier in Phoenix is quite small. In another example, the jobs multiplier for the construction industry is higher in, say, Arkansas, than in California because the same amount of spending will purchase fewer workers in Los Angeles than in Little Rock.

Multipliers can also differ from year to year as relative material and labor costs change and as the production “recipe” of industries change. For example, the IT revolution significantly reduced the job multiplier of many industries (such as automotive manufacturing, accounting, architecture and publishing) as computers replaced administrative and production workers.

## Approach and Methodology

Economic impact analysis typically begins with an increase in final demand for an industry's output, such as a purchase of construction services, or an inflow of out-of-town visitors who spend money at local accommodations and retail outlets. In the case of an airport, this would encompass a wide variety of activity, including not only the terminal services provided by LAWA but also retail, food and beverages, automated teller machines, phone and internet service, parking, rental cars, taxi and limousine services, and government services such as security and immigration and customs agents.



The diversity of activity at the airport presents a challenge in defining the parameters of the activity to include in an economic impact analysis.

Our approach is to define the geographic area for which we are estimating the economic impact. We begin by estimating the impact of LAWA operations at the airport. LAWA pays the salaries of thousands of local workers and purchases millions of dollars worth of goods and services, most of which originates in the region, during the course of ongoing, regular airport operations.

We follow this with an analysis of all other on-airport activity, including retail, food and beverages, maintenance, airline services and ground transportation. Finally, we expand the analysis to include off-airport activity occurring in a circumscribed region adjacent to the airport.

We consulted a variety of data sources to determine the direct activity occurring in each geographic unit. Our estimates for LAWA operations at LAX are produced using data from LAWA's Annual Financial Report for the fiscal year ending June 30, 2011. Spending estimates for the airport modernization projects were also provided by LAWA.

Our estimates of direct activity for on-airport operations and off-airport operations adjacent to LAX were developed using GIS mapping of the airport property and the surrounding region. These maps were overlaid with Census Bureau data on employment by place of work for the 2010 calendar year. This employment data is taken from official unemployment insurance payroll returns filed by all covered businesses, and identifies the numbers of jobs in each industry sector within the defined geography. While accurate insofar as the data is

defined, these returns will underestimate government employment which is not covered by the unemployment insurance system, and will not count employees who work at the airport but whose official business address is elsewhere.

To estimate the local spending of domestic and international visitors to the region, we use data published by the Los Angeles Tourism and Convention Board on overnight visitors and their spending patterns.

Once the initial direct activity was determined, we estimated the indirect and induced impacts using models developed with data and software from MIG, Inc. Our regions of interest are Los Angeles County and the five-county Southern California region (consisting of the counties of Los Angeles, Orange, Riverside, San Bernardino and Ventura). MIG's IMPLAN system is a robust widely-used set of modeling tools that provide economic resolution from the national level down to the ZIP code level.

To estimate the regional, five-county impacts, we employ multi-regional analysis since we know that the initial direct activity occurs in Los Angeles County. Multi-regional analysis allows the estimation of the spill-over impact into the neighboring four counties, and the subsequent spill-over impact from each of these four counties back into Los Angeles County. Such multi-regional analysis provides a more accurate picture of the overall impact in the larger region of activity which originates in Los Angeles County.

The metrics used to determine the value of the economic impact include employment, labor income and the value of output. *Employment* numbers include full-time, part-time, permanent and seasonal employees, and the self-employed, and are measured on a job-count basis regardless of the number of hours worked. *Labor income* is a measure of all income received by both payroll employees and the self-employed, including wages and benefits such as health insurance and pension plan contributions. *Output* is the value of the goods and services produced. For most industries, this is simply the revenues generated through sales; for others, in particular retail industries, output is the value of the services supplied.

The total impacts include *direct, indirect and induced effects*, as the examples above illustrate. *Direct* employment is the personnel hired by the airport administration and by the airlines, the concessionaires and other related companies in their ongoing operations, including ticket agents, engineers, maintenance workers, administrative, management, parking attendants, and so on. *Direct* output is the value of the services provided by each business firm or entity. *Indirect* effects are those which stem from the employment and output motivated by the purchases made by each direct company. For example, indirect jobs are sustained by the suppliers of the office supplies and insurance purchased by LAWA, American Airlines, and Wolfgang Puck Express. *Induced* effects are those generated by the household spending of employees whose wages are sustained by both direct and indirect spending.

Our estimates for labor income and output are reported in 2012 dollars. Employment estimates are reported on an annual basis, i.e., the number of full and part time jobs supported in one year.

## 2 Economic Impact

The estimation of the economic impact of ongoing operations at LAX is taken in five parts. First, the annual operations of Los Angeles World Airports (LAWA) at LAX is analyzed. Thereafter, all other on-airport activity is reviewed, followed by off-airport activity adjacent to the airport. In the fourth section, we estimate the economic activity associated with the modernization program that is currently underway. Finally, we conclude with an analysis of the spending of visitors whose travel to Los Angeles is facilitated by LAX.



### LAWA Operations at LAX

During the 2011 fiscal year, LAX handled 265,000 domestic and international flights, carrying 60.6 million passengers and 1.9 million tons of mail and cargo. This activity generated operating revenue of \$772 million and resulted in the employment of 3,550 workers with salaries and benefits of \$323 million. Financial data for LAX for the fiscal year is shown in Exhibit 2-1.

Exhibit 2-1 LAWA Operations at LAX Financial Summary (FY2011)	
<b>Operating revenue (\$ millions):</b>	
Aviation revenue (landing fees, building and land rentals, etc.)	505.3
Concession revenue	263.2
Other operating revenue	3.4
<b>Total</b>	<b>771.9</b>
<b>Operating expenses (\$ millions):</b>	
Salaries and benefits	323.5
Contractual services	143.7
Materials and supplies	32.7
Utilities	29.6
Other operating expenses (incl. allocated admin charges)	11.7
<b>Total *</b>	<b>541.2</b>

\* Does not include depreciation and amortization  
Source: LAWA Annual Financial Report FY 2011

Approximately two-thirds of LAWA’s operating revenue at LAX originates from landing fees, building rent and land rental. Concession revenue from non-aviation firms at the airport generated the majority of the remaining one-third of operating revenue.

LAWA spent more than \$323 million on salaries and benefits for its employees, and an additional \$144 million on contracted services. It purchased \$33 million in materials and supplies, and \$30 million in utility services, many of which are sourced from the local and regional economy.

Using operating revenues, employment and salaries and benefits as the direct economic activity of LAWA at LAX, the estimated total economic and fiscal impact in Los Angeles County and in the five-county Southern California region is shown in Exhibit 2-2.

<b>Exhibit 2-2 Economic and Fiscal Impact of LAWA Operations at LAX</b>		
	<b>Los Angeles County</b>	<b>Southern California</b>
<b>Direct Economic Activity:</b>		
Employment (jobs)	3,550	3,550
Labor income (\$ millions)	323	323
Output (\$ millions)	772	772
<b>Total Economic Impact:</b>		
Employment (jobs)	8,700	9,400
Labor income (\$ millions)	590	620
Output (\$ millions)	1,450	1,560
<b>Total Fiscal Impact (\$ millions):</b>		
State and local taxes	71	77
Federal taxes	122	130

Sources: LAWA; Estimates by LAEDC

generated \$71 million in state and local tax revenues, and \$122 million in federal tax revenues. When accounting additional activity occurring in the larger Southern California region, state and local tax revenues are \$77 million and federal taxes are \$130 million.

It is estimated that LAWA operations at LAX during the fiscal year ending June 30, 2011, supported 8,700 annual jobs with total labor income of \$590 million in Los Angeles County and 9,400 annual jobs with total labor income of \$620 million in the five-county Southern California region.

The total output impact is estimated to have been \$1.5 billion in Los Angeles County and an additional \$110 million in the four neighboring counties of Southern California.

This activity in Los Angeles County is estimated to have

## Other On-Airport Activity at LAX

LAWA is the operator and landlord of airport property, which includes more than the terminals and runways. With thousands of employees and hundreds of thousands of passengers moving through the airport on a daily basis, a myriad of businesses delivering on-airport services have located on the premises. Examples of businesses delivering on-airport services include domestic and international airlines (carrying passengers and/or cargo), airport tenants performing services to airlines, retail establishments, food and beverage establishments, public agencies engaged in air traffic control and providing security, and emergency services.

A large number of employees who work at LAX are not directly employed by LAWA but are employed by firms contracted to operate at LAX.

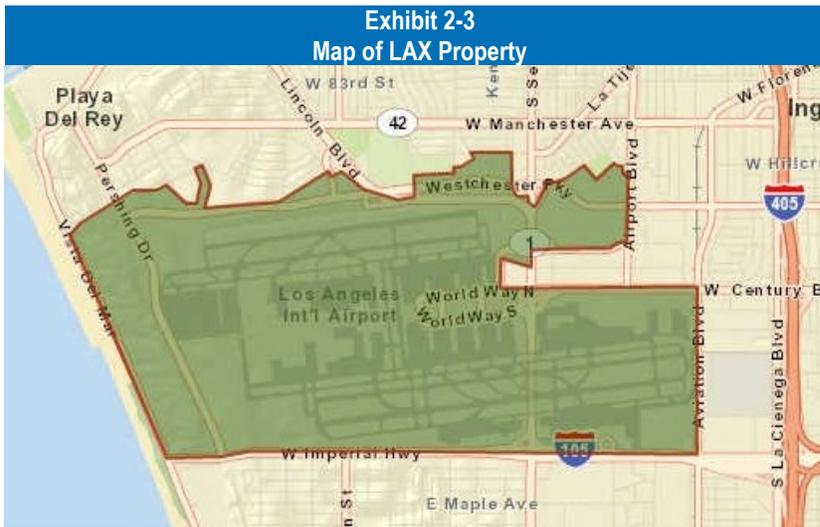
Badge counts provide a picture of other employees that work at the airport: many providers of freight and passenger air transportation locate their operations at LAX—FedEx itself employs more than 3,000 workers at LAX, and airline companies alone employ an additional 12,000 people.

City and county employees number almost 1,000. The U.S. Department of Homeland Security staffs the TSA with almost 3,000 employees. Other federal agencies with staff at the airport include General Services Administration, the Department of Agriculture, the Federal Bureau of Investigation, Fish and Wildlife, the State Department, the Drug Enforcement Agency, and the Food and Drug Administration.

Total employment related to on-airport businesses may not be fully represented by badge count data. For example, employees who work in establishments located in publicly accessible areas of the airport do not require badges.

To obtain complete detailed employment and payroll data estimates across all industries for the on-airport services, unrelated to LAWA, we defined LAX as a custom site using GIS software. Specialized reports containing place of work data can be obtained using the defined custom geography. A map of the custom site of LAX property is shown in Exhibit 2-3.





Using the map, payroll data for employment by place of work is estimated for each business location within the defined geography. The summary of employment by industry sector within the property is shown in Exhibit 2-4. Most employees are in the transportation sector, which includes not

only airlines but also airport support services such as cabin service, and freight handling. Other measurable employment is found in the accommodation and food services and in the public sector, which would include TSA employees and US Customs and Border Patrol.

This summary does not include LAWA's employment since that was estimated in the previous section. All other on-airport activities employ 25,540 persons in addition to LAWA's employment.

To avoid double-counting of impacts, such as those which occur when airport employees purchase food and beverages from concessionaires on airport property, we have discounted the actual employment recorded in the region.

Using the estimated on-airport activities employment, estimates of the total economic and fiscal impact of other on-airport activity in Los Angeles County and in the five-county Southern California region can be generated. These impacts are shown in Exhibit 2-5.

Exhibit 2-4 Employment in Other On-Airport Activity at LAX	
Industry Sector	Employment
Utilities	109
Construction	13
Manufacturing	14
Wholesale trade	512
Retail trade	344
Transportation and warehousing	16,809
Information	96
Finance and insurance	72
Real estate and rental and leasing	582
Professional, scientific and technical services	174
Management of companies	6
Administrative and waste management	310
Educational services	15
Health care and social assistance	66
Arts, entertainment and recreation	1
Accommodation and food services	1,850
Other services	335
Public administration	4,225
<b>Total *</b>	<b>25,540</b>

Source: U.S. Census Bureau Local Employment Dynamics 2010

<b>Exhibit 2-5 Economic and Fiscal Impact of Other On-Airport Activity</b>		
	<b>Los Angeles County</b>	<b>Southern California</b>
<b>Estimated Direct Economic Activity:</b>		
Employment (jobs)	25,540	25,540
Output (\$ millions)	7,000	7,000
<b>Total Economic Impact:</b>		
Employment (jobs)	56,000	61,100
Labor income (\$ millions)	3,530	3,800
Output (\$ millions)	11,840	12,720
<b>Total Fiscal Impact (\$ millions):</b>		
State and local taxes	702	750
Federal taxes	829	896

Sources: LAWA; Estimates by LAEDC

in Los Angeles County is estimated to have generated \$702 million in state and local tax revenues, and \$829 million in federal tax revenues. When accounting additional activity occurring in the larger Southern California region, state and local tax revenues are \$750 million and federal taxes are \$896 million.

It is estimated that other on-airport activities at LAX during the year supported 56,000 annual jobs with total labor income of \$3.5 billion in Los Angeles County and 61,100 annual jobs with total labor income of \$3.8 billion in the five-county Southern California region.

The total output impact is estimated to have been \$11.8 billion in Los Angeles County and an additional \$880 million in the four neighboring counties of Southern California.

The total economic activity

## LAX-Adjacent Activity

In addition to on-airport business activity, a variety of businesses operate within close proximity to the airport for the purpose of catering to airport users. Examples of such businesses include hotels, restaurant, freight forwarders, ground transportation, rental car agencies, ticket agents, truck transportation, warehouses, manufacturers and local maintenance services.

In this section, we estimate the economic impact of all businesses within a prescribed geographic region of the airport, since their livelihood is dependent on proximity. For example, hotels within the area house the overnight crew of international and domestic airlines. While not all crew will stay at an airport-adjacent hotel, the vast majority will, and their spending is directly related to the aviation services provided at the airport.



Similarly, convention facilities utilized near the airport are chosen specifically for their proximity and ease of access for arriving visitors. These are included in our estimates of direct activity because we believe that they would essentially vanish if the airport were not there.

The boundaries of the LAX-adjacent area are Imperial Highway to the south, Manchester Avenue to the north, Aviation Boulevard to the east, and the Pacific Ocean to the west. A careful examination of a much broader area indicates that this LAX-adjacent geography is appropriate. A map of the region is shown in Exhibit 2-6. Note the darker region in the exhibit is the LAX airport property.



Using the map, payroll data for employment by place of work is estimated for each business location within the defined geography. The summary of employment by industry sector within the property is shown in Exhibit 2-7. This summary does not include LAWA’s employment or other on-airport employment shown in Exhibit 2-4.

To avoid double-counting of impacts, we have discounted the actual employment recorded in the region.

The methodology as was applied above is used to estimate the total economic impact in the Los Angeles County and in the five-county Southern California region of activity occurring the LAX-Adjacent region, which is shown in Exhibit 2-8.

It is estimated that activities in LAX-adjacent area during the year supported 38,400 annual jobs with total labor income of \$2.1 billion in Los Angeles County and 41,400 annual jobs with total labor income of \$2.2 billion in the five-county Southern California region. The total output impact is estimated to have been \$5.6 billion in Los

Exhibit 2-7 Employment in LAX-Adjacent Area	
Industry Sector	Emolvement
Agriculture	25
Minina	1
Utilities	50
Construction	199
Manufacturing	1,593
Wholesale trade	1,511
Retail trade	1,074
Transportation and warehousing	4,243
Information	209
Finance and insurance	528
Real estate and rental and leasing	1,074
Professional, scientific and technical	1,227
Management of companies	598
Administrative and waste management	1,376
Educational services	1,071
Health care and social assistance	1,098
Arts, entertainment and recreation	163
Accommodation and food services	5,253
Other services	968
Public administration	193
<b>Total *</b>	<b>22,450</b>

\* May not sum due to rounding  
Source: U.S. Census Bureau Local Employment Dynamics 2010

Exhibit 2-8 Economic Impact of Activity in LAX-Adjacent Area		
	Los Angeles County	Southern California
<b>Estimated Direct Economic Activity:</b>		
Employment (jobs)	22,450	22,450
Output (\$ millions)	3,300	3,300
<b>Total Economic Impact:</b>		
Employment (jobs)	38,400	41,400
Labor income (\$ millions)	2,080	2,230
Output (\$ millions)	5,650	6,120
<b>Total Fiscal Impact (\$ millions):</b>		
State and local taxes	327	352
Federal taxes	467	503

Sources: LAWA; Estimates by LAEDC

Angeles County and an additional \$470 million in the four neighboring counties of Southern California.

This activity is estimated to have generated \$327 million in state and local tax revenues, and \$467 million in federal tax revenues. When accounting additional activity occurring in the larger Southern California region, state and local tax revenues are \$352 million and federal taxes are \$503 million.

## LAX Modernization Program – Spending in FY 2011

LAWA is in the completion stages of a multi-year \$4.11 billion renovation and improvement program at LAX, which involved two major components: (i) renovation of the Tom Bradley International terminal, which included projects such as aircraft taxilanes, replacement of the airport’s central utility plant, airport gates, perimeter fencing, noise mitigation and monitoring, and luggage screening facilities; and (ii) improvements to and renovation of the Central Terminal Area, including inline and checkpoint improvements, new escalators, new concession facilities, remodeled baggage claim area, and a new consolidated rental car facility.



During the fiscal year, total capital improvement spending was \$850 million. The methodology as was applied above is used to estimate the total economic impact in the Los Angeles County and in the five-county Southern California region of activity resulting from this spending, which is shown in Exhibit 2-9.

It is estimated that the capital improvement spending of \$850 million that occurred during the fiscal year supported 10,700 jobs with total labor income of \$600 million in Los Angeles County and 11,700 annual jobs with total labor income of \$690 million in the five-county

Southern California region. The total output impact is estimated to have been \$1.7 billion in Los Angeles County and an additional \$200 million in the four neighboring counties of Southern California.

This activity is estimated to have generated \$60 million in state and local tax revenues, and \$130 million in federal tax revenues. When accounting additional activity occurring in the larger Southern California region, state and local tax revenues are \$70 million and federal taxes are \$140 million.

Exhibit 2-9 Economic Impact of LAX Modernization Program (FY 2011)		
	Los Angeles County	Southern California
<b>Estimated Direct Economic Activity:</b>		
Employment (jobs)	5,400	5,400
Output (\$ millions)	850	850
<b>Total Economic Impact:</b>		
Employment (jobs)	10,700	11,700
Labor income (\$ millions)	600	690
Output (\$ millions)	1,700	1,900
<b>Total Fiscal Impact (\$ millions):</b>		
State and local taxes	60	70
Federal taxes	130	140

Sources: LAWA; Estimates by LAEDC

## Overnight Air Visitor Spending

The more than 60 million passengers traveling through LAX during the fiscal year provide evidence of the significant economic impact in the region of visitor spending facilitated by airport services. As a leading origin and destination airport, many passengers arriving at LAX choose to spend a few nights in Los Angeles, enjoying the local amenities and cultural attractions. With millions of visitors arriving from overseas after often lengthy flights, the region enjoys its role as an international gateway and a conduit to the millions of visitors who stay in local hotels, visit museums and theme parks, shop at local retail establishments, and dine at our famous restaurants.



The U.S. Department of Transportation provides data on passenger traffic between airports. The sixth-busiest airport in the world in terms of overall passenger service, LAX is the third-busiest in terms of international passenger service, behind John F. Kennedy Airport and Miami International Airport.

Passenger traffic between LAX and its top international airport partners for the year ending September 2011 is shown in Exhibit 2-10. Note that the number of passengers includes both arrivals from and departures to the partner airport.

Exhibit 2-10 Top International Airport Partners (2011)	
Airport	Passengers
Heathrow (London, England)	1,447,630
Narita (Tokyo, Japan)	1,114,251
Sydney (Sydney, Australia)	1,104,245
Incheon (Seoul, Korea)	896,055
Taoyuan (Taipei, Taiwan)	894,670
Vancouver (Vancouver, Canada)	805,000
Benito Juárez (Mexico City, Mexico)	696,657
Guadalajara (Guadalajara, Mexico)	693,928
Charles de Gaulle (Paris, France)	568,912
Toronto Pearson (Toronto, Canada)	538,047
All others	7,355,100
<b>Total</b>	<b>16,114,495</b>

Source: U.S. Department of Transportation T-100 Segment Data

While this data shows the passenger traffic between LAX and international airports, it does not provide information about whether arriving passengers transferred to a domestic flight on the same day, or if passengers stayed in the Los Angeles area for any length of time. It is possible that passengers arriving from Tokyo or Sydney early in the morning will stay the day in LA, perhaps visiting a theme park or the Hollywood Walk of Fame, and then return to LAX in the evening to catch a flight to New York or Chicago. Travelers who stay for the day are less likely to spend and are more likely to stay in the airport area, generating economic activity which has already been estimated.

The Los Angeles Tourism and Convention Bureau provides estimates for the number of overnight visitors to Los Angeles, by country of origin, and their estimated aggregate spending. For 2011, they estimate that there were 5.9 million international visitors spending an aggregate of \$5.5 billion, or \$938 each.

Exhibit 2-11 Overnight International Visitors (2011)		
Country of Origin	Overnight Visitors	% of total
Mexico	1,609,000	27.4
Canada	675,000	11.5
Australia	383,000	6.5
United Kingdom	372,000	6.3
China	338,000	5.8
France	335,000	5.7
Japan	289,000	4.9
Germany	241,000	4.1
South Korea	240,000	4.1
<b>Total</b>	<b>5,862,000</b>	<b>100.0</b>

Source: Los Angeles Tourism and Convention Bureau

Not all of the international overnight visitors shown in the exhibit arrive through LAX. Some will arrive by bus, automobile or train, or through another gateway such as John Wayne Airport. Others will arrive by cruise ship. To accommodate other arrival routes, the total international overnight visitor spending is discounted by fifteen percent.

International visitors are not the only source of tourist spending in the region. More than 44 million

domestic passengers arrived or departed from LAX in 2011. Many of these certainly spent time in Los Angeles, either for business or leisure. The Los Angeles Tourism and Convention Bureau estimates that in 2011, there were 21 million domestic overnight visitors, spending an aggregate of \$9.7 billion, or \$462 each. The city of origin of these visitors is shown in Exhibit 2-12.

Again, not all of these visitors will arrive through LAX. Many visitors from San Diego or from Las Vegas will drive, as will others from cities in the Southern California region. To accommodate other arrival routes, the total domestic overnight visitor spending is discounted by twenty-five percent.

The composition of tourist spending differs between leisure and business travelers and between international and domestic visitors. Nevertheless, most visitors will allocate their spending to hotels and accommodations, restaurants and drinking establishments, retail purchases, local cultural attractions, and local transportation.

Exhibit 2-12 Overnight Domestic Visitors (2011)		
Domestic Origin	Overnight Visitors	% of total
San Francisco Bay area	3,024,000	14.4
San Diego	2,016,000	9.6
New York City area	1,428,000	6.8
Sacramento area	1,113,000	5.3
Phoenix	987,000	4.7
Las Vegas	777,000	3.7
Chicago	756,000	3.6
Seattle	693,000	3.3
Fresno	588,000	2.8
Portland	546,000	2.6
<i>All others</i>	<i>9,072,000</i>	<i>43.2</i>
<b>Total</b>	<b>21,000,000</b>	<b>100.0</b>

Source: Los Angeles Tourism and Convention Bureau

Using the spending estimates of both international and domestic visitors allocated among these categories, the total economic impact in the Los Angeles County and in the five-county Southern California region of activity related to visitors arriving through LAX is shown in Exhibit 2-13.

<b>Exhibit 2-13 Economic Impact of Overnight Air Visitor Spending</b>		
	<b>Los Angeles County</b>	<b>Southern California</b>
<b>Estimated Direct Economic Activity:</b>		
Employment (jobs)	119,100	119,100
Output (\$ millions)	10,000	10,000
<b>Total Economic Impact:</b>		
Employment (jobs)	180,600	190,200
Labor income (\$ millions)	6,800	7,300
Output (\$ millions)	19,000	20,600
<b>Total Fiscal Impact (\$ millions):</b>		
State and local taxes	1,340	1,420
Federal taxes	1,600	1,700

Source: Estimates by LAEDC

It is estimated that the visitor spending attributed to international and domestic visitors arriving through LAX during the year supported 180,600 annual jobs with total labor income of \$6.8 billion in Los Angeles County and an additional 9,600 annual jobs with total labor income of \$500 million in the rest of the five-county Southern California region. The total output impact is estimated to have been \$19 billion in Los Angeles County and an additional \$1.6 billion in the four neighboring counties of Southern California.

This activity is estimated to have generated \$1.4 billion in state and local tax revenues, and \$1.7 billion in federal tax revenues.

## Summary of Results

Exhibit 2-14 presents the economic impact results of each of the preceding sections and produces a total impact for ongoing operations at LAX and visitor spending facilitated by the airport.

Exhibit 2-14 Economic Impact of Los Angeles International Airport (Los Angeles County)				
	Airport Activity	Capital Expenditures	Visitor Spending	TOTAL* Annual Impact
<b>Estimated Direct Economic Activity:</b>				
Employment (jobs)	51,600	5,400	119,100	<b>176,100</b>
Output (\$ millions)	11,100	850	10,000	<b>22,000</b>
<b>Total Economic Impact:</b>				
Employment (jobs)	103,100	10,700	180,600	<b>294,400</b>
Labor income (\$ millions)	6,200	600	6,800	<b>13,600</b>
Output (\$ millions)	18,900	1,700	19,000	<b>39,700</b>
<b>Total Fiscal Impact (\$ millions):</b>				
State and local taxes	1,100	60	1,340	<b>2,500</b>
Federal taxes	1,400	130	1,600	<b>3,100</b>

\* May not sum due to rounding

Sources: LAWA; Los Angeles Tourism and Convention Bureau; Estimates by LAEDC

The economic activity in Los Angeles County resulting from ongoing operations at LAX and its immediate adjacent area generates 294,400 jobs in Los Angeles County with labor income of \$13.6 billion and economic output of \$39.7 billion. This activity added \$2.5 billion to local and state revenues.

The total employment impact spills across industries in the region through these indirect and induced effects, as shown in Exhibit 2-15.

The variety of industry sectors impacted by activities occurring at the airport and by the visitor spending of tourists arriving through the airport is wide. The industry sector most impacted is the accommodation and food service sector, with visitor spending being the largest contributing factor in this impact. Other sectors experiencing large employment impacts include retail trade, transportation and warehousing, and arts, entertainment and recreation.

<b>Exhibit 2-15 Employment Impact of All Activity at LAX by Industry Sector (Los Angeles County)</b>				
<b>Industry Sector</b>	<b>Airport Activity</b>	<b>Capital Expenditures</b>	<b>Visitor Spending</b>	<b>TOTAL*</b>
Agriculture	45	0	50	100
Mining	240	20	80	340
Utilities	280	10	180	460
Construction	730	5,410	860	7,000
Manufacturing	2,940	240	1,570	4,750
Wholesale trade	3,060	160	1,290	4,510
Retail trade	6,740	670	20,750	28,150
Transportation and warehousing	27,630	210	2,240	30,090
Information	2,180	90	3,340	5,610
Finance and insurance	5,260	420	5,080	10,760
Real estate and rental and leasing	4,980	300	4,320	9,600
Professional, scientific and technical	5,340	790	5,680	11,810
Management of companies	1,070	30	830	1,940
Administrative and waste management	7,860	440	6,970	15,270
Educational services	2,360	140	1,590	4,100
Health care and social assistance	7,250	630	6,880	14,760
Arts, entertainment and recreation	1,610	120	26,440	28,170
Accommodation and food services	12,860	410	86,100	99,370
Other services	5,250	490	4,760	10,510
Public administration	2,370	70	1,590	7,030
<b>Total *</b>	<b>103,100</b>	<b>10,700</b>	<b>180,600</b>	<b>294,400</b>

\* May not sum due to rounding  
Source: Estimates by LAEDC

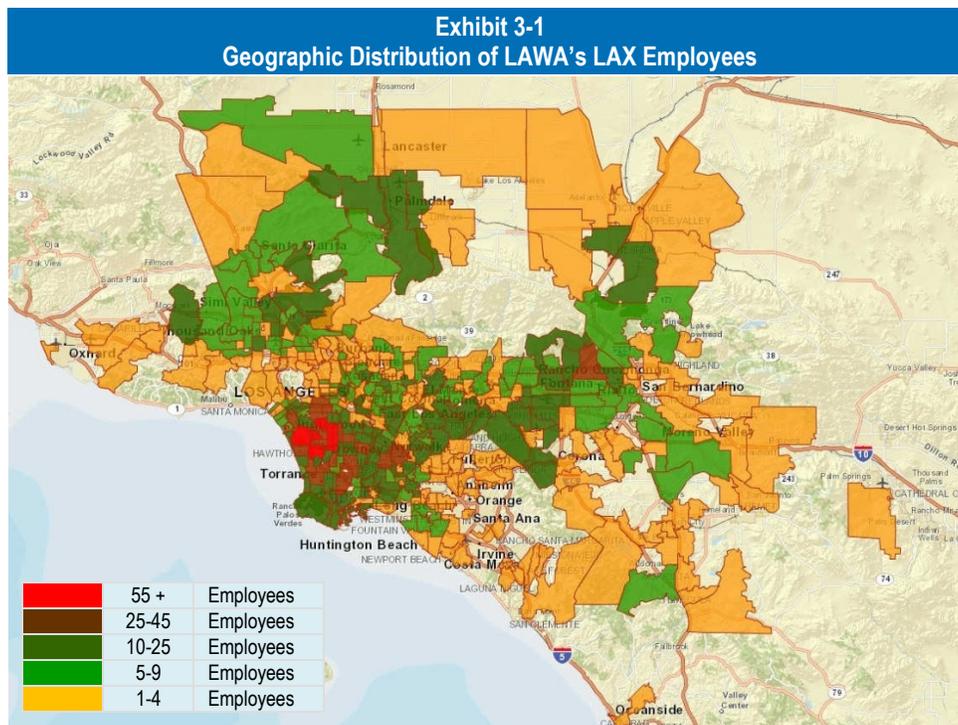
The values in the exhibit should be interpreted as illustrative of industry effects rather than precise given model and data limitations.

### 3 Geographic Distribution of Impacts

#### LAWA's LAX Employment

LAWA directly employs over 3,500 workers at Los Angeles International Airport (LAX). These jobs range in scope from facilities maintenance, baggage handling, air traffic control, office and administrative roles to management, and they have varying education and experience requirements for job entry. The labor pool from which LAX draws their employees is vast. Workers from throughout the Southern California region seek out employment opportunities at the airport. From San Diego County to Ventura County, individuals commute from areas as far as Lancaster, Oceanside, Oxnard, and Palm Dessert.

Exhibit 3-1 shows the geographic distribution of LAWA's LAX employees by zip code of their resident addresses. While the most dense concentration of employees is in the immediate vicinity of LAX, significant concentrations of employees live in surrounding counties in zip codes that are located along major transportation arteries, including Interstates 5, 10, 15 and 405 or U.S. Highway 101. It is reasonable to expect that employees of all other businesses located on-airport and LAX-adjacent would be similarly dispersed across the region.



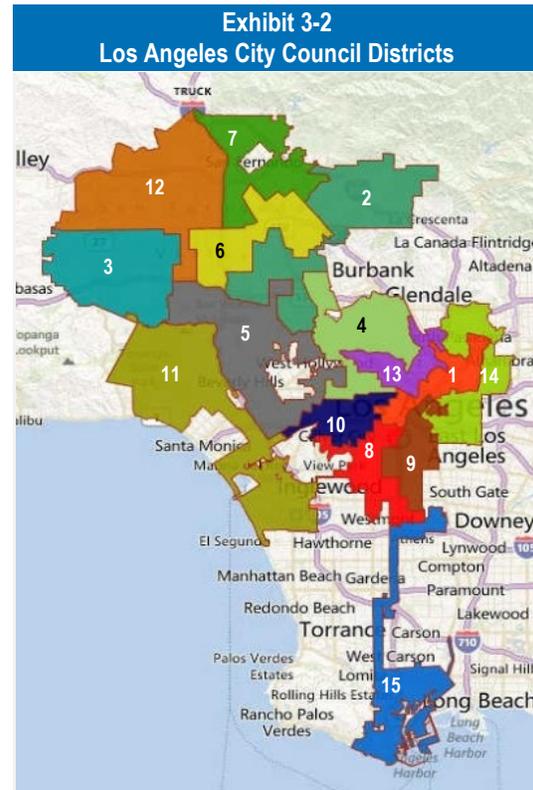
Source: LAWLA

## Employment Impacts in the City Council Districts

Estimated employment impacts of ongoing operations at Los Angeles International Airport (LAX) and its adjacent area in Los Angeles County and in the five-county Southern California region were presented above.

LAX is located in the City of Los Angeles, which overall represents approximately forty percent of the county employment. Total employment impacts can be estimated for the City of Los Angeles and for each of the 15 Council Districts using county-wide employment shares.

All Council Districts benefit from the indirect and induced effects of the activity at LAX and its adjacent area, and each district has residents who are employed at the airport or who are employed by vendors and



Source: ESRI

contractors servicing the airport.

Exhibit 3-3 presents the overall distribution of employment in the County and in the City by Council District. District 9 has the most payroll jobs, followed by District 5 and District 11.

Each district has its own characteristics, with varying concentrations of residential neighborhoods and business activity. As such, employment impacts will not be received the same for all districts.

Exhibit 3-3 LA City Employment by City Council District			
Council District	Employment	% of City Employment	% of County Employment
1	75,180	5.2	2.1
2	60,230	4.2	1.6
3	92,984	6.5	2.5
4	80,266	5.6	2.2
5	203,211	14.1	5.6
6	67,332	4.7	1.8
7	44,329	3.1	1.2
8	42,786	3.0	1.2
9	272,523	19.0	7.4
10	62,382	4.3	1.7
11	132,634	9.2	3.6
12	91,171	6.3	2.5
13	73,765	5.1	2.0
14	83,115	5.8	2.3
15	55,687	3.9	1.5
<b>Total *</b>	<b>1,437,595</b>	<b>100.0</b>	<b>39.3</b>

\* May not sum due to rounding

Source: U.S. Census Bureau Local Employment Dynamics 2010

Exhibit 3-4 Total Employment Impacts by City Council District				
District	Airport Activity	Capital Expenditures	Visitor Spending	TOTAL *
1	2,120	220	3,710	6,050
2	1,700	180	2,970	4,840
3	2,350	270	4,590	7,480
4	2,090	230	3,960	6,450
5	4,810	590	10,030	16,340
6	1,850	200	3,320	5,410
7	1,040	130	2,190	3,570
8	860	130	2,110	3,440
9	8,390	790	13,450	21,920
10	1,540	180	3,080	5,020
11	7,620	390	6,550	10,670
12	1,910	270	4,500	7,330
13	1,770	220	3,640	5,930
14	2,510	240	4,100	6,680
15	1,990	160	2,750	4,480
<b>Total *</b>	<b>40,480</b>	<b>3,840</b>	<b>70,940</b>	<b>115,600</b>

\* May not sum due to rounding  
Source: Estimates by LAEDC

Based upon the industrial composition of employment of each district, and using the Census Bureau Local Employment Dynamics data, the total employment impacts can be distributed across the fifteen Los Angeles City Council Districts.

Exhibit 3-4 displays the total employment impacts of Los Angeles International Airport (LAX), its capital spending and its related visitor spending distributed across the fifteen Los Angeles City Council Districts and the city as a whole.

Note that although District 9 has the most payroll jobs, it is not the district with the largest employment impact from LAX. As noted above, this is entirely due to the industrial composition of the employment in the districts and the industrial distribution of the overall employment impact.

To add context to the distributed employment impacts, Exhibit 3-5 presents the jobs-to-populations ratio for each district (for population aged 18 years and over).

Districts with high employment concentrations will have larger values while districts that contain large residential areas will have more residents than employees, resulting in lower ratio values. Larger employment impacts will occur in areas where there is existing concentrations of employment, due to the existing structure and infrastructure of each area.

Exhibit 3-5 Jobs/Population Ratio		
City Council District	Population (18 years +)	Jobs/Population Ratio
1	174,652	43.0
2	211,655	28.5
3	212,697	43.7
4	211,257	38.0
5	227,746	89.2
6	177,220	38.0
7	176,816	25.1
8	188,205	22.7
9	181,172	150.4
10	185,988	33.5
11	222,522	59.6
12	205,706	44.3
13	180,518	40.9
14	175,701	47.3
15	186,098	29.9
<b>Total *</b>	<b>2,918,096</b>	<b>49.3</b>

\* May not sum due to rounding  
Source: US Census Bureau LED 2010 and 2010 Census

## Employment Impacts in the Supervisorial Districts of Los Angeles County

Beyond the city borders, other areas of the county benefit from the direct, indirect and induced effects of activity occurring at LAX and its adjacent area, and from the visitor spending of travelers arriving through LAX. Using similar methodology as above, total employment impacts can be estimated for each of the five Supervisorial Districts of the County of Los Angeles.

Exhibit 3-6 Employment by Supervisorial District		
Council District	Employment	% of County Employment
1	884,808	24.2
2	529,470	14.5
3	828,826	22.6
4	732,142	20.0
5	683,811	18.7
<b>Total *</b>	<b>3,659,057</b>	<b>100.0</b>

\* May not sum due to rounding  
Source: U.S. Census Bureau LED 2010

Exhibit 3-6 presents the overall distribution of employment in the County by Supervisorial District. District 1 has the most payroll jobs, followed by District 3 and District 4.

Based upon the industrial composition of employment of each district, and using the Census Bureau Local Employment Dynamics data, the total employment impacts are distributed across the five Supervisorial Districts. Exhibit 3-7 shows the total employment impacts of LAX, its capital spending and its related visitor spending in each district.

Exhibit 3-7 Employment Impacts by Supervisorial District				
District	Airport Activity	Capital Expenditures	Visitor Spending	TOTAL *
1	24,910	2,580	46,660	71,150
2	14,910	1,540	26,130	42,580
3	23,340	2,410	40,900	66,650
4	20,620	2,130	36,130	58,870
5	19,250	1,990	33,740	54,990
<b>Total *</b>	<b>103,030</b>	<b>10,650</b>	<b>180,560</b>	<b>294,240</b>

\* May not sum due to rounding  
Source: Estimates by LAEDC

Exhibit 3-8 Jobs/Population Ratio		
Supervisorial District	Population (18 years +)	Jobs/Population Ratio
1	1,442,093	61.4
2	1,447,681	36.6
3	1,551,688	53.4
4	1,488,748	49.2
5	1,486,184	46.0
<b>Total *</b>	<b>7,311,760</b>	<b>50.0</b>

\* May not sum due to rounding  
Source: US Census Bureau LED 2010 and 2010 Census

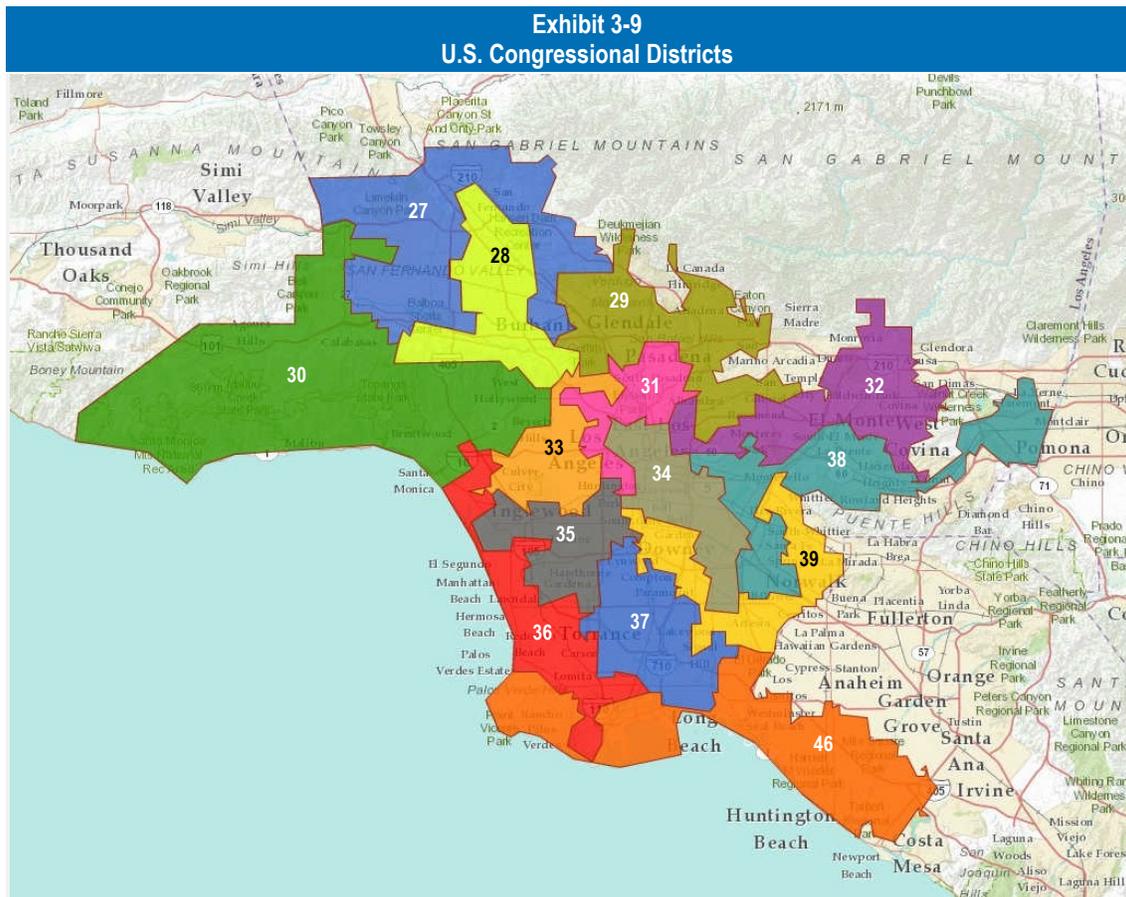
Again to add context to the distributed employment impacts, Exhibit 3-8 presents the jobs-to-populations ratio for each district (for population aged 18 years and over).

Larger employment impacts will occur in areas where there is existing concentrations of employment, due to the existing structure and infrastructure of each area.

## Employment Impacts in Selected U.S. Congressional Districts

The Los Angeles basin is represented in the U.S Congress by several congressional districts. These are shown in Exhibit 3-9.

The geographic contours of these districts do not conform to county borders, however. To estimate the total employment impacts within individual congressional districts, therefore, we use the larger Southern California region as the reference area.



Source: ESRI

Exhibit 3-10 shows the payroll employment in each of the selected congressional districts, and the share of the Southern California payroll employment represented in each district.

Exhibit 3-11 below presents the total employment impacts of LAX, its capital spending and its related visitor spending in each of the selected districts.

Exhibit 3-10 Employment of Congressional District		
Congressional District	Employment	% of Southern California Employment
27	255,033	3.5
28	173,141	2.7
29	313,475	4.9
30	477,844	7.5
31	131,792	2.1
32	193,728	3.1
33	214,580	3.4
34	521,281	8.2
35	149,708	2.4
36	290,114	4.6
37	231,508	3.6
38	249,712	3.9
39	151,928	2.4
46	283,192	4.5

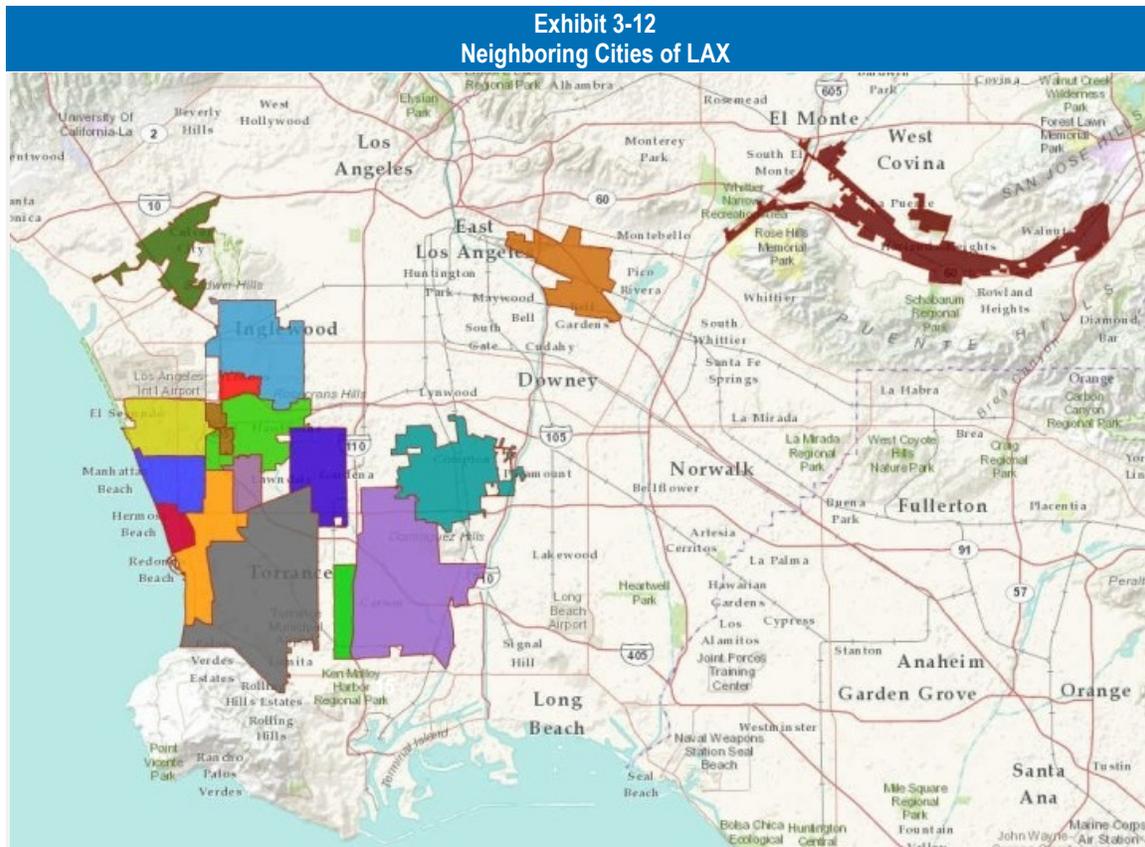
Source: U.S. Census Bureau LED 2010

Exhibit 3-11 Employment Impacts in Selected U.S. Congressional Districts				
District	Airport Activity	Capital Expenditures	Visitor Spending	TOTAL *
27	3,970	410	6,740	11,120
28	3,050	320	5,190	8,560
29	5,520	580	9,390	15,490
30	8,420	880	14,310	23,610
31	2,320	240	3,950	6,510
32	3,410	360	5,800	9,570
33	3,780	400	6,430	10,600
34	9,190	960	15,620	25,760
35	2,640	280	4,480	7,400
36	5,110	530	8,690	14,340
37	4,080	430	6,940	11,440
38	4,400	460	7,480	12,340
39	2,680	280	4,550	7,510
46	4,990	520	8,480	13,990

\* May not sum due to rounding  
Source: Estimates by LAEDC

## Employment Impacts in Selected Cities

In addition to the City of Los Angeles, many other cities reap benefits from the direct, indirect and induced effects of activity occurring at LAX and its adjacent area, and from the visitor spending of travelers arriving through LAX. Many of these cities are shown in Exhibit 3-12.



Source: ESRI

The cities most impacted are those that are closest to the airport. In particular, El Segundo, Gardena, Hawthorne, Lawndale, Carson and Inglewood benefit from the economic activity occurring at and around the airport. However, many other communities around the region are impacted, including the beach cities, Torrance, Commerce, Culver City and Industry.

Using similar methodology as above, total employment impacts can be estimated for a selection of cities in the region.

Exhibit 3-13 presents the total employment impacts of LAX, its capital spending and its related visitor spending in each of the cities.

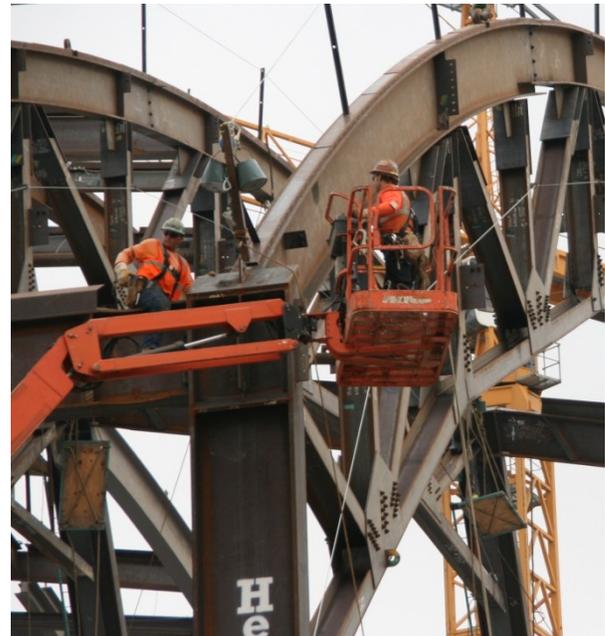
<b>Exhibit 3-13 Total Employment Impacts in Selected Cities</b>				
<b>District</b>	<b>Airport Activity</b>	<b>Capital Expenditures</b>	<b>Visitor Spending</b>	<b>TOTAL*</b>
Carson	1,290	130	2,270	3,690
Commerce	1,360	140	12,390	3,890
Compton	740	80	1,300	2,110
Culver City	1,310	140	2,290	3,730
Del Aire	40	0	80	130
El Segundo	1,690	170	2,960	4,820
Gardena	640	70	1,120	1,820
Hawthorne	490	50	860	1,400
Hermosa Beach	140	10	250	410
Industry	1,650	170	2,890	4,710
Inglewood	720	80	1,270	2,060
Lawndale	150	10	260	420
Lennox	60	10	110	180
Manhattan Beach	440	40	760	1,240
Redondo Beach	600	60	1,060	1,720
Torrance	2,520	260	4,420	7,200
West Carson	160	20	280	450

\* May not sum due to rounding

Source: Estimates by LAEDC

## 4 Future Prospective Capital Projects

LAWA is in the planning stages of additional capital improvement projects at the airport, including modernization of terminals and pedestrian bridges, airfield improvements, a consolidated rental car facility, and additional transportation, roadway and parking facilities enhancements. In total, these projects represent significant infrastructure improvements for the region, and will involve expenditures over a period of ten to fifteen years of at least \$8.5 billion.



The total economic impacts of this prospective investment are shown in Exhibit 4-1. Since the overall expenditures will occur over a period of some years, the impacts shown are an aggregate over the entire investment period.

It is estimated that this investment program will generate 90,500 jobs with total labor income of \$5.6 billion in Los Angeles County and 98,800 annual jobs with total labor income of \$6.0 billion in the five-county Southern California region. The total output impact is estimated to be \$14.4 billion in Los Angeles County and an additional \$1.5 billion in the four neighboring counties of Southern California.

Exhibit 4-1 Estimated Economic Impact of LAX Prospective Improvements		
	Los Angeles County	Southern California
<b>Estimated Direct Economic Activity:</b>		
Employment (jobs)	44,900	44,900
<b>Total Economic Impact:</b>		
Employment (jobs)	90,500	98,800
Labor income (\$ millions)	5,600	6,000
Output (\$ millions)	14,400	15,900
<b>Total Fiscal Impact (\$ millions):</b>		
State and local taxes	520	590
Federal taxes	1,100	1,200

\* May not sum due to rounding  
Sources: LAWA; Estimates by LAEDC

Further, it is estimated that \$520 million in state and local tax revenues and \$1.1 billion in federal tax revenues will be generated. When accounting for additional activity occurring in the larger Southern California region, state and local tax revenues will reach \$590 million and federal taxes \$1.2 billion.

The total employment impact spills across industries in the

region through these indirect and induced effects, as shown in Exhibit 4-2.

The industry sector most impacted is of course the construction sector, but many other sectors will experience employment gains, including professional, scientific and technical services, retail trade, administrative and waste management services, health and social services.

Exhibit 4-2 Total Employment Impact of LAX Prospective Improvements by Sector (Los Angeles County)	
Industry Sector	Employment
Agriculture	20
Mining	130
Utilities	70
Construction	39,250
Manufacturing	1,850
Wholesale trade	1,260
Retail trade	5,730
Transportation and warehousing	1,750
Information	810
Finance and insurance	3,700
Real estate and rental and leasing	2,530
Professional, scientific and technical services	12,550
Management of companies	290
Administrative and waste management	4,090
Educational services	1,260
Health care and social assistance	5,550
Arts, entertainment and recreation	1,100
Accommodation and food services	3,810
Other services	4,150
Public administration	590
<b>Total *</b>	<b>90,500</b>

\* May not sum due to rounding  
Source: Estimates by LAEDC

The values in the exhibit should be interpreted as illustrative of industry effects rather than precise given model and data limitations.

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## CATALYTIC EFFECTS

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## 5 Catalytic Effects

Traditional methods of economic impact analysis quantify the economic and fiscal impacts related to the revenues and expenditures of the airport and related businesses, but there are other impacts that result from LAX's air transportation services. The presence and utilization of air transportation services involving the movement of goods and people act as a catalyst to additional economic activity not directly related to the aviation industry, its supply chain or its workers. Many of these effects, while known to be significant in their contribution to the overall economy, are difficult to clearly quantify.



### Demand-Side Catalytic Effects

Demand-side effects relate to the utilization or consumption of the air transportation services at LAX and are a function of price and other factors such as income levels of consumers, price of complimentary and substitute goods, number of buyers in the market and consumer preferences.

#### *Visitor Spending*

The tourism industry makes a significant contribution to the Los Angeles regional economy. The leisure and hospitality industry supersector accounted for 2.6 percent of the total gross regional product of the Los Angeles region in 2010. In terms of employment, the leisure and hospitality industry supersector provided 392,800 jobs within Los Angeles County in 2011, accounting for more than 10 percent of all jobs across all industries.

Millions of passengers move through LAX on an annual basis with Los Angeles as their destination, and as such the inflow of both domestic and international visitor spending in the region is a significant generator of additional economic and fiscal impacts.

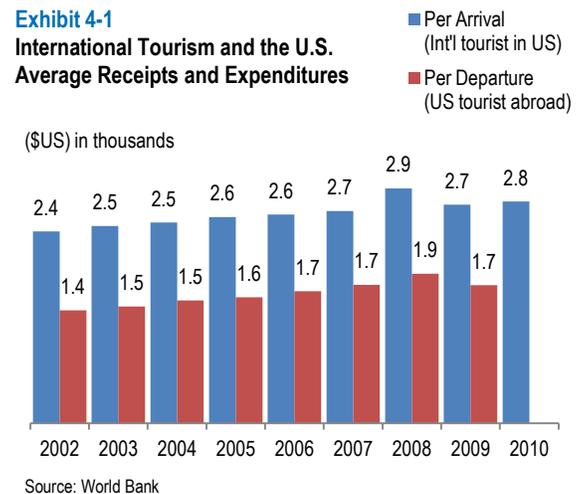
Spending patterns vary significantly among the different types of overnight visitors: international versus domestic, and business versus leisure. International overnight visitors, regardless of whether their trip is business or leisure, are more likely to stay in hotel

accommodations and their expenditures will include transportation and food service. Domestic overnight visitors have spending patterns that differ from international overnight visitors, and differ among themselves depending upon their choice of accommodation. Overnight visitors who stay with friends and family spend nothing on accommodations and may have lower expenditures on transportation and food services compared to their hotel staying counterparts.

Due to the large variations in spending patterns among domestic travelers, estimating the visitor spending of this segment of travelers is difficult. As a result, any estimates of the impacts of visitor spending will underestimate the actual spillover effects of the tourism related to the air transportation services at LAX. The magnitude of this undercounting is significant as more than three-quarters of the overnight visitors in Los Angeles are estimated to be domestic.

There were over 8.3 million international arrivals and 8.4 million international departures at LAX in 2011.

To estimate the average visitor spending of international passengers at LAX, we use data from the World Bank for total international tourism receipts and expenditures and the total number of international tourism arrivals and departures. Using the most recent data available from the World Bank, average inbound international tourism receipts are estimated at \$2,773 per arrival in the United States, and the average outbound international tourism expenditure was \$1,725 per departure from the U.S. Exhibit 4-1 shows the calculated average inbound and outbound international tourism expenditure per arrival and departure in the U.S from 2002 through 2010.



Airports have flights travelling in both directions.

To determine the true net effects of international tourism visitor spending made possible by the air transportation services provided at LAX, total visitor spending of international arrivals touring the U.S. should be offset by the total visitor spending of international departures of domestic residents travelling abroad. Since average expenditure per international tourist here in the U.S. is higher than the average expenditure of a U.S. resident touring abroad (as seen in Exhibit 4-1), the net catalytic effects of visitor related spending is more than likely positive. Additionally, indirect and induced activity will take place as a result of this increased visitor spending in the region, further amplifying the magnitude of these catalytic effects.

**Trade Activity**

Trade is another major component of air transportation; it links local markets to more distant ones and these linkages make possible larger inflows and outflows of goods and even

services. Trade is a major component of the economy in the Los Angeles region, accounting for almost 14 percent of the total GRP for the Los Angeles region over that entire period.

Air freight moves goods in both directions. While increased access to distant markets provides additional opportunities for local firms to export their goods, these air linkages also provide outside firms access to the local market. To quantify the amount of total trade through LAX, as well as the net effects of the trade activity, exports and imports through the airport via air freight is factored into the analysis.

Two-way trade is measured as exports and imports combined, capturing the volume and total value of all trade activity moving through a designated port, customs district or geographic region. The bulk of trade (measured by weight) ships via methods of transportation other than air, mostly due to cost, but a large portion of trade (measured by value) is transported via air. The higher cost of air transportation compared to other methods of transportation is deemed necessary for goods that are perishable, fragile, or high in value.

Exhibit 4-2 displays the total value of two-way trade per kilogram (kg) of weight shipped. Based upon the high cost and the composition of goods we can assume that air freight through LAX is directly related to the availability of its air transportation services.

LAX accounts for a large share of the total value of two-way trade moving through the Los Angeles Customs District (18.1 percent) and even a significant share of the total value of two-way trade for the entire US (2.3 percent). Exhibit 4-3 shows the airport's share of the total value of two-way trade in the customs district and in the US from 2003 through 2011.

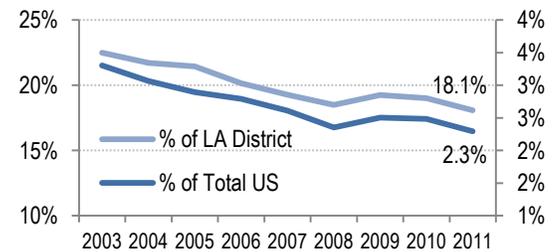
Although there has been an overall decline in the airport's share of two-way trade by total value, its share of total air value has remained relatively consistent (Exhibit 4-4). As such, the decline seen in the previous chart is related to other methods of transportation (such as the ocean ports) rather than an actually decrease in activity at LAX.

**Exhibit 4-2**  
Two-Way Trade Through LAX  
Total Value \$US per kg of Freight



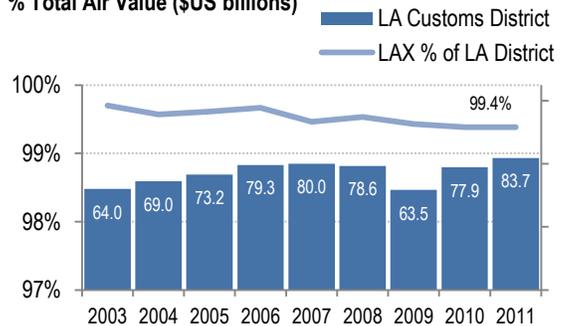
Sources: US Dept. of Commerce, estimates by LAEDC

**Exhibit 4-3**  
LAX Share of Two-Way Trade  
% of Total Value (\$US)



Sources: US Dept. of Commerce, estimates by LAEDC

**Exhibit 4-4**  
LAX Share of Two-Way Trade  
% Total Air Value (\$US billions)



Sources: US Dept. of Commerce, estimates by LAEDC

The catalytic effects related to the goods movement via air transportation at LAX are measured as net activity. Net exports, referred to as the balance of trade, are measured as the difference between the value of exports and the value of imports. Exhibit 4-5 displays the balance of trade through LAX from 2003 through 2011. During this period, there has typically been a trade surplus, although LAX has shipped a larger value of imports into the region than it has exported over the last two years. Since the US growth is typically led by demand (consumption), this trade deficit can be attributed to the current economic downturn. Other factors that may impact the trade balance include comparative advantage of certain products, exchange rates and free trade agreements, taxes, tariffs and restrictions.

**Exhibit 4-5**  
**Balance of Trade Through LAX**  
**Total Value of Net Exports**  
 (\$US billions)



Sources: US Dept. of Commerce, estimates by LAEDC

Additional trade activity may have been facilitated by the provision of air transportation services at LAX. International passengers making business trips may be collaborating with foreign companies in other countries. This collaboration may result in the movement of goods via other methods of transportation or through other ports. These catalytic effects would not be captured by the measure of the freight shipped directly through LAX.

Trade activity is not only limited to the movement of goods—services can be exported as well. For example, consulting services can be provided by individuals with a specialized skill set, regardless of the location of their base of operation, to firms located all across the globe.

Los Angeles County, though it still boasts the largest manufacturing employment in the nation, is a service-oriented economy with 3.3 million jobs in the service sector. Trade in the form of services is difficult to quantify since the movement of intangible services across geographies is not tracked the way that tangible hard goods are. As such, net catalytic effects of LAX in regards to trade activity may be underrepresented by focusing solely on goods movement.

Positive balance of trade values will result in additional indirect and induced activity in the region, further amplifying the magnitude of these catalytic effects.

## Supply-Side Catalytic Effects

While demand-side impacts such as visitor spending and the value of trade moving through the airport contribute to positive growth in terms of employment and output, positive contributions cannot be sustained long-term if the productivity of the region does not increase accordingly.

Supply-side spillover effects related to the presence or availability of the air transportation services at LAX contribute to changes in productivity in the local economy.

The catalytic effects of LAX on the supply-side include business location decisions and the expansion of markets made possible by LAX, which increases access to cheaper inputs of production and larger labor pools. Larger markets also result in increased access for competitors outside of the local area; however, this can result in technology transfers and new innovation resulting from the pressure on local firms to keep costs down.



### *Increased Size of Markets*

The presence of the air transportation services at LAX and its ability to provide linkages to distant markets impacts the region and its productivity on many levels. Markets for product and labor no longer face the same geographic limitations as in the past, and they have increased in size and scope, impacting the availability of labor, the cost and availability of inputs of production, the size of the consumer market and the number of sellers in the market.

As the economy becomes more service oriented, and industries become more technical, the demand for skilled and educated workers is increasing. The availability of air linkages to outside labor pools will allow for experienced, educated and skilled workers to commute to firms located in close proximity to LAX. In this way, firms can take advantage of other locational benefits without being hindered by the possible lack of a suitable workforce.

Still, skilled labor can move in both directions, bringing in additional labor income from outside areas and losing the labor income associated with local jobs, producing a mismatch of labor inflow and outflow due to the industry compositions of different regions and the desired skill sets of their labor. The summation of these net effects may result in significant positive spillover effects.

The availability of next day international air freight services at LAX allow local firms to streamline costs and make their operations more efficient and thus more competitive in the global market. Firms more easily import raw goods or intermediate goods from regions where they are lower in cost, and import only those products needed for just-in-time inventory management, lowering holding costs and reducing production interruptions. These cost benefits are a major factor in international goods movements and in the number of sellers who are competing within a market.

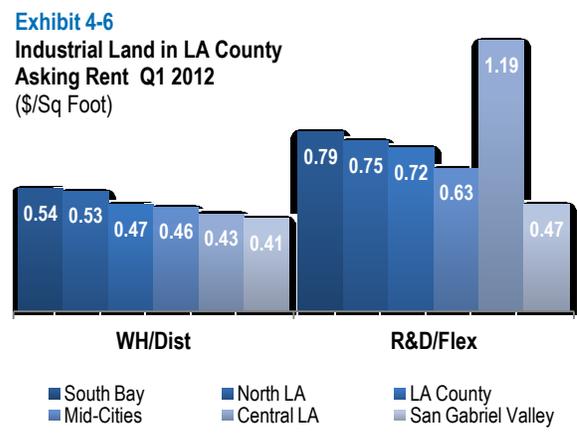
Before air transportation services were available, firms could only retail their products in the local market. Once air transport links were established, local firms could market those same goods and services to markets across the globe; they can ship employees to provide services or ship their goods to wholesalers or direct to consumers worldwide.

While air transport links to other markets increase access (thereby increasing the number of potential consumers) these linkages work in both directions, allowing foreign firms access to the local domestic market and increasing the number of sellers in the marketplace. Local consumers have the option to purchase services from India or goods manufactured by a company in China or Brazil or Belgium.

The net effects of this inflow/outflow of revenue may change from year to year depending upon changes in other related factors such as the price of commodities, cost of labor, shipping costs, exchange rates and business cycles. Regardless of the magnitude of the net effects, this improved accessibility results in increased competition, which puts pressure on local firms to keep operations efficient and costs low. Greater efficiency in the marketplace can be achieved by firms that specialize in areas where they have a comparative advantage.

**Business Location and Investment Decisions**

Businesses make location decisions based upon many factors, and transportation links rank high in importance. As such, the availability of air transportation services at LAX can be a major incentive for a business to locate nearby. However, the cost of situating a business in the immediate vicinity of the airport may be higher than in other parts of Los Angeles. For example, the average asking rent of industrial property used for warehouse and distribution was higher in the South Bay area than in other areas of the county. Exhibit 4-6 shows the average asking rent per square foot for two types of industrial property (warehouse and distribution, and research and development/flex) for five areas of Los Angeles County. Businesses that are willing to incur the higher land costs likely value the presence of LAX’s air transportation services



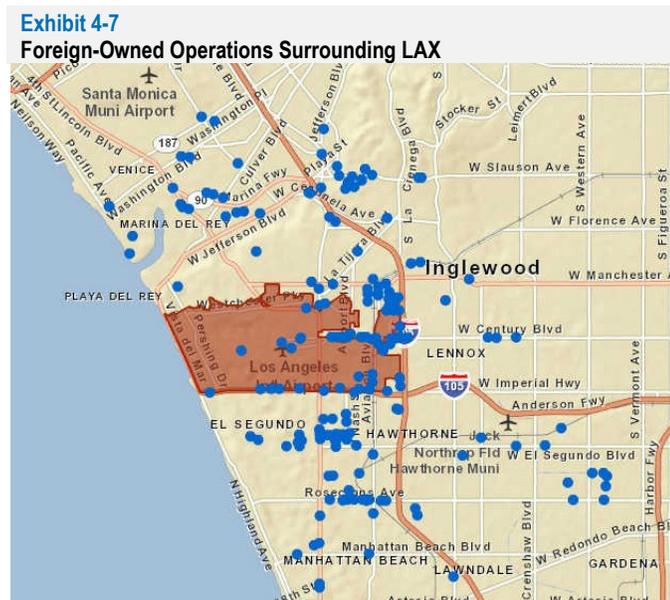
Source: Grubb & Ellis

more than firms that locate in areas of the county that have less expensive rents.

As discussed above, the presence of air linkages to distant markets impact the availability of labor, the cost and availability of inputs of production, the size of the consumer market and the number of sellers in the market. Businesses may decide to locate in close proximity to LAX to take advantage of the benefits these air linkages provide. Regardless of why businesses choose to locate in near LAX, the clustering of activity contributes to an increase in the capacity of local resources and in their efficiency as well.

Incentives for locating near LAX will appeal to both domestic operations and foreign-owned operations. However, attracting foreign-owned companies introduces additional revenue into the regional economy as a result of their foreign direct investment (FDI). Foreign companies invest locally in factors of production such as land, machinery and labor. Increased foreign investment can also introduce new technology, capital, skills, and international connections into the region, and will allow for additional employment, labor income and output related to new foreign-owned operations.

While extensive data is available for FDI at the national and state levels, there are no official estimates detailing FDI in Los Angeles County. In an attempt to gain such data, the LAEDC and the World Trade Center Association conducted an independent survey in 2008 and compiled data on foreign-owned businesses throughout the county. Exhibit 4-7 shows the location of these foreign-owned companies in selected zip codes surrounding the airport. The concentration of activity around LAX visibly dissipates as the distance increases.



Source: LAEDC

While the presence of air transport links at LAX can attract foreign investment into the local Los Angeles area, it can also facilitate the managing of operations abroad by local domestic firms. Any resultant outward flowing investment from domestic firms in international operations must be factored into the spillover effects in the form of net investment. Only this net investment can be considered part of the supply-side catalytic effects of LAX and is subject to indirect and induced effects.

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# APPENDIX

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## A1 Description of Industry Sectors

The industry sectors used in this report are established by the North American Industry Classification System (NAICS). NAICS divides the economy into twenty sectors, and groups industries within these sectors according to production criteria. Listed below is a short description of each sector as taken from the sourcebook, *North American Industry Classification System*, published by the U.S. Office of Management and Budget (2007).



*Agriculture, Forestry, Fishing and Hunting:* Activities of this sector are growing crops, raising animals, harvesting timber, and harvesting fish and other animals from farms, ranches, or the animals' natural habitats.

*Mining:* Activities of this sector are extracting naturally-occurring mineral solids, such as coal and ore; liquid minerals, such as crude petroleum; and gases, such as natural gas; and beneficiating (e.g., crushing, screening, washing and flotation) and other preparation at the mine site, or as part of mining activity.

*Utilities:* Activities of this sector are generating, transmitting, and/or distributing electricity, gas, steam, and water and removing sewage through a permanent infrastructure of lines, mains, and pipes.

*Construction:* Activities of this sector are erecting buildings and other structures (including additions); heavy construction other than buildings; and alterations, reconstruction, installation, and maintenance and repairs.

*Manufacturing:* Activities of this sector are the mechanical, physical, or chemical transformation of material, substances, or components into new products.

*Wholesale Trade:* Activities of this sector are selling or arranging for the purchase or sale of

goods for resale; capital or durable non-consumer goods; and raw and intermediate materials and supplies used in production, and providing services incidental to the sale of the merchandise.

*Retail Trade:* Activities of this sector are retailing merchandise generally in small quantities to the general public and providing services incidental to the sale of the merchandise.

*Transportation and Warehousing:* Activities of this sector are providing transportation of passengers and cargo, warehousing and storing goods, scenic and sightseeing transportation, and supporting these activities.

*Information:* Activities of this sector are distributing information and cultural products, providing the means to transmit or distribute these products as data or communications, and processing data.

*Finance and Insurance:* Activities of this sector involve the creation, liquidation, or change of ownership of financial assets (financial

transactions) and/or facilitating financial transactions.

*Real Estate and Rental and Leasing:* Activities of this sector are renting, leasing, or otherwise allowing the use of tangible or intangible assets (except copyrighted works), and providing related services.

*Professional, Scientific, and Technical Services:* Activities of this sector are performing professional, scientific, and technical services for the operations of other organizations.

*Management of Companies and Enterprises:* Activities of this sector are the holding of securities of companies and enterprises, for the purpose of owning controlling interest or influencing their management decision, or administering, overseeing, and managing other establishments of the same company or enterprise and normally undertaking the strategic or organizational planning and decision-making of the company or enterprise.

*Administrative and Support and Waste Management and Remediation Services:* Activities of this sector are performing routine support activities for the day-to-day operations of other organizations, such as: office administration, hiring and placing of personnel, document preparation and similar clerical services, solicitation, collection, security and surveillance services, cleaning, and waste disposal services.

*Educational Services:* Activities of this sector are providing instruction and training in a wide variety of subjects. Educational services are usually delivered by teachers or instructors that explain, tell, demonstrate, supervise, and direct learning. Instruction is imparted in diverse settings, such as educational institutions, the workplace, or the home through correspondence, television, or other means.

*Health Care and Social Assistance:* Activities of this sector are operating or providing health care

and social assistance for individuals.

*Arts, Entertainment and Recreation:* Activities of this sector are operating facilities or providing services to meet varied cultural, entertainment, and recreational interests of their patrons, such as: (1) producing, promoting, or participating in live performances, events, or exhibits intended for public viewing; (2) preserving and exhibiting objects and sites of historical, cultural, or educational interest; and (3) operating facilities or providing services that enable patrons to participate in recreational activities or pursue amusement, hobby, and leisure-time interests.

*Accommodation and Food Services:* Activities of this sector are providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption.

*Other Services (except Public Administration):* Activities of this sector are providing services not specifically provided for elsewhere in the classification system. Establishments in this sector are primarily engaged in activities, such as equipment and machinery repairing, promoting or administering religious activities, grant-making, advocacy, and providing dry-cleaning and laundry services, personal care services, death care services, pet care services, photofinishing services, temporary parking services, and dating services.



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