

INDUSTRY

*and*

LABOR MARKET  
INTELLIGENCE

*for*

LOS ANGELES COUNTY



APRIL 2013



ECONOMIC AND POLICY ANALYSIS GROUP  
Los Angeles County Economic Development Corporation

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This research was commissioned by the Los Angeles County Workforce Investment Board.

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 workforce development, 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

**W**orkforce Investment Boards (WIBs) are components of a federally-funded system designed to connect job seekers with employer businesses in local communities, defined as service delivery areas (SDAs), in order to improve the prosperity of both residents and industry in those communities.

In order to develop an informed strategy for the focus and delivery of their services, the Los Angeles County Workforce Investment Board commissioned the Economic and Policy Analysis Group (EPAG) of the Los Angeles Economic Development Corporation (LAEDC) to gather labor market and industry intelligence in support of their strategic planning efforts and those of other regional WIBs.

This study examines the demographic and economic characteristics of Los Angeles County, providing a labor market analysis, which examines the regional supply and demand for labor and identifies target industries, along with an occupational analysis that covers the current occupational makeup of the region and occupational projections for the next five years, and is presented in three parts:

## Demographic Overview

Social and economic characteristics of the residents of Los Angeles County provide context and insight into the strengths and challenges of the community. Based upon this information, trends and patterns are revealed and can be used to target outreach programs and other types of development efforts.

The report provides an exhaustive overview of the capabilities of the local population and workforce, including language proficiency of non-English speaking households, households by income, the number of families living below the poverty level the prior year by type, educational attainment, etc. Determining how these characteristics impact the population in attaining the education, skills and training needed to obtain employment is undertaken by those with direct one-on-one interaction with the resident population, as they would have the expertise required to prioritize and address these challenges in a proactive strategy.



## Labor Market Analysis

The current economic situation and projected trends of the local area economy, industries and occupations are presented here. Relevant characteristics of the resident population are outlined, as they are the main labor supply for industry in Los Angeles County. Conversely, industry information is provided as this represents the demand for labor. Finally, based upon metrics developed by EPAG, target industries are identified in order to predict future labor demands and to identify opportunities for targeting WIB services.

## Occupational Analysis

Demographic and labor market analysis is combined to estimate the occupational makeup of the region. These are combined with the industry forecast to provide occupational projections, and to identify the education and skills required for entry into these occupations.

Full and detailed industry and occupational data is provided in the appendix. ❖

## The Workforce Investment Boards of Los Angeles County

Each of the seven WIBs operating within Los Angeles County is unique in regards to the composition of their local industry makeup and the characteristics of their resident population.

As the nation's third largest WIB, the **County of Los Angeles Workforce Investment Board** is committed to meeting the employment and training needs for residents and businesses in 58 of the County's 88 cities and 151 unincorporated areas. The County system consists of 17 WorkSource Centers, three Affiliate or Satellite Centers, and 17 Youth Centers that annually serve over 165,000 jobseekers. The L.A. County WIB supports a countywide Veterans One-Stop and sector initiatives including sector intermediaries that work with employers in identified sectors with growth industries to meet their employment and training needs. The WIB is committed to new priorities for out-of-school youth, especially AB12 emancipated foster youth.

The nation's second largest WIB, the **City of Los Angeles Workforce Investment Board** is committed to putting displaced workers and job seekers in jobs with sustainable wages, and working to ensure the City's business community has an educated and skilled workforce for the future. Through a network of 17 WorkSource Centers, two WorkSource portals, 13 YouthSource Centers and various training partners, the City's workforce development system annually serves 175,000 jobseekers, 5,000 youth and 1,400 employers and businesses. The City of Los Angeles WIB has been a leader in implementing sector-focused training programs and undertaking various initiatives including high school drop-out recovery efforts, serving foster youth and persons with disabilities.

Serving the northeast section of Los Angeles County, the **Foothill Workforce Investment Board (FWIB)** has a distinct labor market that is heavily weighted toward service providing industries. Industry sectors include retail trade, financial services, professional and business services, educational and health services. The FWIB's labor market's unique and emergent industry sectors are: environmental sciences/biotechnology, research and development, auto technology, utilities/water technology, solid waste management and engineering.

As a public agency serving Long Beach, Signal Hill, Lomita, Torrance and the Los Angeles Harbor communities, the **Pacific Gateway Workforce Investment Network (PGWIN)** connects adults, youth, and businesses to opportunities — job seekers to employment, and businesses to skilled workers. Pacific Gateway's goal is to improve the economic vitality of an entire region by connecting job seekers to resources that will enable them to become economically stable, and create a robust business community that is connected to a well-trained and skilled labor force.

Serving the cities of Inglewood, Carson, El Segundo, Gardena, Hawthorne, Hermosa Beach, Lawndale, Manhattan Beach and Redondo Beach, the **South Bay Workforce Investment Board (SBWIB)** provides a fully-integrated workforce development system to maximize employment, training and business resources that provide economic opportunities to its communities in the South Bay service area. SBWIB is highly equipped to accommodate special populations of job seekers. These groups include youth aged 14-21, individuals with disabilities, dislocated workers, unemployed and low-income adults, as well as individuals on probation and parole.

A private non-profit corporation located at the commercial center of the Pacific Rim, the **Southeast Los Angeles County Workforce Investment Board (SELACO)** serves the Southeast region of Los Angeles County comprised of Artesia, Bellflower, Cerritos, Downey, Hawaiian Garden, Lakewood and Norwalk, which draws a constant, international influx of business people and workers. SELACO promotes the growth of business in the region in partnership with other local, regional and state resources.

Comprised of the cities of Glendale, Burbank and La Canada Flintridge, the **Verdugo Consortium** is home to one of the largest concentrations of entertainment workers and companies in the world, including companies such as Disney, Warner Brothers and DreamWorks. The region is also a noted hub of health care employment with four major medical centers and over 1,000 physician offices. ❖

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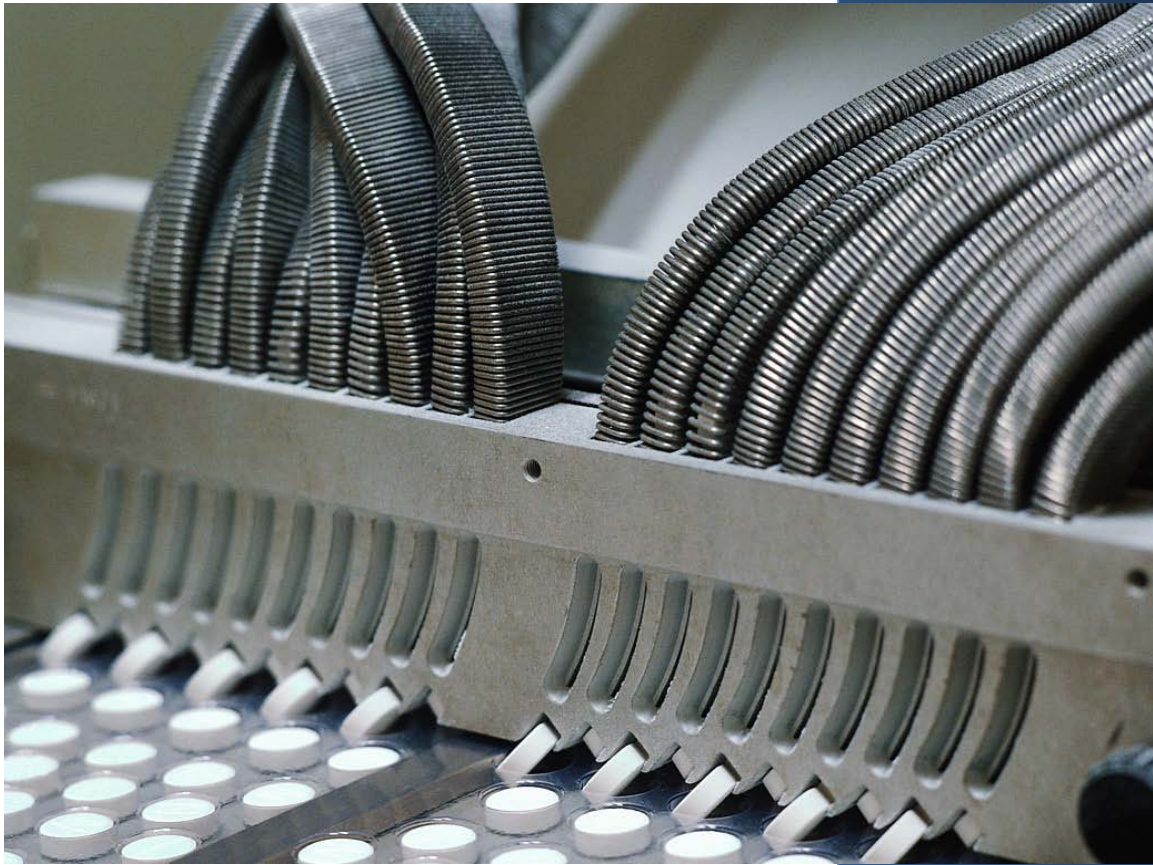
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# INTRODUCTION





# 1 Introduction

A workforce investment board (WIB) is responsible for the local implementation of the Workforce Investment Act, a federal mandate passed in 1998 that consolidated numerous workforce programs and services into one single entity whose focus is on increasing the quality, mobility and productivity of the regional workforce. There are 49 local workforce investment areas (WIA) in California and each has their own WIB.

A WIB is a regional organization that serves as an intermediary, connecting federal, state and local funding with programs that provide workforce development and economic research on the needs within their region. They manage One-Stop Career Centers, where business, job placement and skill development services are offered.

The Los Angeles County WIB's current programs include those for the disabled, youth (ages 14 to 21 years), adults, dislocated workers, as well as incumbent worker training, tax credits and Community Services Block Grant (CSBG)/Community Action Agencies. ❖

## 1.1 Purpose and Vision

To better guide their programs and services, the Los Angeles County WIB has commissioned the Economic and Policy Analysis Group (EPAG) of the LAEDC to perform a demographic, labor market, industry and occupational analysis of their local WIA.

EPAG conducted a study of the composition of the existing industry and the residential population, the juxtaposition of residential and industrial activity within the region, and to identify target industries for business and workforce development. This analysis will be used to build a comprehensive workforce development strategy for the Los Angeles County WIB and to aid outreach efforts in the implementation of these efforts. ❖

## 1.2 Geographic Definition

Los Angeles County has a geographic area of 4,088 square miles and is located adjacent to Orange, San Bernardino, Kern, and Ventura counties in Southern California. The most populous county in the nation, with over 9.8 million residents, its amenities include beaches, national forests, the San Gabriel Mountains, Catalina Island, the Mojave Desert and numerous tourist destinations such as museums, theaters, sports venues and amusement parks. Composed of dense urban areas such as the City of Los Angeles, to the barren desert of Mojave and the bedroom communities in between, the County has a rich and diverse population with a wide range of skills and a diverse industry base to. Although home to 88 incorporated cities, most of the land area is unincorporated, falling under county jurisdiction for the provision of programs and services. ❖

Exhibit 1-1  
Los Angeles County



Sources: ESRI, LAEDC

## 1.3 Organization of this Report

The goal of this study is to examine the characteristics of Los Angeles County, both economic and demographic, to provide a sense of the potential for the region to generate employment opportunities for its residents in order to advance economic development, and to identify the challenges in terms of workforce development to provide opportunities for intervention by the Workforce Investment Board.

The report is organized into three broad sections:

### *Demographic Overview*

Demographics provide a window into the dynamics of a population within a specified geography. Social and economic characteristics of residents provide context and insight into the strengths and challenges of the community. Based upon this information, trends and patterns are revealed and can be used to target outreach programs and other types of development efforts to effect positive change in local communities, by bridging connections between community assets and community needs, and by identifying potential intervention opportunities.

### *Labor Market Analysis*

In this section, we consider the two component parts of a labor market: the supply of labor and the demand for labor. The supply of labor is essentially determined by the characteristics of the resident population and of



workers within commuting distance. The demand for labor is determined by current and projected industry needs and their occupational characteristics. In addition to the projections, we provide a roadmap to target industries for Los Angeles County given its current economic makeup and its place in context with regional strengths and projections.

### *Occupational Analysis*

Demographic and labor market analysis is combined here to estimate the occupational makeup of the region, the occupational projections, and the education and skills required for entry into these occupations. Additionally, the occupational makeup of the regional industry targets is provided. ❖



## DEMOGRAPHIC OVERVIEW





## 2 Demographic Portrait

**D**emographics play a key role in the growth and quality of the labor force and thus to a large extent determine the growth potential of the economy and its future employment.

A selection of characteristics in Los Angeles County is presented in Exhibit 2-1.

### Exhibit 2-1

#### Demographic and Income Characteristics 2012

Population	9,904,341
Median Age	34.9
Households	3,267,118
Average household size	3.0
Median household income	\$ 51,329
Per capita income	\$ 24,599
HH below poverty level (2010)	13.8%
Median home value	\$ 336,821

Source: ESRI

The population of Los Angeles County in 2012 was 9.9 million in 3.3 million households, accounting for more than 25 percent of the population of the State of California and making it the most populous county in the nation. The median age is just under 35 years.

More than 38 percent of the county population lives in its largest city and the county seat, the City of Los Angeles. Other large population centers are in the cities of Long Beach, Glendale, Santa Clarita, Lancaster, Palmdale, Pomona and Torrance.

Median household income in Los Angeles County, estimated to be \$51,329, is approximately 15 percent lower than the state median. Per capita income in the



county, estimated to be \$24,599, is 20 percent lower than the state average.

Almost 14 percent of households in Los Angeles County lived under the poverty level in 2010, the most recent year that this data is available. This was somewhat higher than in the state in general, where 11.6 percent of households lived below the poverty level.

The median home value in Los Angeles County in 2012 is estimated to be \$336,821.

Individual socio-economic characteristics are detailed on the following pages.

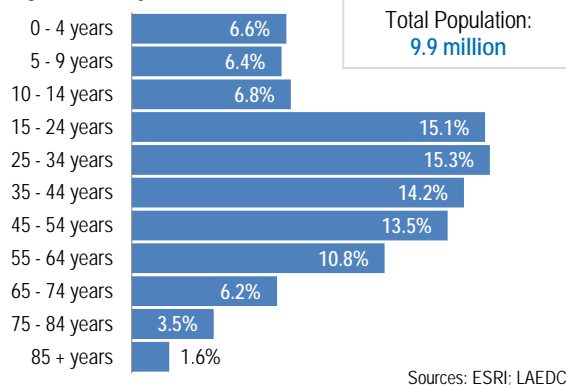
## 2.1 Current Population

Population dynamics are important to resource allocation and future planning and development in an area. The size of a population, along with its growth and/or decline, will affect an area's standard of living, levels of consumption, environmental footprint, infrastructure needs, and more.

Age distribution is one way to determine whether the population within an area is expected to grow, excluding all other factors. A large number of children in an area indicate an expected increase in population, while small numbers signify an expected decline. It is also one way of determining whether the population of an area is aging, which will affect the future needs of the area in terms of replacement workforce and provision of services.

The age distribution of Los Angeles County's population is displayed in Exhibit 2-2.

**Exhibit 2-2**  
Age Distribution of Population  
Los Angeles County 2012



Almost 70 percent of the resident population is of working age, between the ages of 15 and 65 years. Seniors (those over the age of 64) account for 11.3 percent of the population, compared to 11.7 percent statewide and 13.3 percent across the nation.



The population of Los Angeles County is projected to grow by 1.7 percent by 2017, a nominal increase of 166,400 people.

The population is also expected to age slightly, as the share of residents aged 65 years and older increases to 12.8 percent in 2017. Research indicates that this trend, typical across the nation, is attributable to the relatively larger baby boomer generation aging and the smaller replacement Generation X and millennials.

The human sex ratio is the ratio of males to females in a population; in Los Angeles County in 2012 there are 962 females to every 1,000 males. ❖

**Exhibit 2-3**  
Population by Sex  
Los Angeles County 2012





## 2.2 Veteran Population

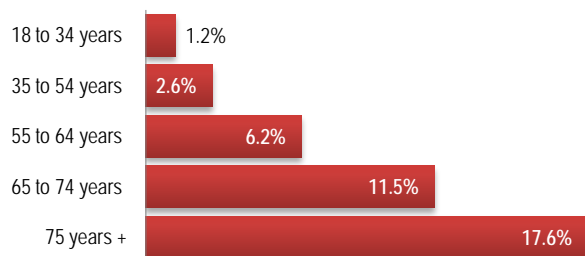
Demographic characteristics for veterans differ by sex and by age. For example, female veterans tend to be younger, while male veterans tend to be older.

Exhibit 2-4 shows the veteran population ages 18 years and older as a share of the population of the same age in Los Angeles County in 2011, the most recent year that this data is available.

**Exhibit 2-4**

### Veteran Population by Age Group Los Angeles County 2011

As a percentage of total cohort population



Source: 2011 ACS 1-year Estimates

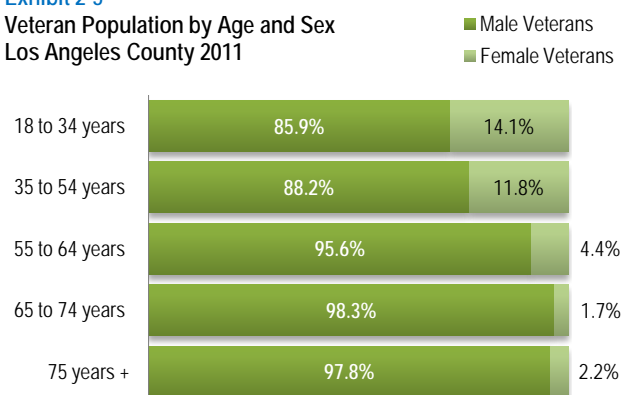
There are 328,000 veterans living in Los Angeles County. Overall, the share of the population who are veterans has been declining in younger age groups. Of the population aged 75 years and older, 17.6 percent are veterans, whereas of the population aged 18 to 34 years, only 1.2 percent is veterans. These shares will grow, however, as combat troops return from the Middle East.

Exhibit 2-5 shows the male/ female distribution for the veteran population ages 18 years and older by age group in Los Angeles County in 2011, the most recent year that this data is available.



**Exhibit 2-5**

### Veteran Population by Age and Sex Los Angeles County 2011



Source: 2011 ACS 1-year Estimates

Of all veterans living in Los Angeles County, 94 percent are male. The share of male veterans significantly exceeds those of female veterans across all age groups. However, younger age groups have a larger share of female veterans compared to older age groups as female participation in our armed forces has increased over time. ❖

## 2.3 Race, Ethnicity and Language Capability

Ethnicity and race are two distinct classifications. There are several characteristics that may be more likely to be common to a population within the same race and ethnicity, including language, educational attainment, unemployment, size of household, and other cultural, economic and social characteristics. As such, we identify both classifications for the resident population of Los Angeles County.

*Race* is a social definition used in the U.S. as a means of self identification. This social construct of race does not incorporate biology, anthropology or genetics into its definition. There are seven racial categories used by the Census: White, Black or African-American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, Two or More Races, and Some Other Race.

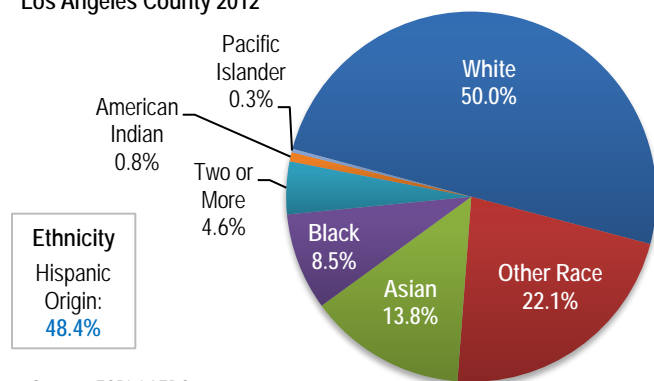
*Ethnicity* is a shared cultural identity related to origin and considers such things as heritage, lineage, nationality, and ancestral country of birth. Individuals who identify as being of Hispanic origin can self identify as any race.

There is widespread confusion over the distinction between race and ethnicity. Some Census respondents who identify as of Hispanic Origin do not identify with the listed racial categories. Therefore, they may opt to select Some Other Race, which results in an overstatement of this particular classification.

Race and ethnicity in Los Angeles County is shown in Exhibit 2-6.

**Exhibit 2-6**

Racial Composition  
Los Angeles County 2012



The population in Los Angeles County in 2012 is both ethnically and racially diverse. The share of the residents who reported to be of Hispanic origin is 48.4 percent, compared to 38 percent at the state level.

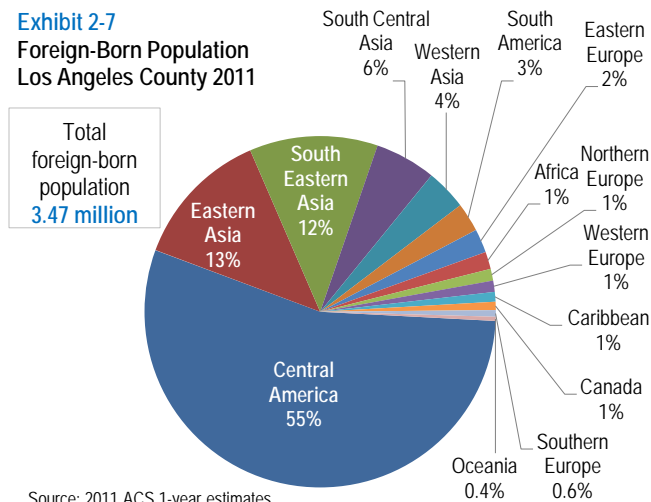
In Los Angeles County, the racial distribution is as follows: 50.0 percent of the population is reported as white, 22.1 percent as American Indian, 8.5 percent as Asian, 4.6 percent as Pacific Islander and 0.3 percent of the population is reported as black. The remaining 14.6 percent of the population is reported as Other Race or Two or More Races, with 0.8 and 13.8 percent, respectively.

### *Foreign Born Population*

Los Angeles County is home to nearly 3.5 million immigrants from around the world, and hosts the largest communities of expatriates of several nations.

Exhibit 2-7 shows the distribution of the foreign-born population in Los Angeles County by origin of birth in 2011, the most recent year this data is available.

**Exhibit 2-7**  
Foreign-Born Population  
Los Angeles County 2011



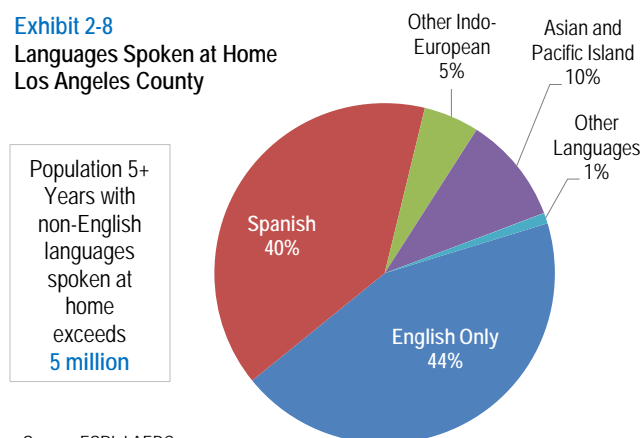
Source: 2011 ACS 1-year estimates

More than half of the foreign-born population originates from Central America, which includes the countries of Mexico, El Salvador, Guatemala, Honduras, Nicaragua, Belize, Costa Rica, Panama, and the Dominican Republic. A quarter of the foreign-born population comes from eastern and southeastern Asia (including the countries of China, Korea, Japan, Philippines, Vietnam and Cambodia). The remaining 20 percent of the county's foreign-born population comes from the rest of the world, including Africa, South America, Europe and Canada.

### Language Ability

Language ability is an important aspect of employment and economic participation. Languages spoken at home in Los Angeles County are presented in Exhibit 2-8. The most recent data available is for 2011.

**Exhibit 2-8**  
Languages Spoken at Home  
Los Angeles County



Source: ESRI; LAEDC

Over half of the population (or 56 percent) in Los Angeles County speaks a language other than English at home, with Spanish being the most common language, spoken by 40 percent of the population. Just 44 percent of residents speak only English at home.

English-speaking capability is highly-variable among different nationalities. Exhibit 2-9 shows the population of Los Angeles County in homes where languages other than English are spoken, along with the share of those residents who speak English less than well.

**Exhibit 2-9**  
Languages Spoken at Home  
Los Angeles County 2011

Language Spoken at Home	Total Population (000)	Speak English Less Than Well
Spanish	3,590	30.8%
Other Indo-European	476	18.3%
Asian and Pacific	923	26.9%
All other non-English	93	10.3%
<b>LA County Total</b>	<b>5,08</b>	<b>28.6%</b>

Sources: ESRI; LAEDC

Of those residents of Los Angeles County that speak languages other than English at home, approximately 29 percent speak English less than well. This implies that of all Los Angeles County residents, more than 16 percent speak English less than well. ❖

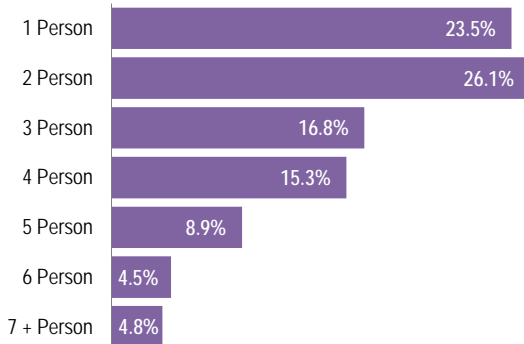
## 2.4 Households

As shown in Exhibit 2-1 on page 7, there were 3.3 million households in Los Angeles County in 2012, with an average household size of 3.0 people per household. By 2017, the county is projected to add over 60,000 additional households.

The size of households is another indicator of the standard of living within an area. Often, lower income areas will have a higher share of large sized households as people reside together to share fixed household expenses such as rent. A large representation of single person households may indicate an area with a population that is younger, with fewer children or with higher levels of educational attainment.

Exhibit 2-10 shows households in Los Angeles County according to size.

**Exhibit 2-10**  
Households by Size  
Los Angeles County 2011



Source: 2011 ACS 1-year estimates

One person and two person households account for approximately half of all households in the county. However, the region also has a significant number of larger sized households: 18 percent of all households have five or more people.

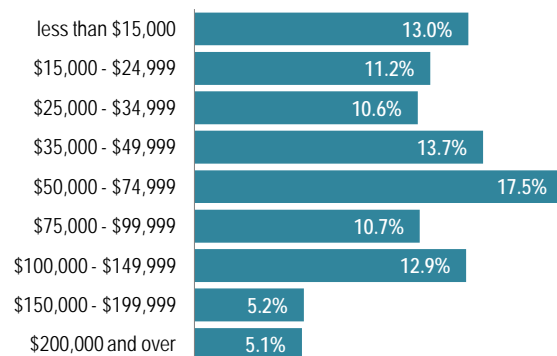
Median household income is the midpoint value of all household income levels within an area, dividing them into two equal groups. Where average income figures can be skewed by the presence of a few extremely high or low values, the median income figure is not, and therefore is viewed as more representative of an area's



income. Median household income in Los Angeles County in 2012 was estimated to be \$51,329.

The distribution of households by income in Los Angeles County in 2012 is shown in Exhibit 2-11.

**Exhibit 2-11**  
Households by Income  
Los Angeles County 2012



Sources: ESRI; LAEDC

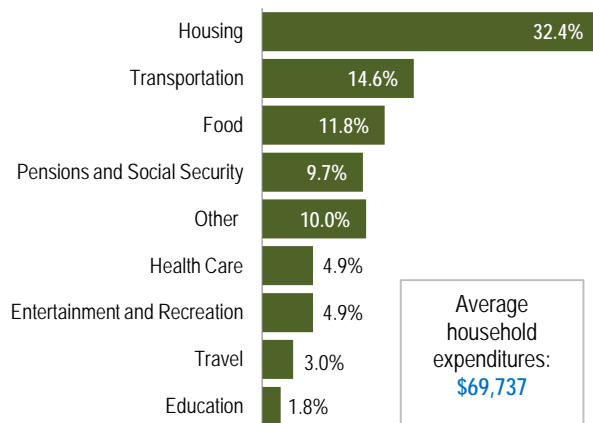
Almost 50 percent of households in Los Angeles County earn less than \$50,000 per year, and ten percent earn over \$150,000 per year.

Household expenditures are related to household incomes, not only in magnitude but also in composition. Households with lower incomes tend to spend a larger

percentage on necessities such as food and rent and have less disposable income for luxury items such as travel and leisure activities, especially relevant for regions with much higher average household incomes.

In 2012, household expenditures in Los Angeles County averaged \$69,700. Exhibit 2-12 displays a breakdown of these expenditures by broad category.

**Exhibit 2-12**  
Household Budget Expenditures  
Los Angeles County 2012



Sources: ESRI; LAEDC

Almost one-third of household expenditures on average were allocated to housing, with another 14.6 percent paid towards transportation and 11.8 percent for food. The category “Other” includes personal care products, insurance, apparel and other services not previously listed.

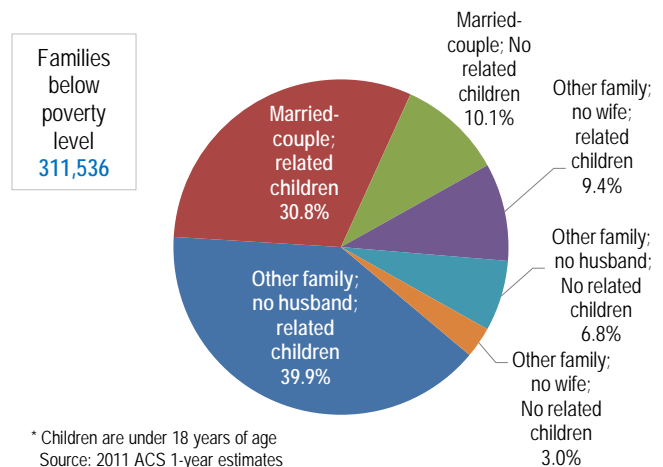
## Families and Poverty

Poverty is a relative measure that takes into account the number of people in a family unit and the total income that that unit earns. A family unit consists of two or more people living in the same housing unit that are related by birth, marriage or adoption. This is distinct from households in that households include all persons living in a housing unit regardless of relatedness.

Of the 2.14 million families in Los Angeles County in 2011, over 311,500 have had their incomes fall below the poverty level in the 12 months prior.

Exhibit 2-13 shows the breakdown of families whose income has fallen below the poverty level in Los Angeles County by type of family.

**Exhibit 2-13**  
Los Angeles County Families and Poverty 2011  
Income in the past 12 months below poverty level



Of all families living below the poverty level in the county, 40 percent are headed by single mothers with children under the age of 18 years. Families headed by a married couple account for 41 percent of all families living under the poverty level, the majority of whom have children under the age of 18 years. Single father families with related children under the age of 18 years account for just over nine percent of all families whose income has fallen below poverty level in the previous year. ❖



## 2.5 Land Use

An examination of a region's land use according to zoning can give an illustration of where certain types of activity are located. It identifies the location of residential areas (where potential workforce is located), and commercial and industrial zoning (where industry and businesses are located). Greater levels of detail reveal specific characteristics, such as population density or where retail operations that serve the resident population may be located.

Additionally, prevailing zoning provides a realistic picture of the type of development that could take place within an area. For example, an area that is mostly zoned as residential will have limited opportunities for growth of industry. Similarly, an area that is adjacent to land zoned for heavy industrial uses will not be feasible for residential development, as often the traffic noise and congestion that surrounds businesses of this type are in direct contrast to what most homeowners are looking for when buying a residence.

Exhibit 2-14 shows the distribution of zoned land use in Los Angeles County,

**Exhibit 2-14**

### Land Use by Type in Los Angeles County

	Square miles	% of Total
Residential	596.3	14.6%
Commercial	270.6	6.6%
Industrial	103.6	2.5%
Mixed Urban	1.1	0.0%
Open Space and Recreation	85.9	2.1%
Transportation, Communication, Utilities	103.0	2.5%
Agriculture	125.6	3.1%
Other Land Uses	31.2	0.8%
Vacant	2,329.8	57.0%
<b>Total Zoned Land Area</b>	<b>3,648.4</b>	<b>89.2%</b>
<b>Total Square Miles</b>	<b>4,088.2</b>	<b>100.0%</b>

Sources: SCAG; ESRI; LAEDC

Land zoned for residential purposes is set aside for single family residences, multi-unit dwellings and mobile homes, or a combination of these.

Land zoned for commercial and services uses are predominantly for businesses which provide goods and services to resident populations, such as grocery and health care stores, restaurants, hotels and motels, retail stores, gas stations, banks, medical services, laundry services, insurance agents, and so on. Also included are government and public service offices, such as police and fire stations, military facilities, churches, and all levels of public and private schooling facilities.

Land zoned for industrial uses are areas where manufacturing, assembly, processing, packaging or storage of products occurs. This includes (i) light industrial, such as design, assembly, packaging and storage activities, motion picture and television studio lots, and research and development labs; (ii) heavy industrial which are more traditional processors of raw materials such as refineries, foundries, smelters, chemical refineries; (iii) extraction such as mining and drilling; and (iv) wholesaling and warehousing.

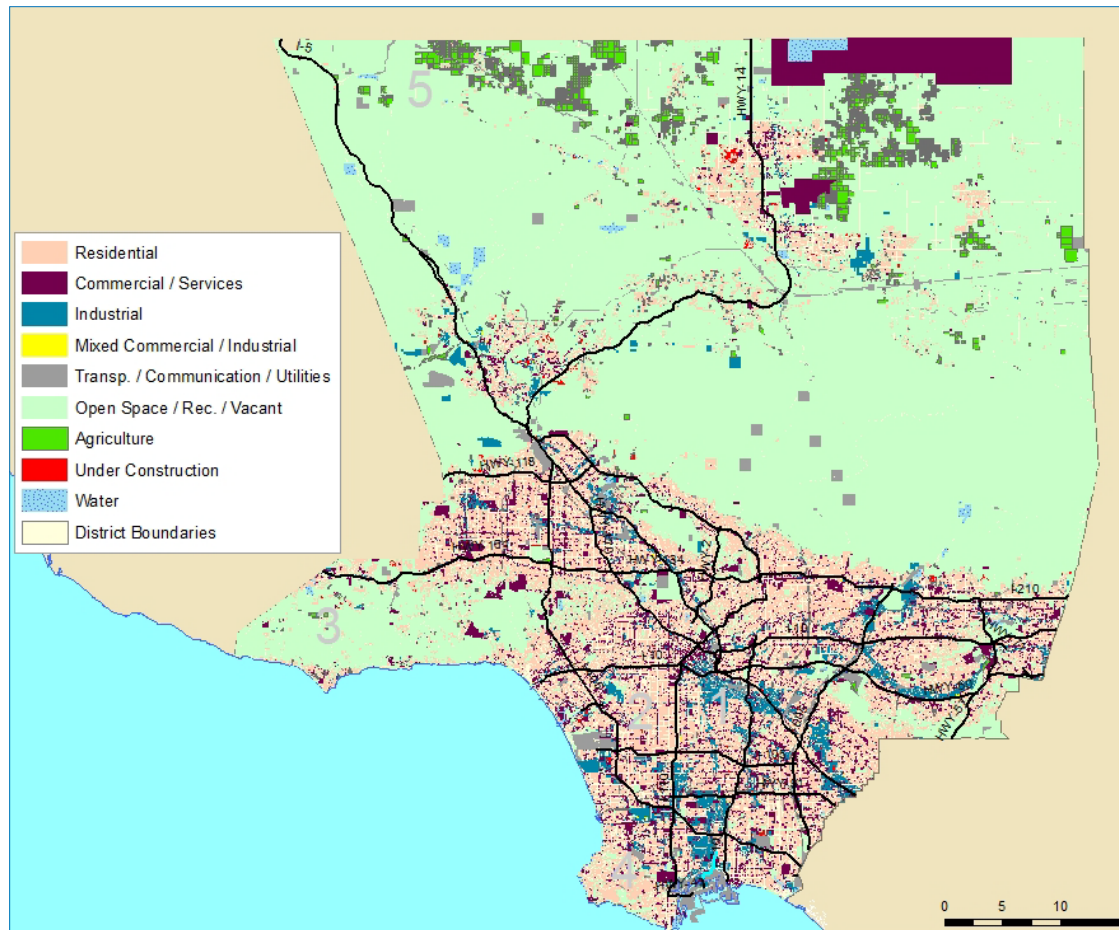
Los Angeles County is one of the largest counties in the nation, with more than 4,000 square miles of land area. The majority of the land is held as open space and recreation land, or is zoned as vacant. This includes large areas of desert land in the northern regions of the county and the swath of San Gabriel Mountains that bifurcates the county from the northwest corner through the southeast.

Approximately one third of the remaining land is zoned for residential purposes. Twenty percent of the remaining land is zoned for commercial and industrial uses, making the ratio of residential to commercial/industrial land approximately 8:5.

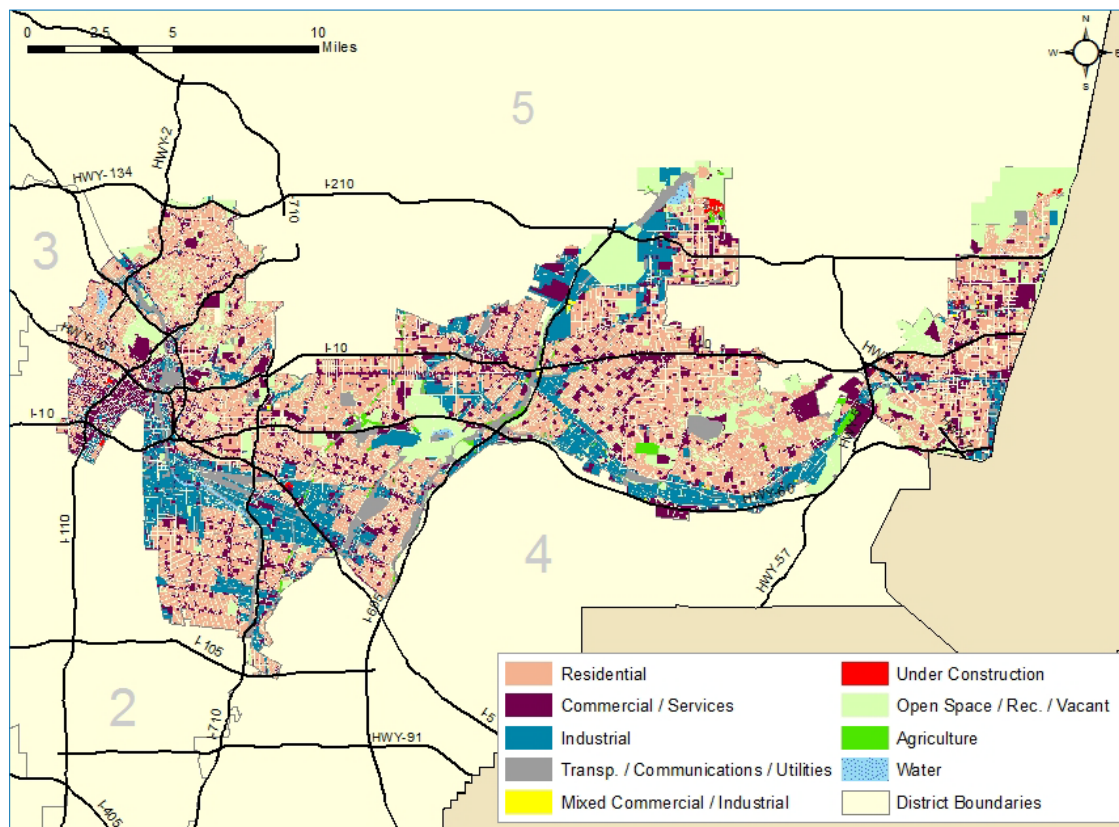
Spatial representations of the entire county and of each supervisorial district are presented on the following pages. ❖



**Exhibit 2-15**  
**Land Use in Los Angeles County**



Sources: SCAG; ESRI; LAEDC

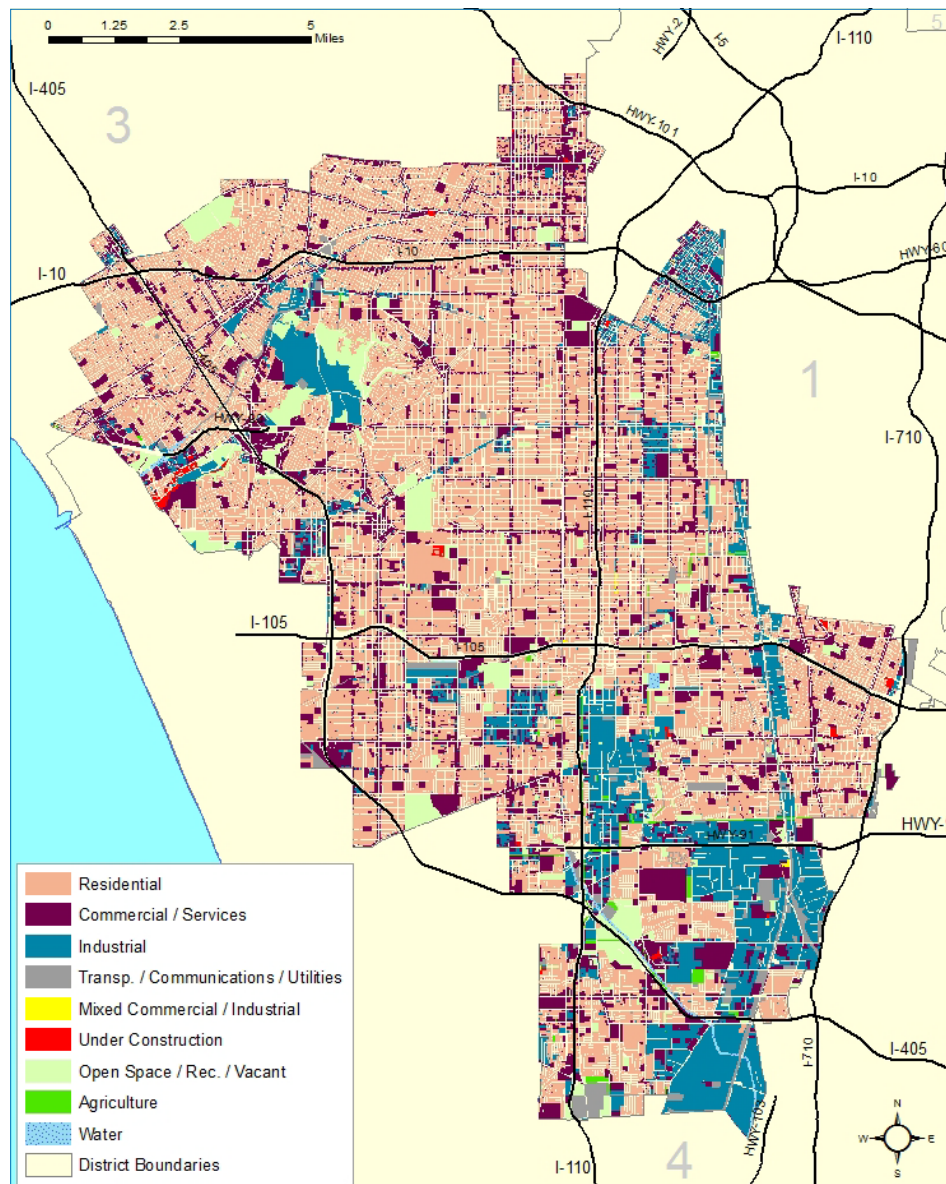
**Exhibit 2-16****Land Use in Los Angeles County Supervisorial District 1**

Sources: SCAG; ESRI; LAEDC

**Exhibit 2-17****Land Use by Type in Supervisorial District 1**

	Square miles	% of Total
Residential	83.6	33.9%
Commercial	34.8	14.1%
Industrial	30.9	12.6%
Mixed Urban	0.3	0.1%
Mixed Commercial and Industrial	0.3	0.1%
Open Space, Recreation and Vacant	31.5	12.8%
Transportation, Communication, Utilities	14.3	5.8%
Agriculture	1.9	0.8%
Other Land Uses	1.7	0.7%
<b>Total Zoned Land Area</b>	<b>199.3</b>	<b>80.9%</b>
<b>Total Square Miles</b>	<b>246.2</b>	<b>100.0%</b>

Sources: SCAG; ESRI; LAEDC

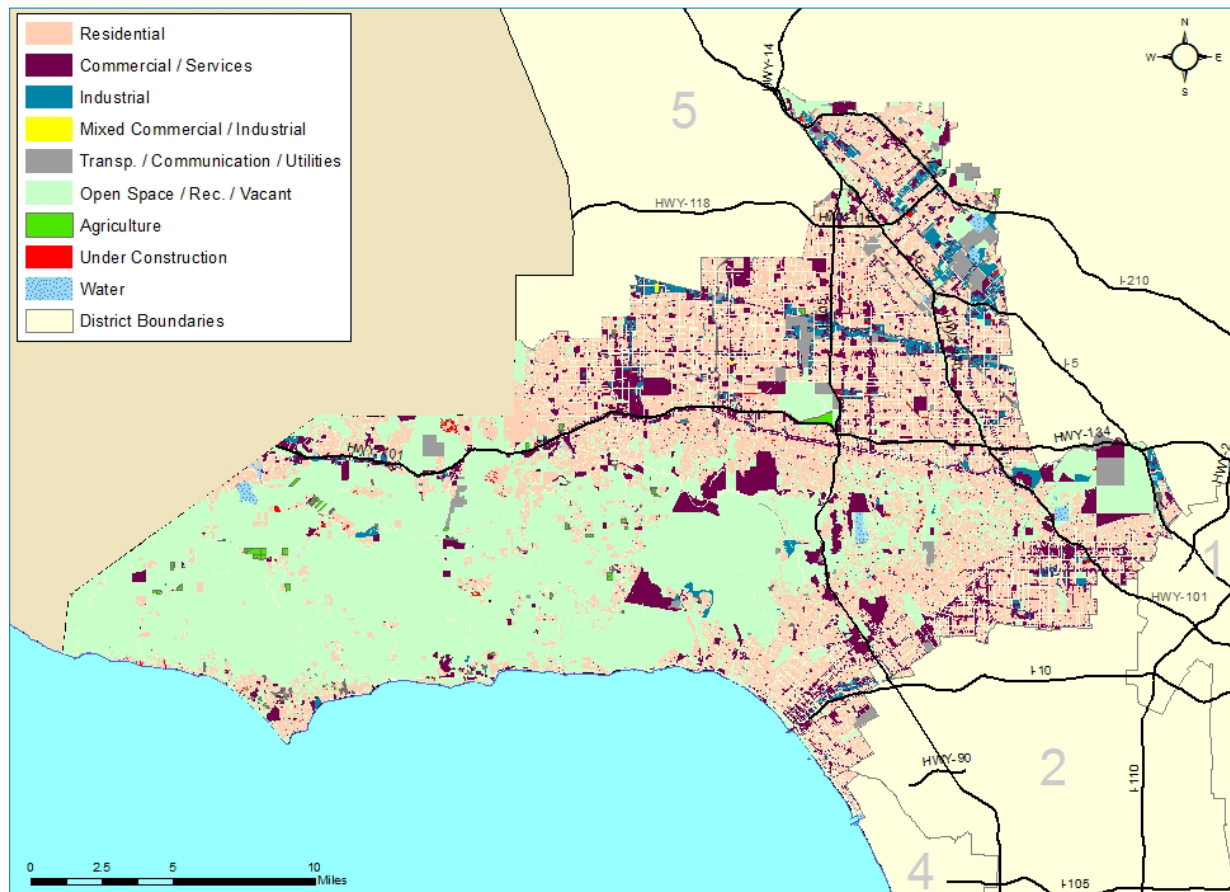
**Exhibit 2-18****Land Use in Los Angeles County Supervisorial District 2**

Sources: SCAG; ESRI; LAEDC

**Exhibit 2-19****Land Use by Type in Supervisorial District 2**

	Square miles	% of Total
Residential	127.4	29.6%
Commercial	42.9	9.9%
Industrial	10.7	2.5%
Open Space, Recreation and Vacant	180.7	41.9%
Transportation, Communication, Utilities	10.2	2.4%
Agriculture	2.4	0.6%
Other Land Uses	2.7	0.6%
<b>Total Zoned Land Area</b>	<b>377.1</b>	<b>87.4%</b>
<b>Total Square Miles</b>	<b>431.2</b>	<b>100.0%</b>

Sources: SCAG; ESRI; LAEDC

**Exhibit 2-20****Land Use in Los Angeles County Supervisorial District 3**

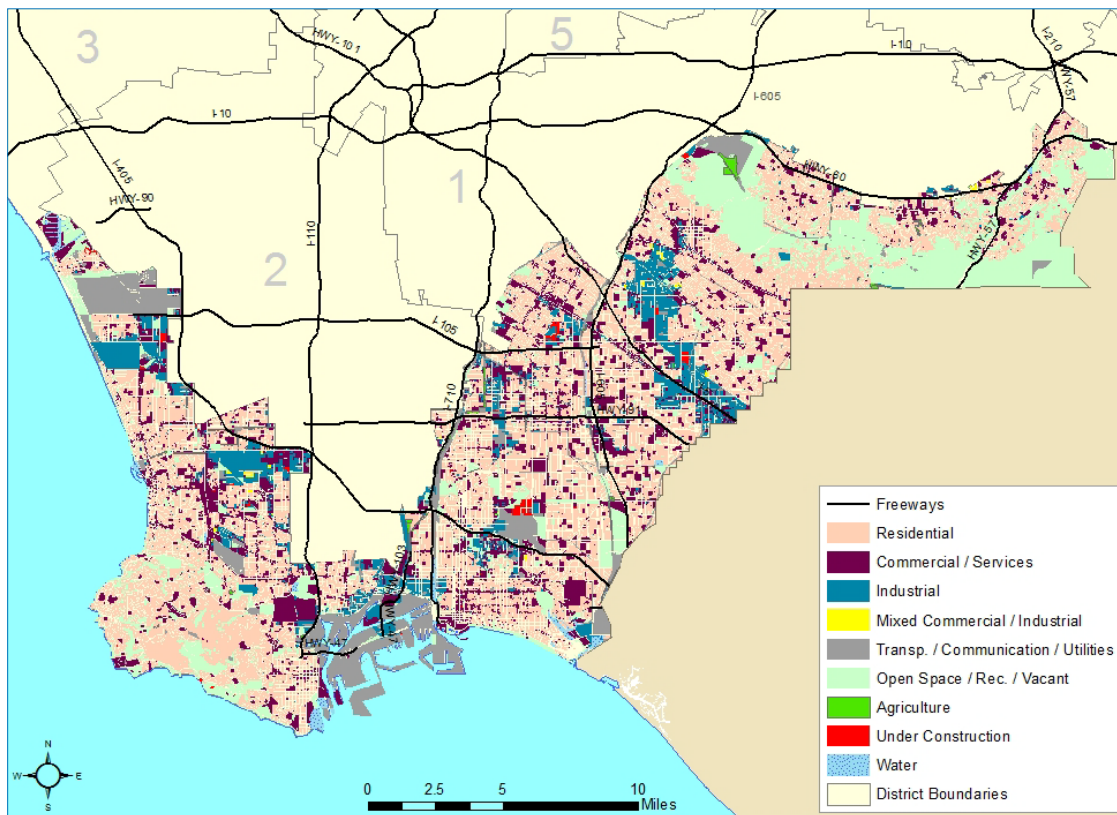
Sources: SCAG; ESRI; LAEDC

**Exhibit 2-21****Land Use by Type in Supervisorial District 3**

	Square miles	% of Total
Residential	127.4	29.6%
Commercial	42.9	9.9%
Industrial	10.7	2.5%
Mixed Urban	0.1	0.0%
Open Space, Recreation and Vacant	180.7	41.9%
Transportation, Communication, Utilities	10.2	2.4%
Agriculture	2.4	0.6%
Other Land Uses	2.6	0.6%
<b>Total Zoned Land Area</b>	<b>377.1</b>	<b>87.4%</b>
<b>Total Square Miles</b>	<b>431.2</b>	<b>100.0%</b>

Sources: SCAG; ESRI; LAEDC



**Exhibit 2-22****Land Use in Los Angeles County Supervisorial District 4**

Sources: SCAG; ESRI; LAEDC

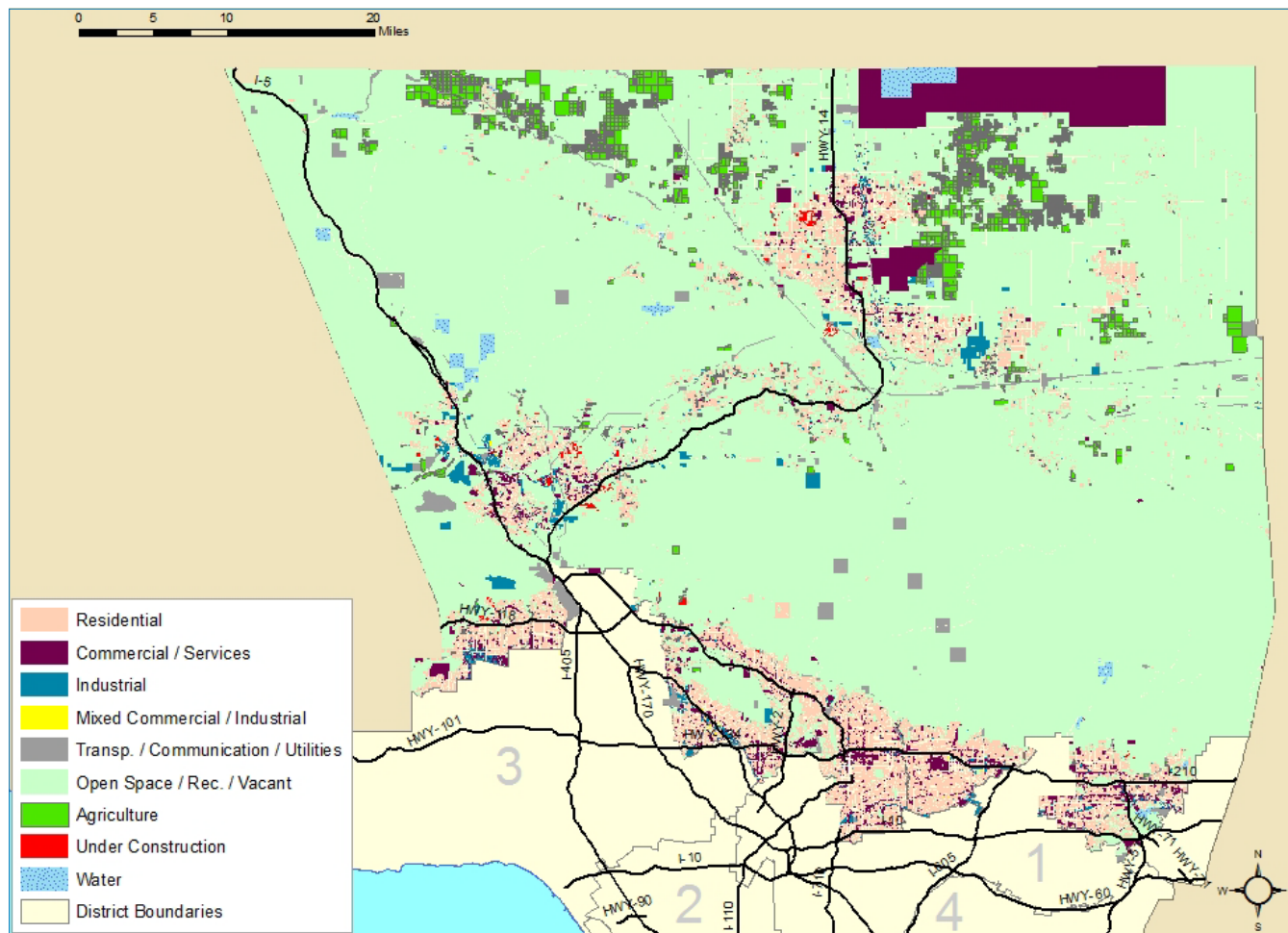
**Exhibit 2-23****Land Use by Type in Supervisorial District 4**

	Square miles	% of Total
Residential	112.2	24.1%
Commercial	42.6	9.2%
Industrial	21.1	4.5%
Mixed Urban	0.1	0.0%
Mixed Commercial and Industrial	0.4	0.1%
Open Space, Recreation and Vacant	50.2	10.8%
Transportation, Communication, Utilities	25.3	5.4%
Agriculture	1.6	0.3%
Other Land Uses	1.0	0.7%
Water	2.2	0.5%
<b>Total Zoned Land Area</b>	<b>256.8</b>	<b>55.1%</b>
<b>Total Square Miles</b>	<b>465.6</b>	<b>100.0%</b>

Sources: SCAG; ESRI; LAEDC

## Exhibit 2-24

## Land Use in Los Angeles County Supervisorial District 5



Sources: SCAG; ESRI; LAEDC

## Exhibit 2-25

## Land Use by Type in Supervisorial District 5

	Square miles	% of Total
Residential	206.1	7.3%
Commercial	125.6	4.5%
Industrial	24.0	0.9%
Mixed Urban	0.3	0.0%
Mixed Commercial and Industrial	0.4	0.0%
Open Space, Recreation and Vacant	2,160.6	77.0%
Transportation, Communication, Utilities	49.3	1.8%
Agriculture	119.0	4.2%
Other Land Uses	4.8	0.0%
Water	18.2	0.6%
<b>Total Zoned Land Area</b>	<b>2,708.2</b>	<b>96.5%</b>
<b>Total Square Miles</b>	<b>2,806.9</b>	<b>100.0%</b>

Sources: SCAG; ESRI; LAEDC



## 2.6 Housing

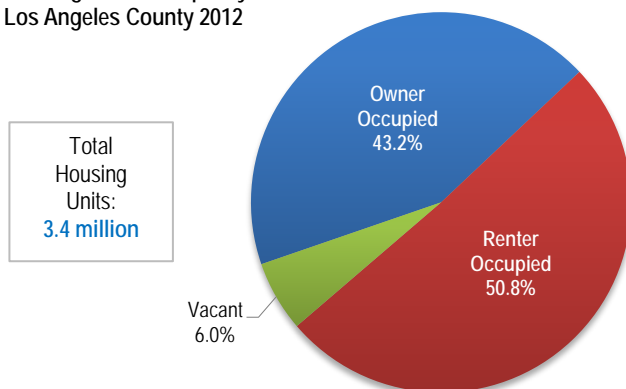
Housing represents the largest component of a household's budget, and, if owned, is usually the family's most valuable asset. Beyond housing's impact on individual balance sheets, however, the characteristics of a community's housing can be revealing.

The tenure and occupancy status of homes, along with their values, provides information on their affordability. It can also yield further insight into the resident population. For example, a large number of renters in an area with high-valued housing units may be due to the residents' inability to afford local homes. A large number of rental units in an area with moderately valued housing units may be due to a younger and/or less affluent demographic. Often, higher levels of homeownership lead to neighborhood stability, since there is lower turnover of residents.

Additionally, the tenure characteristics of the local housing stock has implications for redevelopment efforts as gentrification can cause property values to rise above the level of affordability for residents who rent, leading to displacement and a change in the characteristics of the local population.

In 2012, there were 3.4 million housing units in Los Angeles County. The occupancy status and tenure of all housing units are shown in Exhibit 2-26.

**Exhibit 2-26**  
Housing Units Occupancy and Tenure  
Los Angeles County 2012



Sources: ESRI; LAEDC

Just more than half of the housing stock in the county is rental property. Vacant units account for approximately



six percent of all housing units, and the remaining 43 percent is owner-occupied.

Median home values are used to compare the price of real estate across different areas and over periods of time. The median is deemed a reliable estimate as it is not affected by the presence of extremely high or low valued transactions, and is therefore used to compare real estate prices across different areas. The median home value in Los Angeles County was \$336,821 in 2012, which was lower than the statewide median.

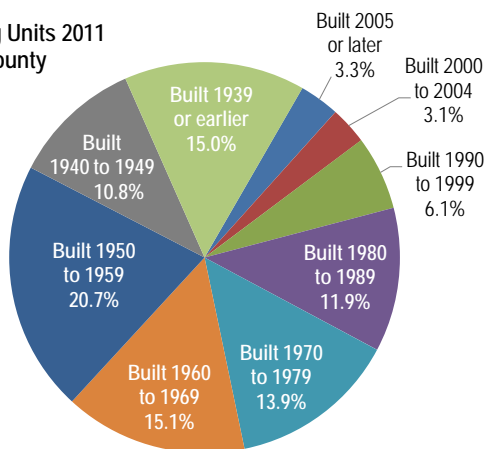
### *Age of Housing Stock*

The age of the housing stock in an area can give insight to the quality of housing. Older units require more care and may still contain building materials used in the past that are now known to be a hazard, such as lead-based paint and asbestos. Older housing in poor condition is often inhabited by lower income residents, who can little afford the needed upkeep.

Exhibit 2-27 shows the age distribution of the housing stock in Los Angeles County in 2011, the most recent year that this data is available.

**Exhibit 2-27**

Age of Housing Units 2011  
Los Angeles County



Source: 2011 ACS 1-year estimates

Almost half of the housing stock in Los Angeles County was built prior to 1960; a quarter of total housing stock was built prior to 1950. Housing stock built from 1960 up to 1999 represents 47 percent of the total. Only six percent of the total housing stock in Los Angeles County has been built since the year 2000.

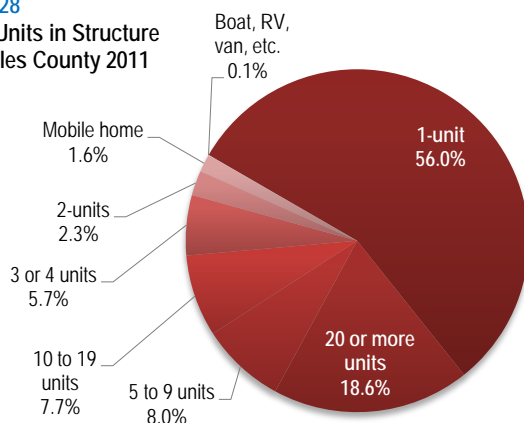
### Housing Units in Structure

The number of units in a structure provides insight into the composition of the housing stock, identifying single family homes, multifamily homes, mobile homes and other units that provide shelter to the resident population.

Exhibit 2-28 shows the share of the housing stock in Los Angeles County by the number of units in the structure in 2011, the most recent year this data is available.

**Exhibit 2-28**

Housing Units in Structure  
Los Angeles County 2011



Source: 2011 ACS 1-year estimates

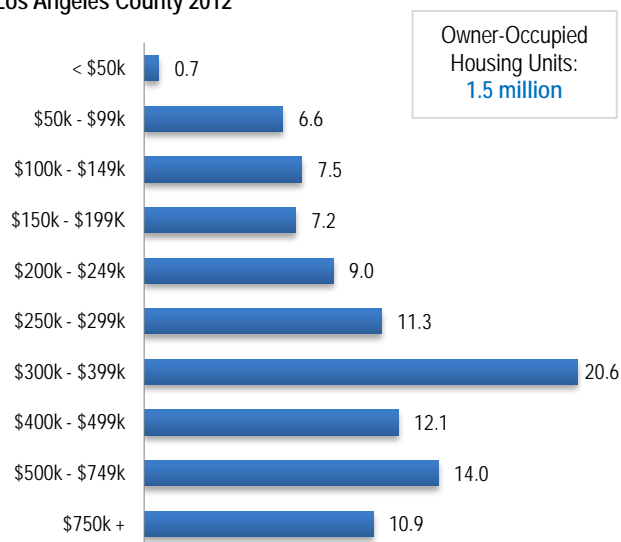
Fifty-six percent of all housing units in Los Angeles County are single-family homes, and almost 19 percent of the housing inventory is in large multi-family structures with 20 units or more.

### Owner-Occupied Units

As shown in Exhibit 2-26, 43 percent of the housing stock is owner-occupied. The value of these homes varies from less than \$50,000 to millions of dollars. Exhibit 2-29 displays the value distribution of owner-occupied housing units in Los Angeles County in 2012.

**Exhibit 2-29**

Owner-Occupied Housing Units by Value  
Los Angeles County 2012



Sources: ESRI; LAEDC

The average value of housing in the County is \$409,163, in Los Angeles County. With more than 63 percent of housing stock in Los Angeles County valued less than \$400,000, this would imply that some housing units are at extremely high values.

More than half of the owner-occupied housing stock, or 58 percent, falls within the price range of \$250,000 to \$749,000, with an additional 11 percent valued at \$750,000 and above. Housing units valued below \$250,000 accounts for 31 percent of total housing stock.



## 2.7 Commuting to Work

Working residents make a conscious decision about the length of the commute they are willing to undertake to a potential place of employment, which may in turn depend on their means of transportation. These decisions are critical to their quality of life and standard of living. The time to work, the cost of transportation alternatives, and the potential wages at prospective job locations all factor into employment decisions.

Identifying the means of transportation used by residents to travel to work provides information about public transportation utilization and traffic volumes within the area. This can help in future planning efforts. For example, areas with a number of cyclists may plan future bike paths and lanes, while in areas where much of the population uses public transportation additional bus routes or light rail stations can be planned.

Exhibit 2-30 shows the means of transportation to work by workers ages 16 years and over who live in Los Angeles County.

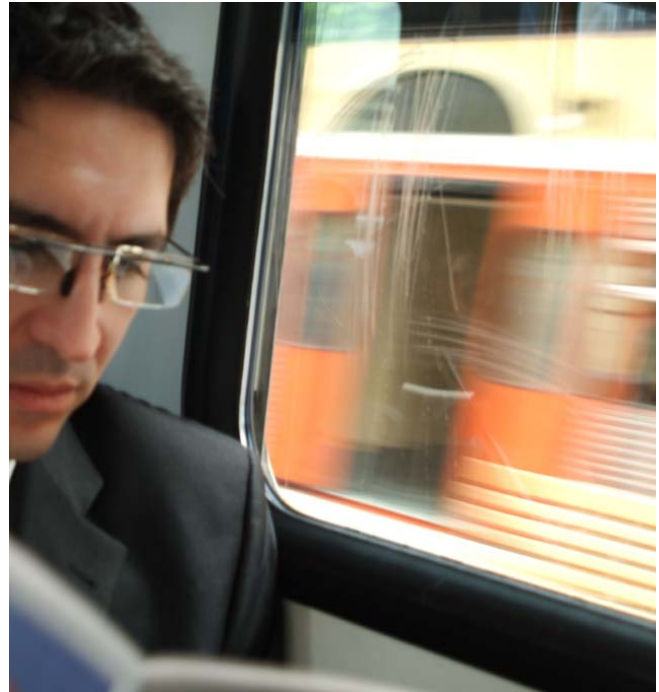
### Exhibit 2-30

Workers means of transportation to work  
(Workers 16+ years)  
Los Angeles County 2011

Drove alone	72.2%
Carpool	11.6%
Public transportation (excludes taxis)	7.0%
<i>Bus or trolley bus</i>	6.4%
<i>Subway or elevated</i>	0.0%
<i>Railroad</i>	0.3%
<i>Streetcar or trolley</i>	0.2%
<i>Ferry boat</i>	0.0%
Taxicab	0.1%
Motorcycle	0.3%
Bicycle	0.7%
Walked	2.8%
Other means	1.1%
Worked at home	4.3%
<b>Total</b>	<b>100.0%</b>

Source: 2011 ACS 1-year estimates

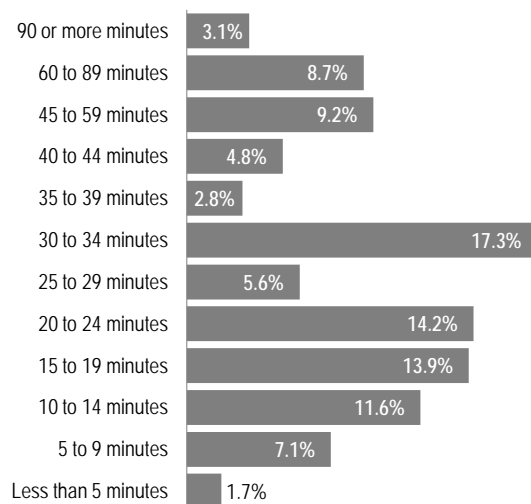
The most popular method of transportation to work was by car, accounting for approximately 84 percent of working residents. Most of these drove alone, with only 11.6 percent overall carpooling. Public transportation was used by 7 percent of working residents of the county, most of which consisted of bus rides.



Travel time to work is typically the result of a combination of distance to the job and means of transportation. Exhibit 2-31 displays the travel time to work in minutes for Los Angeles County residents (excluding those who work from home).

### Exhibit 2-31

Travel Time to Work (in minutes)  
Los Angeles County 2011



Source: 2011 ACS 1-year estimates

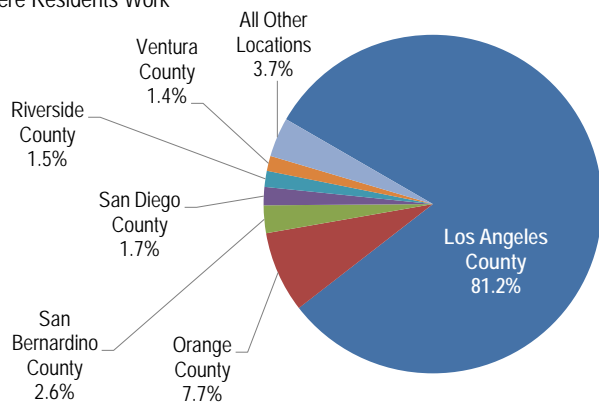
More than half of commuting workers take between 15 to 35 minutes to reach their place of employment. Workers whose travel time falls below 15 minutes account for approximately 19 percent of working residents. These workers are more likely to be employed within the region. The twelve percent of workers with travel times of 60 minutes or longer are likely to work quite a distance from home.

The working residents of the county find jobs across the region. The geographic dispersion of working residents to their employment is called the *commute shed*. Exhibit 2-32 shows the commute shed for the working residents of Los Angeles County by county.

**Exhibit 2-32**

**Commute Shed by County**

Where Residents Work



Sources U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics

Approximately 81 percent of working residents are employed in Los Angeles County, with others working in Orange County (7.7 percent), San Bernardino County (2.6 percent), San Diego County (1.7 percent), and Riverside and Ventura counties and beyond.

Exactly one-third of working residents are employed in the City of Los Angeles, while the remaining residents are employed in surrounding cities, including Burbank, Long Beach, Pasadena, Torrance, Glendale and Santa Monica, among many other cities.

The commute shed reveals the *in-area labor force efficiency*. This is a measure of how efficient the community is in providing jobs for its working residents. In this case, the county provides employment for 81 percent of its working residents. ❖

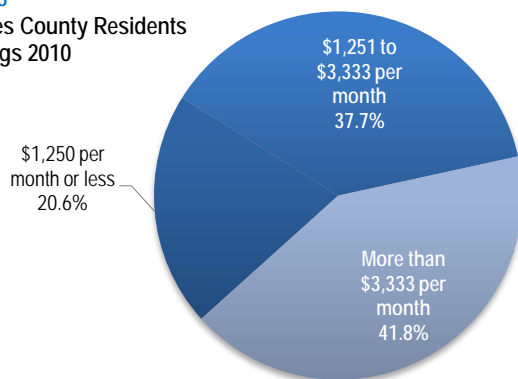
## 2.8 Income

For many, earnings from employment represents the most significant portion of all income. These job-related earnings of the resident population provide us with insight into their standard of living. This is an indicator of the earning potential of the residents, as differentiated from household income shown above which aggregates the overall income (including non-job-related incomes) for all members of the household. It can help identify areas that may need targeted services or programs, or areas where job-related earnings are sufficient to provide a degree of comfort.

Job-related earnings also provide insight into the capability of the residents to secure employment and at what level of pay. Detailed (individual) information for job-related earnings is not available in order to protect confidentiality; however, aggregated data is available and gives us overall perspective.

Exhibit 2-33 shows the job-related earnings for working residents in Los Angeles County. Note that these are earnings from jobs regardless of where the jobs are located.

**Exhibit 2-33**  
Los Angeles County Residents  
Job Earnings 2010



Sources: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics

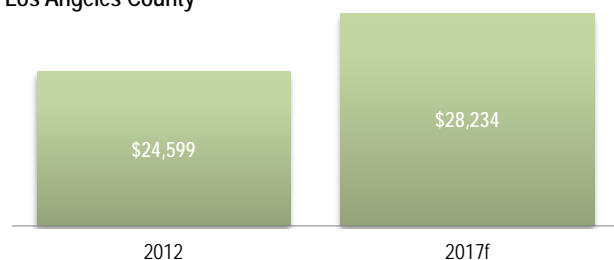
Almost 42 percent of working residents in Los Angeles County earn more than \$3,333 per month (\$40,000 per year). Residents who earned less than \$1,250 per month (\$15,000 per year) represented almost 21 percent of the total.



Per capita income is the aggregation of all sources of income within an area divided by the total population, resulting in the average income per person. It provides insight into an area's standard of living in comparison to other geographies.

Per capita income in Los Angeles County in 2012 is shown in Exhibit 2-34, along with a forecast for 2017.

**Exhibit 2-34**  
Per Capita Income  
Los Angeles County



Sources: ESRI; LAEDC

Per capita income in Los Angeles County is estimated at \$24,599 in 2012. The projected change from 2012 to 2017 is expected to be 14.0 percent, raising per capita income in Los Angeles to \$28,234 in 2017 (in 2012 dollars).

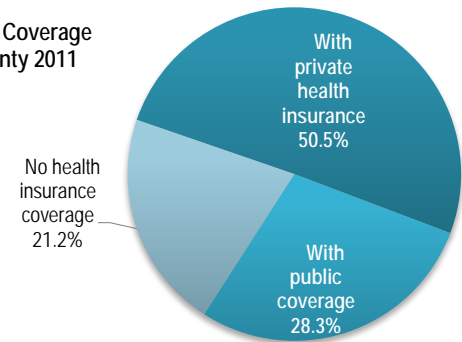


### ***Health Insurance Coverage***

Health insurance allows people to obtain more timely medical care and access to medical care at a higher level. Having medical coverage reduces out-of-pocket expenses and allows for preventative care, leading to improved health outcomes. Not having medical coverage means facing undiscounted costs for medical services when they are required.

Exhibit 2-35 shows the health insurance coverage of the civilian noninstitutionalized population in Los Angeles County in 2011, the most recent year this data is available.

**Exhibit 2-35**  
**Health Insurance Coverage**  
**Los Angeles County 2011**



Source: 2011 ACS 1-year estimates

Over three quarters of the civilian noninstitutionalized population in Los Angeles County has health insurance coverage of some kind: half have private coverage and 28 percent have public coverage. The remaining 21 percent of the population remains uninsured. ❖





## LABOR MARKET ANALYSIS



### 3 Supply of Labor

Labor market analysis begins with an examination of the current and projected local supply of labor. Local supply is determined by population growth (including migration), residential land availability and location, and the characteristics of the local labor force, which may include commuters.

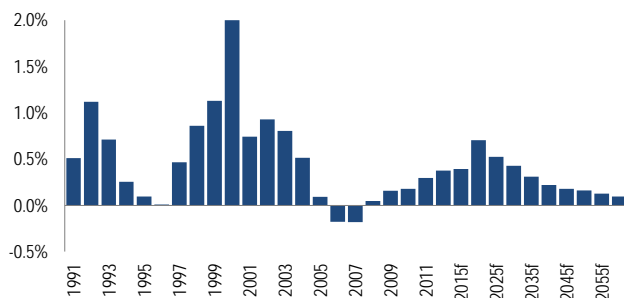
#### 3.1 Population Growth

Population growth is determined by expected net migration and the birth and death rates of the current population. Knowing how a population is projected to grow can help to determine what a specified area will require in the future in terms of products and services, and what resources the region will provide to industry in terms of human capital.

Since 1970, the population in the county has increased by 40 percent, average annual growth rate of 1.2 percent per year. In only four of the last 43 years has the population declined from one year to the next. Those years were 1972, 1995, 2006 and 2007.

Exhibit 3-1 shows the historic and projected percentage change in population in Los Angeles County.

**Exhibit 3-1**  
Population in Los Angeles County  
Annual Growth Rates



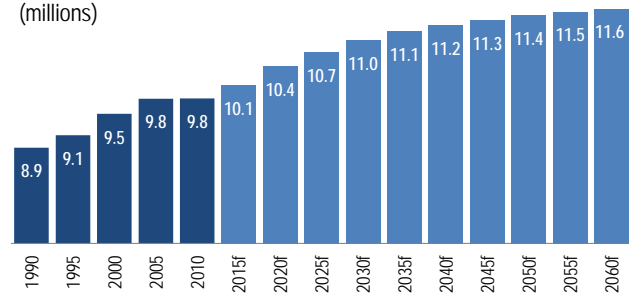
Source: California Department of Finance

The county's current annual growth rate is approximately 0.3 percent per year, a rate that is lower than the state rate of growth.

Exhibit 3-2 presents the historic and projected population of Los Angeles County.



**Exhibit 3-2**  
Population in Los Angeles County  
(millions)



Source: California Department of Finance

In January 2012, the population was 9.88 million, an increase of 60,000 from January of 2010. The California Department of Finance forecasts that the county's population will continue to increase, reaching 10.1 million in 2015 and 10.44 million by 2020.

As shown in Exhibit 2-2, the population is expected to age somewhat as the share of residents aged 65 years and older increases to 12.8 percent in 2017. This has implications for the ability of the workforce to fill local jobs, especially those jobs requiring a higher level of manual labor. ❖

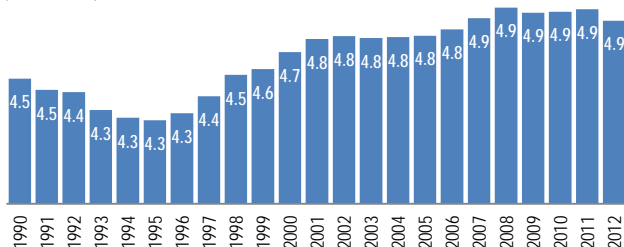
## 3.2 Labor Force, Participation Rates and Unemployment

Employment and employment growth are based on labor force growth, which is a consequence of both changes in population and in labor force participation rates.

Not everyone in the working-age population will be a labor force participant. The labor force is the population of working-aged individuals (16 years and older) in an area who are currently employed or who are unemployed but still actively seeking work. Individuals not actively looking for work are excluded from the count. These include students, retirees, institutionalized individuals, stay-at-home parents and discouraged workers, who have looked for a job in the past year, but stopped as a result of actual or perceived poor prospects.

The size of the labor force in Los Angeles County from 1990 through 2012 is shown in Exhibit 3-3.

**Exhibit 3-3**  
Civilian Labor Force  
Los Angeles County  
(in millions)



Source: CA EDD

Since 2007, the size of the labor force in Los Angeles County has hovered around 4.9 million.

### ***Labor Force Participation Rate***

The labor force participation rate is the ratio of the labor force (both those employed and those unemployed) to the total working-age population in a specified area.

The California Employment Development Department (EDD) estimates the labor force in Los Angeles County to



be 4.9 million in 2011. According to the 2011 American Community Survey (ACS) from the U.S. Census Bureau (1-year estimates), the total working-age population in Los Angeles County was 7.8 million. Using these values, the labor force participation rate for Los Angeles County in 2011 was 63.1 percent.

The labor force participation rate may underestimate an area's unemployment situation due to the exclusion of discouraged workers. For example, when discouraged workers fall out of the labor force after long-term unemployment, the unemployment rate might fall even though the number of individuals without a job remains unchanged. As such, we can also look at the employment-to-population ratio of an area, sometimes called the employment rate of an area.

Participation rates are influenced by a number of factors, and differ by age, racial and ethnic composition and gender. For example, the participation rates of older workers (aged 55 and over), while lower than average, has been rising since 1980. The Bureau of Labor Statistics (BLS) mentions several factors behind this increase, but the most important one is the sheer number of baby-boomers reaching this age group.

It is also worth noting that the participation rates of younger workers, especially men aged 16-19 years, have been declining since 1990 and should continue to decline as school enrollment rates improve.

The participation rate across the nation has declined to its lowest level in decades. Researchers suggest this is

due to an increase in discouraged workers and to younger potential workers extending their school enrollment in the face of poor labor market prospects.

The share of older workers in the labor force is expected to continue increasing as future boomers remain in the labor force rather than retiring.

Because of these reasons, two groups, older and younger workers, hold the most potential to increase their participation rates; they may therefore hold the key to increased growth in the labor force in the future.

Given the importance of labor force growth to long-term economic growth, projections of the participation rates of these groups (and in particular that of older workers) will have the largest impact on projections for economic activity in the region.

As the economy continues to improve, those discouraged and marginally-attached workers who previously left the labor force will return. Although this may negatively impact the unemployment rate, over the longer term it will lead to improved economic activity.

### ***Employment-to-Population Ratio***

The employment-to-population ratio is an indicator of the ability of a region to support its population. Defined as the ratio of the employed population to the total noninstitutionalized working-age population (which includes discouraged workers), it gives insight into the utilization of labor resources in a specified area. Higher ratios represent higher levels of employment, which will positively affect an area's per capita GDP.

Using 2011 data, the California EDD estimates employment (from their labor force data series) in Los Angeles County to be 4.9 million. According to the 2011

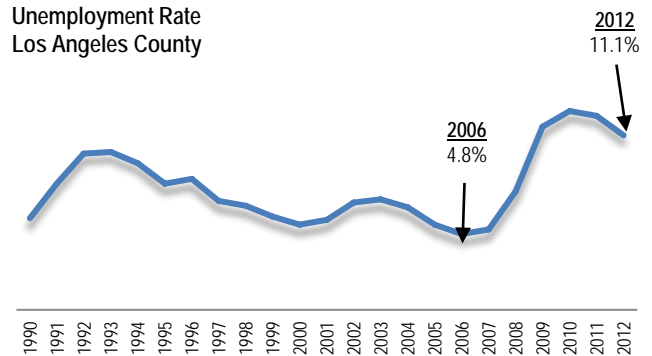
ACS 1-year estimates from the U.S. Census Bureau, the total working-age population in Los Angeles County was 7.8 million. Using these values, the employment-to-population ratio in Los Angeles County was 62.8 in 2011, meaning for every 100 people of working age, 63 had jobs.

### ***Unemployment***

The unemployment rate measures the number of individuals who are unemployed and actively seeking work as a share of the total labor force.

The annual unemployment rate for Los Angeles County from 1990 through 2011 is shown in Exhibit 3-4.

**Exhibit 3-4**  
Unemployment Rate  
Los Angeles County



Source: CA EDD

From 4.8 percent in 2006, the lowest level in more than 30 years, the unemployment rate in Los Angeles County has increased, reaching a peak of 12.6 percent in 2010, improving somewhat since and currently standing at 11.1 percent. ♦

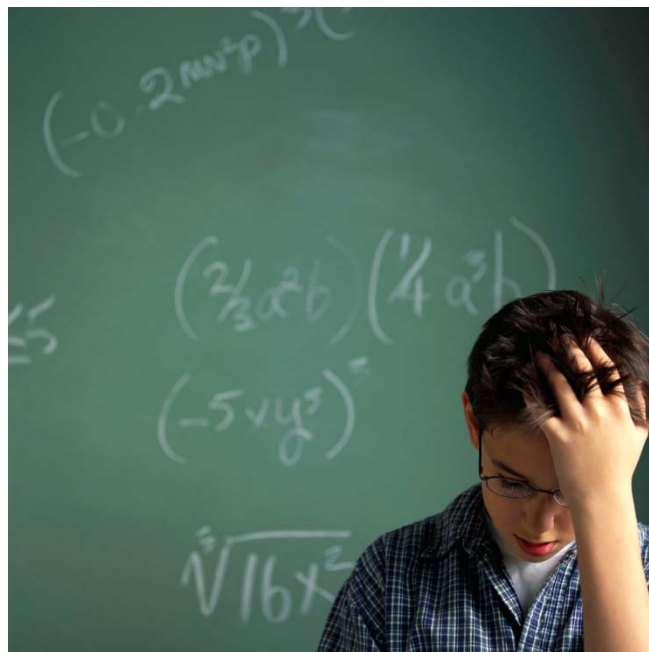


### 3.3 Educational Attainment

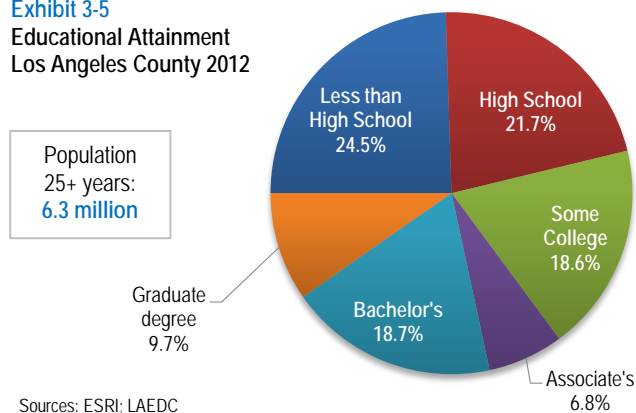
Educational attainment is the highest level of education that an individual has achieved. Knowing the educational attainment of the population within a specific area can provide insight into a variety of factors about the area. Areas with high rates of low educational attainment usually face challenges such as higher rates of unemployment and poverty and will therefore use higher levels of public services and resources.

Additionally, areas with high levels of educational attainment may be sought out by businesses during their site selection process if they require highly educated and high skilled workers. Understanding the gap between workforce needs and resident capabilities can provide insight into the need for training programs and workforce development initiatives.

The educational attainment levels of the population of Los Angeles County ages 25 years and older are shown in Exhibit 3-5.



**Exhibit 3-5**  
Educational Attainment  
Los Angeles County 2012



The population of residents aged 25 years and older in Los Angeles County numbered 6.3 million in 2012. More than 24 percent of county residents in this age group have not earned a high school diploma (or equivalent) while 22 percent have graduated high school but have no other education. Approximately 28 percent of the residents have a bachelor's degree or higher. Together, this shows a bi-modal distribution of educational attainment, with large proportions at both the low end and the high end of the spectrum. ❖

### 3.4 Residential Land Use

Land is zoned for many uses reflecting the priorities of the municipal legislative body. A city which is focused on providing land primarily for industry and commercial uses (such as, for example, the City of Industry or the City of Commerce) may choose to limit the amount of land that is zoned for residential purposes. This will allow densification of industrial uses and provision of employment opportunities without hampering businesses with mitigation measures to prevent inconveniencing nearby residents.

On the other hand, a city which is focused on providing residential conveniences (such as, for example, Rolling Hills or San Marino) may choose to limit the amount of land that is zoned for industrial purposes so that its residents are fully able to enjoy a peaceful and tranquil quality of life without the inconveniences of traffic noise and congestion, potential industrial emissions and industrial activity.

Many cities strive for a balanced approach which recognizes the value of commercial and industrial land in providing employment opportunities for its own residential population.

At the same time, businesses located within a region need a ready supply of labor adequate to their needs. This labor can come from the community itself or it can commute from neighboring cities and regions. These sources represent the supply of labor.

The most direct source of labor is that which lives within the immediate surroundings. Such labor must live in areas that are zoned for residential uses.

Residential land can be zoned for single family residences or for higher-density multi-family uses. Other residential zoning includes mobile homes and trailer parks, mixed residential and rural residential.

Recreational and open space provides land for public use and enhances the quality of life of residents as they enjoy nature and natural beauty. Open spaces, whether parks for public use, protected areas or private facilities that allow leisure activities such as baseball fields, zoos, nature preserves, community gardens, and so on, all contribute to the quality of life for residents.

Approximately 18 percent of the land area in Los Angeles County is zoned for residential and recreational



uses, as shown in Exhibit 3-6. However, 57 percent of the land is zoned as vacant. This includes large areas of desert land in the northern regions of the county and the swath of mountainous land that bifurcate the county from the northwest corner through the southeast. While not zoned as recreational land, it can be considered to be such.

More than three-quarters of the residential land is zoned for single family residences. This low density of residential land use implies future opportunity for increases in population as urban density increases. ❖

**Exhibit 3-6**

#### Residential and Recreational Land Use by Type

	Sq Miles	% of Total
<b>Residential Land:</b>		
Single Family Residential	459.7	11.2%
Multi-Family Residential	53.2	1.3%
Rural Residential	45.9	1.1%
Other	36.9	0.9%
<b>Total Residential</b>	<b>596.3</b>	<b>14.6%</b>
Mixed Urban	1.1	0.0%
<b>Residential Land Area</b>	<b>742.7</b>	<b>17.7%</b>
Open Space and Recreation	85.9	2.1%
Vacant	2,329.8	57.0%
<b>Open Space, Recreation and Vacant</b>	<b>2,415.7</b>	<b>59.1%</b>

Sources: SCAG; ESRI; LAEDC

### 3.5 Resident Employment by Industry and Occupation

While population growth can indicate the future availability of workers, and educational attainment can provide insight into the capability of residents, an examination of the actual employment status of current residents reveals what the working residents are performing in terms of occupations and in which industries. It is possible that working residents are underemployed, particularly in the wake of the Great Recession, but current employment will provide a baseline indicator of residents' capabilities.

The employment of current residents of Los Angeles County by industry is shown in Exhibit 3-7. Note that this is employment of residents no matter where the jobs are located. As shown in Exhibit 2-37, most residents work in Los Angeles County, but almost 19 percent work outside of the county.

**Exhibit 3-7**

**Resident Employment by Industry**  
Population Ages 16 years and over  
Los Angeles County 2011

NAICS	Industry	Employment	Share of Total
62	Health care and social assistance	548,370	12.4%
44-45	Retail trade	470,340	10.6%
31-33	Manufacturing	469,600	10.6%
56	Admin/support/waste mgmt services	223,170	5.0%
72	Accommodation and food services	316,090	7.1%
61	Educational services	368,470	8.3%
54	Professional and technical services	313,860	7.1%
81	Other services	286,300	6.5%
23	Construction	252,760	5.7%
51	Information	187,680	4.2%
71	Arts, entertainment, and recreation	139,320	3.2%
48-49	Transportation and warehousing	200,070	4.5%
51	Finance and insurance	186,520	4.2%
91-93	Government	150,380	3.4%
42	Wholesale trade	162,180	3.7%
53	Real estate/rental/leasing	92,660	2.1%
11	Ag, forestry, fishing and hunting	21,510	0.5%
22	Utilities	26,520	0.6%
21	Mining/ oil and gas extraction	2,020	0.0%
55	Mgmt of companies and enterprises	2,430	0.1%
<b>Total - Industry - 16+ years</b>		<b>4,420,240</b>	<b>100.00%</b>

Source: 2011 ACS 1-year estimates

The top three employing industries are: health care and social assistance (accounting for 12.4 percent of Los Angeles County resident employment); retail trade (10.6 percent); and manufacturing industries (10.6 percent).



Other regional industries that employ local residents include administrative support and waste management services, accommodation and food services, educational services, and professional, technical and scientific services.

Within each industry, there are a variety of occupations that are employed. For example, workers employed by health care industries can include physicians, nurses, medical technicians, accountants, data processors, food preparers, orderlies, janitors, lawyers, and many more.

Similarly, workers trained are skilled for a particular occupation can be employed by many industries. For example, sales representatives are employed in retail industries, in manufacturing firms, in health care services and across a number of other sectors. Nurses may be employed in hospitals, in schools or by insurance carriers.

Individuals trained in an occupation may therefore find employment in a variety of industries, and will be especially interested in industries that are growing no matter what their individual skill levels may be since growing industries will hire a panoply of workers at many skills and education levels.

The working residents of Los Angeles County are trained and employed in a variety of occupations, as shown in Exhibit 3-8. The groupings shown are major occupational groups; there are many detailed occupations within each major group that will be further examined below.



**Exhibit 3-8****Resident Employment by Occupation  
Population Ages 16 years and over  
Los Angeles County 2011**

SOC	Occupational Group	Employment	Share of Total
43-0000	Office and admin support	599,860	13.6%
41-0000	Sales and related	490,160	11.1%
11-0000	Management	390,480	8.8%
37-0000	Building/grounds cleaning/maintenance	220,620	5.0%
51-0000	Production	288,290	6.5%
35-0000	Food preparation and serving related	239,850	5.4%
39-0000	Personal care and service	213,760	4.8%
53-0000	Transportation / material moving	276,310	6.3%
27-0000	Arts/ /entertainment/sports/media	187,100	4.2%
25-0000	Education, training and library	235,360	5.3%
13-0000	Business and financial operations	219,210	5.0%
47-0000	Construction and extraction	214,510	4.9%
49-0000	Installation, maintenance, repair	121,450	2.7%
29-0000	Healthcare practitioner and techs	196,110	4.4%
31-0000	Healthcare support	96,030	2.2%
21-0000	Community and social services	67,310	1.5%
33-0000	Protective service	86,950	2.0%
15-0000	Computer and mathematical sciences	88,230	2.0%
17-0000	Architecture and engineering	71,460	1.6%
23-0000	Legal	64,780	1.5%
19-0000	Life, physical and social science	37,000	0.8%
45-0000	Farming, fishing and forestry	15,410	0.3%
<b>Total</b>		<b>4,420,240</b>	<b>100.0%</b>

Source: 2011 ACS 1-year estimates

The occupational distribution of the county's working residents is diverse, with 59.9 percent employed in white collar occupations such as office and administrative support, sales, management and professional occupations, 20.7 percent in blue collar occupations such as construction, production and transportation, and 19.4 percent in services.

Note that although 12.4 percent of working residents of county were employed in healthcare industries (see Exhibit 3-7), only 6.6 percent of working residents were in healthcare occupations. The remainder is in other occupations (such as office, administrative, sales, building maintenance, food preparation and serving, and so on) that are employed in healthcare industries. This is an important point to consider. The healthcare industry is large and growing, and its occupational needs are very diverse—not only limited to healthcare occupations.



The relationship between industries and their occupational needs is not always carefully examined as the nature of industrial production and its technological evolution changes. However, it is clear that there is a wide variety of occupational needs within each industry that can provide opportunities at all skill levels.

The largest occupational group of working residents of Los Angeles County is office and administrative support occupations. Workers in these occupations accounted for 13.6 percent of all employment in Los Angeles County in 2011, or 599,860 jobs, the largest occupational group by far.

Sales and related occupations are held by the second largest proportion of working residents in the county, accounting for 11.1 percent of all jobs. Almost half a million residents work in sales occupations.

Other occupations that are large include management occupations (which are employed in all industries), accounting for 390,480 working residents, production occupations, which are involved in the region's manufacturing industries, employing almost 288,300 workers, and transportation and material moving occupations, which are employed for the most part in the region's largest leading cluster, international trade.

Among the larger occupational groups, building and grounds cleaning and maintenance occupations, food preparation and serving, and personal care and service occupations typically need lower levels of education and can be filled by workers who do not hold a high school diploma. ❖

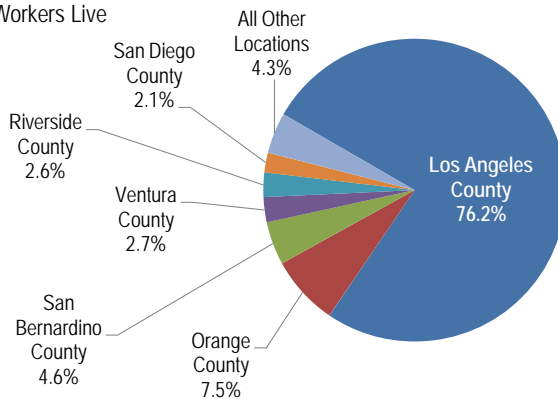
### 3.6 Commuters

Businesses will hire the best workers they can find at the wages that they are prepared to pay, and workers will seek the highest-paying work they can find within their commute distance. This matching of business needs with the skills and abilities that workers provide leads to a daily migration of workers from homes to workplaces.

Businesses employ people from across Los Angeles County and from neighboring counties as well. The geographic area from which workers commute to be employed at local businesses is called the *labor shed*. Exhibit 3-9 shows the labor shed for Los Angeles County's businesses by county.

**Exhibit 3-9**

**Labor Shed by County**  
Where Workers Live



Sources U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics



Approximately 76 percent of all jobs in Los Angeles County are filled by residents of the county, 7.5 percent by residents of Orange County, 7.2 percent from the Inland Empire, and the remainder commutes to work in Los Angeles from Ventura County, Kern County, San Diego County and Santa Barbara County.

The labor shed reveals the *in-area employment efficiency*. This is a measure of how efficient the community is in providing workers for businesses located in the selection area. In this case, the county provides workers for 76 percent of the jobs required by its businesses. ❖



## 4 Demand for Labor

**D**emand for labor is generated by local and regional businesses. This is a function of the economic health of the local and regional economy and its expected growth, and of locational decisions made by growing businesses. These factors are examined in this section.

### 4.1 Current Industry Employment

To investigate the potential for employment opportunities in the county, an understanding of existing employment is needed. In the previous section, the current industry employment of residents of the region was presented. Here, we consider instead the industry employment offered by current businesses. This will allow us to determine the industrial composition of the local economy and its workforce needs.

The industrial distribution of employment in Los Angeles County is shown in the Exhibit 4-1.

In general, Los Angeles County reflects the national pattern of a largely service-oriented economy, which accounts for almost three-quarters of all nonfarm employment, and a government sector accounting for approximately 15 percent of all nonfarm employment (including local, state and federal government employment). Manufacturing employment has been on a long term decline and accounts for less than 10 percent of employment today.

Among the service industries, professional and technical services is the largest, accounting for over 14 percent of employment, followed by educational and health services, leisure and hospitality, and retail trade.

To better examine the industry performance of the region, we segment larger industry sectors into their component industries. For example, health care and social assistance is a sector which includes: ambulatory health care services, such as physicians' offices; hospitals; nursing and residential care facilities; and social assistance, such as community food services, child day care services and emergency relief services.

Exhibit 4-2 shows the largest 30 industries in Los Angeles County as measured by employment in 2011.



**Exhibit 4-1**  
**Industrial Profile**  
(% of Total Employment)

<b>Total Nonfarm Payroll Employment</b>	<b>100.0%</b>
<b>Good Producing Industries:</b>	<b>12.5%</b>
Natural Resources and Mining	0.1%
Construction	2.7%
Manufacturing – Durable Goods	5.4%
Manufacturing – Nondurable Goods	4.3%
<b>Service Providing Industries</b>	<b>72.6%</b>
Wholesale Trade	5.5%
Retail Trade	10.3%
Transportation, Warehousing, Utilities	4.0%
Information	5.2%
Financial Activities	5.5%
Professional and Business Services	14.2%
Educational and Health Services	14.1%
Leisure and Hospitality	10.4%
Other Services	3.6%
<b>Government</b>	<b>14.9%</b>

Sources: California Employment Development Department; LAEDC

**Exhibit 4-2****Top 30 Private Sector Industries by Employment  
Los Angeles County 2011**

NAICS	Industry	Employment	% of total
722	Food services and drinking places	286,090	7.4%
541	Professional and technical services	255,830	6.6%
561	Administrative and support services	222,520	5.7%
621	Ambulatory health care services	179,260	4.6%
512	Motion picture and sound recording	120,130	3.1%
622	Hospitals	109,500	2.8%
611	Educational services	98,070	2.5%
423	Wholesale: Durable goods	94,570	2.4%
424	Wholesale: Nondurable goods	90,420	2.3%
445	Retail: Food and beverage stores	87,800	2.3%
522	Credit intermediation	69,760	1.8%
623	Nursing and residential care facilities	69,690	1.8%
452	Retail: General merchandise stores	67,930	1.7%
238	Specialty trade contractors	67,570	1.7%
624	Social assistance	59,560	1.5%
551	Management of companies	54,650	1.4%
448	Retail: Clothing and accessories	53,190	1.4%
531	Real estate	51,970	1.3%
336	Manufacturing: Transportation equipment	46,440	1.2%
812	Personal and laundry services	45,800	1.2%
315	Manufacturing: Apparel	45,540	1.2%
334	Manufacturing: Computer / electronic prods	44,800	1.2%
524	Insurance carriers	43,150	1.1%
332	Manufacturing: Fabricated metal products	41,140	1.1%
721	Accommodation	39,840	1.0%
311	Manufacturing: Food products	39,660	1.0%
488	Support activities for transportation	39,480	1.0%
441	Retail: Motor vehicles and parts	39,040	1.0%
813	Membership associations and orgs	37,920	1.0%
713	Amusement, gambling and recreation	35,570	0.9%

Sources: California Employment Development Department; LAEDC

The largest private sector industry in terms of employment in Los Angeles County in 2011 was food services and drinking places, providing 286,090 jobs. This industry includes all food services, including full-service restaurants, fast food outlets, caterers, mobile food services, and drinking establishments.

The second largest industry was professional and technical services, providing 255,830 jobs. This industry is large and diverse, and includes a variety of professions such as legal, architectural, engineering, accounting, computer design, advertising, environmental consulting, commercial photography, veterinary services, and more.

The third largest industry was administrative and support services, which includes office administrative services, facilities support services, business support services, travel agents, security services, and employment services such as temporary employment.

Other significant industries in the county include ambulatory health care services, motion pictures and sound recording industries, hospitals and private educational services, together providing more than 500,000 jobs.

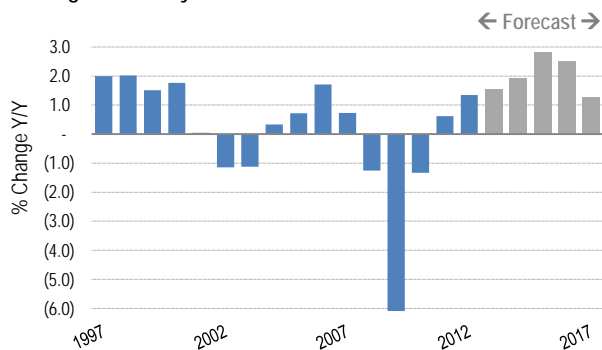
A complete list of all industries is provided in Exhibit A-1 in the appendix. ❖

## 4.2 Regional Industry Employment Forecast

Employment opportunities for residents of Los Angeles County will depend on the health of the regional economy. Here we present the industry employment forecast for Los Angeles County.

The contour of the nonfarm employment forecast for Los Angeles County is shown in Exhibit 4-3, along with the county's historical growth performance since 1997.

**Exhibit 4-3**  
Change in Nonfarm Employment 1997-2017  
Los Angeles County



Sources: California Employment Development Department; Moody's Economy.com; LAEDC

The county's economy entered a severe recession in December of 2007, with an employment decline of 1.3 percent in 2008 and an additional 6.1 percent decline in 2009. Employment continued to fall in 2010 before beginning a recovery in 2011 with a year-over-year gain of 0.6 percent. Employment continued its anemic recovery in 2012, and uncertainty regarding the fiscal cliff negotiations and the implementation of sequestration cuts will weigh on the overall recovery in 2013.

However, employment growth will pick up in 2014, with a year-over-year gain of 1.9 percent, followed by 2.8 percent in 2015 and 2.5 percent in 2016. Employment growth will continue to be positive but will decelerate. Over the longer term, the economy in Los Angeles County is forecast to grow at its trend rate of approximately 0.6 percent.

Most industry sectors will follow this general contour of post-recession recovery followed by moderation. However, there are differences among industries. Recovery strength in many cases is determined by the

magnitude of the industry's decline during the recession. For example, construction employment fell steeply in 2008, 2009 and 2010. Its recovery in the near term is expected to be much stronger than the average, as it recovers from these deep losses.

Between 2012 and 2017, the economy is expected to add 403,900 new jobs in nonfarm industries across the county.

The expected employment experience in individual sectors at the county level is shown in Exhibit 4-4, followed by a discussion of each sector.

**Exhibit 4-4**  
Industry Employment Growth 2012-2017  
(Los Angeles County)

	Annual Average % Growth	Δ Employment (000s)
<b>Total Nonfarm Payroll Employment</b>	2.0%	403.9
<b>Good Producing Industries:</b>	1.7%	40.5
Natural Resources and Mining	-0.7%	-0.1
Construction	4.0%	23.5
Manufacturing – Durable Goods	1.0%	10.7
Manufacturing – Nondurable Goods	0.8%	6.6
<b>Service Providing Industries</b>	2.2%	325.2
Wholesale Trade	0.9%	9.1
Retail Trade	1.1%	22.0
Transportation, Warehousing, Utilities	1.0%	7.7
Information	2.0%	21.0
Financial Activities	2.4%	26.9
Professional and Business Services	3.1%	91.4
Educational and Health Services	2.6%	74.4
Leisure and Hospitality	3.0%	63.8
Other Services	1.3%	8.7
<b>Government</b>	1.3%	38.3

Sources: California Employment Development Department; LAEDC

### *Natural Resources and Mining*

Employment growth in natural resources and mining industries is expected to be negative, yielding overall employment losses between 2012 and 2017.

## Construction

Construction industry employment experienced severe declines through 2011. Growth is expected to return in 2012 and will be robust in 2014 through 2016 as housing recovers to meet pent-up demand. New employment is projected increase by 23,500 between 2012 and 2017, producing an overall average annual growth rate of 4 percent.

## Manufacturing

Manufacturing employment will continue its long-term decline in the county, but will see employment gains from its 2007 nadir. *Durable goods manufacturing* will experience anemic growth as labor substitution and replacement by capital increases output at the expense of employment gains. *Nondurable goods manufacturing* will continue to be challenged as low-cost competition from lower income countries will drive these industries from the area. Together, there will be a gain of 17,150 jobs between 2012 and 2017 as the sector recovers, but this will still be 72,500 fewer jobs than in 2007.

## Wholesale Trade

Wholesale trade employment, which has been relatively flat since 2000, recovered in 2011 but is forecast to moderate, as additional expansion in this sector is expected to occur further inland rather than in Los Angeles. Expected declines in nondurable and durable goods wholesaling will be offset by the increase in online activity, producing an overall sector employment gain of 9,130 jobs between 2012 and 2017.

## Retail Trade

Retail trade activity in Los Angeles has been improving as the housing market recovers and credit conditions improve. Various industries will do better than others, including online retailing activities, clothing and accessories stores, general merchandise stores, food and beverage stores, and health and personal care stores. Sector employment is forecasted to add 22,000 new jobs between 2012 and 2017.

## Transportation, Warehousing and Utilities

Matching the wholesale trade industry, the transportation, warehousing and utilities sector will



provide very little employment growth over the forecast period, averaging 1 percent per year from 2012 through 2017 and adding 7,700 new jobs.

## Information

The information sector, which includes motion picture production, broadcasting, publishing and new media industries, will grow at an annual average of 2 percent per year, keeping pace with the overall nonfarm economy. The motion picture and sound recording industry has remained buoyant through the recovery period, assisted by incentives received through the California Film and Television Tax Credit Program. Traditional publishing industries will continue to decline as new forms of media delivery become prevalent, Internet publishing and broadcasting will continue to grow, bringing new employment opportunities. Overall, the information sector is forecast to add 21,000 new jobs between 2012 and 2017.

## Financial Services

Many of the services in the financial activities sector are related to the housing and construction markets which suffered significant declines during the recession and have been faltering during the recovery. The sector is expected to rebound with the recovery in the housing market and is projected to add 26,900 new jobs between 2012 and 2017, growing at an annual average rate of 2.4 percent.



### ***Professional and Business Services***

The professional and business services sector is a large, diverse sector which includes professional, scientific and technical services, company management (headquarters locations), and administrative, support and waste services industries. Most of these firms provide services to other businesses in Los Angeles County. Employment in the sector is forecast to grow robustly at an average annual rate of 3.1 percent, assisted in large part by the rapid growth in administrative services (which includes temporary employment). Overall, the sector will add more than 91,400 new jobs between 2012 and 2017.

### ***Education and Health Services***

The education and health services sector was the only sector to continue adding employment during the recession. They are expected to continue to grow at a healthy pace. Private education continues to grow in Los Angeles as private education provides training and education services at a variety of skills levels. Health services will continue to grow as the aging population and the expected expansion of insurance coverage made possible through the Affordable Care Act will encourage higher levels of health services utilization. Employment in the sector will add 7,400 new jobs between 2012 and 2017, achieving an average growth rate of 2.6 percent per year.

### ***Leisure and Hospitality***

The leisure and hospitality sector will show better-than-average growth over the forecast period, led by increases in employment in the food services industry, adding 63,800 new jobs between 2012 and 2017.



### ***Government***

Budget constraints will continue to restrict the growth of government employment to that of population growth. Still, government will add 38,300 new jobs between 2012 and 2017, mainly in local government that provides mostly public education to local constituents.





### 4.3 Commercial and Industrial Land Use

The character of a region is defined by its land use. A bedroom community is zoned almost entirely for residential purposes, with commercial land available only to allow the provision of goods and services to local residents, such as retail stores, gas stations, restaurants, schools, personal care services, medical services, and so on. Residents of bedroom communities who work typically commute to jobs in other cities, sometimes at significant distances from home.

An industrial city chooses to allocate its land for businesses engaged in manufacturing, assembling goods, wholesale activities, transportation, warehousing, and so on.

The nature of such businesses may not be amenable to residents, and zoning is used to protect the peace and tranquility of residents by providing a buffer zone.

Some cities may restrict residential land uses to capitalize on the synergies and agglomeration effects developed through concentration of industry within their geographic borders. Such concentrations of industry can be significant sources of employment opportunities. An examination of the potential for a region to provide such employment opportunities must therefore necessarily focus on available land use.

Exhibit 4-5 displays commercial and industrial land use by type and square footage in Los Angeles County.

Commercial zoning allows a range of activities, including retail, office buildings, restaurants, banks, hospitals and clinics, sports facilities, race tracks, amusement parks, movie theaters, hotels, government offices, schools, police and fire stations, and places of worship.

Industrial uses are differentiated between light industrial and heavy industrial. Light industrial uses includes not only the light manufacturing and packaging that it suggests, but also motion picture and television studio lots and research and development activities

including laboratories. Heavy industrial uses are those that involve raw material processing and therefore can be associated with wastes such as smoke, dust, liquid effluent and noise. The last category of heavy industrial is extraction, which is mining, and oil and gas drilling.

**Exhibit 4-5**

#### Commercial and Industrial Land Use by Type

	Sq Miles	% of Total
<b>Commercial and Services Land:</b>		
General Office Use	1.1	1.0%
Retail Stores and Commercial Services	42.1	1.6%
Other Commercial	8.3	0.2%
Public Services	29.4	0.7%
Special Use Facilities	1.7	0.0%
Educational Facilities	45.7	1.1%
Military Installations	77.5	1.9%
<b>Total Commercial</b>	<b>270.6</b>	<b>6.6%</b>
<b>Industrial Land:</b>		
Light Industrial	54.9	1.3%
Heavy Industrial	25.3	0.6%
Extraction	9.6	0.2%
Wholesaling and Warehousing	13.0	0.3%
<b>Total Industrial</b>	<b>104.5</b>	<b>2.6%</b>
Transportation, Communication and Utilities	103.0	2.5%
Mixed Commercial / Industrial	1.2	0.0%
<b>Commercial / Industrial Land Area</b>	<b>478.5</b>	<b>11.7%</b>

Sources: SCAG; ESRI; LAEDC

Approximately 11.7 percent of the land in the county is zoned for commercial and industrial uses (including transportation, communication and utilities). Recall from page 33 that 57 percent of Los Angeles County's land is zoned as vacant, which is mostly mountainous and desert land that will not be available for use. Of the remaining land, 27 percent is zoned for commercial and industrial uses. ❖

## 5 Target Industries

Research into the local labor market and industry employment projections can be combined with other metrics to provide an indication of whether an industry has the potential to be an attractive target for job retention and expansion. For example, employment growth rates indicate whether an industry is expected to grow in the region. In this section, we add two additional metrics to our evaluation criteria: the competitiveness of local industries, and their job creation potential.

### 5.1 Industry Competitiveness

In addition to the potential for industries to create jobs, which is a function of both their expected growth and their size, we are also interested in the specialization of economic activity in Los Angeles County. For example, it is possible that a national or statewide industry has significant job creation potential but does not have a large presence in the county (or none at all). Without a specific business attraction strategy, the region is unlikely to see employment growth in such an industry.

On the other hand, an industry with a presence in Los Angeles that is larger (as a percentage of total employment in the county) than its presence in the state or nation would indicate that Los Angeles has a concentration of this industry, is evidenced at having a competitive advantage and thus may have the potential for higher employment creation.

Such relative concentration is measured by location quotients. A location quotient for an industry in Los Angeles County shows the percentage of total employment in an industry compared to the percentage in California (or the nation). For example, if 4 percent of employment in the county is in the motion picture industry, while across the United States only 1 percent is employed in the motion picture industry, then the location quotient for the motion picture industry in Los Angeles is 4. This means that Los Angeles County is relatively more specialized in motion pictures than the country as a whole. A location quotient of 1 would indicate that the local industry concentration is identical to that of the larger region.

Exhibit 5-1 shows the top competitive industries in Los Angeles County by their 2011 employment location



quotients compared to California and compared to the nation. This allows us to see not only how the county performs compared to the same industries in the state as a whole, but also to see if there are specific industries which are stronger in Los Angeles County compared to the national average, regardless of how they might compare to the state. All industries with a location quotient of greater than 1 (referenced against California) are shown in the exhibit.

The industry with the highest location quotient in Los Angeles County in 2011 was motion picture and sound recording industries, with a location quotient of 3.2 vis-à-vis the state, and 11.3 vis-à-vis the nation. This industry is undeniably one in which the region has a competitive advantage.

The industry with the second highest location quotient is apparel manufacturing, with a location quotient of 3.1 vis-à-vis the state, and 10.4 vis-à-vis the nation. Los Angeles is well-known for its fashion and apparel manufacturing industry.

The list of competitive industries includes manufacturing industries. Although manufacturing employment is on a sectoral decline across the nation, Los Angeles remains a relatively concentrated center of manufacturing across many product lines, including

textiles, leather products, transportation equipment, primary metals, and fabricated metal products.

**Exhibit 5-1**

**Top Competitive Industries in Los Angeles County in 2011  
(Location Quotients v. California and US)**

NAICS	Industry	CA	US
512	Motion picture and sound recording	3.2	11.3
315	Manufacturing: Apparel	3.1	10.4
313	Manufacturing: Textile mills	2.9	2.0
316	Manufacturing: Leather products	2.4	2.6
483	Water transportation	2.2	1.6
488	Support activities for transportation	2.0	2.4
711	Performing arts and spectator sports	1.8	2.5
314	Manufacturing: Textile product mills	1.7	1.1
336	Manufacturing: Transportation equipment	1.7	1.2
481	Air transportation	1.7	1.4
515	Broadcasting (except internet)	1.6	2.2
337	Manufacturing: Furniture	1.6	1.3
323	Printing and related activities	1.4	1.2
424	Wholesale: Nondurable goods	1.4	1.6
331	Manufacturing: Primary metal products	1.4	0.6
332	Manufacturing: Fabricated metal products	1.3	1.1
485	Transit and ground passenger transportation	1.3	1.0
532	Rental and leasing services	1.3	1.3
611	Educational services	1.3	1.3
322	Manufacturing: Paper	1.3	0.6
533	Lessors of nonfinancial intangible assets	1.2	1.4
335	Manufacturing: Electrical eqmt / appliances	1.2	0.9
812	Personal and laundry services	1.2	1.2
492	Couriers and messengers	1.2	1.2
448	Retail: Clothing and accessories	1.2	1.4
326	Manufacturing: Plastics and rubber products	1.2	0.7
423	Wholesale: Durable goods	1.2	1.2
622	Hospitals	1.1	0.8
453	Retail: Miscellaneous stores	1.1	1.1
522	Credit intermediation	1.1	0.9
523	Securities, contracts and investments	1.1	0.9
712	Museums, historical sites, zoos and parks	1.1	1.1
531	Real estate	1.1	1.3
517	Telecommunications	1.1	1.0

Sources: California Employment Development Department; LAEDC

The exhibit presents competitive industries with respect to California (i.e., with a location quotient greater than 1). However, there may be industries in the county that are not competitive with respect to the state, but that are with respect to the nation. This will occur when the industry at the state level is already competitive with respect to the nation and any representation of the industry in the county is simply a component thereof.

Computer and electronic product manufacturing is one such industries. With respect to the nation, Los Angeles

County has a location quotient of 1.4, while with respect to California the location quotient is only 0.6. Los Angeles County is a significant manufacturer of navigational and control instruments, including radar, guidance, aeronautical and sonar systems (which are component industries of the computer and electronic products manufacturing sub-sector). However, the state has large employment concentrations in semiconductor and electronic products manufacturing and in computer and peripheral manufacturing, mostly in Northern California; thus the Los Angeles County employment concentration is not significant when compared to the state overall.

Note also that although motion picture and sound recording and apparel manufacturing are more highly concentrated in the county than in the state (with location quotients of 3.2 and 3.1, respectively), it is especially higher than the nation (location quotients of 11.3 and 10.4, respectively), implying that growth of these industries in the state overall, as well as their potential decline, will more likely impact Los Angeles than other areas of the state.

A complete list of all industries is provided in Exhibit A-2 in the appendix.

An additional question might be to ask how location quotients have changed over time. If an industry has become more relatively concentrated in Los Angeles County than in the state or the nation, this may be indicative of the specialization of the region in that industry. Exhibit 5-2 presents a list of industries that have seen an increase in location quotients vis-à-vis California since from 2001 to 2011.

For all industries listed, the employment concentration relative to the state of California increased. This can be a consequence of the industry remaining stagnant locally but declining elsewhere, or it could be indicative of the industry strengthening locally.

Industries on the list are largely service providing industries in the retail, transportation, information, health care, and leisure and hospitality sectors. Many manufacturing industries are in decline compared to both the state and the nation and are not included, as are most of the professional and business services industries.

A complete list of all industries is provided in Exhibit A-3 in the appendix. ❖

**Exhibit 5-2****Top Competitive Industries in Los Angeles County 2001-2011  
(% Change in Location Quotients v. California and US)**

NAICS	Industry	CA	US
483	Water transportation	81.6%	94.8%
213	Support activities for mining	33.5%	7.9%
533	Lessors of nonfinancial intangible assets	31.4%	11.9%
316	Manufacturing: Leather products	29.5%	51.0%
532	Rental and leasing services	21.4%	15.7%
453	Retail: Miscellaneous stores	19.7%	23.0%
447	Retail: Gasoline stations	17.2%	21.0%
517	Telecommunications	17.1%	10.8%
321	Manufacturing: Wood products	13.7%	-7.4%
236	Construction of buildings	12.5%	12.7%
486	Pipeline transportation	12.3%	50.7%
512	Motion picture and sound recording	11.9%	30.8%
238	Specialty trade contractors	10.5%	-0.3%
315	Manufacturing: Apparel	10.4%	72.5%
518	Data processing, hosting and related	10.0%	-40.1%
515	Broadcasting (except internet)	8.9%	24.6%
522	Credit intermediation	8.8%	8.1%
443	Retail: Electronics and appliances	7.9%	-8.3%
444	Retail: Building material and garden supplies	7.9%	4.9%
446	Retail: Health and personal care	7.7%	3.8%
448	Retail: Clothing and accessories	7.5%	18.0%
442	Retail: Furniture	7.2%	16.5%
454	Retail: Nonstore retailers	6.7%	27.6%
492	Couriers and messengers	6.6%	-6.3%
445	Retail: Food and beverage stores	6.2%	21.6%
713	Amusements, gambling and recreation	5.8%	10.2%
335	Manufacturing: Electrical eqmt / appliances	5.7%	9.7%
481	Air transportation	5.6%	-10.4%
624	Social assistance	5.6%	-0.4%
721	Accommodation	5.4%	12.6%
711	Performing arts and spectator sports	4.7%	11.8%
722	Food services and drinking places	4.6%	7.7%
485	Transit and ground passenger transportation	4.5%	0.9%
531	Real estate	4.3%	8.1%
487	Scenic and sightseeing transportation	4.2%	23.1%
523	Securities, contracts and investments	3.7%	-7.9%
237	Heavy and civil engineering construction	3.4%	-4.6%
424	Wholesale: Nondurable goods	3.1%	21.7%
334	Manufacturing: Computer / electronic prods	2.7%	9.6%
811	Repair and maintenance	2.5%	-2.2%
221	Utilities	2.3%	23.3%
623	Nursing and residential care facilities	2.0%	3.3%
621	Ambulatory health care services	1.6%	5.4%
337	Manufacturing: Furniture	1.2%	-17.4%
336	Manufacturing: Transportation equipment	0.9%	4.3%
314	Manufacturing: Textile mills	0.8%	65.9%
452	Retail: General merchandise stores	0.6%	16.4%
622	Hospitals	0.2%	-1.0%

Sources: California Employment Development Department; LAEDC

## 5.2 Job Creation Potential

In addition to projected growth rates of industries and industry sectors, the current size of the industry in the region is an important determinant of the potential for job creation. A small industry growing quickly may add jobs but the absolute number of jobs created will be smaller than a large industry growing slowly.

The job creation potential of industries in Los Angeles County is shown in Exhibit 5-3. This is a consequence of two factors: the size of the industry and its expected growth. A small industry such as leather and allied products manufacturing may grow quickly but will add few jobs because it is a very small industry, while a larger industry growing more slowly has the potential of adding more jobs.

**Exhibit 5-3**

**Projected New Job Creation 2012-2017  
Los Angeles County**

NAICS	Industry	Number of New Jobs	Annual Average Percent Change
561	Administrative and support services	52,050	4.3%
722	Food services and drinking places	48,500	3.2%
93	Local government	30,810	1.5%
541	Professional and technical services	30,320	2.3%
621	Ambulatory health care services	24,780	2.6%
512	Motion pictures and sound recording	18,150	2.9%
238	Specialty trade contractors	16,020	4.3%
622	Hospitals	15,150	2.6%
611	Educational services	12,720	2.5%
623	Nursing and residential care facilities	9,630	2.6%
522	Credit intermediation	9,550	2.6%
624	Social assistance	8,230	2.6%
721	Accommodation	6,750	3.2%
452	Retail: General merchandise	6,420	1.8%
524	Insurance carriers	5,910	2.6%
445	Retail: Food and beverage stores	5,730	1.3%
448	Retail: Clothing and accessories	5,370	1.9%
531	Real estate	5,140	1.9%
92	State government	5,040	1.5%
425	Wholesale electronic markets	4,100	3.6%
424	Wholesale: Nondurable goods	4,070	0.9%
551	Management of companies	3,740	1.3%
236	Construction of buildings	3,680	2.7%
332	Manufacturing: Fabricated metal prods	3,560	1.7%
812	Personal and laundry services	3,550	1.5%
713	Amusements, gambling and recreation	3,380	1.8%
237	Heavy / civil engineering construction	3,160	5.0%

Source: Estimates by LAEDC

In the exhibit, industry-level employment has been projected through 2017. This allows a more detailed look at individual industries (such as hospitals, and nursing and residential care facilities) rather than at large sub-sectors (such as health care and social assistance).

The industry with the largest expected new job creation potential is the administrative and support services industry, expected to add 52,050 jobs between 2012 and 2017. This is largely a result of the increase in temporary employment services, which accounts for 40 percent of the industry. Other large segments include security services and janitorial/landscape services.

The industry with the second largest expected employment gains is food services and drinking places, projected to add 48,500 jobs between 2012 and 2017. This is a very large industry that includes restaurants of all service types, including fast food, full service, catering and mobile food service, as well as bars and nightclubs.

Local government is projected to add 30,810 jobs, mostly in educational services, as population growth demands more local services.

Fourth on the list is professional and technical services, another large and diverse industry, with relatively high growth potential.

Combined health care services provided by hospitals, ambulatory health care services and nursing and residential care facilities are together projected to add 49,560 jobs from 2012 to 2017. As noted above, these are expected to be growing industries and will continue to add jobs in the near future.

Also represented in the list, however, are motion pictures and sound recording, specialty trade contractors, educational services and finance and insurance industries.

Taken together, these twenty-five industries are expected to add more than 350,000 new jobs during the period from 2012 to 2017 in Los Angeles County, approximately 90 percent of all jobs forecasted to be added.

A complete list of all industries is provided in Exhibit A-4 in the appendix. ❖



### 5.3 Industry Output

Apart from employment, the value of an industry to regional economic activity can also be measured in terms of the value of its output or production. This is most often measured as the industry's aggregate revenues. It is not always the case that industries with significance revenues also hire significant numbers of employees. The relationship between revenues and employment is a balance between the industry's production process, the productivity of labor and the capital-intensity of production.

The contribution of individual industries to total regional output is presented in Exhibit 5-4.

**Exhibit 5-4**

**Industry Output of Top 30 Industries  
Los Angeles County 2011**

NAICS	Industry	Value of Output (\$ billions)	% of total
531	Real estate	\$ 74.1	8.6%
541	Professional and technical services	67.7	7.8%
91-93	Government	55.9	6.5%
42	Wholesale trade	43.6	5.0%
324	Manufacturing: Petroleum and coal prods	40.5	4.7%
512	Motion picture and sound recording	39.0	4.5%
621	Ambulatory health care services	27.3	3.2%
521	Monetary authorities	24.2	2.8%
336	Manufacturing: Transportation equipment	23.9	2.8%
334	Manufacturing: Comp / electronic prods	23.3	2.7%
23	Construction	22.1	2.6%
722	Food services and drinking places	20.3	2.4%
561	Administrative and support services	19.4	2.2%
311	Manufacturing: Food products	19.0	2.2%
517	Telecommunications	19.0	2.2%
325	Manufacturing: Chemical products	18.2	2.1%
622	Hospitals	16.8	1.9%
524	Insurance carriers and related services	16.4	1.9%
711	Performing arts and spectator sports	15.7	1.8%
533	Lessors of nonfinancial intangible assets	15.3	1.8%
523	Securities, contracts, other financial	15.1	1.7%
515	Broadcasting (except internet)	13.5	1.6%
221	Utilities	12.9	1.5%
551	Management of companies	12.0	1.4%
332	Manufacturing: Fabricated metal products	11.0	1.3%
611	Educational services	10.1	1.2%
211	Oil and gas extraction	7.3	0.8%
525	Funds, trusts and other financial vehicles	7.2	0.8%
812	Personal and laundry services	7.2	0.8%
511	Publishing industries	7.1	0.8%

Source: Estimates by LAEDC

The total value of output of all industries in Los Angeles County in 2011, the most recent year for which data is available, is estimated to have been \$866 billion.

The industry with the highest level of output in 2011 was real estate, producing output valued in excess of \$74 billion, or almost percent of the region's total. This industry includes establishments that rent or lease real estate, that manage real estate for others, that are engaged in buying, selling or leasing real estate for others, and that provide other real estate related services such as appraisal services.

The second largest industry in terms of output was professional and technical services, with output valued at \$67.7 billion in 2011, 7.8 percent of the region's total. This industry is comprised of the region's architectural and engineering firms, legal firms, computer designers and programming services firms, accounting and business consulting firms, and public relations agencies.

Together, government services account for 6.5 percent of the region's output, valued at \$56 billion. This includes local, county, state and federal government and therefore reflects the contribution of local education, ground transportation, county offices, and government health care services.

Fourth on the list is wholesale trade, a combination of durable, nondurable and online wholesale activities. This industry accounts for 5 percent of the region's output and is valued at \$43.6 billion.

Several manufacturing industries are among the top thirty, including petroleum and coal products, transportation equipment, computer and electronic products, food products, chemical products and fabricated metal products. As noted elsewhere, manufacturing is undergoing a sectoral shift and employment has been declining. However, the value of output from the manufacturing sector has increased as production becomes more capital intensive and efficient.

Other significant industries in the exhibit include motion pictures and sound recording industries, responsible for 4.5 percent of the region's output, valued at \$39 billion, and ambulatory health care services, accounting for 3.2 percent of regional output and \$27.3 billion in revenues.

A complete list of all industries is provided in Exhibit A-5 in the appendix. ❖

## 5.4 Labor Compensation

Revenues earned by industries are spent in a number of ways. A portion is used to purchase the inputs to production, including intermediate goods and services and labor services. Intermediate goods and services can be supplied from within the region or across the globe, depending on costs, availability and the particular need of the industry.

Payments for labor, however, are typically spent within the region to local residents (with a small percentage paid to commuters who live in surrounding regions). The payments provide household incomes for the local population, which circulate throughout the local economy as workers spend a portion of their income on rent, groceries, transportation, entertainment, and so on.

The top thirty individual industries in terms of their total labor compensation are presented in Exhibit 5-5. These values include benefits such as health and retirement plan costs and employer paid payroll taxes.



Of all labor compensation paid in Los Angeles County, 17.3 percent, or \$47 billion, was paid by government agencies.

Professional and technical services firms in aggregate accounted for 10.6 percent of all labor payments, reaching nearly \$29 billion.

Other industries in the top thirty include wholesale trade, paying \$15.4 billion, motion picture and sound recording industries, paying \$14.5 billion, and ambulatory health care services, paying \$12.5 billion in labor compensation.

**Exhibit 5-5**

**Total Labor Compensation Paid by Top 30 Industries  
Los Angeles County 2011**

NAICS	Industry	Labor Payments (\$ billions)	% of total
91-93	Government	\$ 47.1	17.3%
541	Professional and technical services	28.8	10.6%
42	Wholesale trade	15.4	5.7%
512	Motion picture and sound recording	14.3	5.2%
621	Ambulatory health care services	12.5	4.6%
561	Administrative and support services	10.1	3.7%
622	Hospitals	8.9	3.3%
23	Construction	7.5	2.8%
722	Food services and drinking places	7.5	2.8%
711	Performing arts and spectator sports	6.4	2.3%
551	Management of companies	6.3	2.3%
523	Securities, contracts, other financial	5.9	2.2%
611	Educational services	5.8	2.1%
336	Manufacturing: Transportation equipment	5.2	1.9%
524	Insurance carriers and related services	5.2	1.9%
334	Manufacturing: Computer / electronic prods	5.1	1.9%
521	Monetary authorities	4.0	1.5%
813	Religious, grantmaking, civic and prof orgs	3.6	1.3%
531	Real estate	3.6	1.3%
445	Retail: Food and beverage stores	3.0	1.1%
517	Telecommunications	2.8	1.0%
623	Nursing and residential care	2.7	1.0%
515	Broadcasting	2.7	1.0%
332	Manufacturing: Fabricated metal products	2.6	1.0%
624	Social assistance	2.3	0.9%
441	Retail: Motor vehicles and parts	2.3	0.8%
311	Manufacturing: Food products	2.2	0.8%
522	Credit intermediation and related services	2.1	0.8%
452	Retail: General merchandise	2.0	0.7%
314	Manufacturing: Textile products	2.0	0.7%

Source: Estimates by LAEDC

A complete list of all industries is provided in Exhibit A-6 in the appendix.

The industries making the largest overall payments to labor are in general also the largest industries in terms of employment. Clearly, the more employees the industry hires, the higher its overall labor payments.

However, two industries with comparable employment rolls may still have quite different overall labor costs if the per employee labor costs diverge.

Exhibit 5-6 presents the top industries in Los Angeles County in terms of compensation per employee.

#### Exhibit 5-6

##### Compensation per Employee of Top 30 Private Sector Industries Los Angeles County 2011

NAICS	Industry	Compensation per Employee
324	Manufacturing: Petroleum / coal prods	\$220,138
221	Utilities	136,834
486	Pipeline transportation	122,711
334	Manufacturing: Computer / electronic prods	110,651
336	Manufacturing: Transportation eqmt	110,602
515	Broadcasting (except internet)	107,881
551	Management of companies	106,574
512	Motion picture and sound recording	105,219
519	Internet publishing and broadcasting	103,581
483	Water transportation	98,677
213	Mining services	98,419
482	Rail Transportation	91,151
91-93	Government	86,344
481	Air transportation	85,546
517	Telecommunications	84,149
533	Lessors of nonfinancial intangible assets	83,162
511	Publishing industries	82,562
622	Hospitals	80,127
518	Internet and data processing services	77,555
335	Manufacturing: Electrical eqmt / appliances	77,111
211	Oil and gas extraction	74,869
312	Manufacturing: Beverage and tobacco prods	74,697
523	Securities, contracts, other financial	74,428
325	Manufacturing: Chemical products	73,948
522	Credit intermediation and related services	73,648
339	Manufacturing: Miscellaneous	71,427
333	Manufacturing: Machinery	69,982
322	Manufacturing: Paper	68,798
331	Manufacturing: Primary metal	67,497
521	Monetary authorities	67,459

Source: Estimates by LAEDC

The average compensation paid to employees (including benefits) in Los Angeles County in 2011 was \$52,540. Economic theory suggests that labor compensation is directly attributable to the marginal value of labor productivity. This value is dependent upon the product being produced. Here, the highest compensated employees are those the petroleum industry because the value of output per employee is the highest. Other highly-compensated employees of natural resource and mining industries include pipeline transportation, mining services, and oil and gas extraction.

The second highest per employee compensation is utilities, which includes both private utilities (such as Southern California Edison) and public utilities (such as the Department of Water and Power).

Average compensation in several manufacturing industries is quite high, including computer and electronic products and transportation equipment. Both of these industries form the core of the aerospace industry in Los Angeles County.

Industries involved in the entertainment and digital media cluster (and paying more than the county average compensation) include broadcasting, motion picture and sound recording, internet publishing, telecommunications and internet services.

A third cluster of industries is transportation, including water transportation, air transportation and rail transportation. These industries form the backbone of the region's trade cluster as goods are moved from the ports and from the airport often over rail lines to inland warehouse and distribution centers.

Several other manufacturing industries provide compensation in excess of the county average, including electrical equipment and appliances, beverage and tobacco products, chemicals, machinery, paper and primary metals.

A complete list of all industries is provided in Exhibit A-7 in the appendix. ❖

## 5.5 Industry Clusters in Los Angeles County

The discussion to this point has been focused on individual industries or sub-sectors. This is the most commonly used method of distinguishing among the various economic activities occurring in a region. However, the connections between one industry and its suppliers in other industries must be appreciated, since an ascendant industry can spur growth in associated industries, while a declining industry can cause the loss of employment further down its supplier chain. Understanding these relationships will improve targeting efforts and will inform workforce development initiatives.

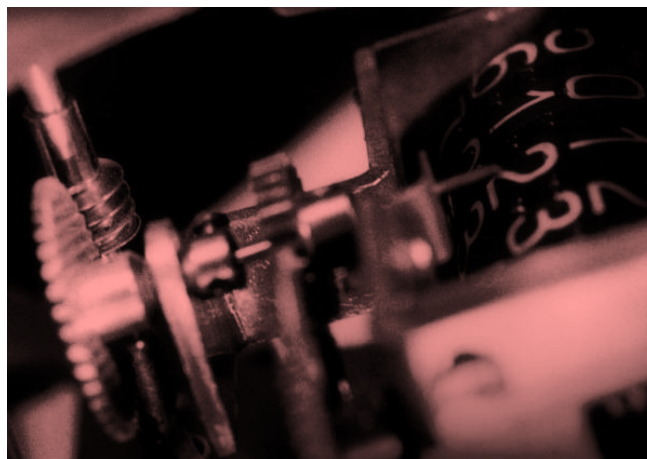
This type of examination of the relationship among industries is called *cluster theory*. Clusters are geographic concentrations of firms, suppliers, support services, infrastructure, and so on, which form in specific locations. This locational clustering enables firms to compete and collaborate more efficiently, increasing demand for their supplier industries, encouraging the growth of specialized local infrastructure, developing a pool of specialized labor, and, through rivalry and proximity, spurring innovation and new advancements.

Industries are classified according to their patterns of spatial competition and geographic locational drivers into three main types:

*Local industry clusters* provide goods and services to the population of the local region, such as eating establishments and local medical services, and have limited exposure to other markets. Employment in local industries is widely dispersed and is generally proportional to overall economic activity within the region. These clusters provide the majority of the jobs available for local workers.

*Traded industry clusters* are comprised of industries that are more highly-concentrated in a few regions, and that provide the potential for wealth creation through exports. For example, motion picture production is more highly-concentrated in Los Angeles County than in the nation as a whole. These are classified as traded industries.

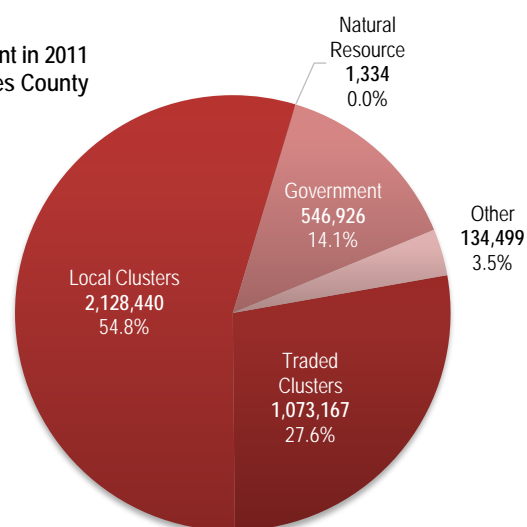
The third type of industry cluster is the *natural resource dependent cluster*. These are comprised of industries that are located where the natural resources that support them are found, such as logging and mining.



The allocation of individual industries into clusters is done using definitions developed by Michael Porter of the Institute for Strategy and Competitiveness at Harvard Business School.

Using these definitions, the industry cluster composition of the county is shown in Exhibit 5-7.

**Exhibit 5-7**  
Employment in 2011  
Los Angeles County



Source: Estimates by LAEDC

Approximately 55 percent of all employment in Los Angeles County is in local industry clusters, such as health services, local commercial services and local hospitality establishments. Almost 28 percent is in



traded industry clusters, such as trade, entertainment, business services and fashion.

The government plays an important role in the economy, as seen in earlier exhibits, accounting for 14 percent of employment, while natural resource dependent industries are very small.

The category “Other” includes employment of household help, crop and animal production, and employment that has not otherwise been included in any industry cluster definition,

Exhibit 5-8 displays the largest traded industry clusters in Los Angeles County, measured by employment, along with their corresponding location quotients.

#### Exhibit 5-8

##### Largest Traded Industry Clusters in Los Angeles County (By employment, 2011)

	Employment	LQ
Trade <sup>1</sup>	176,844	1.5
Entertainment	162,222	5.0
Business Services	152,068	0.9
Education and Knowledge Creation	90,313	1.2
Fashion <sup>2</sup>	65,576	4.1
Hospitality and Tourism	62,033	0.9
Financial Services	53,503	0.9
Processed Food	39,729	1.0
Aerospace	39,456	2.6
Analytical Instruments	28,342	1.8
Publishing and Printing	27,800	1.2
Metal Manufacturing	26,769	1.1
Biomedical <sup>3</sup>	22,152	1.1
Heavy Construction Services	14,174	0.4
Building Fixtures, Equipment, Services	13,501	1.0
<i>All Other Traded Clusters</i>	<i>98,684</i>	
<b>Total Traded Cluster Employment</b>	<b>1,073,167</b>	<b>1.2</b>

<sup>1</sup> Includes Transportation and Logistics and Distribution

<sup>2</sup> Includes Apparel, Footwear, Jewelry and Precious Metals, Leather and Related Products, and Textiles

<sup>3</sup> Includes Biopharmaceuticals and Medical Devices

Sources: CA EDD; BLS; Estimates by LAEDC

The largest traded industry cluster in Los Angeles County in 2011 was trade, employing almost 177,000 workers, followed by entertainment, with 162,222 workers, and business services, with 152,068 employed. Overall, more than 1 million jobs were involved in traded industry clusters.

Of the fifteen largest traded industry clusters in the county, ten have location quotients greater than one, reflecting the county's competitive strength in a wide variety of industries.

Exhibit 5-9 displays the largest local industry clusters in Los Angeles County (measured by employment).

#### Exhibit 5-9

##### Largest Local Industry Clusters in Los Angeles County (By employment, 2011)

	Employment	LQ
Health Services	385,410	0.9
Local Commercial Services	358,128	1.2
Local Hospitality Establishments	311,455	1.0
Real Estate, Construction, and Development	198,172	0.8
Local Food and Beverage	128,525	1.1
<i>All Other Local Clusters</i>	<i>746,750</i>	
<b>Total Local Cluster Employment</b>	<b>2,128,440</b>	<b>0.9</b>

Sources: CA EDD; BLS; Estimates by LAEDC

Together, local industry clusters provide twice as many jobs as traded industry clusters. The largest clusters in Los Angeles County are health services, with more than 385,000 jobs, local commercial services with 358,000 jobs, and local hospitality establishments, with 311,000 jobs. The latter cluster includes all local food services and to some extent is traded since tourists to the region frequent these businesses. ❖



## 5.6 Identifying Target Industries

The metrics described above (the size of the industry, its job creation potential, its relative competitiveness and the average labor compensation paid) are used to identify industries as the most promising targets for job retention and expansion activities in Los Angeles County. These are presented in Exhibit 5-10 (by NAICS code), and discussed individually below (in no particular order).

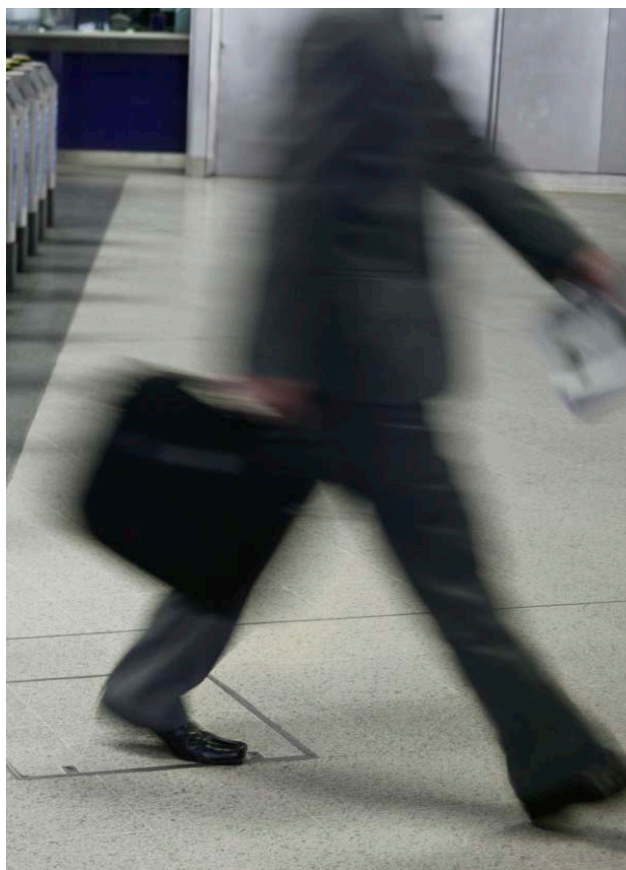
**Exhibit 5-10**

**Target Industries**

	NAICS
Construction of buildings	236
Heavy and civil engineering construction	237
Specialty trade contractors	238
Manufacturing: Beverages and tobacco products	312
Manufacturing: Textile mills	313
Manufacturing: Apparel	315
Manufacturing: Leather and allied products	316
Manufacturing: Pharmaceutical and medicine	3254
Manufacturing: Fabricated metal products	332
Manufacturing: Computer and electronic products	334
Manufacturing: Transportation equipment	336
Manufacturing: Medical equipment and supplies	3391
Motion pictures and sound recording industries	512
Broadcasting	515
Other information services	519
Professional and technical services	541
Administrative and support services	562
Ambulatory health care services	621
Hospitals	622
Nursing and residential care facilities	623
Accommodation	721
Food services and drinking places	722

### *Health Care*

This is a large and growing industry sector which includes establishments providing health care, including: ambulatory health care services such as doctors' offices, dentistry practices, medical laboratories and home health care services; hospitals; and nursing and residential care facilities. This sector employed almost 360,000 workers in Los Angeles County in 2011, with average earnings were \$54,500, and is expected to add almost 50,000 new jobs from 2012 to 2017. These are large industries with high growth potential given the ongoing demographic shift, the advancement of medical



technology and increased coverage through the American Care Act.

### *Biomed/Biotech*

The biomed/biotech industry consists of two industries: pharmaceutical and medicine manufacturing, and medical equipment and supplies manufacturing. (The research component is included in professional and technical services). There are more than 15,000 workers employed in this cluster in Los Angeles County. While its growth rate is expected to be robust, the size of the industry itself implies a relatively small number of openings over the next five years of approximately 1,300 jobs. Nevertheless, this is an attractive industry target given regional strengths in health care services and health sciences educational capabilities both of which interact with and support the biomed/biotech cluster. Furthermore, the industries hire a range of workers with various education and skills. Almost half of the jobs are in occupations that can be filled by entrants with a high school diploma or equivalent

### ***Administrative and Support Services***

Establishments in these industries provide support to the day-to-day operations for other organizations, such as management, personnel administration, clerical activities and cleaning activities. The sector is expected to continue growing and will add 52,050 new jobs in Los Angeles County from 2012 to 2017 as businesses follow the trend of contracting with outside services for administrative and support services rather than conducting them in-house. A wide variety of occupations in the sector can be filled by entrants with community college degrees or technical training

### ***Professional and Technical Services***

These industries include establishments that specialize in performing professional and technical activities for others, such as legal services, accountants, bookkeepers and auditors, architectural and engineering services, interior and industrial design, computer design and programming, management and environmental consulting, advertising and market research. These activities typically require a high degree of expertise and training, and can be highly-compensated. However, there is a wide range of occupations within these industries that can be filled by workers with some college training, some technical training, or on-the-job experience, such as clerical positions, receptionists, draftsmen, legal assistants, bookkeepers, accounting clerks, and so on.

### ***Hospitality and Tourism***

One of the region's major industry clusters, hospitality and tourism will continue to provide employment opportunities for a wide range of job entrants and incumbent workers. Food services is a large industry with a wide range of establishments serving food and beverages to customers. They include full-service restaurants, limited-service eating places, food service contractors (such as caterers), mobile food services, and drinking places. It is projected to add almost 50,000 new jobs from 2012 to 2017. The accommodation industry is projected to add 6,750 new jobs over the period.

### ***Entertainment Industry***

As the region's signature industry cluster, the entertainment industry continues to generate employment opportunities for a range of occupations.

This industry includes not only motion picture and television production, but also sound recording industries, pre- and post-production work, performing arts, spectator sports, independent artists and performers, and art galleries and museums. Ancillary and related industries would include those involved in digital media, such as software publishing, internet publishing, telecommunications, and gaming. These together forms a critical mass of creative industries and workers, which become a magnet for firms and businesses engaged in supporting and encouraging these activities. This is evidenced by these industries' high location quotients and recent location quotient growth.

### ***Trade (Logistics, Transportation and Warehousing)***

Trade-related employment is the region's largest traded industry cluster, one in which the region has competitive advantage, and one that will continue to dominate our export-oriented economic activity. However, challenges exist to continued employment growth, as noted earlier. The warehousing industry has become increasingly efficient and centralized and requires extremely large parcels of land, which are not available in Los Angeles County. Expansion is moving inland to Riverside County and San Bernardino County. Transportation, however, will continue to grow as the ports of San Pedro Bay handle increasing trade volumes and as goods are delivered to inland warehouses. Wholesale activities are included in the trade cluster, and although traditional wholesale activities will grow slowly, transactions conducted online will grow robustly and the sector will add approximately 9,100 jobs from 2012 to 2017. Many of these jobs can be filled by workers with lower levels of education and little work experience.

### ***Manufacturing (Selected Products)***

Although employment in manufacturing as a whole has been on a long term decline over the past two decades, several manufacturing industries continue to be promising targets for employment growth in the county based on upon their performance. These include: transportation equipment, computer and electronic products, apparel, beverages and tobacco products, leather products, textile mills, and fabricated metal products. Many of these are highly-skilled jobs that are well commensurately highly-compensated, but many include positions that require workers with community college degrees or technical training. The expected retirement of aging skilled craftsman in some specialized

manufacturing industries presents opportunities for apprenticeships, new entrants, and those moving up the career ladder.

### ***Construction***

As credit conditions improve and the housing market recovers, construction industries (including building construction, specialty trade contractors and heavy and civil engineering) are expected to make a robust

recovery. Housing starts are showing signs of life after a dismal few years, and will be needed to meet pent-up demand. In addition, many of the existing infrastructure projects currently planned will come on line, employing thousands of workers in highway, transit, infrastructure and other projects. Finally, continuing incentives and mandates related to energy efficiency and greening of existing buildings have the potential to drive employment in retrofitting and energy efficient implementations. Together, the sector is projected to add almost 23,000 jobs between 2012 and 2017. ♦



## OCCUPATIONAL ANALYSIS





## 6 Occupational Analysis

Understanding how industries are expected to grow or decline and estimating their job creation potential provides one aspect of the overall workforce needs. The more important aspect, however, is the composition of those expected jobs and their educational attainment and skills needs. In this section, we convert industry job creation projections into occupational projections.

### 6.1 Current Occupational Profile

Occupations are commonly classified using the Standard Occupational Classification (SOC) system, developed by the Bureau of Labor Statistics. This system classifies all workers into one of 840 detailed occupations with similar job duties, skills, education and training. These detailed occupations are not generally industry-specific but are common to many industries. For example, retail salespersons are employed in a full spectrum of industries.



Detailed occupations are aggregated into 23 major groups, which include broad descriptive categories such as production occupations, management occupations and business and business and financial operations occupations.

The occupational profile of Los Angeles County is shown in Exhibit 6-1. This is somewhat different than the occupational distribution of the working residents shown in Exhibit 3-8 since these are the occupations of the jobs that are located in Los Angeles County.

**Exhibit 6-1**  
**Occupational Profile**  
(% of Employment)

SOC	Occupational Group	
11-0000	Management occupations	5.6%
13-0000	Business and financial operations	5.3%
15-0000	Computer and mathematical science	2.5%
17-0000	Architecture and engineering	1.8%
19-0000	Life, physical and social science	0.8%
21-0000	Community and social services	1.6%
23-0000	Legal occupations	1.0%
25-0000	Education, training and library	6.3%
27-0000	Arts, design, entertainment, sports, media	3.5%
29-0000	Healthcare practitioners and technical	4.9%
31-0000	Healthcare support	2.7%
33-0000	Protective services	2.9%
35-0000	Food preparation and serving	8.4%
37-0000	Building/grounds cleaning and maintenance	2.5%
39-0000	Personal care and service	2.3%
41-0000	Sales and related	10.2%
43-0000	Office and administrative support	18.5%
45-0000	Farming, fishing and forestry	0.1%
47-0000	Construction and extraction	2.3%
49-0000	Installation, maintenance and repair	3.0%
51-0000	Production	6.6%
53-0000	Transportation/material moving	7.1%
<b>Total</b>		<b>100.0%</b>

Sources: BLS: Occupational Employment Statistics Survey, May 2011

There is a diversity of occupations, as would be expected from such a large economy. The largest occupational group is office and administrative support, accounting for 18.5 percent of all jobs in the region. This is followed by sales occupations, accounting for approximately 10 percent. These two occupational groups represent a variety of detailed occupations that are employed across

many industries. The third largest occupational group, food preparation and serving occupations, accounted for 8.4 percent of all jobs. These are more likely to be found in restaurants and other food services establishments.

Healthcare occupations, including both practitioners and support occupations, account for 8.6 percent of jobs in Los Angeles County.

Blue-collar occupations, such as those in construction, production and transportation, account for almost 17 percent of all jobs, a measure of how important these sectors are to the region's economy. ❖

## 6.2 Projected Occupational Needs

The growth of industries in the region will precipitate the growth of particular occupations. The overall net growth of an occupation is a consequence of its contribution to industries that are growing and to industries that are declining. This may result in an occupation experiencing no or little growth as workers that had been employed in a failing industry shift to similar roles in industries that are growing, or as workers in certain occupations are replaced with improved technologies or processes.

In addition to the growth and decline of industries, workers within industries leave current positions, either through retirement or through promotion, or for other reasons, leaving positions open and in need of replacement. Replacement trends depend on several factors. The age profile of the existing workforce can portend high replacement rates, such as occurs in many manufacturing industries as highly-skilled craftsmen are reaching retirement age and younger workers have not been trained or received apprenticeships to replace them. Occupations that enable current workers to gain valuable skills through on-the-job training will encourage them to move into higher-skilled occupations and leave jobs opening for those with less experience. Industries that are undergoing technological change may find that new processes require fewer workers, leaving fewer openings available as workers retire or leave for other positions.

The Census Bureau estimates replacement needs by industry and occupation through detailed surveys of employers and households. These take into account industry changes, the age of the current workforce within each industry and occupation, and the nature of the career path. These estimates are an important component of occupational job openings and workforce

development needs, since the retirement and promotion of individuals leave openings for newer entrants and those moving up the career ladder to assume.

Projected new openings are calculated by applying the industry occupational composition to the detailed industry employment forecast. In this analysis, the base employment year is 2011, the most recent year for which complete employment data is available. These are aggregated across industries.

Projected job openings by major occupational group in Los Angeles County are presented in Exhibit 6-2.

**Exhibit 6-2**

**Occupational Growth in Los Angeles County 2011-2017  
(Δ Employment)**

SOC	Occupational Group	New Jobs	Replacement	Total *
11-0000	Management occupations	22,850	23,400	46,250
13-0000	Business and financial	22,110	21,440	43,550
15-0000	Computer and mathematical	12,720	11,630	24,360
17-0000	Architecture and engineering	6,720	9,040	15,760
19-0000	Life, physical, social science	3,320	4,420	7,740
21-0000	Community and social services	6,890	6,440	13,330
23-0000	Legal occupations	4,020	3,140	7,160
25-0000	Education, training and library	34,920	29,470	64,390
27-0000	Arts, entertainment, sports	12,400	14,320	26,720
29-0000	Healthcare practitioners	31,640	23,690	55,330
31-0000	Healthcare support	17,120	8,870	25,990
33-0000	Protective services	11,810	11,520	23,330
35-0000	Food preparation and serving	66,110	76,450	142,530
37-0000	Building/grounds maintenance	24,400	13,460	37,860
39-0000	Personal care and service	17,690	22,640	40,330
41-0000	Sales and related	36,030	74,910	110,940
43-0000	Office and administrative	81,410	84,030	165,440
45-0000	Farming, fishing and forestry	230	1,200	1,430
47-0000	Construction and extraction	21,060	12,040	33,100
49-0000	Installation, maint / repair	12,180	18,520	30,710
51-0000	Production	20,680	29,780	50,460
53-0000	Transportation/material moving	24,530	38,890	63,420
<b>Total*</b>		<b>490,840</b>	<b>539,290</b>	<b>1,030,130</b>

\* May not sum due to rounding

Source: Estimates by LAEDC

The largest number of overall openings will occur in the largest occupational groups, such as office and administrative support occupations, food preparation and serving occupations, and healthcare occupations (practitioners, technicians and support). Other occupations that will provide large number of openings are personal care occupations, sales occupations, education and training occupations, and transportation and material moving occupations.

Within each occupational group are 840 detailed occupations. Detailed occupations are differentiated according to jobs skills, abilities and work experienced required. They are not generally industry specific but are common to several industries. For example, retail salespersons are employed in a full spectrum of industries.

Exhibit 6-3 presents the top 20 detailed occupations by projected job openings (new jobs and replacement jobs) between 2011 and 2017. These twenty occupations will account for almost 35 percent of all job openings in all occupations.

#### Exhibit 6-3

##### Occupational Growth in Los Angeles County 2011-2017 Top 20 Detailed Occupations (Δ Employment)

SOC	Detailed Occupation	New Jobs	Replacement	Total *
35-3031	Waiters and waitresses	13,660	20,420	34,080
41-2011	Cashiers	8,640	25,230	33,870
35-3021	Combined food preparation and serving workers	16,230	14,050	30,280
41-2031	Retail salespersons	8,130	21,680	29,810
43-9061	Mail clerks and mail machine operators, except postal service	11,850	10,000	21,850
43-4051	Customer service representatives	8,840	11,410	20,250
29-1111	Registered nurses	12,100	7,870	19,960
53-7062	Laborers and freight, stock, and material movers, hand	6,990	12,530	19,520
37-2011	Janitors and cleaners, except maids and housekeeping cleaners	12,120	7,080	19,190
35-3022	Counter attendants, cafeteria, food concession, and coffee shop	4,500	10,750	15,250
11-1021	General and operations managers	7,050	6,270	13,320
43-6014	Medical secretaries	8,070	4,530	12,600
43-5081	Stock clerks and order fillers	4,580	7,680	12,260
43-1011	First-line supervisors of office and administrative support workers	5,310	6,560	11,870
25-2021	Elementary school teachers, except special education	6,300	5,250	11,550
33-9032	Security guards	7,340	3,100	10,440
41-4012	Sales representatives, wholesale and manufacturing, except technical and scientific products	3,690	6,680	10,370
43-4171	Receptionists and information clerks	4,430	5,420	9,860
25-9041	Teacher assistants	5,290	4,540	9,840
43-3031	Bookkeeping, accounting, and auditing clerks	6,190	3,280	9,470
<b>Total*</b>		<b>161,320</b>	<b>194,330</b>	<b>355,650</b>

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



The largest number of openings will be found in occupations related to the largest major occupational groups: waiters and waitresses, and combined food preparation and serving workers, which are both in the food preparation and serving occupational group; cashiers and retail salespersons, which are in the sales occupational group; and mail clerks and customer service representatives, which are in office and administrative support occupational group.

Other occupations with large numbers of openings expected over the next five years are registered nurses, laborers and freight movers, janitors and cleaners, and counter attendants.

A complete list of all occupations is provided in Exhibit A-8 in the appendix. ❖

## 6.3 Education and Skills Requirements

Careful examination of the detailed occupations that will provide the most job openings in the next five years as shown in Exhibit 6-3 reveal that many of these occupations require lower level educational levels and training. The expected openings for these job market participants are especially important to understand given the capabilities of the local labor supply.

The education and work experience needed for an entry level position in each of the top twenty occupations is shown in Exhibit 6-4. Additionally, the level of on-the-job training required to gain proficiency for each occupation is also shown.

**Exhibit 6-4**

**Median Wage and Entry Level Requirements for Top 20 Detailed Occupations 2011-2017**

SOC	Detailed Occupation	Median Annual Wage	Entry Level		
			Educ	Work Exp	OJT
35-3031	Waiters and waitresses	\$ 18,868	8	None	ST
41-2011	Cashiers	20,017	8	None	ST
35-3021	Combined food preparation and serving workers	18,953	8	None	ST
41-2031	Retail salespersons	21,849	8	None	ST
43-9061	Mail clerks and mail machine operators, except postal	28,069	7	None	ST
43-4051	Customer service reps	35,296	7	None	ST
29-1111	Registered nurses	85,178	4	None	None
53-7062	Laborers and freight, stock, and material movers, hand	23,147	8	None	ST
37-2011	Janitors and cleaners, except maids and housekeepers	22,747	8	None	ST
35-3022	Counter attendants, cafeteria, concession, coffee shop	19,217	8	None	ST
11-1021	General and operations mgrs	113,956	4	1-5 yrs	None
43-6014	Medical secretaries	33,483	7	None	MT
43-5081	Stock clerks and order fillers	22,677	8	None	ST
43-1011	First-line supervisors of office / administrative workers	56,230	7	1-5 yrs	None
25-2021	Elementary school teachers, except special education	70,230	3	None	I/R
33-9032	Security guards	24,286	7	None	ST
41-4012	Sales representatives, wholesale and manuf'g, except technical / scientific	55,429	7	None	MT
43-4171	Receptionists and information clerks	27,400	7	None	ST
25-9041	Teacher assistants	29,398	7	None	ST
43-3031	Bookkeeping, accounting, and auditing clerks	38,918	7	None	MT

ST=short term; MT=moderate-term; I/R=internship/residency

Source: Estimates by LAEDC

Entry level education requirements are as follows: 3=Bachelor's degree; 4=Associate's degree; 5=Post-secondary non-degree award; 6=Some college, no degree; 7=High school diploma or equivalent; and 8=Less than high school. Short-term on-the-job training is training of less than one month. Moderate on-the-job training is training from 1 to 12 months.

Most occupations in the exhibit require a high school diploma or less and no work experience. The median wages shown for each occupation reflect the degree of

preparation and skills levels needed, as most of them are below the average wage paid to workers in Los Angeles County.

A complete list of all occupations is provided in Exhibit A-8 in the appendix.

Recall that the exhibit contains the occupational needs of approximately 35 percent of the overall regional economy.

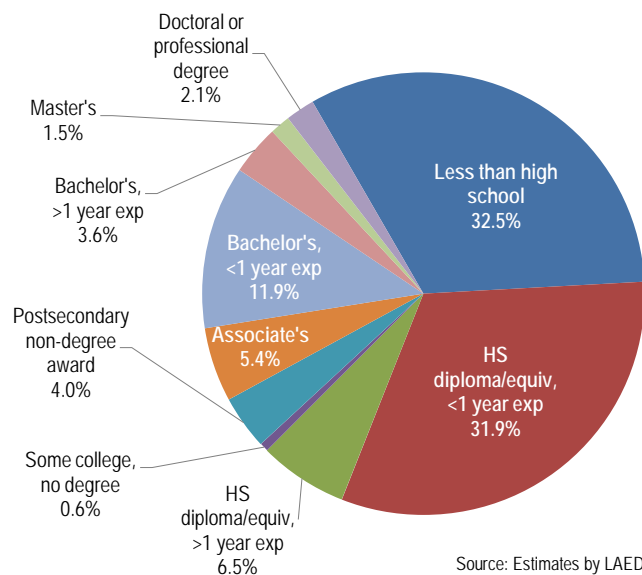
Exhibit 6-5 presents the entry level education and training requirements across all occupational projections for the county.

Almost one-third of the projected openings for the next five years require workers without a high school diploma and no work experience. Another 32 percent will require workers with a high school diploma (or equivalent) and less than one year work experience. Together, these represent entry level jobs for unskilled workers across industries and occupations.

Of the remaining projected openings, 12 percent will be suitable for new graduates with a bachelor's degree, 5.4 percent for workers with associate's degrees and 4 percent for certificated post-secondary candidates. ♦♦

**Exhibit 6-5**

**Entry Level Education and Experience Requirements**



Source: Estimates by LAEDC



## 7 Target Industry Occupations

The North American Industry Classification System (NAICS) classifies businesses based upon the type of economic activity performed without regard to the diverse types of job duties requisite to operations. However, many occupations are needed within a single industry, and these require different workforce skills and abilities.

Thus, just as a business establishment classified under its primary NAICS classification code will employ workers in a variety of occupations, one occupational classification (SOC code) will be employed across many industries. For example, registered nurses are employed in hospitals, by state and local governments, by primary and secondary schools.

In this section, we provide a detailed occupational data sheet for each identified target industry subsector. For each subsector, a description of the four-digit industries within the subsector is provided.

Thereafter, a breakdown of the occupational makeup by major group, and a list of detailed occupations within each major group are shown, along with the current employment and the median annual wage paid in Los Angeles County. The major occupational groups that represent then percent of more of the total subsector employment are displayed in a table, along with the detailed occupations in those major groups with an employment share of two percent or more of the industry total.

Entry-level positions for each detailed occupation are substantially different based upon their job duties. For each target industry, we grouped employment across all occupation by entry level education and experience. The distribution of the entry level education and training requirements for all jobs in the industry is presented graphically. ❖



## Directory of Industries

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## Construction of Buildings (NAICS 236)

*Industries within this subsector primarily construct buildings.*

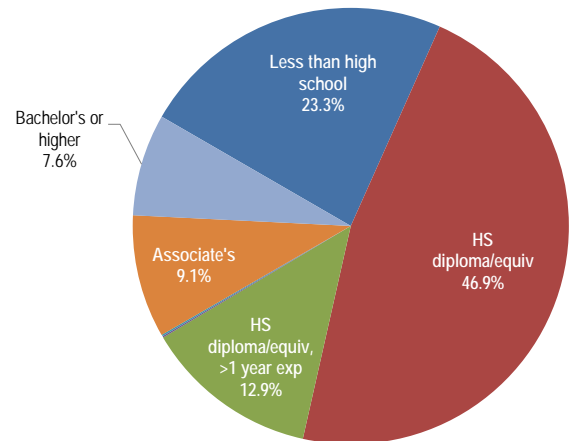
### Residential Building Construction (2361)

Residential building construction includes establishments who construct residential buildings; it includes new work, additions, alterations or maintenance and repairs, in addition to on-site assembly of prefabricated and temporary buildings. The industry group has one industry: residential building construction (23611).

### Nonresidential Building Construction (2362)

Nonresidential building construction includes establishments who construct nonresidential buildings; it includes new work, additions, alterations or maintenance and repairs. Establishments include nonresidential: general contractors, for-sale builders, design-build firms and project construction management firms. The industry group has two industries: industrial building construction (23621) and commercial and institutional building construction (23622).

### Entry Level Education and Experience



### Occupational Distribution of Construction of Buildings in LA County

	Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Wage
<b>Construction and Extraction Occupations</b>	<b>62.2%</b>	<b>846</b>	
47-2031 Carpenters	23.4%	318	\$ 52,267
47-2061 Construction Laborers	15.3%	208	\$ 37,396
47-1011 First-Line Supervisors of Construction Trades and Extraction Workers	9.8%	134	\$ 72,615
47-3012 Helpers--Carpenters	2.0%	27	\$ 31,618
Other Construction and Extraction Occupations	11.7%	159	
<b>Office and Administrative Support Occupations</b>	<b>11.9%</b>	<b>162</b>	
43-9061 Office Clerks, General	3.3%	45	\$ 29,692
43-6014 Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	2.7%	37	\$ 36,040
43-3031 Bookkeeping, Accounting, and Auditing Clerks	2.3%	31	\$ 38,918
Other Office and Administrative Support Occupations	3.6%	49	
<b>Management Occupations</b>	<b>10.4%</b>	<b>142</b>	
11-9021 Construction Managers	6.2%	84	\$ 103,141
11-1021 General and Operations Managers	2.5%	34	\$ 113,956
Other Management Occupations	1.7%	23	\$ 52,267
<b>All Other Industry Occupations</b>	<b>15.4%</b>	<b>210</b>	
<b>Total* Across All Occupations in Industry</b>	<b>100.0%</b>	<b>25,871</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Heavy and Civil Engineering Construction (NAICS 237)

*Industries within this subsector primarily construct entire engineering projects such as highways and dams.*

### Utility System Construction (2371)

Utility system construction includes establishments who are engaged in the construction of distribution lines and related buildings and structures for utilities (water, sewer, petroleum, gas, power, and communication). The industry group has three industries: water and sewer line and related structures construction (23711), oil and gas pipeline and related structures construction (23712) and power and communication line and related structures construction (23713).

### Land Subdivision (2372)

Land subdivision includes establishments primarily engaged in servicing land and dividing real property into lots for subsequent sale to builders. The industry group has one industry: land subdivision (23721).

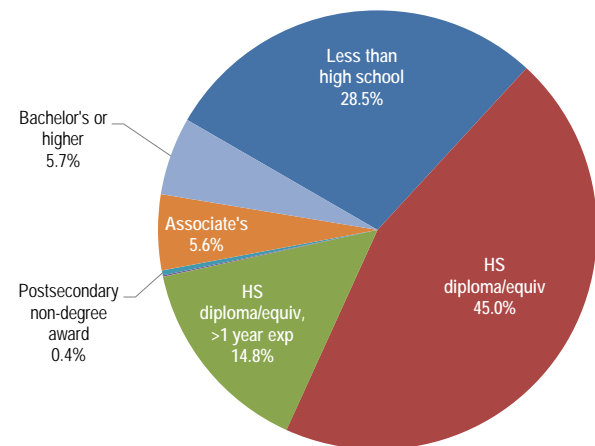
### Highway, Street, and Bridge Construction (2373)

Highway, street, and bridge construction includes establishments who are primarily involved in the construction of highways, streets, roads, airport runways, public sidewalks or bridges. The industry group has one industry: highway, street and bridge construction (23731).

### Other Heavy and Civil Engineering Const. (2379)

Other heavy and civil engineering construction includes establishments who are engaged in heavy and engineering construction projects not including highway, street, bridge or distribution line construction. This includes new work, reconstruction, rehabilitation and repairs. The industry group has one industry: other heavy and civil engineering construction (23799).

### Entry Level Education and Experience



### Occupational Distribution of Heavy and Civil Engineering Construction in LA County

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Wage
Construction and Extraction Occupations		57.0%	6,587	
47-2061	Construction Laborers	22.2%	2,571	\$37,396
47-2073	Operating Engineers and Other Construction Equipment Operators	11.8%	1,362	\$78,266
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	7.2%	829	\$72,615
47-2031	Carpenters	3.2%	374	\$52,267
47-2151	Pipelayers	2.3%	267	\$45,998
47-2071	Paving, Surfacing, and Tamping Equipment Operators	2.2%	258	\$60,595
47-2051	Cement Masons and Concrete Finishers	1.9%	221	\$46,838
47-2152	Plumbers, Pipefitters, and Steamfitters	1.9%	215	\$55,746
Other Construction and Extraction Occupations		4.2%	490	
Installation, Maintenance, and Repair Occupations		10.6%	1,221	
49-9051	Electrical Power-Line Installers and Repairers	3.2%	373	\$86,428
49-9052	Telecommunications Line Installers and Repairers	1.9%	217	\$54,041
Other Installation, Maintenance, and Repair Occupations		5.4%	630	
All Other Industry Occupations		32.5%	3,754	
<b>Total* Across All Occupations in Industry</b>		<b>100.0%</b>	<b>11,561</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Specialty Trade Contractors (NAICS 238)

*Industries within this subsector perform activities for building construction but are not responsible for the entire project.*

### ***Foundation, Structure and Building Contractors (2381)***

Foundation, structure and building contractors include establishments mainly involved in the specialty trades that are needed to complete a structure such as the foundation, the frame and the shell of buildings. The industry group has eight industries: poured concrete foundation and structure contractors (23811), structural steel and precast concrete contractors (23812), framing contractors (23813), masonry contractors (23814), glass and glazing contractors (23815), roofing contractors (23816), sliding contractors (23817), and other foundation, structure and building exterior contractors (23819).

### ***Building Equipment Contractors (2382)***

Building equipment contractors are mostly engaged in installing or servicing equipment or the parts of a building's mechanical system including electricity, water, heating and cooling. The industry group has three industries: electrical contractors and other wiring installation contractors (23821), plumbing, heating and air-conditioning contractors (23822), and other building equipment contractors (23829).

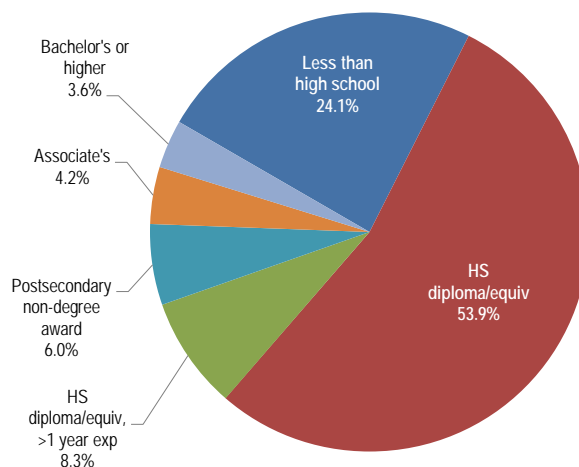
### ***Building Finishing Contractors (2383)***

Building finishing contractors include establishments involved in the specialty trades to finish buildings including new work, additions, alterations, maintenance and repairs. The industry group has six industries: drywall and insulation contractors (23831), painting and wall covering contractors (23832), flooring contractors (23833), tile and terrazzo contractors (23834), finish carpentry contractors (23835), and other building finishing contractors (23839).

### ***Other Specialty Trade Contractors (2389)***

Other specialty contractors include all those who are involved in building contractors but not included in the other NAICS industries. The industry group has two industries: site preparation contractors (23891), establishments engaged in site prep activities such as excavating, and all other specialty trade contractors (23899), establishments engaged in specialized trades excluding those previously listed.

### ***Entry Level Education and Experience***



## Specialty Trade Contractors (cont'd)

*Industries within this subsector perform activities for building construction but are not responsible for the entire project.*

### ***Occupational Distribution of Specialty Trade Contractors in LA County***

SOC	Occupation	Nat'l share % of NAICS	Los Angeles County	
			Occupation Employment	Median Annual Wage
Construction and Extraction Occupations		63.9%	43,189	
47-2111	Electricians	10.8%	7,280	\$62,283
47-2061	Construction Laborers	7.4%	4,967	\$37,396
47-2152	Plumbers, Pipefitters, and Steamfitters	7.3%	4,941	\$55,746
47-2031	Carpenters	5.0%	3,367	\$52,267
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	4.9%	3,303	\$72,615
47-2141	Painters, Construction and Maintenance	3.8%	2,586	\$36,240
47-2051	Cement Masons and Concrete Finishers	2.8%	1,861	\$46,838
47-2073	Operating Engineers and Other Construction Equipment Operators	2.6%	1,780	\$78,266
47-2211	Sheet Metal Workers	2.4%	1,591	\$46,442
47-2081	Drywall and Ceiling Tile Installers	1.9%	1,272	\$49,210
	Other Construction and Extraction Occupations	12.4%	8,396	
Office and Administrative Support Occupations		10.6%	7,177	
43-9061	Office Clerks, General	3.3%	2,200	\$29,692
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	2.3%	1,560	\$36,040
43-3031	Bookkeeping, Accounting, and Auditing Clerks	2.0%	1,383	\$38,918
	Other Office and Administrative Support Occupations	3.0%	2,034	
Installation, Maintenance, and Repair Occupations		10.1%	6,851	
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	4.8%	3,210	\$54,365
	Other Installation, Maintenance, and Repair Occupations	5.4%	3,641	
All Other Industry Occupations		15.3%	10,355	
Total*	Across All Occupations in Industry	100.0%	67,572	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding



## Beverage and Tobacco Product Manufacturing (NAICS 312)

*Industries within this subsector manufacture beverages and tobacco products.*

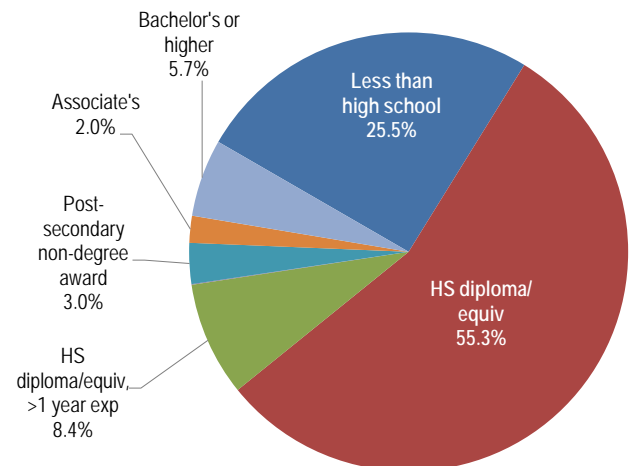
### ***Beverage Manufacturing (3121)***

Beverage manufacturing includes establishments that manufacture nonalcoholic and alcoholic beverages. Alcoholic beverages are produced either through fermentation or distillation. The industry group has four industries: soft drink and ice manufacturing (31211), breweries (31212), wineries (31213) and distilleries (31214).

### ***Tobacco Manufacturing (3122)***

Tobacco manufacturing includes establishments that stem and redry tobacco and/or manufacturing cigarettes or other tobacco products. The industry group has one industry: tobacco manufacturing (31223).

### ***Entry Level Education and Experience***



### ***Occupational Distribution of Beverage and Tobacco Product Manufacturing in LA County***

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
<b>Production Occupations</b>		<b>29.2%</b>	<b>1,463</b>	
51-9111	Packaging and Filling Machine Operators and Tenders	11.6%	581	\$ 22,422
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters/Operators/Tenders	5.2%	259	\$ 36,968
51-1011	First-Line Supervisors of Production and Operating Workers	2.7%	135	\$ 51,218
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	1.9%	95	\$ 34,469
Other Production Occupations		7.8%	392	
<b>Transportation and Material Moving Occupations</b>		<b>22.9%</b>	<b>1,149</b>	
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	6.0%	299	\$ 23,147
53-3031	Driver/Sales Workers	4.3%	218	\$ 23,088
53-7051	Industrial Truck and Tractor Operators	3.8%	192	\$ 35,449
53-3032	Heavy and Tractor-Trailer Truck Drivers	3.2%	159	\$ 41,482
53-3033	Light Truck or Delivery Services Drivers	2.8%	142	\$ 29,793
Other Transportation and Material Moving Occupations		2.8%	138	
<b>Sales and Related Occupations</b>		<b>12.8%</b>	<b>639</b>	
41-4012	Sales Reps, Wholesale and Manufacturing, Except Technical and Scientific Products	5.1%	253	\$ 55,429
41-2031	Retail Salespersons	3.4%	173	\$ 21,849
41-9011	Demonstrators and Product Promoters	2.4%	123	\$ 23,762
Other Sales and Related Occupations		1.8%	91	
<b>Office and Administrative Support Occupations</b>		<b>10.1%</b>	<b>506</b>	
43-5081	Stock Clerks and Order Fillers	2.1%	108	\$ 22,677
Other Office and Administrative Support Occupations		7.9%	398	
<b>All Other Industry Occupations</b>		<b>25.0%</b>	<b>1,253</b>	
<b>Total* Across All Occupations in the Industry</b>		<b>100.0%</b>	<b>5,010</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Textile Mills (NAICS 313)

*Industries within this subsector convert a basic fiber into a product to be further manufactured for consumption.*

### ***Fiber, Yarn, and Thread Mills (3131)***

Fiber, yarn and thread mills include establishments that: manufacture thread; spin yarn; texturize, throw, twist, and wind purchased yarn or manmade fiber filaments; and produce or further process hemp yarn. The industry group has one industry: fiber, yarn and thread mills (31311).

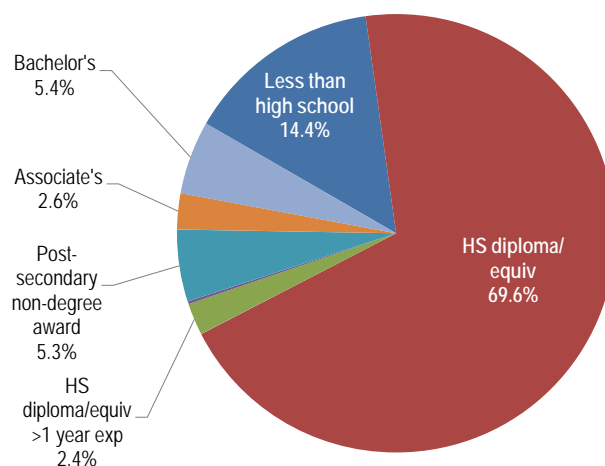
### ***Fabric Mills (3132)***

Fabric mills include establishments that weave, weave and finish, or weave, finish and further fabricate fabric products. The industry group has four industries: broadwoven fabric mills (31321), narrow fabric mills and schiffli machine embroidery (31322), nonwoven fabric mills (31323) and knit fabric mills (31324).

### ***Textile and Fabric Finishing and Fabric Coating Mills (3133)***

Textile and fabric finishing and fabric coating mills includes establishments that finish or coat textiles, fabrics, and apparel, and those who buy fabric goods in the grey and finish them on contract for wholesale. The industry group has two industries: textile and fabric finishing mills (31331) and fabric coating mills (31332).

### ***Entry Level Education and Experience***



### ***Occupational Distribution of Textile Mills in LA County***

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Production Occupations		59.8%	4,113	
51-6064	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators and Tenders	17.2%	1,180	\$ 19,527
51-6063	Textile Knitting and Weaving Machine Setters, Operators and Tenders	12.3%	845	\$ 19,304
51-9061	Inspectors, Testers, Sorters, Samplers and Weighers	5.4%	368	\$ 34,469
51-1011	First-Line Supervisors of Production and Operating Workers	4.7%	327	\$ 51,218
51-6091	Extruding and Forming Machine Setters/Operators/ Tenders, Synthetic and Glass Fibers	3.1%	211	\$ 30,035
51-9198	Helpers--Production Workers	2.6%	178	\$ 21,162
51-6099	Textile, Apparel, and Furnishings Workers, All Other	2.2%	151	\$ 19,888
Other Production Occupations		12.4%	853	
Office and Administrative Support Occupations		10.1%	694	
43-5071	Shipping, Receiving, and Traffic Clerks	2.1%	142	\$ 28,322
Other Office and Administrative Support Occupations		8.0%	552	
All Other Industry Occupations		30.1%	2,072	
<b>Total* Across All Occupations in the Industry</b>		<b>100.0%</b>	<b>6,879</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Apparel Manufacturing (NAICS 315)

*Industries within this subsector cut and sew and manufacture garments.*

### ***Apparel Knitting Mills (3151)***

Apparel knitting mills include establishments that knit apparel or fabric and then manufacture apparel. The industry group has two industries: hosiery and sock mills (31211) and other apparel knitting mills (31214).

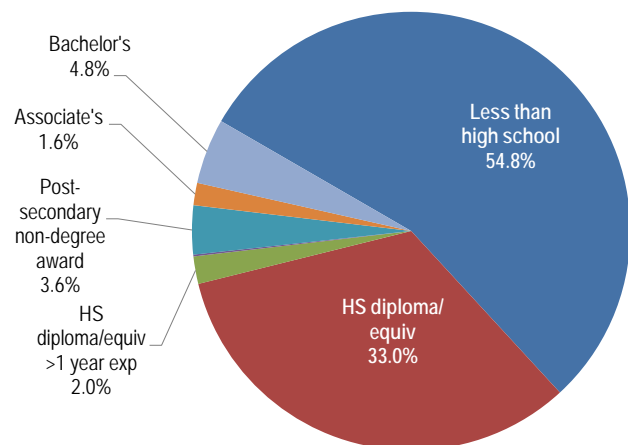
### ***Cut and Sew Apparel Manufacturing (3152)***

Cut and sew apparel manufacturing includes establishments that cut and sew apparel from woven fabric or purchased knit fabric. The industry group has four industries: cut and sew apparel contractors (31211), men's and boys' cut and sew apparel manufacturing (31212), women's, girls', and infants' cut and sew apparel manufacturing (31213) and other cut and sew apparel manufacturing (31214).

### ***Apparel Accessories and Other Apparel Mfg (3159)***

Apparel accessories and other apparel manufacturing include establishments that manufacture apparel and accessories. The industry group has one industry: apparel accessories and other apparel manufacturing (31223).

### ***Entry Level Education and Experience***



### ***Occupational Distribution of Apparel Manufacturing in LA County***

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Production Occupations		63.6%	28,959	
51-6031	Sewing Machine Operators	39.3%	17,881	\$ 19,274
51-1011	First-Line Supervisors of Production and Operating Workers	3.6%	1,632	\$ 51,218
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	3.5%	1,595	\$ 21,182
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	3.0%	1,358	\$ 34,469
51-6092	Fabric and Apparel Patternmakers	2.1%	965	\$ 43,907
51-6021	Pressers, Textile, Garment, and Related Materials	1.9%	859	\$ 20,456
51-6063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	1.8%	832	\$ 19,304
Other Production Occupations		8.4%	3,837	
Office and Administrative Support Occupations		13.0%	5,931	
43-5071	Shipping, Receiving, and Traffic Clerks	2.7%	1,223	\$ 28,322
Other Office and Administrative Support Occupations		10.3%	4,708	
All Other Industry Occupations		23.4%	10,649	
<b>Total* Across All Occupations in the Industry</b>		<b>100.0%</b>	<b>45,539</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Leather and Allied Product Manufacturing (NAICS 316)

*Industries within this subsector manufacture leather into products for final consumption.*

### ***Leather and Hide Tanning and Finishing (3161)***

Leather and hide tanning and finishing industry includes establishments that are mainly involved in: tanning, currying and finishing hides and dyeing and dressing furs. The industry group has one industry: leather and hide tanning and finishing (31611).

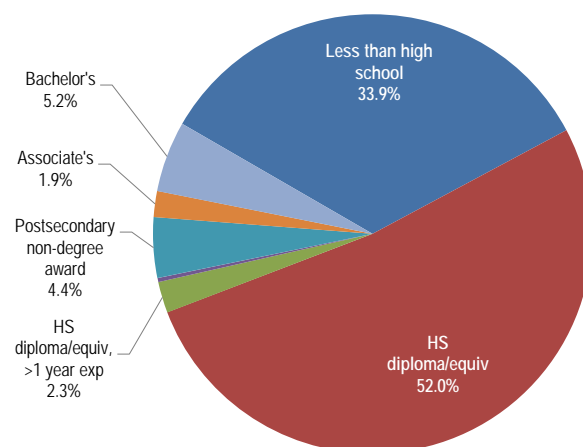
### ***Footwear Manufacturing (3162)***

Footwear manufacturing includes establishments primarily engaged in manufacturing footwear, excluding orthopedic extension footwear. The industry group has one industry: footwear manufacturing (31621).

### ***Other Leather and Allied Product Manufacturing (3169)***

Other leather and allied product manufacturing includes establishments that mainly manufacture leather products from purchased leather or leather substitutes, excludes footwear and apparel. The industry group has one industry: other leather and allied product manufacturing (31699).

### ***Entry Level Education and Experience***



### ***Occupational Distribution of Leather and Allied Manufacturing in LA County***

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Production Occupations		53.3%	1,175	
51-6031	Sewing Machine Operators	17.4%	384	\$19,274
51-6041	Shoe and Leather Workers and Repairers	8.9%	195	\$19,746
51-2092	Team Assemblers	6.5%	144	\$23,507
51-1011	First-Line Supervisors of Production and Operating Workers	3.7%	81	\$51,218
51-9198	Helpers--Production Workers	2.3%	52	\$21,162
51-9399	Production Workers, All Other*	2.0%	44	\$30,887
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2.0%	43	\$34,469
Other Production Occupations		10.5%	232	
Office and Administrative Support Occupations		11.5%	254	
43-5071	Shipping, Receiving, and Traffic Clerks	2.4%	53	\$28,322
Other Office and Administrative Support Occupations		9.1%	202	
All Other Industry Occupations		35.2%	778	
<b>Total* Across All Occupations in the Industry</b>		<b>100.0%</b>	<b>2,207</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Pharmaceutical and Medicine Manufacturing (NAICS 3254)

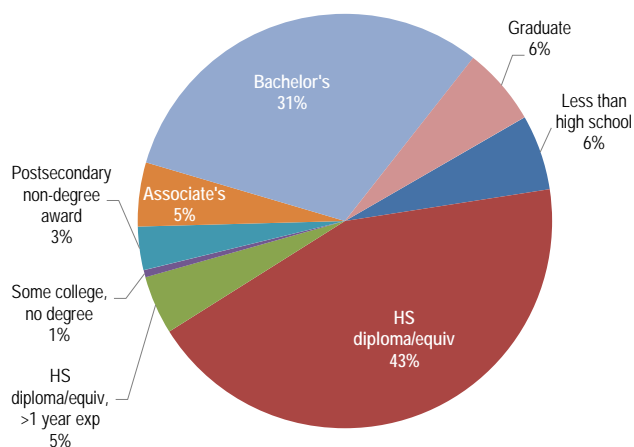
*Industries within this industry group manufacture biological and medicinal products, process botanical drugs and herbs, isolate medicinal principals from botanical drugs and herbs and manufacture pharmaceutical products.*

### Pharmaceutical and Medicine Manufacturing (32541)

Pharmaceutical and medicine manufacturing establishments are mainly engaged in the following four processes: 1) manufacturing biological and medicinal products; 2) processing botanical drugs and herbs; 3) isolating active medicinal principals from botanical drugs and herbs; 4) manufacturing pharmaceutical products intended for internal and external consumption.

The industry has four industries including: medicinal and botanical manufacturing (325411), pharmaceutical and preparation manufacturing (325412), in-vitro diagnostic substance manufacturing (325413), and biological product (except diagnostic) manufacturing (325414).

### Entry Level Education and Experience



### Occupational Distribution of Pharmaceutical and Medicine Manufacturing in LA County

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Production Occupations		30.7%	2,047	
51-9111	Packaging and Filling Machine Operators and Tenders	8.1%	537	22,422
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	4.8%	319	30,846
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	3.7%	249	34,469
51-9011	Chemical Equipment Operators and Tenders	3.0%	203	41,246
51-1011	First-Line Supervisors of Production and Operating Workers	3.0%	202	51,218
51-2092	Team Assemblers	2.1%	137	23,507
	Other Production Occupations	6.0%	400	
Life, Physical and Social Science Occupations		16.9%	1,124	
19-2031	Chemists	5.3%	352	69,724
19-1042	Medical Scientists, Except Epidemiologists	3.0%	203	72,294
19-4021	Biological Technicians	2.4%	163	47,987
	Other Life, Physical, and Social Science Occupations	6.1%	407	
Management Occupations		10.6%	703	
11-9121	Natural Sciences Managers	1.9%	124	133,118
	Other Management Occupations	8.7%	580	
Office and Administrative Support Occupations		10.6%	706	
All Other Industry Occupations		31.3%	2,083	
<b>Total*</b>	<b>Across All Occupations in the Industry</b>	<b>100.0%</b>	<b>6,663</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding



## Fabricated Metal Product Manufacturing (NAICS 332)

*Industries within this subsector transform metal into intermediate or end products other than machinery, computers, electronics or metal furniture.*

### ***Forging and Stamping (3321)***

Establishments in this industry are primarily involved in manufacturing: forgings from purchased metals; metal custom rolls forming products; metal stamped and spun products; and powder metallurgy products. The industry group has one industry: forging and stamping (33211).

### ***Cutlery and Handtool Manufacturing (3322)***

Cutlery and Handtool Manufacturing establishments are mainly engaged in manufacturing: metal kitchen cookware (except by casting), utensils, and/or nonprecious and precious plated metal cutlery and flatware; saw blades; and nonpowered hand and edge tools. The industry group has one industry: cutlery and handtool manufacturing (33221).

### ***Architectural and Structural Metals Mfg. (3323)***

Architectural and structural metals manufacturing establishments are primarily involved in manufacturing: prefabricated metal buildings, panels and sections; structural metal products and metal plate work products; and metal framed windows and doors, sheet metal work and ornamental and architectural metal products. The industry group has two industries: plate work and fabricated structural product manufacturing (33231), ornamental and architectural metal products manufacturing (33232).

### ***Boiler, Tank and Shipping Container Mfg. (3324)***

Boiler, tank and shipping container manufacturing establishments are mainly engaged in: manufacturing and/or installing power boilers and heat exchanges; cutting, forming and joining heavy gauge metal to manufacture tanks, vessels and other containers; and manufacturing metal cans, lids and ends. The industry group has three industries: power boiler and heat exchanger manufacturing (33241), metal tank (heavy gauge) manufacturing (33242), metal can, box and other metal container (light gauge) manufacturing (33243).

### ***Hardware Manufacturing (3325)***

Hardware manufacturing establishments are mainly engaged in manufacturing metal hardware including metal hinges, handles, keys and locks. The industry

group has one industry: hardware manufacturing (33251).

### ***Spring and Wire Product Manufacturing (3326)***

Spring and wire product manufacturing firms mainly manufacture steel springs and/or wire springs and fabricated wire products. The industry group has only industry: spring and wire product manufacturing (33261).

### ***Machine Shops; Turned Product; and Screw, Nut and Bolt Manufacturing (3327)***

Machine shops and turned product manufacturers include establishments mainly engaged in machining metal and plastic parts and parts of other composite materials using machine tools on a job basis. The industry group has two industries: machine shops (33271) and turned product and screw, nut and bolt manufacturing (33272).

### ***Coating, Engraving, Heat Treating and Allied Activities (3328)***

Coating, engraving, heat treating and allied activities establishments are primarily involved in heat treating, enameling, lacquering and varnishing, hot dip galvanizing, engraving, chasing or etching, powder coating, electroplating, plating, anodizing, coloring, and finishing metals and metal product as well as providing other metal surfacing services for the trade. The industry group has only industry: coating, engraving, heat treating and allied activities (33281).

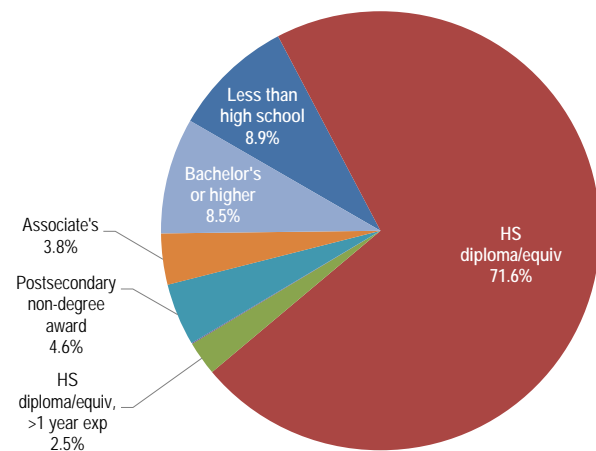
### ***Other Fabricated Metal Product Mfg. (3329)***

Other fabricated metal product manufacturing firms are mainly involved in the manufacturing of fabricated metal products that are not included in the previous mentioned industries. The industry group has two industries: metal valve manufacturing (33291) and all other fabricated metal product manufacturing (33299).

## Fabricated Metal Product Manufacturing (cont'd)

*Industries within this subsector transform metal into intermediate or end products other than machinery, computers, electronics or metal furniture.*

### Entry Level Education and Experience



### Occupational Distribution of Fabricated and Metal Manufacturing in LA County

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
<b>Production Occupations</b>		<b>60.3%</b>	<b>24,828</b>	
51-4041	Machinists	9.4%	3,864	\$36,099
51-4121	Welders, Cutters, Solderers, and Brazers	6.1%	2,517	\$34,959
51-2092	Team Assemblers	5.4%	2,232	\$23,507
51-1011	First-Line Supervisors of Production and Operating Workers	4.5%	1,849	\$51,218
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	4.2%	1,722	\$28,554
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	3.6%	1,481	\$33,773
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2.9%	1,179	\$34,469
51-2041	Structural Metal Fabricators and Fitters	2.8%	1,159	\$35,676
51-9198	Helpers--Production Workers	2.8%	1,133	\$21,162
51-4033	Grinding/Lapping/Polishing/Buffering Machine Tool Setters/Operators/Tenders, Metal/Plastic	2.1%	846	\$26,090
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	1.9%	771	\$24,110
Other Production Occupations		14.8%	6,076	
<b>Office and Administrative Support Occupations</b>		<b>11.0%</b>	<b>4,508</b>	
43-5071	Shipping, Receiving, and Traffic Clerks	1.9%	780	\$28,322
43-9061	Office Clerks, General	1.9%	775	\$29,692
Other Office and Administrative Support Occupations		7.2%	2,953	
<b>All Other Industry Occupations</b>		<b>28.7%</b>	<b>11,806</b>	
<b>Total* Across All Occupations in the Industry</b>		<b>100.0%</b>	<b>41,142</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Computer and Electronic Product Manufacturing (NAICS 334)

*Industries within this subsector manufacture computers, computer peripherals, communications equipment and similar electronic products and establishments that manufacture the components for such products.*

### ***Computer and Peripheral Equipment Mfg (3341)***

Computer and peripheral equipment manufacturing establishments are mainly engaged in manufacturing and/or assembling computers such as mainframes, personal computers, workstations, laptops, servers and computer peripheral equipment. The industry group has one industry: computer and peripheral equipment manufacturing (33411).

### ***Communications Equipment Manufacturing (3342)***

Communications equipment manufacturing firms primarily manufacture wire telephone and data communications equipment. The industry group has three industries: telephone apparatus manufacturing (33421), radio and television broadcasting and wireless communications equipment manufacturing (33422), and other communications equipment manufacturing.

### ***Audio and Video Equipment Manufacturing (3343)***

Audio and video equipment manufacturing industry is comprised mainly of establishments that manufacture electronic audio and video equipment for home entertainment, motor vehicles, public address and instrument amplification. The industry group has one industry: audio and video equipment manufacturing (33431).

### ***Semiconductor and Other Electronic Component Manufacturing (3344)***

Semiconductor and other electronic component manufacturing establishments manufacture semiconductors and other components for electronics applications. The industry group has one industry: semiconductor and other electronic component manufacturing (33441).

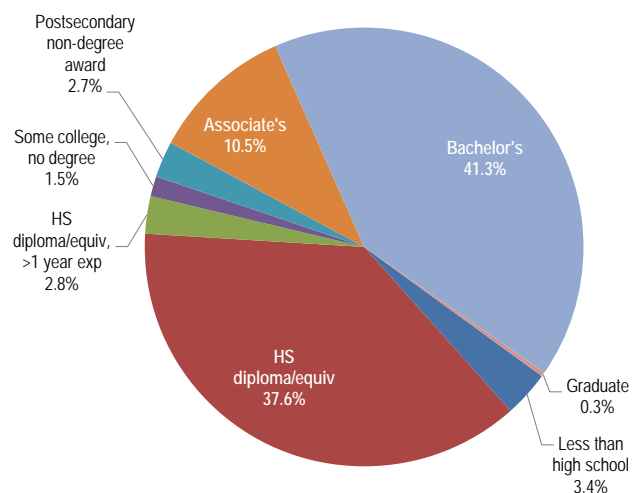
### ***Navigational, Measuring, Electromedical and Control Instruments Manufacturing (3345)***

Navigational, measuring, electromedical and control instruments manufacturing establishments are mainly engaged in manufacturing navigational, measuring, electromedical and control instruments manufacturing. The industry group has one industry: navigational, measuring, electromedical and control instruments manufacturing (33451).

### ***Manufacturing and Reproducing Magnetic and Optical Media (3346)***

Manufacturing and reproducing magnetic and optical media establishments are mainly involved in the manufacture of optical and magnetic media, mass duplicating audio, video, and other data on magnetic, optical and similar media. The industry group has one industry: manufacturing and reproducing magnetic and optical media (33461).

### ***Entry Level Education and Experience***



## Computer and Electronic Product Manufacturing (cont'd)

*Industries within this subsector manufacture computers, computer peripherals, communications equipment and similar electronic products and establishments that manufacture the components for such products.*

### **Occupational Distribution of Computer and Electronic Product Manufacturing in LA County**

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
<b>Production Occupations</b>		<b>29.3%</b>	<b>13,144</b>	
51-2022	Electrical and Electronic Equipment Assemblers	9.2%	4,135	\$27,392
51-2092	Team Assemblers	4.3%	1,914	\$23,507
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2.9%	1,302	\$34,469
51-9141	Semiconductor Processors	2.0%	897	\$32,840
51-1011	First-Line Supervisors of Production and Operating Workers	2.0%	885	\$51,218
Other Production Occupations		9.0%	4,012	
<b>Architecture and Engineering Occupations</b>		<b>18.8%</b>	<b>8,409</b>	
17-3023	Electrical and Electronics Engineering Technicians	3.5%	1,562	\$62,997
17-2071	Electrical Engineers	3.0%	1,360	\$100,091
17-2072	Electronics Engineers, Except Computer	2.9%	1,311	\$101,548
17-2112	Industrial Engineers	2.5%	1,133	\$92,369
Other Architecture and Engineering Occupations		6.8%	3,043	
<b>Computer and Mathematical Occupations</b>		<b>13.3%</b>	<b>5,970</b>	
15-1133	Software Developers, Systems Software	5.4%	2,398	\$108,273
15-1132	Software Developers, Applications	3.1%	1,402	\$94,358
Other Computer and Mathematical Occupations		4.8%	2,170	
<b>Management Occupations</b>		<b>11.3%</b>	<b>5,062</b>	
11-9041	Architectural and Engineering Managers	2.6%	1,161	\$141,356
11-1021	General and Operations Managers	2.0%	904	\$113,956
Other Management Occupations		8.7%	3,901	
<b>All Other Industry Occupations</b>		<b>27.3%</b>	<b>12,213</b>	
<b>Total* Across All Occupations in the Industry</b>		<b>100.0%</b>	<b>44,799</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Transportation Equipment Manufacturing (NAICS 336)

*Industries within this subsector manufacture equipment for transporting people and goods.*

### ***Motor Vehicle Manufacturing (3361)***

Motor vehicle manufacturing includes establishments that manufacture complete automobile and light duty motor vehicles, or the chassis only for light duty or heavy duty vehicles. Also includes assembling heavy duty trucks, buses, heavy duty motor homes and other special purpose heavy duty vehicles for highway use. The industry group has two industries: automobile and light duty motor vehicle manufacturing (33611) and heavy duty truck manufacturing (33612).

### ***Motor Vehicle Body and Trailer Mfg. (3362)***

Motor vehicle body and trailer manufacturing firms primarily manufacture motor vehicle bodies and cabs, truck, automobile and utility trailers, truck trailer chassis, detachable trailer bodies and detachable trailer chassis. The industry group has one industry: motor vehicle body and trailer manufacturing (33621).

### ***Motor Vehicle Parts Manufacturing (3363)***

Motor vehicle parts manufacturing firms mainly manufacture and/or rebuild motor vehicle parts. The industry group has eight industries: motor vehicle gasoline engine and engine parts manufacturing (33631), motor vehicle electrical and electronic equipment manufacturing (33632), motor vehicle steering and suspension components except spring (33633), motor vehicle brake system manufacturing (33634), motor vehicle transmission and power train parts manufacturing (33635), motor vehicle seating and interior trim manufacturing (33636), motor vehicle metal stamping (33637) and other motor vehicle parts manufacturing (33639).

### ***Aerospace Product and Parts Manufacturing (3364)***

Aerospace product and parts manufacturing establishments are primarily involved in manufacturing complete aircraft, missiles or space vehicles, manufacturing aerospace engines, propulsion units, auxiliary equipment or parts, developing and making prototypes of aerospace products, aircraft conversions as well as complete aircraft or propulsion systems overhaul and rebuilding. The industry group has one industry: aerospace product and parts manufacturing (33641).

### ***Railroad Rolling Stock Manufacturing (3365)***

Railroad Rolling Stock Manufacturing firms mainly manufacture and/or rebuild locomotives, locomotive frames and parts; manufacture railroad, street and rapid transit cars and car equipment for operation on rails for freight and passenger service as well as manufacture rail layers, ballast distributors, rail tamping equipment and other railway track maintenance equipment. The industry group has one industry: railroad rolling stock manufacturing (33651).

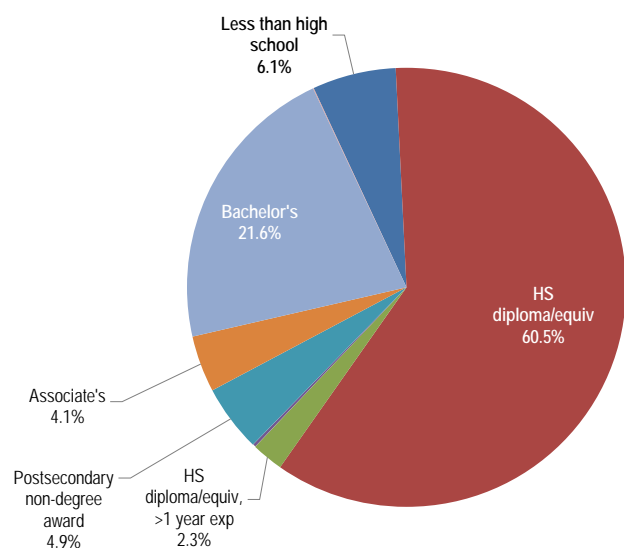
### ***Ship and Boat Building (3366)***

Ship and Boat Building establishments mainly operate shipyards and boatyards (ship or boat manufacturing facilities). The industry group has one industry: ship and boat building (33661).

### ***Other Transportation Equipment Mfg. (3367)***

Other Transportation Equipment Manufacturing firms manufacture and/or rebuild motor vehicle parts and accessories. The industry group has one industry: other transportation equipment manufacturing (33699).

### ***Entry Level Education and Experience***





## Transportation Equipment Manufacturing (cont'd)

*Industries within this subsector manufacture equipment for transporting people and goods.*

### ***Occupational Distribution of Transportation Equipment Manufacturing in LA County***

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
<b>Production Occupations</b>		<b>49.8%</b>	<b>23,128</b>	
51-2092	Team Assemblers	13.5%	6,277	\$23,507
51-4041	Machinists	3.9%	1,790	\$36,099
51-2099	Assemblers and Fabricators, All Other	3.6%	1,679	\$25,925
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	3.3%	1,515	\$34,469
51-4121	Welders, Cutters, Solderers, and Brazers	3.2%	1,485	\$34,959
51-1011	First-Line Supervisors of Production and Operating Workers	3.1%	1,427	\$51,218
Other Production Occupations		19.3%	8,954	
<b>Architecture and Engineering Occupations</b>		<b>12.7%</b>	<b>5,893</b>	
17-2112	Industrial Engineers	2.9%	1,358	\$92,369
17-2141	Mechanical Engineers	2.5%	1,152	\$89,032
17-2011	Aerospace Engineers	2.2%	1,012	\$117,348
Other Architecture and Engineering Occupations		5.1%	2,371	
<b>All Other Industry Occupations</b>		<b>37.5%</b>	<b>17,419</b>	
<b>Total*</b>	<b>Across All Occupations in the Industry</b>	<b>100.0%</b>	<b>46,440</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

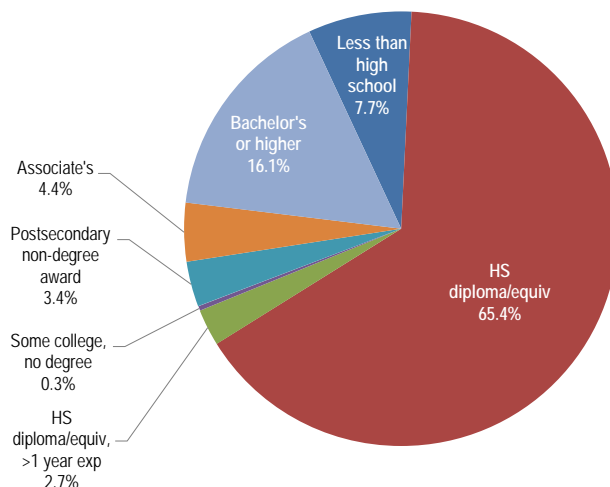
## Medical Equipment and Supplies Manufacturing (NAICS 3391)

*Industries within this industry group manufacture medical equipment and supplies.*

### **Medical Equipment and Supplies Manufacturing (33911)**

Medical equipment and supplies manufacturing establishments are mainly engaged in the manufacture of surgical and medical instruments, surgical appliances and supplies, dental equipment and supplies, orthodontic goods, ophthalmic goods, dentures, and orthodontic appliances. The industry has five industries: surgical and medical instrument manufacturing (339112), surgical appliance and supplies manufacturing (339113), dental equipment and supplies manufacturing (339114), ophthalmic goods manufacturing (339115) and dental laboratories (339116).

### **Entry Level Education and Experience**



### **Occupational Distribution of Medical Equipment and Supplies Manufacturing in LA County**

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
<b>Production Occupations</b>		<b>54.5%</b>	<b>4,572</b>	
51-2092	Team Assemblers	10.7%	899	\$23,507
51-9081	Dental Laboratory Technicians	10.3%	868	\$37,886
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	3.6%	300	\$34,469
51-1011	First-Line Supervisors of Production and Operating Workers	3.2%	268	\$51,218
51-9082	Medical Appliance Technicians	2.7%	226	\$32,988
51-2099	Assemblers and Fabricators, All Other	2.3%	197	\$25,925
51-4041	Machinists	2.3%	196	\$36,099
Other Production Occupations		19.3%	1,618	
<b>Office and Administrative Support Occupations</b>		<b>13.9%</b>	<b>1,169</b>	
43-4051	Customer Service Representatives	2.5%	211	\$35,296
43-5071	Shipping, Receiving, and Traffic Clerks	1.9%	156	\$28,322
43-9061	Office Clerks, General	1.9%	156	\$29,692
Other Office and Administrative Support Occupations		7.7%	645	
<b>All Other Industry Occupations</b>		<b>31.6%</b>	<b>2,648</b>	
<b>Total*</b>	<b>Across All Occupations in the Industry</b>	<b>100.0%</b>	<b>8,389</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Motion Picture and Sound Recording Industries (NAICS 512)

*Industries within this subsector produce and distribute motion pictures and sound recordings.*

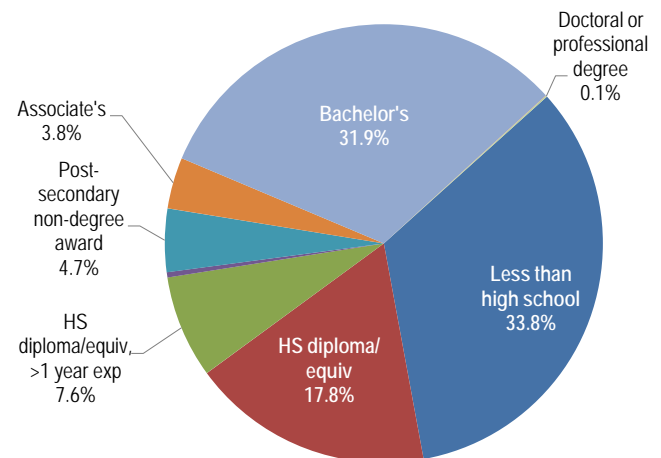
### ***Motion Picture and Video Industries (5121)***

Motion picture and video industries include establishments that: produce and/or distribute motion pictures, videos, TV programs, or commercials; exhibit motion pictures; or provide postproduction and related services. The industry group has four industries: motion picture and video production (51211), motion picture and video distribution (51212), motion picture and video exhibition (51213) and postproduction services (51219).

### ***Sound Recording Industries (5122)***

Sound recording industries includes establishments that produce and distribute musical recordings, publish music, or provide sound recording and related services. The industry group has five industries: record production (51221), integrated record production/distribution (51222), music publishers (51223), sound recording studios (51224) and other sound recording industries (51229).

### ***Entry Level Education and Experience***



### ***Occupational Distribution of Motion Picture and Sound Recording Industries in LA County***

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Arts, Design, Entertainment, Sports, and Media Occupations		31.3%	37,566	
27-2012	Producers and Directors	9.6%	11,494	\$ 121,461
27-4032	Film and Video Editors	3.9%	4,680	\$ 97,339
27-1014	Multimedia Artists and Animators	2.4%	2,924	\$ 81,166
27-4011	Audio and Video Equipment Technicians	2.0%	2,454	\$ 47,298
27-4014	Sound Engineering Technicians	2.0%	2,386	\$ 69,167
Other Arts, Design, Ent, Sports, and Media Occupations		11.3%	13,628	
Personal Care and Service Occupations		15.1%	18,162	
39-3031	Ushers, Lobby Attendants, and Ticket Takers	10.5%	12,623	\$ 20,873
39-3021	Motion Picture Projectionists	2.5%	2,946	\$ 26,202
Other Transportation and Material Moving Occupations		2.2%	2,593	
Food Preparation and Serving Related Occupations		13.5%	16,249	
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	10.7%	12,830	\$ 19,217
Other Sales and Related Occupations		2.8%	3,419	
Office and Administrative Support Occupations		10.8%	13,011	
43-6014	Secretaries and Admin Assistants (not legal, med or executive)	1.5%	1,859	\$ 36,040
Other Office and Administrative Support Occupations		9.3%	11,152	
All Other Industry Occupations		29.3%	35,144	
<b>Total*</b>	<b>Across All Occupations in the Industry</b>	<b>100.0%</b>	<b>120,133</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding



## Broadcasting, Except Internet (NAICS 515)

*Industries within this subsector create or acquire the right to distribute content and subsequently broadcast the content.*

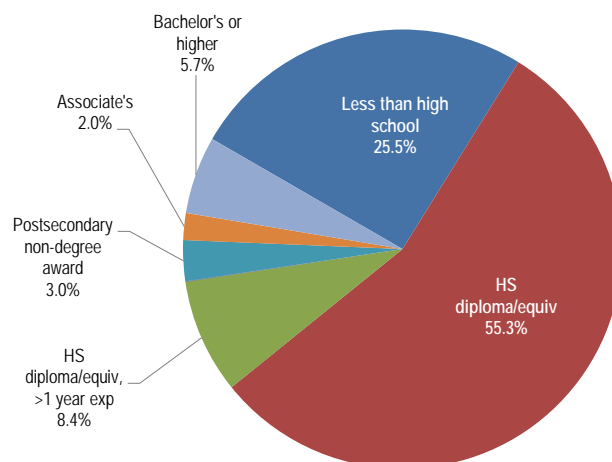
### Radio and Television Broadcasting (5151)

Radio and television broadcasting establishments primarily engage in operating broadcasting studios and facilities for over-the-air or satellite delivery of radio and television programs. The industry group has two industries: radio broadcasting (51511) and television broadcasting (51512).

### Cable and Other Subscription Programming (5152)

Cable and other subscription programming establishments primarily operate studios and facilities for the broadcasting of programs on a subscription or fee basis. The industry group has one industry: cable and other subscription programming (51521).

### Entry Level Education and Experience



### Occupational Distribution of Broadcasting, Except Internet in LA County

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Arts, Design, Entertainment, Sports, and Media Occupations		38.3%	7,088	
27-4012	Broadcast Technicians	9.4%	1,745	\$44,631
27-2012	Producers and Directors	9.0%	1,658	\$121,461
27-3022	Reporters and Correspondents	4.3%	799	\$41,261
27-4031	Camera Operators, Television, Video, and Motion Picture	2.7%	491	\$51,664
27-4021	Photographers	1.9%	346	\$45,015
Other Arts, Design, Entertainment, Sports, and Media Occupations		11.1%	2,049	
Office and Administrative Support Occupations		19.7%	3,644	
43-4051	Customer Service Representatives	5.9%	1,091	\$35,296
43-9061	Office Clerks, General	2.4%	439	\$29,692
Other Office and Administrative Support Occupations		11.4%	2,115	
Sales and Related Occupations		14.5%	2,677	
41-3011	Advertising Sales Agents	10.7%	1,989	\$52,892
Other Sales and Related Occupations		3.7%	688	
Installation, Maintenance, and Repair Occupations		11.0%	2,031	
49-9052	Telecommunications Line Installers and Repairers	4.8%	892	\$54,041
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	4.0%	733	\$56,610
Other Installation, Maintenance, and Repair Occupations		7.0%	1,298	
All Other Industry Occupations		16.6%	3,063	
<b>Total*</b>	<b>Across All Occupations in the Industry</b>	<b>100.0%</b>	<b>18,503</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

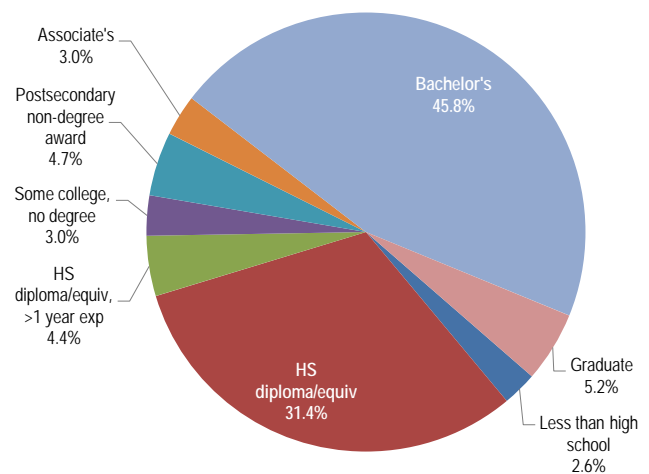
## Other Information Services (NAICS 519)

*Industries within this subsector supply information, store and provide access to information, search and retrieve information, publish and/or broadcast content exclusively on the Internet.*

### Other Information Services (5191)

Other Information Services includes establishments that are primarily engaged in supplying information to news media, providing library or archive services, publishing and/or broadcasting content on the Internet exclusively or operating web search portals, and all other establishments that providing other information services. The industry group has four industries: news syndicates (51911), libraries and archives (51912), internet publishing and broadcasting and web search portals (51913) and all other information services (51919).

### Entry Level Education and Experience



### Occupational Distribution of Other Information Services in LA County

		Los Angeles County	
		Nat'l share % of NAICS	Occupation Employment
			Median Annual Earnings
<b>Computer and Mathematical Occupations</b>		<b>24.8%</b>	<b>2,041</b>
15-1132	Software Developers, Applications	6.6%	546
15-1179	Information Security Analysts, Web Developers, and Computer Network Architects	4.3%	357
15-1150	Computer Support Specialists	2.9%	236
15-1131	Computer Programmers	2.2%	178
15-1133	Software Developers, Systems Software	2.1%	175
Other Computer and Mathematical Occupations		6.7%	551
<b>Office and Administrative Support Occupations</b>		<b>22.6%</b>	<b>1,859</b>
43-4121	Library Assistants, Clerical	5.1%	420
43-4051	Customer Service Representatives	4.5%	372
43-9061	Office Clerks, General	2.5%	209
Other Office and Administrative Support Occupations		10.4%	858
<b>Arts, Design, Entertainment, Sports, and Media Occupations</b>		<b>11.3%</b>	<b>933</b>
27-3041	Editors	3.7%	304
27-3022	Reporters and Correspondents	2.1%	172
Other Arts, Design, Entertainment, Sports, and Media Occupations		5.6%	457
<b>Management Occupations</b>		<b>10.5%</b>	<b>867</b>
11-1021	General and Operations Managers	2.7%	224
11-3021	Computer and Information Systems Managers	2.4%	199
Other Management Occupations		7.8%	642
<b>All Other Industry Occupations</b>		<b>30.7%</b>	<b>2,531</b>
<b>Total* Across All Occupations in the Industry</b>		<b>100.0%</b>	<b>8,231</b>

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding



## Professional and Technical Services (NAICS 541)

*Industries within this subsector use the knowledge and skills of their employees as the major input. Industries are defined on the basis of the particular expertise and training of the services provider.*

### ***Legal Services (5411)***

The industry group has three industries: offices of lawyers (54111), offices of notaries (54112) and other legal services (54119).

### ***Accounting, Tax Preparation, Bookkeeping and Payroll Services (5412)***

The industry group has one industry: accounting, tax preparation, bookkeeping and payroll services (54121).

### ***Architectural, Engineering and Related Services (5413)***

The industry group has seven industries: architectural services (54131), landscape architectural services (54132), engineering services (54133), drafting services (54134), building inspection services (54135), geophysical surveying and mapping services (54136), surveying and mapping (not geophysical) services (54137) and testing laboratories (54138).

### ***Specialized Design Services (5414)***

The industry group has four industries: interior design services (54141), industrial design services (54142), graphic design services (54143) and other specialized design services (54149).

### ***Computer Systems Design and Related Services (5415)***

The industry group has one industry: computer systems design and related services (54151).

### ***Management, Scientific and Technical Consulting Services (5416)***

The industry group has three industries: management consulting services (54161), environmental consulting services (54162) and other scientific and technical consulting services (54169).

### ***Scientific Research and Development Services (5417)***

The industry group has two industries: research and development in the physical, engineering, and life sciences (54171) and research and development in the social sciences and humanities (54172).

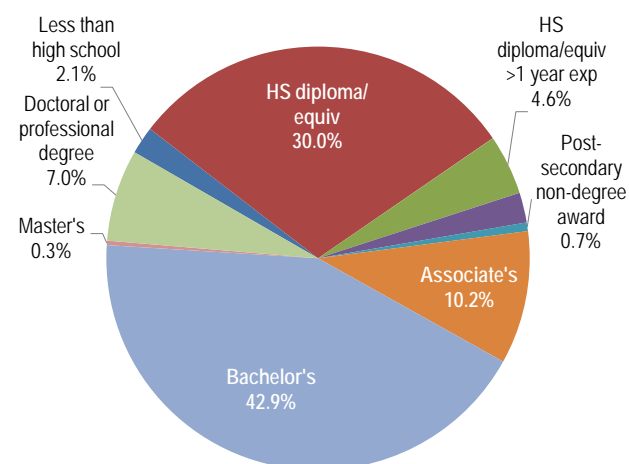
### ***Advertising, Public Relations, and Related Services (5418)***

The industry group has eight industries: advertising agencies (54181), public relations agencies (54182), media buying agencies (54183), media representatives (54184), outdoor advertising (54185), direct mail advertising (54186), advertising material distribution services (54187) and other services related to advertising (54189).

### ***Other Professional, Scientific and Technical Services (5419)***

The industry group has five industries: marketing research and public opinion polling (54191), photographic services (54192), translation and interpretation services (54193), veterinary services (54194) and all other professional, scientific and technical services (54199).

### ***Entry Level Education and Experience***



## Professional and Technical Services (cont'd)

*Industries within this subsector use the knowledge and skills of their employees as the major input. Industries are defined on the basis of the particular expertise and training of the services provider.*

### ***Occupational Distribution of Professional and Technical Services in LA County***

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Office and Administrative Support Occupations		22.5%	57,548	
43-9061	Office Clerks, General	3.2%	8,080	\$ 29,692
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	2.8%	7,197	\$ 36,040
43-3031	Bookkeeping, Accounting, and Auditing Clerks	2.8%	7,085	\$ 38,918
43-6012	Legal Secretaries	2.6%	6,608	\$ 51,075
Other Office and Administrative Support Occupations		11.2%	28,579	
Computer and Mathematical Occupations		15.8%	40,399	
15-1132	Software Developers, Applications	3.1%	8,024	\$ 94,358
15-1121	Computer Systems Analysts	2.4%	6,122	\$ 86,114
15-1133	Software Developers, Systems Software	2.4%	6,017	\$ 108,273
15-1150	Computer Support Specialists	2.2%	5,716	\$ 51,461
15-1131	Computer Programmers	1.9%	4,909	\$ 85,490
Other Computer and Mathematical Occupations		3.8%	9,611	
Business and Financial Operations Occupations		14.3%	36,630	
13-2011	Accountants and Auditors	4.9%	12,615	\$ 68,193
13-1111	Management Analysts	2.8%	7,181	\$ 84,476
Other Business and Financial Operations Occupations		6.6%	16,834	
Architecture and Engineering Occupations		10.4%	26,638	
17-2051	Civil Engineers	1.8%	4,666	\$ 91,931
Other Architecture and Engineering Occupations		8.6%	21,972	
All Other Industry Occupations		37.0%	94,609	
<b>Total*</b>	<b>Across All Occupations in the Industry</b>	<b>100.0%</b>	<b>255,825</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Administrative and Support Services (NAICS 561)

*Industries within this subsector provide services that support the day-to-day operations of other organizations.*

### **Office Administrative Services (5611)**

Office administrative services includes establishments that provide day-to-day office administrative services for others on a contract or fee basis. The industry group has one industry: office administrative services (56111).

### **Facilities Support Services (5612)**

Facilities support services includes establishments that providing a combination of support services within a client's facilities. The industry group has one industry: facilities support services (56121).

### **Employment Services (5613)**

Employment services includes establishments that: list employment vacancies and refer/recruit/place applicants; supply temporary workers to clients' businesses, and provide HR and HR management services. The industry group has three industries: employment placement agencies and executive search (56131), temporary help (56132) and professional employer organizations (56133).

### **Business Support Services (5614)**

Business support services includes establishments that perform ongoing routine business support functions that have been outsourced. The industry group has six industries: document preparation (56141), telephone call centers (56142), business service centers (56143), collection agencies (56144), credit bureaus (56145) and other business support (56149).

### **Travel Arrangement and Reservation Services (5615)**

Travel arrangement and reservation services includes establishments that: sell travel, tours, and accommodations; arrange and assemble tours; and provide other related services. The industry group has three industries: travel agencies (56151), tour operators (56152) and other travel arrangement and reservation (56159).

### **Investigation and Security Services (5616)**

Investigation and security services includes establishments that provide investigation, detective, monitoring and protection services to properties/ persons or in transport or who sell, install or repair

security systems. The industry group has two industries: investigation, guard, and armored car (56161) and security systems (56162).

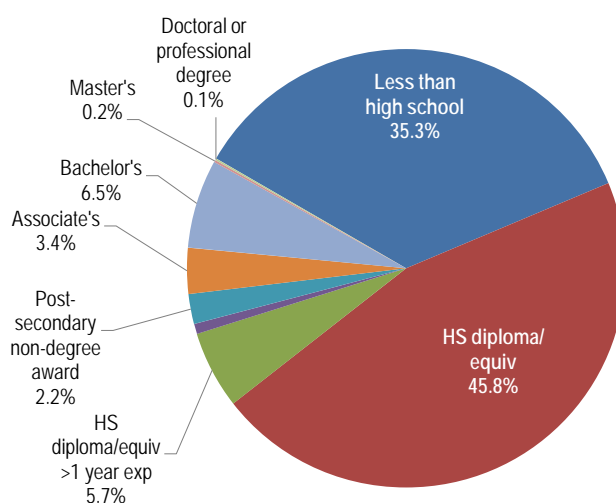
### **Services to Buildings and Dwellings (5617)**

Services to buildings and dwellings includes establishments that provide pest control; janitorial; landscaping, maintenance, carpet and upholstery cleaning and related services to client facilities. The industry group has five industries: exterminating and pest control (56171), janitorial (56172), landscaping (56173), carpet and upholstery cleaning (56174) and other services to buildings and dwellings (56179).

### **Other Support Services (5618)**

Other support services includes establishments that provide day-to-day business and other organizational support services. The industry group has three industries: packaging and labeling (56181), convention and trade show organizers (56182) and all other support (56189).

### **Entry Level Education and Experience**



## Administrative and Support Services (cont'd)

*Industries within this subsector provide services that support the day-to-day operations of other organizations.*

### ***Occupational Distribution of Administrative and Support Services in LA County***

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Office and Administrative Support Occupations		22.4%	49,821	
43-4051	Customer Service Representatives	5.0%	11,016	\$ 35,296
43-9061	Office Clerks, General	3.5%	7,845	\$ 29,692
Other Office and Administrative Support Occupations		13.9%	30,961	
Building and Grounds Cleaning and Maintenance Occupations		22.1%	49,270	
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	11.1%	24,654	\$ 22,747
37-3011	Landscaping and Groundskeeping Workers	6.2%	13,902	\$ 24,570
Other Building and Grounds Cleaning and Maint Occupations		4.8%	10,714	
Protective Service Occupations		9.8%	21,743	
33-9032	Security Guards	8.7%	19,274	\$ 24,286
Other Protective Service Occupations		1.1%	2,469	
All Other Industry Occupations		45.7%	101,688	
<b>Total*</b>	<b>Across All Occupations in the Industry</b>	<b>100.0%</b>	<b>222,522</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Waste Management and Remediation Services (NAICS 562)

*Industries within this subsector are engaged in the collection, treatment and disposal of waste materials.*

### **Waste Collection (5621)**

Waste collection establishments are primarily engaged in the collection and/or hauling of hazardous wastes and/or recyclable materials within a local area and/or operating hazardous or nonhazardous waste transfer stations. The industry group has one industry: waste collection (5621).

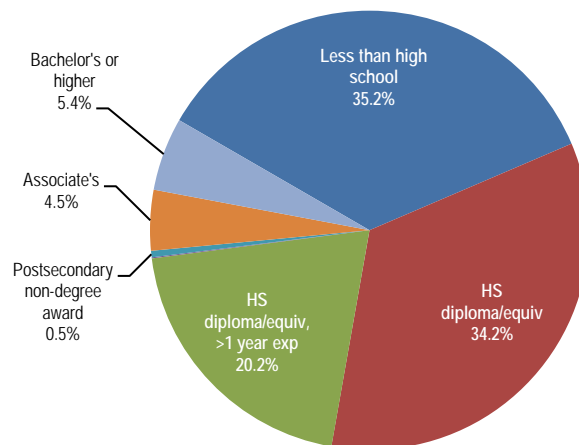
### **Waste Treatment and Disposal (5622)**

Waste treatment and disposal firms are mainly involved in operating waste treatment or disposal facilities or the combined activity of collecting and/or hauling waste materials within a local area and operating waste treatment or disposal facilities. The industry group has one industry: waste treatment and disposal (5622).

### **Remediation and Other Waste Management Services (5629)**

Remediation and other waste management services firms are mainly engaged in remediation and cleanup of contaminated buildings, mine sites, soil or ground water, integrated mine reclamation activities and asbestos, lead paint and other toxic material abatement. The industry group has three industries: remediation services (56291), materials recovery facilities (56292), and all other waste management services (56299).

### **Entry Level Education and Experience**





## Waste Management and Remediation Services (cont'd)

*Industries within this subsector are engaged in the collection, treatment and disposal of waste materials.*

### **Occupational Distribution of Waste Management and Remediation Services in LA County**

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Transportation and Material Moving Occupations		44.0%	4,007	
53-7081	Refuse and Recyclable Material Collectors	19.1%	1,737	\$43,259
53-3032	Heavy and Tractor-Trailer Truck Drivers	12.6%	1,146	\$41,482
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	5.5%	505	\$23,147
	Other Transportation and Material Moving Occupations	6.8%	620	
Construction and Extraction Occupations		20.0%	1,821	
47-4041	Hazardous Materials Removal Workers	8.1%	734	\$38,867
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	3.9%	357	\$34,413
47-2061	Construction Laborers	2.8%	252	\$37,396
47-2073	Operating Engineers and Other Construction Equipment Operators	2.1%	190	\$78,266
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	2.0%	182	\$72,615
	Other Construction and Extraction Occupations	1.2%	105	
Office and Administrative Support Occupations		12.2%	1,110	
43-9061	Office Clerks, General	2.7%	250	\$29,692
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	2.0%	179	\$36,040
	Other Office and Administrative Support Occupations	9.5%	860	
All Other Industry Occupations		23.7%	2,160	
<b>Total* Across All Occupations in the Industry</b>		<b>100.0%</b>	<b>9,098</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Ambulatory Health Care Services (NAICS 621)

*Industries within this subsector provide health care services to ambulatory patients.*

### **Offices of Physicians (6211)**

Offices of physicians includes establishments with health practitioners with the degree of M.D. or D.O. who independently practice general or specialized medicine or surgery in their own offices or the facilities of others. The industry group has one industry: offices of physicians (62111).

### **Offices of Dentists (6212)**

Offices of dentists includes establishments with health practitioners with the degree of D.M.D., D.D.S. or D.D.Sc. who independently practice general or specialized dentistry or dental surgery in their own offices or the facilities of others. The industry group has one industry: offices of dentists (62121).

### **Offices of Other Health Practitioners (6213)**

Offices of other health practitioners includes establishments of independent health practitioners other than physicians and dentists. The industry group has five industries: offices of chiropractors (62131), offices of optometrists (62132), offices of mental health practitioners (except physicians) (62133), offices of physical, occupational and speech therapists, and audiologists (62134) and offices of all other health practitioners (62139).

### **Outpatient Care Centers (6214)**

Outpatient care centers includes establishments that provide outpatient care. The industry group has three industries: family planning centers (62141), outpatient mental health and substance abuse centers (62142) and other outpatient care centers (62149).

### **Medical and Diagnostic Laboratories (6215)**

Medical and diagnostic laboratories includes establishments that provide analytic or diagnostic services to the medical profession or patient on referral. The industry group has one industry: medical and diagnostic laboratories (62151).

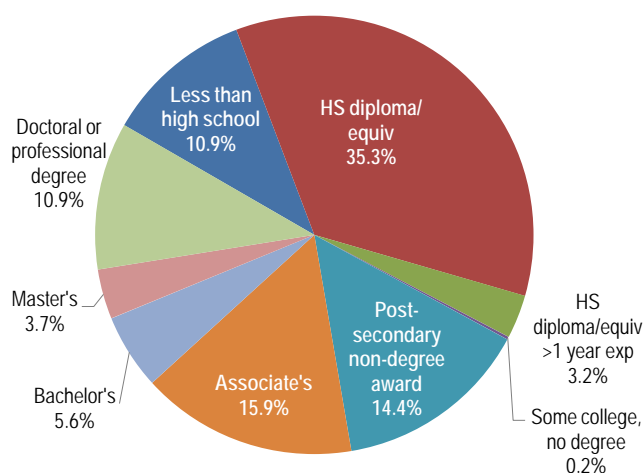
### **Home Health Care Services (6216)**

Home health care services includes establishments that provide in-home skilled nursing or other medical and/or personal care services. The industry group has one industry: home health care services (62161).

### **Other Ambulatory Health Care Services (6219)**

Other ambulatory health care services includes establishments that provide ambulatory health care services not previously listed. The industry group has two industries: ambulance services (62191) and all other ambulatory health care services (62199).

### **Entry Level Education and Experience**



## Ambulatory Health Care Services (cont'd)

*Industries within this subsector provide health care services to ambulatory patients.*

### ***Occupational Distribution of Ambulatory Health Care Services in LA County***

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
<b>Healthcare Practitioners and Technical Occupations</b>		<b>36.2%</b>	<b>64,824</b>	
29-1111	Registered Nurses*	8.6%	15,428	\$ 85,178
29-2061	Licensed Practical and Licensed Vocational Nurses	3.1%	5,591	\$ 50,213
29-2021	Dental Hygienists	3.0%	5,351	\$ 100,378
29-1069	Physicians and Surgeons, All Other	2.8%	5,065	> \$ 187,200
29-2041	Emergency Medical Technicians and Paramedics	1.9%	3,389	\$ 27,477
Other Healthcare Practitioners and Technical Occupations		16.7%	30,000	
<b>Office and Administrative Support Occupations</b>		<b>26.2%</b>	<b>46,996</b>	
43-6013	Medical Secretaries	5.6%	9,982	\$ 33,483
43-4171	Receptionists and Information Clerks	5.5%	9,844	\$ 27,400
43-9061	Office Clerks, General	3.2%	5,709	\$ 29,692
43-3021	Billing and Posting Clerks	2.4%	4,285	\$ 35,095
43-1011	First-Line Supervisors of Office and Administrative Support Workers	2.2%	3,946	\$ 56,230
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical and Executive	1.9%	3,370	\$ 36,040
Other Office and Administrative Support Occupations		5.5%	9,860	
<b>Healthcare Support Occupations</b>		<b>22.5%</b>	<b>40,332</b>	
31-9092	Medical Assistants	7.1%	12,653	\$ 30,362
31-1011	Home Health Aides	5.7%	10,256	\$ 20,913
31-9091	Dental Assistants	4.7%	8,392	\$ 32,631
Other Healthcare Support Occupations		5.0%	9,031	
<b>All Other Industry Occupations</b>		<b>15.1%</b>	<b>27,105</b>	
<b>Total*</b>	<b>Across All Occupations in the Industry</b>	<b>100.0%</b>	<b>179,257</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Hospitals (NAICS 622)

*Industries within this subsector provide medical, diagnostic and treatment services to inpatients.*

### General Medical and Surgical Hospitals (6221)

General medical and surgical hospitals includes establishments that provide inpatient diagnostic and surgical and nonsurgical medical treatment. The industry group has one industry: general medical and surgical hospitals (62211).

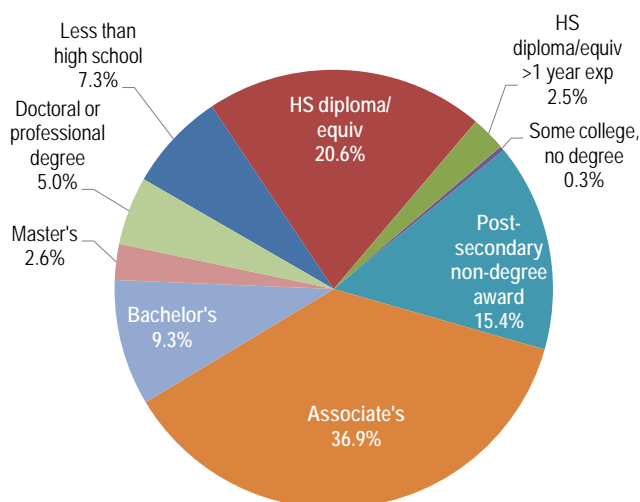
### Psychiatric and Substance Abuse Hospitals (6222)

Psychiatric and substance abuse hospitals includes establishments that provide inpatient diagnostic, medical treatment and monitoring services for mental illness or substance abuse disorders. The industry group has one industry: psychiatric and substance abuse hospitals (62221).

### Specialty (except Psychiatric and Substance Abuse) Hospitals (6223)

Specialty (except psychiatric and substance abuse) hospitals includes establishments that provide inpatient diagnostic and medical treatment for specific diseases or medical conditions, except psychiatric or substance abuse. The industry group has one industry: specialty (except psychiatric and substance abuse) hospitals (62231).

### Entry Level Education and Experience



### Occupational Distribution of Hospitals in LA County

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Healthcare Practitioners and Technical Occupations		54.2%	59,356	
29-1111	Registered Nurses*	29.4%	32,249	\$ 85,178
29-2061	Licensed Practical and Licensed Vocational Nurses	2.7%	3,012	\$ 50,213
29-2037	Radiologic Technologists and Technicians*	2.4%	2,625	\$ 64,603
29-2011	Medical and Clinical Laboratory Technologists	1.8%	1,938	\$ 79,046
Other Healthcare Practitioners and Technical Occupations		17.8%	19,531	
Office and Administrative Support Occupations		14.0%	15,295	
43-6013	Medical Secretaries	2.5%	2,706	\$ 33,483
43-9061	Office Clerks, General	1.8%	1,965	\$ 29,692
Other Office and Administrative Support Occupations		9.7%	10,625	
Healthcare Support Occupations		12.7%	13,973	
31-1012	Nursing Aides, Orderlies, and Attendants*	7.4%	8,062	\$ 26,078
Other Healthcare Support Occupations		5.4%	5,911	
All Other Industry Occupations		19.1%	20,981	
<b>Total* Across All Occupations in the Industry</b>		<b>100.0%</b>	<b>109,604</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Nursing and Residential Care Facilities (NAICS 623)

*Industries within this subsector provide residential care combined with either nursing, supervisory or other types of care as required by the residents.*

### ***Nursing Care Facilities (Skilled Nursing Facilities) (6231)***

Nursing care facilities (skilled nursing facilities) includes establishments that provide long-term inpatient nursing and rehabilitative services. The industry group has one industry: nursing care facilities (skilled nursing facilities) (62311).

### ***Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities (6232)***

Residential intellectual and developmental disability, mental health, and substance abuse facilities includes establishments that provide residential care (not licensed hospital care) to those with intellectual and developmental disabilities, mental illness, or substance abuse problems. The industry group has two industries: residential intellectual and developmental disability facilities (31213) and residential mental health and substance abuse facilities (31214).

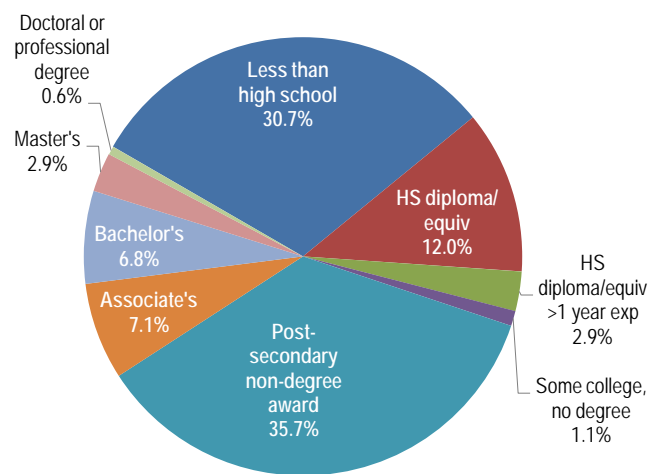
### ***Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly (6233)***

Continuing care retirement communities and assisted living facilities for the elderly includes establishments that provide residential and personal care for those unable to care for themselves or who do not want to live independently. The industry group has one industry.

### ***Other Residential Care Facilities (6239)***

Other residential care facilities includes establishments that provide residential, supervision and personal care not listed previously. These establishments also provide supervision and personal care services. The industry group has one industry: other residential care facilities (62399).

### ***Entry Level Education and Experience***





## Nursing and Residential Care Facilities (cont'd)

*Industries within this subsector provide residential care combined with either nursing, supervisory or other types of care as required by the residents.*

### **Occupational Distribution of Nursing and Residential Care Facilities in LA County**

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Healthcare Support Occupations		39.5%	27,493	
31-1012	Nursing Aides, Orderlies, and Attendants*	26.4%	18,364	\$26,078
31-1011	Home Health Aides	11.2%	7,805	\$20,913
	Other Healthcare Support Occupations	1.9%	1,323	
Healthcare Practitioners and Technical Occupations		17.0%	11,820	
29-2061	Licensed Practical and Licensed Vocational Nurses	8.5%	5,942	\$50,213
29-1111	Registered Nurses*	5.8%	4,012	\$85,178
	Other Healthcare Practitioners and Technical Occupations	2.7%	1,866	
Food Preparation and Serving Related Occupations		10.4%	7,255	
35-2012	Cooks, Institution and Cafeteria	2.8%	1,960	\$ 27,206
35-3041	Food Servers, Nonrestaurant	2.6%	1,823	\$ 22,908
	Other Sales and Related Occupations	5.0%	3,472	
All Other Industry Occupations		33.2%	23,121	
<b>Total*</b>	<b>Across All Occupations in the Industry</b>	<b>100.0%</b>	<b>69,688</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Accommodation (NAICS 721)

*Industries within this subsector provide lodging or short-term accommodations for travelers and vacationers.*

### Traveler Accommodation (7211)

Traveler accommodation establishments provide short-term lodging in hotels, motor hotels, resort hotels and motels. Some firms might provide short term lodging in hotel facilities with a casino on the premises. Other establishments provide short-term lodging but exclude hotels, motels and casino hotels. The industry group has three industries: hotels (except casino hotels) and motels (72111), casino hotels (72112), and other traveler accommodation (72119).

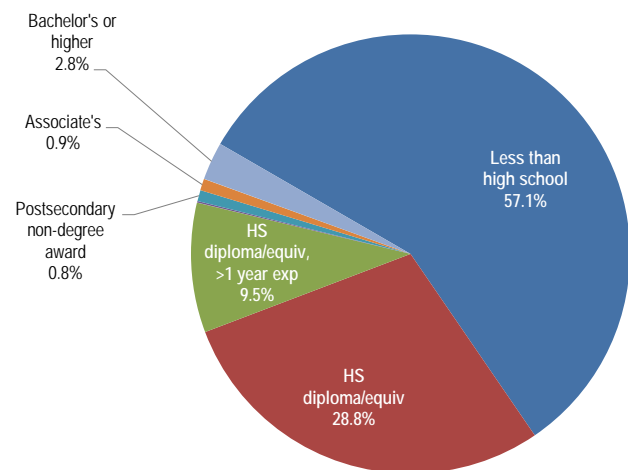
### RV (Recreational Vehicle) Parks and Recreational Camps (7212)

Recreational Vehicle (RV) Parks and Recreational Camps are establishments that are primarily engaged in operating rv parks and campgrounds and recreational and vacation camps. The industry group has one industry: RV (recreational vehicle) parks and recreational camps (72121).

### Rooming and Boarding Houses (7213)

Establishments are engaged in operating rooming and boarding houses and similar housing, including fraternity and sorority houses, off-campus dormitories, residential club and workers' camps. The industry group has one industry.

### Entry Level Education and Experience



### Occupational Distribution of Accommodation Industry in LA County

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
<b>Building and Grounds Cleaning and Maintenance Occupations</b>				
37-2012	Maids and Housekeeping Cleaners	29.4%	11,700	
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	23.7%	9,436	\$21,507
	Other Building and Grounds Cleaning and Maintenance Occupations	2.8%	1,100	\$22,747
		2.9%	1,164	
<b>Food Preparation and Serving Related Occupations</b>				
35-3031	Waiters and Waitresses	25.1%	9,992	
35-2014	Cooks, Restaurant	7.3%	2,925	\$18,868
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	3.3%	1,299	\$22,428
35-3011	Bartenders	2.4%	971	\$18,753
35-3041	Food Servers, Nonrestaurant	2.0%	810	\$19,222
	Other Food Preparation and Serving Related Occupations	1.9%	771	\$22,908
		8.1%	3,216	
<b>Office and Administrative Support Occupations</b>				
43-4081	Hotel, Motel, and Resort Desk Clerks	19.0%	7,564	
	Other Office and Administrative Support Occupations	12.3%	4,905	\$22,388
		6.7%	2,659	
<b>All Other Industry Occupations</b>				
		26.6%	10,588	
<b>Total*</b>		<b>100.0%</b>	<b>39,844</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding

## Food Services and Drinking Places (NAICS 722)

*Industries within this subsector prepare to order meals, snacks, and beverages for immediate customers consumption, either on- or off-premises.*

### ***Special Food Services (7223)***

Special food services include establishments that provide off-premises food services at either the customer's location, a location designated by the customer, or from a food truck or food cart. The industry group has three industries: food service contractors (72231), caterers (72232) and restaurants and other eating places (72233).

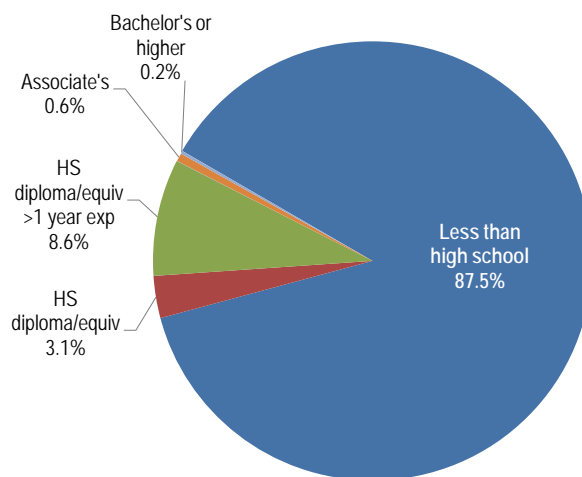
### ***Drinking Places (Alcoholic Beverages) (7224)***

Drinking places includes establishments primarily engaged in preparing and serving alcoholic beverages for immediate consumption, and may have limited food service. The industry group has one industry: drinking places (alcoholic beverages) (72241).

### ***Restaurants and Other Eating Places (7225)***

Restaurants and other eating places includes establishments that provide on-premises food services and include: full-service restaurants, limited-service restaurants, cafeterias, buffets and snack and nonalcoholic beverage bars. The industry group has one industry: restaurants and other eating places (72251).

### ***Entry Level Education and Experience***



### ***Occupational Distribution of Food Services and Drinking Places in LA County***

		Nat'l share % of NAICS	Los Angeles County Occupation Employment	Median Annual Earnings
Food Preparation and Serving Related Occupations		90.2%	258,144	
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	24.4%	69,772	\$ 18,953
35-3031	Waiters and Waitresses	20.9%	59,692	\$ 18,868
35-2014	Cooks, Restaurant	8.8%	25,097	\$ 22,428
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	6.3%	17,998	\$ 27,326
35-2011	Cooks, Fast Food	5.0%	14,354	\$ 18,684
35-2021	Food Preparation Workers	4.3%	12,413	\$ 19,148
35-9021	Dishwashers	4.3%	12,171	\$ 18,891
35-3011	Bartenders	4.0%	11,541	\$ 19,222
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	3.1%	8,900	\$ 19,251
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	3.0%	8,451	\$ 18,753
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	2.9%	8,255	\$ 19,217
35-2015	Cooks, Short Order	1.4%	3,962	\$ 23,375
Other Food Preparation and Serving Related Occupations		1.9%	5,538	
All Other Industry Occupations		9.8%	27,949	
<b>Total* Across All Occupations in the Industry</b>		<b>100.0%</b>	<b>286,093</b>	

Sources: BLS, CA EDD, estimates by LAEDC

\*May not sum due to rounding



## APPENDICES





## A1 Detailed Tables

Exhibit A-1

### Private Sector Industry Employment Los Angeles County 2011

NAICS	Industry	Employment	% of total
211	Oil and gas extraction	2,166	0.1%
212	Mining, except oil and gas	376	0.0%
213	Support activities for mining	1,494	0.0%
221	Utilities	12,444	0.3%
236	Construction of buildings	25,854	0.7%
237	Heavy and civil engineering construction	11,566	0.3%
238	Specialty trade contractors	67,566	1.8%
311	Food manufacturing	39,699	1.1%
312	Beverage and tobacco prod manufacturing	5,005	0.1%
313	Textile mills	6,880	0.2%
314	Textile product mills	3,920	0.1%
315	Apparel manufacturing	45,547	1.2%
316	Leather and allied product manufacturing	2,207	0.1%
321	Wood product manufacturing	3,083	0.1%
322	Paper manufacturing	7,267	0.2%
323	Printing and related support activities	15,754	0.4%
324	Petroleum and coal prods manufacturing	4,125	0.1%
325	Chemical manufacturing	18,920	0.5%
326	Plastics and rubber prods manufacturing	13,420	0.4%
327	Nonmetallic mineral prod manufacturing	5,168	0.1%
331	Primary metal manufacturing	7,083	0.2%
332	Fabricated metal product manufacturing	41,177	1.1%
333	Machinery manufacturing	15,900	0.4%
334	Computer / electronic prod manufacturing	44,636	1.2%
335	Electrical equipment and appliance mfg.	9,354	0.2%
336	Transportation equipment manufacturing	46,512	1.2%
337	Furniture and related prod manufacturing	12,997	0.3%
339	Miscellaneous manufacturing	18,176	0.5%
423	Merchant wholesalers, durable goods	94,552	2.5%
424	Merchant wholesalers, nondurable goods	90,435	2.4%
425	Electronic markets and agents	20,985	0.6%
441	Motor vehicle and parts dealers	39,037	1.0%
442	Furniture and home furnishings stores	12,949	0.3%
443	Electronics and appliance stores	17,306	0.5%
444	Building material and garden supply stores	22,423	0.6%
445	Food and beverage stores	87,771	2.3%
446	Health and personal care stores	28,363	0.8%
447	Gasoline stations	11,005	0.3%
448	Clothing and clothing accessories stores	53,050	1.4%
451	Sporting, hobby, book / music stores	17,244	0.5%
452	General merchandise stores	67,941	1.8%
453	Miscellaneous store retailers	24,760	0.7%
454	Nonstore retailers	9,308	0.2%
481	Air transportation	18,067	0.5%
482	Rail transportation	0	0.0%
483	Water transportation	3,010	0.1%

NAICS	Industry	Employment	% of total
484	Truck transportation	25,114	0.7%
485	Transit and ground passenger transport	12,626	0.3%
486	Pipeline transportation	605	0.0%
487	Scenic and sightseeing transportation	603	0.0%
488	Support activities for transportation	39,473	1.1%
491	Postal service	0	0.0%
492	Couriers and messengers	18,422	0.5%
493	Warehousing and storage	15,269	0.4%
511	Publishing industries, except internet	13,771	0.4%
512	Motion picture and sound recording	120,921	3.2%
515	Broadcasting, except internet	18,503	0.5%
517	Telecommunications	26,152	0.7%
518	Data processing, hosting, related services	4,450	0.1%
519	Other information services	8,228	0.2%
521	Monetary authorities - central bank	451	0.0%
522	Credit intermediation and related activities	69,761	1.9%
523	Securities, commodities, investments	21,801	0.6%
524	Insurance carriers and related activities	43,195	1.2%
525	Funds, trusts, and other financial vehicles	2,210	0.1%
531	Real estate	51,936	1.4%
532	Rental and leasing services	18,822	0.5%
533	Lessors of nonfinancial intangible assets	953	0.0%
541	Professional and technical services	255,851	6.8%
551	Management of companies / enterprises	54,624	1.5%
561	Administrative and support services	223,029	5.9%
562	Waste mgmt and remediation services	9,086	0.2%
611	Educational services	94,815	2.5%
621	Ambulatory health care services	179,186	4.8%
622	Hospitals	109,600	2.9%
623	Nursing and residential care facilities	69,710	1.9%
624	Social assistance	59,554	1.6%
711	Performing arts and spectator sports	29,543	0.8%
712	Museums, historical sites, zoos, and parks	4,332	0.1%
713	Amusements, gambling, and recreation	35,599	0.9%
721	Accommodation	39,852	1.1%
722	Food services and drinking places	286,096	7.6%
811	Repair and maintenance	35,030	0.9%
812	Personal and laundry services	45,775	1.2%
813	Membership associations and orgs	37,946	1.0%

Sources: California Employment Development Department; LAEDC

**Exhibit A-2**
**Competitiveness of Private Sector Industries  
Los Angeles County 2011  
(Location Quotients v. California and US)**

NAICS	Industry	CA	US
211	Oil and gas extraction	0.9	0.4
212	Mining, except oil and gas	0.3	0.1
213	Support activities for mining	0.5	0.1
221	Utilities	0.8	0.8
236	Construction of buildings	0.7	0.7
237	Heavy and civil engineering construction	0.6	0.5
238	Specialty trade contractors	0.7	0.7
311	Food manufacturing	1.0	0.9
312	Beverage and tobacco prod manufacturing	0.4	0.9
313	Textile mills	2.9	2.0
314	Textile product mills	1.7	1.1
315	Apparel manufacturing	3.1	10.4
316	Leather and allied product manufacturing	2.4	2.6
321	Wood product manufacturing	0.6	0.3
322	Paper manufacturing	1.3	0.6
323	Printing and related support activities	1.4	1.2
324	Petroleum and coal prods manufacturing	1.0	1.3
325	Chemical manufacturing	1.0	0.8
326	Plastics and rubber prods manufacturing	1.2	0.7
327	Nonmetallic mineral prod manufacturing	0.7	0.5
331	Primary metal manufacturing	1.4	0.6
332	Fabricated metal product manufacturing	1.3	1.1
333	Machinery manufacturing	0.9	0.5
334	Computer / electronic prod manufacturing	0.6	1.4
335	Electrical equipment and appliance mfg.	1.2	0.9
336	Transportation equipment manufacturing	1.7	1.2
337	Furniture and related prod manufacturing	1.6	1.3
339	Miscellaneous manufacturing	0.9	1.1
423	Merchant wholesalers, durable goods	1.2	1.2
424	Merchant wholesalers, nondurable goods	1.4	1.6
425	Electronic markets and agents	0.9	0.9
441	Motor vehicle and parts dealers	0.9	0.8
442	Furniture and home furnishings stores	1.0	1.0
443	Electronics and appliance stores	1.0	1.1
444	Building material and garden supply stores	0.8	0.7
445	Food and beverage stores	1.0	1.1
446	Health and personal care stores	1.0	1.0
447	Gasoline stations	0.8	0.5
448	Clothing and clothing accessories stores	1.2	1.4
451	Sporting, hobby, book / music stores	1.0	1.0
452	General merchandise stores	0.9	0.8
453	Miscellaneous store retailers	1.1	1.1
454	Nonstore retailers	1.0	0.7
481	Air transportation	1.7	1.4
482	Rail transportation	0.7	1.9
483	Water transportation	2.2	1.6

NAICS	Industry	CA	US
484	Truck transportation	0.9	0.7
485	Transit and ground passenger transport	1.3	1.0
486	Pipeline transportation	0.8	0.5
487	Scenic and sightseeing transportation	0.6	0.8
488	Support activities for transportation	2.0	2.4
491	Postal service	0.8	1.3
492	Couriers and messengers	1.2	1.2
493	Warehousing and storage	0.9	0.8
511	Publishing industries, except internet	0.6	0.6
512	Motion picture and sound recording	3.2	11.3
515	Broadcasting, except internet	1.6	2.2
517	Telecommunications	1.1	1.0
518	Data processing, hosting, related services	0.9	0.6
519	Other information services	0.7	1.8
521	Monetary authorities - central bank	1.0	0.8
522	Credit intermediation and related activities	1.1	0.9
523	Securities, commodities, investments	1.1	0.9
524	Insurance carriers and related activities	0.9	0.7
525	Funds, trusts, and other financial vehicles	0.8	0.9
531	Real estate	1.1	1.3
532	Rental and leasing services	1.3	1.3
533	Lessors of nonfinancial intangible assets	1.2	1.4
541	Professional and technical services	0.9	1.1
551	Management of companies / enterprises	1.0	1.0
561	Administrative and support services	1.0	1.0
562	Waste mgmt and remediation services	0.8	0.9
611	Educational services	1.3	1.3
621	Ambulatory health care services	1.0	1.0
622	Hospitals	1.1	0.8
623	Nursing and residential care facilities	1.0	0.8
624	Social assistance	1.0	0.8
711	Performing arts and spectator sports	1.8	2.5
712	Museums, historical sites, zoos, and parks	1.1	1.1
713	Amusements, gambling, and recreation	0.8	0.9
721	Accommodation	0.8	0.8
722	Food services and drinking places	1.0	1.0
811	Repair and maintenance	1.0	1.0
812	Personal and laundry services	1.2	1.2
813	Membership associations and orgs	1.0	1.0

Sources: California Employment Development Department; estimates by LAEDC

**Exhibit A-3****Competitiveness of Private Sector Industries****Los Angeles County 2011****(% Change in Location Quotients v. California and US)**

NAICS	Industry	CA	US
211	Oil and gas extraction	-12.2%	-25.3%
212	Mining, except oil and gas	-30.5%	-45.2%
213	Support activities for mining	33.5%	7.9%
221	Utilities	2.3%	23.3%
236	Construction of buildings	12.5%	12.7%
237	Heavy and civil engineering construction	3.4%	-4.6%
238	Specialty trade contractors	10.5%	-0.3%
311	Food manufacturing	-4.3%	-0.4%
312	Beverage and tobacco prod manufacturing	-10.5%	29.2%
313	Textile mills	0.8%	65.9%
314	Textile product mills	-4.4%	-20.5%
315	Apparel manufacturing	10.4%	72.5%
316	Leather and allied product manufacturing	29.5%	51.0%
321	Wood product manufacturing	13.7%	-7.4%
322	Paper manufacturing	-9.5%	-7.5%
323	Printing and related support activities	-1.3%	-6.7%
324	Petroleum and coal prods manufacturing	-18.0%	-12.5%
325	Chemical manufacturing	-13.2%	-1.3%
326	Plastics and rubber prods manufacturing	-8.0%	-14.3%
327	Nonmetallic mineral prod manufacturing	-22.8%	-30.5%
331	Primary metal manufacturing	-14.0%	-10.3%
332	Fabricated metal product manufacturing	-0.9%	-6.8%
333	Machinery manufacturing	-9.9%	-17.4%
334	Computer / electronic prod manufacturing	2.7%	9.6%
335	Electrical equipment and appliance mfg.	5.7%	9.7%
336	Transportation equipment manufacturing	0.9%	4.3%
337	Furniture and related prod manufacturing	1.2%	-17.4%
339	Miscellaneous manufacturing	-17.9%	-14.1%
423	Merchant wholesalers, durable goods	-4.0%	-4.6%
424	Merchant wholesalers, nondurable goods	3.4%	21.7%
425	Electronic markets and agents	-18.8%	-2.1%
441	Motor vehicle and parts dealers	-0.5%	-9.8%
442	Furniture and home furnishings stores	7.2%	16.5%
443	Electronics and appliance stores	7.9%	-8.3%
444	Building material and garden supply stores	7.9%	4.9%
445	Food and beverage stores	6.2%	21.6%
446	Health and personal care stores	7.7%	3.8%
447	Gasoline stations	17.2%	21.0%
448	Clothing and clothing accessories stores	7.5%	18.0%
451	Sporting, hobby, book / music stores	-5.1%	-11.1%
452	General merchandise stores	0.6%	16.4%
453	Miscellaneous store retailers	19.7%	23.0%
454	Nonstore retailers	6.7%	27.6%
481	Air transportation	5.6%	-10.4%
482	Rail transportation	-25.5%	370.2%
483	Water transportation	81.6%	94.8%

NAICS	Industry	CA	US
484	Truck transportation	-11.3%	-9.8%
485	Transit and ground passenger transport	4.5%	0.9%
486	Pipeline transportation	12.3%	50.7%
487	Scenic and sightseeing transportation	4.2%	23.1%
488	Support activities for transportation	-1.7%	-0.7%
491	Postal service	-30.3%	-24.0%
492	Couriers and messengers	6.6%	-6.3%
493	Warehousing and storage	-22.2%	-28.2%
511	Publishing industries, except internet	-12.1%	-12.9%
512	Motion picture and sound recording	11.9%	30.8%
515	Broadcasting, except internet	8.9%	24.6%
517	Telecommunications	17.1%	10.8%
518	Data processing, hosting, related services	10.0%	-40.1%
519	Other information services	-51.2%	152.7%
521	Monetary authorities - central bank	-12.4%	64.3%
522	Credit intermediation and related activities	8.8%	8.1%
523	Securities, commodities, investments	3.7%	-7.9%
524	Insurance carriers and related activities	-11.0%	-16.5%
525	Funds, trusts, and other financial vehicles	-24.7%	-7.5%
531	Real estate	4.3%	8.1%
532	Rental and leasing services	21.4%	15.7%
533	Lessors of nonfinancial intangible assets	31.4%	11.9%
541	Professional and technical services	-7.5%	-6.6%
551	Management of companies / enterprises	-0.2%	-36.7%
561	Administrative and support services	-1.6%	-6.4%
562	Waste mgmt and remediation services	-6.0%	-0.6%
611	Educational services	-7.7%	-1.3%
621	Ambulatory health care services	1.6%	5.4%
622	Hospitals	0.2%	-1.0%
623	Nursing and residential care facilities	2.0%	3.3%
624	Social assistance	5.6%	-0.4%
711	Performing arts and spectator sports	4.7%	11.8%
712	Museums, historical sites, zoos, and parks	-4.0%	8.0%
713	Amusements, gambling, and recreation	5.8%	10.2%
721	Accommodation	5.4%	12.6%
722	Food services and drinking places	4.6%	7.7%
811	Repair and maintenance	2.5%	-2.2%
812	Personal and laundry services	-2.4%	4.8%
813	Membership associations and orgs	-1.4%	3.3%

Sources: California Employment Development Department; estimates by LAEDC

**Exhibit A-4**
**Projected New Job Creation 2012-2017  
Los Angeles County 2011**

NAICS	Industry	Number of New Jobs	Annual Average Percent Change
211	Oil and gas extraction	-70	-0.7%
212	Mining, except oil and gas	-12	-0.7%
213	Support activities for mining	-48	-0.7%
221	Utilities	583	0.9%
236	Construction of buildings	3,683	2.7%
237	Heavy and civil engineering construction	3,159	5.0%
238	Specialty trade contractors	16,021	4.3%
311	Food manufacturing	1,515	0.8%
312	Beverage and tobacco prod manufacturing	381	1.5%
313	Textile mills	-337	-1.0%
314	Textile product mills	-214	-1.1%
315	Apparel manufacturing	-146	-0.1%
316	Leather and allied product manufacturing	1,031	8.0%
321	Wood product manufacturing	199	1.3%
322	Paper manufacturing	-332	-0.9%
323	Printing and related support activities	324	0.4%
324	Petroleum and coal prods manufacturing	359	1.7%
325	Chemical manufacturing	2,140	2.2%
326	Plastics and rubber prods manufacturing	1,654	2.4%
327	Nonmetallic mineral prod manufacturing	773	2.8%
331	Primary metal manufacturing	381	1.1%
332	Fabricated metal product manufacturing	3,563	1.7%
333	Machinery manufacturing	2,541	3.0%
334	Computer / electronic prod manufacturing	2,819	1.2%
335	Electrical equipment and appliance mfg.	475	1.0%
336	Transportation equipment manufacturing	-2,560	-1.1%
337	Furniture and related prod manufacturing	1,565	2.3%
339	Miscellaneous manufacturing	592	0.6%
423	Merchant wholesalers, durable goods	869	0.2%
424	Merchant wholesalers, nondurable goods	4,073	0.9%
425	Electronic markets and agents	4,098	3.6%
441	Motor vehicle and parts dealers	768	0.4%
442	Furniture and home furnishings stores	-615	-1.0%
443	Electronics and appliance stores	-469	-0.5%
444	Building material and garden supply stores	847	0.7%
445	Food and beverage stores	5,733	1.3%
446	Health and personal care stores	1,823	1.3%
447	Gasoline stations	76	0.1%
448	Clothing and clothing accessories stores	5,369	1.9%
451	Sporting, hobby, book / music stores	604	0.7%
452	General merchandise stores	6,421	1.8%
453	Miscellaneous store retailers	-1,615	-1.3%
454	Nonstore retailers	2,314	4.5%
481	Air transportation	932	1.0%
482	Rail transportation	-	-
483	Water transportation	155	1.0%

NAICS	Industry	Number of New Jobs	Annual Average Percent Change
484	Truck transportation	1,296	1.0%
485	Transit and ground passenger transport	1,076	1.0%
486	Pipeline transportation	31	1.0%
487	Scenic and sightseeing transportation	31	1.0%
488	Support activities for transportation	2,036	1.0%
491	Postal service	-16	-0.0%
492	Couriers and messengers	950	1.0%
493	Warehousing and storage	787	1.0%
511	Publishing industries, except internet	277	0.4%
512	Motion picture and sound recording	18,146	2.9%
515	Broadcasting, except internet	1,246	1.3%
517	Telecommunications	-1,265	-1.0%
518	Data processing, hosting, related services	195	0.9%
519	Other information services	1,041	2.4%
521	Monetary authorities - central bank	62	2.6%
522	Credit intermediation and related activities	9,553	2.6%
523	Securities, commodities, investments	2,983	2.6%
524	Insurance carriers and related activities	5,909	2.6%
525	Funds, trusts, and other financial vehicles	302	2.6%
531	Real estate	5,144	1.9%
532	Rental and leasing services	1,864	1.9%
533	Lessors of nonfinancial intangible assets	94	1.9%
541	Professional and technical services	30,322	2.3%
551	Management of companies / enterprises	3,736	1.3%
561	Administrative and support services	52,050	4.3%
562	Waste mgmt and remediation services	2,128	4.3%
611	Educational services	44,740	2.5%
621	Ambulatory health care services	24,775	2.6%
622	Hospitals	20,567	2.6%
623	Nursing and residential care facilities	9,631	2.6%
624	Social assistance	8,231	2.6%
711	Performing arts and spectator sports	2,807	1.8%
712	Museums, historical sites, zoos, and parks	412	1.8%
713	Amusements, gambling, and recreation	4,162	1.8%
721	Accommodation	6,754	3.2%
722	Food services and drinking places	48,495	3.2%
811	Repair and maintenance	1,547	0.9%
812	Personal and laundry services	3,551	1.5%
813	Membership associations and orgs	2,592	1.3%

Source: Estimates by LAEDC

## Exhibit A-5

Industry Output  
Los Angeles County 2011

NAICS	Industry	Value of Output (\$ millions)	% of total
211	Oil and gas extraction	7,338	0.8%
212	Mining, except oil and gas	116	0.0%
213	Support activities for mining	717	0.1%
221	Utilities	12,902	1.5%
23	Construction	22,129	2.6%
311	Food manufacturing	19,013	2.2%
312	Beverage and tobacco prod manufacturing	4,633	0.5%
313	Textile mills	2,398	0.3%
314	Textile product mills	6,387	0.7%
316	Leather and allied product manufacturing	307	0.0%
321	Wood product manufacturing	648	0.1%
322	Paper manufacturing	3,064	0.4%
323	Printing and related support activities	2,950	0.3%
324	Petroleum and coal prods manufacturing	40,519	4.7%
325	Chemical manufacturing	18,228	2.1%
326	Plastics and rubber prods manufacturing	4,254	0.5%
327	Nonmetallic mineral prod manufacturing	1,482	0.2%
331	Primary metal manufacturing	4,057	0.5%
332	Fabricated metal product manufacturing	10,977	1.3%
333	Machinery manufacturing	5,768	0.7%
334	Computer / electronic prod manufacturing	23,337	2.7%
335	Electrical equipment and appliance mfg.	3,661	0.4%
336	Transportation equipment manufacturing	23,874	2.8%
337	Furniture and related prod manufacturing	2,819	0.3%
339	Miscellaneous manufacturing	5,529	0.6%
42	Wholesale trade	43,549	5.0%
441	Motor vehicle and parts dealers	4,544	0.5%
442	Furniture and home furnishings stores	1,299	0.2%
443	Electronics and appliance stores	2,052	0.2%
444	Building material and garden supply stores	1,978	0.2%
445	Food and beverage stores	6,772	0.8%
446	Health and personal care stores	2,601	0.3%
447	Gasoline stations	2,004	0.2%
448	Clothing and clothing accessories stores	4,741	0.5%
451	Sporting, hobby, book / music stores	1,230	0.1%
452	General merchandise stores	4,532	0.5%
453	Miscellaneous store retailers	2,781	0.3%
454	Nonstore retailers	4,140	0.5%
481	Air transportation	5,964	0.7%
482	Rail transportation	1,217	0.1%
483	Water transportation	1,275	0.1%

NAICS	Industry	Value of Output (\$ millions)	% of total
484	Truck transportation	6,824	0.8%
485	Transit and ground passenger transport	1,241	0.1%
486	Pipeline transportation	554	0.1%
487	Scenic and sightseeing transportation	1,750	0.2%
492	Couriers and messengers	4,007	0.5%
493	Warehousing and storage	1,552	0.2%
511	Publishing industries, except internet	7,107	0.8%
512	Motion picture and sound recording	39,015	4.5%
515	Broadcasting, except internet	13,495	1.6%
516	Internet publishing and broadcasting	1,485	0.2%
517	Telecommunications	19,013	2.2%
518	Data processing, hosting, related services	2,053	0.2%
519	Other information services	242	0.0%
521	Monetary authorities - central bank	24,195	2.8%
522	Credit intermediation and related activities	3,877	0.4%
523	Securities, commodities, investments	15,087	1.7%
524	Insurance carriers and related activities	16,377	1.9%
525	Funds, trusts, and other financial vehicles	7,245	0.8%
531	Real estate	74,102	8.6%
532	Rental and leasing services	5,948	0.7%
533	Lessors of nonfinancial intangible assets	15,257	1.8%
541	Professional and technical services	67,702	7.8%
551	Management of companies / enterprises	12,027	1.4%
561	Administrative and support services	19,388	2.2%
562	Waste mgmt and remediation services	2,077	0.2%
611	Educational services	10,105	1.2%
621	Ambulatory health care services	27,328	3.2%
622	Hospitals	16,780	1.9%
623	Nursing and residential care facilities	4,772	0.6%
624	Social assistance	4,875	0.6%
711	Performing arts and spectator sports	15,655	1.8%
712	Museums, historical sites, zoos, and parks	611	0.1%
713	Amusements, gambling, and recreation	3,817	0.4%
721	Accommodation	3,921	0.5%
722	Food services and drinking places	20,346	2.4%
811	Repair and maintenance	6,730	0.8%
812	Personal and laundry services	7,175	0.8%
813	Membership associations and orgs	6,806	0.8%

Source: Estimates by LAEDC



**Exhibit A-6**
**Total Labor Compensation Paid by Industry  
Los Angeles County 2011**

NAICS	Industry	Labor Payments (\$ millions)	% of total
211	Oil and gas extraction	\$ 1,023	0.4%
212	Mining, except oil and gas	31	0.0%
213	Support activities for mining	170	0.1%
221	Utilities	1,743	0.6%
23	Construction	7,542	2.8%
311	Food manufacturing	2,178	0.8%
312	Beverage and tobacco prod manufacturing	426	0.2%
313	Textile mills	485	0.2%
314	Textile product mills	2,002	0.7%
316	Leather and allied product manufacturing	95	0.0%
321	Wood product manufacturing	135	0.0%
322	Paper manufacturing	509	0.2%
323	Printing and related support activities	887	0.3%
324	Petroleum and coal prods manufacturing	955	0.4%
325	Chemical manufacturing	1,476	0.5%
326	Plastics and rubber prods manufacturing	761	0.3%
327	Nonmetallic mineral prod manufacturing	297	0.1%
331	Primary metal manufacturing	508	0.2%
332	Fabricated metal product manufacturing	2,633	1.0%
333	Machinery manufacturing	1,219	0.4%
334	Computer / electronic prod manufacturing	5,056	1.9%
335	Electrical equipment and appliance mfg.	769	0.3%
336	Transportation equipment manufacturing	5,184	1.9%
337	Furniture and related prod manufacturing	623	0.2%
339	Miscellaneous manufacturing	1,539	0.6%
42	Wholesale trade	15,432	5.7%
441	Motor vehicle and parts dealers	2,266	0.8%
442	Furniture and home furnishings stores	520	0.2%
443	Electronics and appliance stores	1,158	0.4%
444	Building material and garden supply stores	895	0.3%
445	Food and beverage stores	3,039	1.1%
446	Health and personal care stores	1,323	0.5%
447	Gasoline stations	392	0.1%
448	Clothing and clothing accessories stores	1,600	0.6%
451	Sporting, hobby, book / music stores	549	0.2%
452	General merchandise stores	2,020	0.7%
453	Miscellaneous store retailers	983	0.4%
454	Nonstore retailers	667	0.2%
481	Air transportation	1,579	0.6%
482	Rail transportation	279	0.1%
483	Water transportation	235	0.1%

NAICS	Industry	Labor Payments (\$ millions)	% of total
484	Truck transportation	1,483	0.5%
485	Transit and ground passenger transport	515	0.2%
486	Pipeline transportation	75	0.0%
487	Scenic and sightseeing transportation	652	0.2%
492	Couriers and messengers	1,093	0.4%
493	Warehousing and storage	854	0.3%
511	Publishing industries, except internet	1,659	0.6%
512	Motion picture and sound recording	14,273	5.2%
515	Broadcasting, except internet	2,684	1.0%
516	Internet publishing and broadcasting	809	0.3%
517	Telecommunications	2,797	1.0%
518	Data processing, hosting, related services	440	0.2%
519	Other information services	76	0.0%
521	Monetary authorities - central bank	3,977	1.5%
522	Credit intermediation and related activities	2,123	0.8%
523	Securities, commodities, investments	5,877	2.2%
524	Insurance carriers and related activities	5,164	1.9%
525	Funds, trusts, and other financial vehicles	358	0.1%
531	Real estate	3,562	1.3%
532	Rental and leasing services	1,270	0.5%
533	Lessors of nonfinancial intangible assets	564	0.2%
541	Professional and technical services	28,842	10.6%
551	Management of companies / enterprises	6,341	2.3%
561	Administrative and support services	10,129	3.7%
562	Waste mgmt and remediation services	626	0.2%
611	Educational services	5,778	2.1%
621	Ambulatory health care services	12,506	4.6%
622	Hospitals	8,895	3.3%
623	Nursing and residential care facilities	2,698	1.0%
624	Social assistance	2,323	0.9%
711	Performing arts and spectator sports	6,388	2.3%
712	Museums, historical sites, zoos, and parks	196	0.1%
713	Amusements, gambling, and recreation	1,491	0.5%
721	Accommodation	1,290	0.5%
722	Food services and drinking places	7,499	2.8%
811	Repair and maintenance	1,973	0.7%
812	Personal and laundry services	1,777	0.7%
813	Membership associations and orgs	3,588	1.3%

Source: Estimates by LAEDC

**Exhibit A-7****Compensation per Employee by Industry  
Los Angeles County 2011**

NAICS	Industry	Compensation per Employee
211	Oil and gas extraction	\$ 74,869
212	Mining, except oil and gas	48,899
213	Support activities for mining	98,419
221	Utilities	136,834
23	Construction	43,530
311	Food manufacturing	52,916
312	Beverage and tobacco prod manufacturing	74,697
313	Textile mills	42,149
314	Textile product mills	42,906
316	Leather and allied product manufacturing	44,472
321	Wood product manufacturing	32,913
322	Paper manufacturing	68,798
323	Printing and related support activities	45,066
324	Petroleum and coal prods manufacturing	220,138
325	Chemical manufacturing	73,948
326	Plastics and rubber prods manufacturing	54,245
327	Nonmetallic mineral prod manufacturing	50,963
331	Primary metal manufacturing	67,497
332	Fabricated metal product manufacturing	60,795
333	Machinery manufacturing	69,982
334	Computer / electronic prod manufacturing	110,651
335	Electrical equipment and appliance mfg.	77,111
336	Transportation equipment manufacturing	110,602
337	Furniture and related prod manufacturing	40,354
339	Miscellaneous manufacturing	71,427
42	Wholesale trade	62,256
441	Motor vehicle and parts dealers	49,827
442	Furniture and home furnishings stores	34,497
443	Electronics and appliance stores	62,551
444	Building material and garden supply stores	36,832
445	Food and beverage stores	30,880
446	Health and personal care stores	38,902
447	Gasoline stations	32,951
448	Clothing and clothing accessories stores	24,744
451	Sporting, hobby, book / music stores	24,397
452	General merchandise stores	28,411
453	Miscellaneous store retailers	20,577
454	Nonstore retailers	17,919
481	Air transportation	85,546
482	Rail transportation	91,151
483	Water transportation	98,677

NAICS	Industry	Compensation per Employee
484	Truck transportation	30,594
485	Transit and ground passenger transport	25,627
486	Pipeline transportation	122,711
487	Scenic and sightseeing transportation	26,834
492	Couriers and messengers	26,184
493	Warehousing and storage	52,893
511	Publishing industries, except internet	82,562
512	Motion picture and sound recording	105,219
515	Broadcasting, except internet	107,881
516	Internet publishing and broadcasting	103,581
517	Telecommunications	84,149
518	Data processing, hosting, related services	77,555
519	Other information services	54,593
521	Monetary authorities - central bank	67,459
522	Credit intermediation and related activities	73,648
523	Securities, commodities, investments	74,428
524	Insurance carriers and related activities	66,863
525	Funds, trusts, and other financial vehicles	14,019
531	Real estate	16,037
532	Rental and leasing services	38,477
533	Lessors of nonfinancial intangible assets	83,162
541	Professional and technical services	64,473
551	Management of companies / enterprises	106,574
561	Administrative and support services	30,838
562	Waste mgmt and remediation services	64,822
611	Educational services	42,905
621	Ambulatory health care services	53,777
622	Hospitals	80,127
623	Nursing and residential care facilities	35,471
624	Social assistance	20,777
711	Performing arts and spectator sports	50,195
712	Museums, historical sites, zoos, and parks	50,290
713	Amusements, gambling, and recreation	28,238
721	Accommodation	38,963
722	Food services and drinking places	22,910
811	Repair and maintenance	27,813
812	Personal and laundry services	22,506
813	Membership associations and orgs	49,939

Source: Estimates by LAEDC

### Exhibit A-8

#### Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
11-1011	Chief Executives	1,084	1,324	2,409	3	>5 years	None	N/A
11-1021	General and Operations Managers	7,050	6,266	13,316	4	1-5 years	None	113,956
11-1031	Legislators	61	98	159	3	1-5 years	None	61,935
11-2011	Advertising and Promotions Managers	141	206	347	3	1-5 years	None	108,607
11-2021	Marketing Managers	668	998	1,666	3	1-5 years	None	124,236
11-2022	Sales Managers	989	1,827	2,816	3	1-5 years	None	109,024
11-2031	Public Relations and Fundraising Managers	210	288	498	3	1-5 years	None	98,395
11-3011	Administrative Services Managers	1,004	1,123	2,127	7	1-5 years	None	91,563
11-3021	Computer and Information Systems Managers	1,171	881	2,052	3	>5 years	None	133,082
11-3031	Financial Managers	1,780	1,531	3,311	3	>5 years	None	124,130
11-3051	Industrial Production Managers	303	650	954	3	1-5 years	None	93,595
11-3061	Purchasing Managers	150	355	504	3	>5 years	None	107,584
11-3071	Transportation, Storage, and Distribution Managers	196	408	604	7	>5 years	None	84,739
11-3111	Compensation and Benefits Managers	115	129	244	3	1-5 years	None	109,907
11-3121	Human Resources Managers	295	358	652	3	1-5 years	None	111,163
11-3131	Training and Development Managers	109	117	226	3	1-5 years	None	104,410
11-9013	Farmers, Ranchers, and Other Agricultural	(5)	48	43	7	>5 years	None	N/A
11-9021	Construction Managers	881	166	1,047	4	>5 years	None	103,141
11-9031	Education Administrators, Preschool and Childcare	193	209	402	3	1-5 years	None	51,882
11-9032	Education Administrators, Elementary and	985	1,054	2,039	2	1-5 years	None	105,636
11-9039	Education Administrators, All Other	97	111	208	3	1-5 years	None	73,508
11-9041	Architectural and Engineering Managers	506	633	1,138	3	>5 years	None	141,356
11-9051	Food Service Managers	1,047	599	1,647	7	1-5 years	None	47,011
11-9081	Lodging Managers	141	113	253	7	1-5 years	None	49,371
11-9111	Medical and Health Services Managers	1,218	1,092	2,309	3	None	None	100,234
11-9121	Natural Sciences Managers	146	426	573	3	>5 years	None	133,118
11-9141	Property, Real Estate, and Community Association	625	649	1,274	7	1-5 years	None	64,775
11-9151	Social and Community Service Managers	408	397	805	3	1-5 years	None	69,376
11-9161	Emergency Management Directors	28	30	58	3	1-5 years	LT OJT	98,952
11-9199	Managers, All Other	1,254	1,315	2,569	7	1-5 years	None	126,760
13-1011	Agents and Business Managers of Artists,	135	122	257	3	1-5 years	None	115,899
13-1021	Buyers and Purchasing Agents, Farm Products	25	36	61	7	None	LT OJT	66,364
13-1022	Wholesale and Retail Buyers, Except Farm	229	512	741	7	None	LT OJT	50,174
13-1023	Purchasing Agents, Except Wholesale, Retail, and	684	1,226	1,910	7	None	LT OJT	60,511
13-1031	Claims Adjusters, Examiners, and Investigators	777	806	1,583	7	None	LT OJT	63,142
13-1041	Compliance Officers	476	343	819	3	None	MT OJT	71,806
13-1051	Cost Estimators	789	519	1,308	3	None	None	65,094
13-1078	Human Resources, Training, and Labor Relations	1,806	1,268	3,075	3	None	None	69,732
13-1081	Logisticians	212	343	555	3	1-5 years	None	78,249
13-1111	Management Analysts	2,101	1,628	3,728	3	1-5 years	None	84,476
13-1121	Meeting, Convention, and Event Planners	317	242	559	3	<1 year	None	49,853
13-1141	Compensation, Benefits, and Job Analysis	356	289	645	3	None	None	58,934
13-1151	Training and Development Specialists	789	609	1,398	3	None	None	61,464
13-1161	Market Research Analysts and Marketing	1,289	1,685	2,975	3	None	None	58,174
13-1199	Business Operations Specialists, All Other	2,937	2,950	5,888	7	<1 year	LT OJT	65,220
13-2011	Accountants and Auditors	4,331	4,365	8,696	3	None	None	68,193
13-2021	Appraisers and Assessors of Real Estate	198	219	417	7	None	APP	78,148
13-2031	Budget Analysts	175	221	395	3	None	None	76,782

Education: 1=Doctoral or professional degree; 2=Master's degree; 3=Bachelor's degree; 4=Associate's degree; 5=Postsecondary non-degree award; 6=Some college, no degree; 7=High school diploma or equivalent; 8=Less than high school; On-the-Job Training: I/R=Internship/Residency; APP=Apprenticeship; LT OJT=Long-term on-the-job training (more than one year); MT OJT=Moderate-term on-the-job training (1-12 months); ST OJT=Short-term on-the-job training (1 month or less)

Sources: Estimates by LAEDC; Education and skills requirements from BLS

## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
13-2041	Credit Analysts	219	213	432	3	None	None	71,496
13-2051	Financial Analysts	888	856	1,744	3	None	None	86,197
13-2052	Personal Financial Advisors	722	310	1,032	3	None	None	58,137
13-2053	Insurance Underwriters	334	396	730	3	None	MT OJT	71,260
13-2071	Credit Counselors	135	131	266	3	None	MT OJT	45,416
13-2072	Loan Officers	1,249	1,191	2,440	7	None	MT OJT	71,294
13-2081	Tax Examiners and Collectors, and Revenue	49	138	187	3	None	MT OJT	N/A
13-2082	Tax Preparers	292	274	566	7	None	MT OJT	33,479
13-2099	Financial Specialists, All Other	597	544	1,141	3	None	MT OJT	60,850
15-1111	Computer and Information Research Scientists	79	79	157	1	None	None	122,443
15-1121	Computer Systems Analysts	1,894	1,749	3,644	3	None	None	86,114
15-1131	Computer Programmers	1,380	1,468	2,849	3	None	None	85,490
15-1132	Software Developers, Applications	2,143	1,091	3,234	3	None	None	94,358
15-1133	Software Developers, Systems Software	1,390	806	2,197	3	None	None	108,273
15-1141	Database Administrators	408	333	740	3	1-5 years	None	77,956
15-1142	Network and Computer Systems Administrators	1,270	1,081	2,350	3	None	None	76,433
15-1150	Computer Support Specialists	2,350	3,094	5,444	6	None	MT OJT	51,461
15-1179	Information Security Analysts, Web Developers,	1,060	796	1,856	3	1-5 years	None	75,803
15-1799	Computer Occupations, All Other	384	401	785	3	None	None	77,806
15-2011	Actuaries	71	171	243	3	None	LT OJT	91,289
15-2021	Mathematicians	9	27	36	2	None	None	106,283
15-2031	Operations Research Analysts	207	340	547	3	None	None	81,974
15-2041	Statisticians	77	197	275	2	None	None	77,453
17-1011	Architects, Except Landscape and Naval	395	338	734	3	None	I/R	85,436
17-1012	Landscape Architects	81	62	143	3	None	I/R	69,845
17-1021	Cartographers and Photogrammetrists	36	40	76	3	None	None	78,249
17-1022	Surveyors	192	181	373	3	None	None	90,039
17-2011	Aerospace Engineers	124	347	471	3	None	None	117,348
17-2031	Biomedical Engineers	54	67	120	3	None	None	87,399
17-2041	Chemical Engineers	98	158	256	3	None	None	118,325
17-2051	Civil Engineers	1,031	974	2,005	3	None	None	91,931
17-2071	Electrical Engineers	477	729	1,205	3	None	None	100,091
17-2072	Electronics Engineers, Except Computer	302	656	958	3	None	None	101,548
17-2081	Environmental Engineers	190	192	382	3	None	None	82,586
17-2111	Health and Safety Engineers, Except Mining Safety	81	83	164	3	None	None	93,334
17-2112	Industrial Engineers	446	850	1,296	3	None	None	92,369
17-2131	Materials Engineers	41	109	150	3	None	None	99,487
17-2141	Mechanical Engineers	636	1,354	1,990	3	None	None	89,032
17-2171	Petroleum Engineers	29	83	111	3	None	None	96,034
17-2199	Engineers, All Other	341	459	800	3	None	None	95,651
17-3011	Architectural and Civil Drafters	409	327	736	4	None	None	49,869
17-3013	Mechanical Drafters	186	218	404	4	None	None	52,638
17-3019	Drafters, All Other	60	58	118	4	None	None	53,832
17-3021	Aerospace Engineering and Operations	23	41	64	4	None	None	66,036
17-3022	Civil Engineering Technicians	248	221	469	4	None	None	64,360
17-3023	Electrical and Electronics Engineering Technicians	473	612	1,084	4	None	None	62,997
17-3024	Electro-Mechanical Technicians	47	62	108	4	None	None	49,129
17-3025	Environmental Engineering Technicians	84	70	153	4	None	None	58,584
17-3026	Industrial Engineering Technicians	126	214	340	4	None	None	48,775

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
17-3027	Mechanical Engineering Technicians	137	164	300	4	None	None	55,206
17-3029	Engineering Technicians, Except Drafters, All Other	177	210	387	4	None	None	62,294
17-3031	Surveying and Mapping Technicians	192	165	357	7	None	MT OJT	65,074
19-1012	Food Scientists and Technologists	28	82	110	3	None	None	59,093
19-1021	Biochemists and Biophysicists	108	107	215	1	None	None	69,912
19-1022	Microbiologists	62	60	122	3	None	None	74,472
19-1023	Zoologists and Wildlife Biologists	32	43	75	3	None	None	76,653
19-1029	Biological Scientists, All Other	61	77	138	1	None	None	77,630
19-1042	Medical Scientists, Except Epidemiologists	429	109	538	1	None	None	72,294
19-2011	Astronomers	7	9	16	1	None	None	96,977
19-2012	Physicists	59	76	135	1	None	None	92,915
19-2031	Chemists	297	435	732	3	None	None	69,724
19-2032	Materials Scientists	30	46	75	3	None	None	78,972
19-2041	Environmental Scientists and Specialists, Including	296	430	726	3	None	None	74,825
19-2042	Geoscientists, Except Hydrologists and	82	138	220	3	None	None	84,285
19-3011	Economists	37	60	97	3	None	None	104,988
19-3022	Survey Researchers	76	89	166	3	None	None	45,662
19-3031	Clinical, Counseling, and School Psychologists	458	585	1,043	1	None	I/R	79,140
19-3039	Psychologists, All Other	19	32	51	2	None	I/R	104,754
19-3051	Urban and Regional Planners	140	214	354	2	None	None	77,053
19-4011	Agricultural and Food Science Technicians	51	101	152	4	None	None	29,969
19-4021	Biological Technicians	274	403	677	3	None	None	47,987
19-4031	Chemical Technicians	230	155	384	4	None	MT OJT	43,179
19-4041	Geological and Petroleum Technicians	25	68	93	4	None	MT OJT	56,342
19-4061	Social Science Research Assistants	115	195	309	4	None	None	44,726
19-4091	Environmental Science and Protection Technicians,	117	215	331	4	None	MT OJT	52,550
19-4092	Forensic Science Technicians	39	99	138	3	None	MT OJT	N/A
19-4093	Forest and Conservation Technicians	18	188	206	4	None	None	N/A
19-4099	Life, Physical, and Social Science Technicians, All	228	402	630	4	None	MT OJT	45,355
21-1011	Substance Abuse and Behavioral Disorder	312	257	570	7	None	MT OJT	30,201
21-1012	Educational, Guidance, School, and Vocational	1,057	868	1,925	2	None	None	73,647
21-1013	Marriage and Family Therapists	126	103	229	2	None	I/R	48,951
21-1014	Mental Health Counselors	480	389	869	2	None	I/R	40,320
21-1015	Rehabilitation Counselors	350	278	628	2	None	None	30,901
21-1019	Counselors, All Other	118	117	235	2	None	None	41,163
21-1021	Child, Family, and School Social Workers	863	916	1,779	3	None	None	51,398
21-1022	Healthcare Social Workers	545	488	1,033	2	None	None	57,069
21-1023	Mental Health and Substance Abuse Social	477	440	917	3	None	None	46,717
21-1029	Social Workers, All Other	270	360	630	3	None	None	N/A
21-1091	Health Educators	206	194	400	3	None	None	43,796
21-1092	Probation Officers and Correctional Treatment	210	282	493	3	None	ST OJT	N/A
21-1093	Social and Human Service Assistants	1,260	1,150	2,410	7	None	ST OJT	35,530
21-1798	Community and Social Service Specialists, All	432	432	864	3	None	None	36,876
21-2011	Clergy	131	117	248	3	None	MT OJT	62,891
21-2021	Directors, Religious Activities and Education	48	55	103	3	1-5 years	None	62,145
23-1011	Lawyers	2,355	2,039	4,394	1	None	None	156,963
23-1012	Judicial Law Clerks	76	63	138	1	None	None	N/A
23-1021	Administrative Law Judges, Adjudicators, and	13	22	35	3	1-5 years	MT OJT	N/A
23-1022	Arbitrators, Mediators, and Conciliators	24	22	47	3	1-5 years	MT OJT	128,742

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Sources: Estimates by LAEDC; Education and skills requirements from BLS



## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
23-1023	Judges, Magistrate Judges, and Magistrates	22	27	49	1	>5 years	ST OJT	N/A
23-2011	Paralegals and Legal Assistants	1,110	687	1,797	4	None	None	57,755
23-2091	Court Reporters	92	52	144	5	None	ST OJT	N/A
23-2093	Title Examiners, Abstractors, and Searchers	214	136	350	7	None	ST OJT	43,716
23-2099	Legal Support Workers, All Other	114	89	203	7	None	ST OJT	57,196
25-1011	Business Teachers, Postsecondary	364	219	583	1	None	None	115,563
25-1021	Computer Science Teachers, Postsecondary	149	91	240	1	None	None	102,831
25-1022	Mathematical Science Teachers, Postsecondary	238	147	385	1	None	None	100,535
25-1031	Architecture Teachers, Postsecondary	31	21	52	1	None	None	80,426
25-1032	Engineering Teachers, Postsecondary	149	92	242	1	None	None	111,303
25-1051	Atmospheric, Earth, Marine, and Space Sciences	47	30	77	1	None	None	111,585
25-1052	Chemistry Teachers, Postsecondary	93	54	147	1	None	None	91,426
25-1054	Physics Teachers, Postsecondary	60	38	99	1	None	None	99,537
25-1061	Anthropology and Archeology Teachers,	26	15	40	1	None	None	92,698
25-1062	Area, Ethnic, and Cultural Studies Teachers,	41	26	67	1	None	None	77,426
25-1063	Economics Teachers, Postsecondary	59	39	98	1	None	None	96,610
25-1065	Political Science Teachers, Postsecondary	77	47	124	1	None	None	87,340
25-1066	Psychology Teachers, Postsecondary	167	103	270	1	None	None	89,131
25-1067	Sociology Teachers, Postsecondary	77	45	121	1	None	None	95,570
25-1069	Social Sciences Teachers, Postsecondary, All	41	24	65	1	None	None	157,742
25-1072	Nursing Instructors and Teachers, Postsecondary	250	147	397	2	None	None	86,912
25-1081	Education Teachers, Postsecondary	281	170	450	1	None	None	70,437
25-1082	Library Science Teachers, Postsecondary	20	15	34	1	None	None	85,595
25-1111	Criminal Justice and Law Enforcement Teachers,	64	41	105	1	None	None	89,058
25-1112	Law Teachers, Postsecondary	66	41	107	1	None	None	166,230
25-1113	Social Work Teachers, Postsecondary	44	27	71	1	None	None	85,014
25-1121	Art, Drama, and Music Teachers, Postsecondary	399	244	643	1	None	None	83,036
25-1122	Communications Teachers, Postsecondary	131	79	210	1	None	None	91,889
25-1123	English Language and Literature Teachers,	323	195	517	1	None	None	99,714
25-1124	Foreign Language and Literature Teachers,	129	77	206	1	None	None	66,627
25-1125	History Teachers, Postsecondary	104	61	165	1	None	None	94,663
25-1126	Philosophy and Religion Teachers, Postsecondary	101	63	164	1	None	None	84,467
25-1191	Graduate Teaching Assistants	486	295	781	2	None	None	58,913
25-1192	Home Economics Teachers, Postsecondary	24	17	41	2	None	None	84,012
25-1193	Recreation and Fitness Studies Teachers,	82	52	134	2	None	None	95,585
25-1194	Vocational Education Teachers, Postsecondary	535	328	863	3	1-5 years	None	73,874
25-1199	Postsecondary Teachers, All Other	799	486	1,286	2	None	None	67,017
25-2011	Preschool Teachers, Except Special Education	1,387	1,370	2,757	4	None	None	29,557
25-2012	Kindergarten Teachers, Except Special Education	726	717	1,443	3	None	I/R	66,455
25-2021	Elementary School Teachers, Except Special	6,295	5,255	11,550	3	None	I/R	70,230
25-2022	Middle School Teachers, Except Special and	2,862	2,392	5,254	3	None	I/R	65,434
25-2023	Career/Technical Education Teachers, Middle	75	63	137	3	1-5 years	I/R	66,312
25-2031	Secondary School Teachers, Except Special and	4,462	4,635	9,097	3	None	I/R	64,087
25-2032	Career/Technical Education Teachers, Secondary	386	406	793	3	1-5 years	I/R	70,403
25-2041	Special Education Teachers, Preschool,	970	1,090	2,061	3	None	I/R	64,257
25-2054	Special Education Teachers, Secondary School	584	656	1,240	3	None	I/R	64,962
25-3011	Adult Basic and Secondary Education and Literacy	288	170	458	3	None	I/R	76,782
25-3021	Self-Enrichment Education Teachers	701	456	1,157	7	1-5 years	None	49,573
25-3999	Teachers and Instructors, All Other	3,474	2,111	5,586	3	None	None	46,083

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
25-4012	Curators	34	52	86	2	None	None	67,860
25-4013	Museum Technicians and Conservators	27	42	69	3	None	None	47,104
25-4021	Librarians	558	630	1,187	2	None	None	67,982
25-4031	Library Technicians	349	698	1,047	5	None	None	41,357
25-9011	Audio-Visual and Multimedia Collections Specialists	38	34	72	3	1-5 years	None	42,650
25-9031	Instructional Coordinators	528	461	989	2	>5 years	None	61,665
25-9041	Teacher Assistants	5,292	4,544	9,836	7	None	ST OJT	29,398
25-9099	Education, Training, and Library Workers, All Other	425	356	781	3	None	None	27,367
27-1011	Art Directors	257	247	504	3	1-5 years	None	105,802
27-1012	Craft Artists	32	40	72	7	None	LT OJT	63,364
27-1013	Fine Artists, Including Painters, Sculptors, and	183	171	354	7	None	LT OJT	55,295
27-1014	Multi-Media Artists and Animators	610	511	1,121	3	None	MT OJT	81,166
27-1019	Artists and Related Workers, All Other	35	39	74	7	None	LT OJT	54,728
27-1021	Commercial and Industrial Designers	76	170	246	3	None	None	54,385
27-1022	Fashion Designers	54	301	355	7	None	LT OJT	65,465
27-1023	Floral Designers	(47)	269	222	7	None	ST OJT	28,828
27-1024	Graphic Designers	879	1,413	2,292	3	None	None	56,078
27-1025	Interior Designers	143	241	384	3	None	None	58,826
27-1026	Merchandise Displayers and Window Trimmers	236	423	659	7	None	MT OJT	31,954
27-1027	Set and Exhibit Designers	156	181	337	3	None	None	62,456
27-1029	Designers, All Other	44	70	115	3	None	None	43,282
27-1012	Producers and Directors	2,365	2,524	4,889	3	1-5 years	None	121,461
27-2022	Coaches and Scouts	842	899	1,741	7	None	LT OJT	40,473
27-2023	Umpires, Referees, and Other Sports Officials	64	91	155	7	None	LT OJT	21,392
27-2041	Music Directors and Composers	139	141	280	3	1-5 years	None	59,317
27-2042	Musicians and Singers	333	414	747	7	None	LT OJT	N/A
27-3012	Public Address System and Other Announcers	52	63	115	7	None	ST OJT	21,675
27-3022	Reporters and Correspondents	111	334	445	3	None	None	41,261
27-3031	Public Relations Specialists	893	1,130	2,023	3	None	MT OJT	63,572
27-3041	Editors	434	634	1,068	3	1-5 years	None	56,142
27-3042	Technical Writers	172	168	340	3	1-5 years	ST OJT	78,710
27-3043	Writers and Authors	327	362	688	3	None	LT OJT	75,014
27-3091	Interpreters and Translators	225	248	473	3	None	LT OJT	58,016
27-3099	Media and Communication Workers, All Other	475	453	928	7	None	ST OJT	57,470
27-4011	Audio and Video Equipment Technicians	692	757	1,449	5	None	MT OJT	47,298
27-4012	Broadcast Technicians	254	409	663	4	None	ST OJT	44,631
27-4014	Sound Engineering Technicians	482	482	964	5	None	ST OJT	69,167
27-4021	Photographers	276	122	398	7	None	LT OJT	45,015
27-4031	Camera Operators, Television, Video, and Motion	432	289	721	3	None	MT OJT	51,664
27-4032	Film and Video Editors	885	540	1,425	3	1-5 years	None	97,339
27-4099	Media and Communication Equipment Workers, All	289	186	474	7	None	MT OJT	80,589
29-1011	Chiropractors	137	98	235	1	None	None	72,821
29-1021	Dentists, General	449	479	928	1	None	I/R	120,922
29-1029	Dentists, All Other Specialists	13	18	31	1	None	I/R	157,024
29-1031	Dietitians and Nutritionists	221	302	523	3	None	I/R	67,772
29-1041	Optometrists	127	169	296	1	None	None	87,878
29-1051	Pharmacists	817	1,135	1,952	1	None	None	129,577
29-1062	Family and General Practitioners	487	348	835	1	None	I/R	164,003
29-1063	Internists, General	226	161	387	1	None	I/R	186,607

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## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
29-1064	Obstetricians and Gynecologists	101	71	171	1	None	I/R	N/A
29-1065	Pediatricians, General	144	102	247	1	None	I/R	155,837
29-1066	Psychiatrists	113	91	204	1	None	I/R	N/A
29-1067	Surgeons	207	146	353	1	None	I/R	N/A
29-1069	Physicians and Surgeons, All Other	1,315	975	2,290	1	None	I/R	>\$187,20
29-1071	Physician Assistants	394	262	657	2	None	None	97,666
29-1081	Podiatrists	42	33	75	1	None	I/R	93,995
29-1111	Registered Nurses	12,096	7,866	19,962	4	None	None	85,178
29-1122	Occupational Therapists	472	326	798	2	None	None	87,868
29-1123	Physical Therapists	873	366	1,239	1	None	None	87,316
29-1124	Radiation Therapists	91	61	153	4	None	None	89,085
29-1125	Recreational Therapists	68	97	165	3	None	None	62,545
29-1126	Respiratory Therapists	513	351	864	4	None	None	67,606
29-1127	Speech-Language Pathologists	520	364	883	2	None	None	86,209
29-1128	Therapists, All Other	67	53	120	2	None	None	43,785
29-1131	Veterinarians	262	214	475	1	None	None	88,170
29-1181	Audiologists	51	12	64	1	None	None	74,246
29-1199	Health Diagnosing and Treating Practitioners, All	91	72	162	2	None	None	54,076
29-2011	Medical and Clinical Laboratory Technologists	735	518	1,254	3	None	None	79,046
29-2012	Medical and Clinical Laboratory Technicians	732	508	1,241	4	None	None	36,384
29-2021	Dental Hygienists	919	654	1,573	4	None	None	100,378
29-2031	Cardiovascular Technologists and Technicians	232	128	360	4	None	None	54,940
29-2037	Radiologic Technologists and Technicians	1,014	565	1,579	4	None	None	64,603
29-2041	Emergency Medical Technicians and Paramedics	802	587	1,390	5	None	None	27,477
29-2051	Dietetic Technicians	93	58	151	7	None	MT OJT	31,463
29-2052	Pharmacy Technicians	976	984	1,960	7	None	MT OJT	37,115
29-2053	Psychiatric Technicians	212	135	347	5	None	ST OJT	50,272
29-2054	Respiratory Therapy Technicians	62	39	101	4	None	MT OJT	46,181
29-2055	Surgical Technologists	441	270	711	5	None	None	46,658
29-2056	Veterinary Technologists and Technicians	383	277	660	4	None	None	35,146
29-2061	Licensed Practical and Licensed Vocational Nurses	3,151	2,918	6,069	5	None	None	50,213
29-2071	Medical Records and Health Information	811	586	1,398	5	None	None	35,860
29-2081	Opticians, Dispensing	229	208	437	7	None	LT OJT	33,504
29-2799	Health Technologists and Technicians, All Other	466	343	809	5	None	ST OJT	37,368
29-9011	Occupational Health and Safety Specialists	142	264	406	3	None	MT OJT	74,268
29-9012	Occupational Health and Safety Technicians	30	48	78	7	None	MT OJT	43,594
29-9091	Athletic Trainers	85	129	214	3	None	None	52,456
29-9799	Healthcare Practitioners and Technical Workers, All	230	299	528	3	None	None	69,639
31-1011	Home Health Aides	3,999	1,788	5,787	8	None	ST OJT	20,913
31-1012	Nursing Aides, Orderlies, and Attendants	5,876	2,668	8,544	5	None	None	26,078
31-1013	Psychiatric Aides	248	113	362	7	None	ST OJT	25,464
31-2011	Occupational Therapy Assistants	131	72	203	4	None	None	64,758
31-2012	Occupational Therapy Aides	31	16	46	7	None	ST OJT	28,083
31-2021	Physical Therapist Assistants	316	178	495	4	None	None	57,548
31-2022	Physical Therapist Aides	220	120	340	7	None	MT OJT	26,426
31-9011	Massage Therapists	266	201	468	5	None	None	33,630
31-9091	Dental Assistants	1,465	1,097	2,561	5	None	None	32,631
31-9092	Medical Assistants	2,613	1,450	4,064	7	None	MT OJT	30,362
31-9093	Medical Equipment Preparers	228	125	353	7	None	MT OJT	31,548

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
31-9094	Medical Transcriptionists	428	205	633	5	None	None	45,017
31-9095	Pharmacy Aides	110	118	228	7	None	ST OJT	24,006
31-9096	Veterinary Assistants and Laboratory Animal	355	229	584	7	None	ST OJT	25,980
31-9799	Healthcare Support Workers, All Other	839	488	1,327	7	None	ST OJT	35,247
33-1011	First-Line Supervisors of Correctional Officers	35	52	87	7	1-5 years	MT OJT	N/A
33-1012	First-Line Supervisors of Police and Detectives	88	206	294	7	1-5 years	MT OJT	N/A
33-1021	First-Line Supervisors of Fire Fighting and	68	195	262	5	1-5 years	None	N/A
33-1099	First-Line Supervisors of Protective Service	291	312	604	7	1-5 years	None	42,519
33-2011	Firefighters	729	1,217	1,946	5	None	LT OJT	N/A
33-2021	Fire Inspectors and Investigators	28	44	72	7	>5 years	MT OJT	104,452
33-3012	Correctional Officers and Jailers	643	594	1,237	7	None	MT OJT	N/A
33-3021	Detectives and Criminal Investigators	133	284	417	7	1-5 years	MT OJT	N/A
33-3041	Parking Enforcement Workers	50	77	127	7	None	ST OJT	39,294
33-3051	Police and Sheriff's Patrol Officers	1,458	2,788	4,246	7	None	MT OJT	N/A
33-3052	Transit and Railroad Police	6	9	14	7	None	ST OJT	56,986
33-9011	Animal Control Workers	46	74	120	7	None	MT OJT	N/A
33-9021	Private Detectives and Investigators	157	94	251	6	1-5 years	MT OJT	54,793
33-9031	Gaming Surveillance Officers and Gaming	29	26	55	7	None	ST OJT	34,399
33-9032	Security Guards	7,337	3,102	10,439	7	None	ST OJT	24,286
33-9092	Lifeguards, Ski Patrol, and Other Recreational	433	1,513	1,946	7	None	ST OJT	28,753
33-9093	Transportation Security Screeners (Federal Only)	(0)	39	38	7	None	MT OJT	38,039
33-9099	Protective Service Workers, All Other	271	897	1,168	7	None	ST OJT	38,583
35-1011	Chefs and Head Cooks	492	283	775	7	1-5 years	None	38,618
35-1012	First-Line Supervisors of Food Preparation and	4,594	3,060	7,655	7	1-5 years	None	27,326
35-2011	Cooks, Fast Food	3,040	1,923	4,963	8	None	ST OJT	18,684
35-2012	Cooks, Institution and Cafeteria	1,724	1,335	3,059	8	None	ST OJT	27,206
35-2014	Cooks, Restaurant	5,671	3,608	9,279	8	<1 year	MT OJT	22,428
35-2015	Cooks, Short Order	940	641	1,581	8	None	ST OJT	23,375
35-2019	Cooks, All Other	98	74	172	8	None	MT OJT	26,206
35-2021	Food Preparation Workers	3,883	4,960	8,842	8	None	ST OJT	19,148
35-3011	Bartenders	2,871	3,211	6,082	8	None	ST OJT	19,222
35-3021	Combined Food Preparation and Serving Workers,	16,226	14,051	30,277	8	None	ST OJT	18,953
35-3022	Counter Attendants, Cafeteria, Food Concession,	4,498	10,747	15,245	8	None	ST OJT	19,217
35-3031	Waiters and Waitresses	13,664	20,421	34,085	8	None	ST OJT	18,868
35-3041	Food Servers, Nonrestaurant	1,037	966	2,003	8	None	ST OJT	22,908
35-9011	Dining Room and Cafeteria Attendants and	2,239	2,551	4,791	8	None	ST OJT	18,753
35-9021	Dishwashers	2,933	4,081	7,014	8	None	ST OJT	18,891
35-9031	Hosts and Hostesses, Restaurant, Lounge, and	1,978	4,147	6,125	8	None	None	19,251
35-9099	Food Preparation and Serving Related Workers, All	216	366	582	8	None	ST OJT	18,646
37-1011	First-Line Supervisors of Housekeeping and	990	402	1,392	7	1-5 years	None	38,123
37-1012	First-Line Supervisors of Landscaping, Lawn	665	266	931	7	1-5 years	None	51,920
37-2011	Janitors and Cleaners, Except Maids and	12,116	7,076	19,192	8	None	ST OJT	22,747
37-2012	Maids and Housekeeping Cleaners	4,143	2,277	6,420	8	None	ST OJT	21,507
37-2019	Building Cleaning Workers, All Other	92	40	132	7	None	ST OJT	24,058
37-2021	Pest Control Workers	535	512	1,047	7	None	MT OJT	29,256
37-3011	Landscaping and Groundskeeping Workers	5,403	2,686	8,089	8	None	ST OJT	24,570
37-3012	Pesticide Handlers, Sprayers, and Applicators,	146	78	224	7	None	MT OJT	42,933
37-3013	Tree Trimmers and Pruners	308	125	433	7	None	ST OJT	28,571
39-1011	Gaming Supervisors	103	83	186	7	1-5 years	None	39,149

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
39-1021	First-Line Supervisors of Personal Service Workers	826	841	1,667	7	1-5 years	None	42,570
39-2011	Animal Trainers	32	22	54	7	None	MT OJT	44,067
39-2021	Nonfarm Animal Caretakers	410	687	1,096	8	None	ST OJT	21,252
39-3011	Gaming Dealers	439	901	1,340	7	None	MT OJT	18,672
39-3012	Gaming and Sports Book Writers and Runners	66	150	216	7	None	ST OJT	39,135
39-3019	Gaming Service Workers, All Other	72	173	245	7	None	MT OJT	20,677
39-3021	Motion Picture Projectionists	535	746	1,281	8	None	ST OJT	26,202
39-3031	Ushers, Lobby Attendants, and Ticket Takers	2,758	5,666	8,424	8	None	ST OJT	20,873
39-3091	Amusement and Recreation Attendants	955	2,782	3,737	8	None	ST OJT	20,789
39-3093	Locker Room, Coatroom, and Dressing Room	77	223	299	7	None	ST OJT	19,076
39-3099	Entertainment Attendants and Related Workers, All	702	1,361	2,063	7	None	ST OJT	21,972
39-4011	Embalmers	22	69	91	5	None	ST OJT	41,947
39-4831	Funeral Service Managers, Directors, Morticians,	100	123	224	4	None	APP	62,635
39-5011	Barbers	36	41	77	5	None	None	23,426
39-5012	Hairdressers, Hairstylists, and Cosmetologists	1,238	1,459	2,696	5	None	None	21,188
39-5091	Makeup Artists, Theatrical and Performance	64	40	104	5	None	None	89,310
39-5092	Manicurists and Pedicurists	194	223	418	5	None	None	18,893
39-5094	Skincare Specialists	116	119	235	5	None	None	28,943
39-6011	Baggage Porters and Bellhops	199	251	450	7	None	ST OJT	21,042
39-6012	Concierges	97	95	192	7	None	MT OJT	29,568
39-7011	Tour Guides and Escorts	130	203	333	7	None	MT OJT	20,337
39-7012	Travel Guides	28	29	57	7	None	MT OJT	30,500
39-9011	Childcare Workers	2,475	3,093	5,568	7	None	ST OJT	24,194
39-9021	Personal Care Aides	3,561	994	4,556	8	None	ST OJT	21,261
39-9031	Fitness Trainers and Aerobics Instructors	822	691	1,513	7	None	ST OJT	39,718
39-9032	Recreation Workers	1,129	935	2,064	3	None	None	24,022
39-9041	Residential Advisors	285	398	683	6	<1 year	ST OJT	31,194
39-9099	Personal Care and Service Workers, All Other	224	241	464	7	None	ST OJT	22,909
41-1011	First-Line Supervisors of Retail Sales Workers	2,398	4,657	7,055	7	1-5 years	None	41,071
41-1012	First-Line Supervisors of Non-Retail Sales Workers	772	1,200	1,972	7	>5 years	None	66,994
41-2011	Cashiers	8,639	25,233	33,872	8	None	ST OJT	20,017
41-2021	Counter and Rental Clerks	1,340	1,896	3,235	8	None	ST OJT	22,771
41-2022	Parts Salespersons	139	1,218	1,357	8	None	MT OJT	29,559
41-2031	Retail Salespersons	8,132	21,676	29,808	8	None	ST OJT	21,849
41-3011	Advertising Sales Agents	697	1,139	1,837	7	None	MT OJT	52,892
41-3021	Insurance Sales Agents	1,166	956	2,122	7	None	MT OJT	58,605
41-3031	Securities, Commodities, and Financial Services	1,358	1,382	2,739	3	None	MT OJT	85,939
41-3041	Travel Agents	579	135	713	7	None	MT OJT	32,794
41-3099	Sales Representatives, Services, All Other	2,458	3,365	5,823	7	None	ST OJT	56,454
41-4011	Sales Representatives, Wholesale and	1,000	1,757	2,757	3	None	MT OJT	74,270
41-4012	Sales Representatives, Wholesale and	3,692	6,679	10,372	7	None	MT OJT	55,429
41-9011	Demonstrators and Product Promoters	267	413	680	7	None	ST OJT	23,762
41-9021	Real Estate Brokers	169	186	355	7	1-5 years	None	92,302
41-9022	Real Estate Sales Agents	691	748	1,440	7	None	LT OJT	34,481
41-9031	Sales Engineers	175	434	609	3	None	MT OJT	91,917
41-9041	Telemarketers	1,701	1,023	2,724	8	None	ST OJT	23,848
41-9091	Door-to-Door Sales Workers, News and Street	27	23	50	7	None	ST OJT	21,309
41-9799	Sales and Related Workers, All Other	628	788	1,416	7	None	MT OJT	36,378
43-1011	First-Line Supervisors of Office and Administrative	5,315	6,555	11,871	7	1-5 years	None	56,230

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Sources: Estimates by LAEDC; Education and skills requirements from BLS



## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
43-2011	Switchboard Operators, Including Answering	591	434	1,024	7	None	ST OJT	28,428
43-3011	Bill and Account Collectors	2,122	1,364	3,486	7	None	MT OJT	37,978
43-3021	Billing and Posting Clerks	2,042	1,528	3,570	7	None	ST OJT	35,095
43-3031	Bookkeeping, Accounting, and Auditing Clerks	6,193	3,281	9,474	7	None	MT OJT	38,918
43-3041	Gaming Cage Workers	79	81	160	7	None	ST OJT	26,348
43-3051	Payroll and Timekeeping Clerks	724	656	1,380	7	None	MT OJT	43,787
43-3061	Procurement Clerks	229	527	756	7	None	MT OJT	38,788
43-3071	Tellers	2,493	3,708	6,201	7	None	ST OJT	26,033
43-4011	Brokerage Clerks	267	277	544	7	None	MT OJT	47,128
43-4031	Court, Municipal, and License Clerks	171	297	468	7	None	MT OJT	N/A
43-4041	Credit Authorizers, Checkers, and Clerks	180	239	420	7	None	ST OJT	40,342
43-4051	Customer Service Representatives	8,845	11,409	20,254	7	None	ST OJT	35,296
43-4061	Eligibility Interviewers, Government Programs	388	710	1,098	4	None	MT OJT	N/A
43-4071	File Clerks	776	783	1,559	7	None	ST OJT	27,478
43-4081	Hotel, Motel, and Resort Desk Clerks	1,057	1,245	2,302	7	None	ST OJT	22,388
43-4111	Interviewers, Except Eligibility and Loan	948	712	1,660	7	None	ST OJT	36,511
43-4121	Library Assistants, Clerical	356	770	1,126	7	None	ST OJT	24,712
43-4131	Loan Interviewers and Clerks	838	571	1,408	7	None	ST OJT	41,017
43-4141	New Accounts Clerks	277	284	561	7	None	ST OJT	32,558
43-4151	Order Clerks	673	1,158	1,831	7	None	ST OJT	30,144
43-4161	Human Resources Assistants, Except Payroll and	547	688	1,235	7	None	ST OJT	42,899
43-4171	Receptionists and Information Clerks	4,434	5,422	9,856	7	None	ST OJT	27,400
43-4181	Reservation and Transportation Ticket Agents and	474	562	1,035	7	None	ST OJT	35,049
43-4199	Information and Record Clerks, All Other	442	686	1,128	7	None	ST OJT	40,393
43-5011	Cargo and Freight Agents	302	668	970	7	None	ST OJT	40,620
43-5021	Couriers and Messengers	338	417	754	7	None	ST OJT	24,756
43-5031	Police, Fire, and Ambulance Dispatchers	177	188	365	7	None	MT OJT	54,264
43-5032	Dispatchers, Except Police, Fire, and Ambulance	596	642	1,238	7	None	MT OJT	36,392
43-5041	Meter Readers, Utilities	107	175	282	7	None	ST OJT	39,441
43-5051	Postal Service Clerks	(2)	347	345	7	None	ST OJT	53,834
43-5052	Postal Service Mail Carriers	(10)	2,336	2,326	7	None	ST OJT	56,296
43-5053	Postal Service Mail Sorters, Processors, and	(4)	167	162	7	None	ST OJT	53,824
43-5061	Production, Planning, and Expediting Clerks	879	1,524	2,403	7	None	MT OJT	47,683
43-5071	Shipping, Receiving, and Traffic Clerks	1,792	3,517	5,308	7	None	ST OJT	28,322
43-5081	Stock Clerks and Order Fillers	4,581	7,683	12,263	8	None	ST OJT	22,677
43-5111	Weighers, Measurers, Checkers, and Samplers,	251	491	742	7	None	ST OJT	24,071
43-6011	Legal Secretaries and Executive Administrative	3,962	577	4,539	7	1-5 years	None	50,259
43-6012	Medical Secretaries	1,018	1,164	2,183	7	None	MT OJT	51,075
43-6013	Secretaries and Administrative Assistants, Except	2,430	4,533	6,963	7	None	MT OJT	33,483
43-6014	Computer Operators	8,072	178	8,250	7	None	ST OJT	36,040
43-9011	Computer Operators	242	367	609	7	None	MT OJT	42,033
43-9021	Data Entry Keyers	982	340	1,322	7	None	MT OJT	30,237
43-9022	Word Processors and Typists	404	18	422	7	None	ST OJT	36,853
43-9031	Desktop Publishers	51	579	630	4	None	ST OJT	40,240
43-9041	Insurance Claims and Policy Processing Clerks	800	594	1,394	7	None	MT OJT	35,065
43-9051	Mail Clerks and Mail Machine Operators, Except	555	10,002	10,557	7	None	ST OJT	28,069
43-9061	Office Clerks, General	11,853	208	12,062	7	None	ST OJT	29,692
43-9071	Office Machine Operators, Except Computer	308	49	357	7	None	ST OJT	25,789
43-9081	Proofreaders and Copy Markers	35	26	61	3	None	MT OJT	45,244

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
43-9111	Statistical Assistants	36	956	992	3	None	None	42,284
43-9799	Office and Administrative Support Workers, All	1,192	51	1,243	7	None	ST OJT	26,386
45-1011	First-Line Supervisors of Farming, Fishing, and	21	43	64	7	1-5 years	None	47,692
45-2011	Agricultural Inspectors	17	2	20	3	None	MT OJT	N/A
45-2021	Animal Breeders	1	191	192	7	1-5 years	ST OJT	N/A
45-2041	Graders and Sorters, Agricultural Products	50	724	774	8	None	ST OJT	18,804
45-2092	Farmworkers and Laborers, Crop, Nursery, and	68	154	222	8	None	ST OJT	19,156
45-2093	Farmworkers, Farm, Ranch, and Aquacultural	49	6	55	8	None	ST OJT	20,384
45-3011	Fishers and Related Fishing Workers	2	4	6	8	None	MT OJT	N/A
45-4011	Forest and Conservation Workers	21	27	48	7	None	MT OJT	16,900
47-1011	First-Line Supervisors of Construction Trades and	1,935	1,220	3,154	7	>5 years	None	72,615
47-2011	Boilermakers	80	96	175	7	None	APP	86,379
47-2021	Brickmasons and Blockmasons	351	157	507	7	None	APP	55,698
47-2022	Stonemasons	64	31	94	7	None	APP	49,394
47-2031	Carpenters	2,670	1,685	4,355	7	None	APP	52,267
47-2041	Carpet Installers	84	77	162	8	None	ST OJT	38,301
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	38	30	68	7	None	MT OJT	49,046
47-2044	Tile and Marble Setters	148	76	224	8	None	LT OJT	41,979
47-2051	Cement Masons and Concrete Finishers	733	256	989	8	None	MT OJT	46,838
47-2053	Terrazzo Workers and Finishers	20	7	27	7	None	APP	43,715
47-2061	Construction Laborers	4,013	776	4,788	8	None	ST OJT	37,396
47-2071	Paving, Surfacing, and Tamping Equipment	220	106	326	7	None	MT OJT	60,595
47-2073	Operating Engineers and Other Construction	1,239	725	1,964	7	None	MT OJT	78,266
47-2081	Drywall and Ceiling Tile Installers	430	259	689	8	None	MT OJT	49,210
47-2082	Tapers	88	52	140	8	None	MT OJT	45,410
47-2111	Electricians	2,643	1,926	4,569	7	None	APP	62,283
47-2121	Glaziers	201	204	405	7	None	APP	54,780
47-2141	Painters, Construction and Maintenance	994	566	1,560	8	None	MT OJT	36,240
47-2142	Paperhangers	23	6	29	7	None	MT OJT	38,939
47-2151	Pipelayers	169	118	287	7	None	ST OJT	45,998
47-2152	Plumbers, Pipefitters, and Steamfitters	1,804	1,330	3,133	7	None	APP	55,746
47-2161	Plasterers and Stucco Masons	131	57	188	8	None	LT OJT	43,450
47-2171	Reinforcing Iron and Rebar Workers	84	37	121	7	None	APP	43,560
47-2211	Sheet Metal Workers	582	306	888	7	None	APP	46,442
47-2221	Structural Iron and Steel Workers	288	148	437	7	None	APP	53,846
47-3011	Helpers--Brickmasons, Blockmasons,	156	90	245	8	None	ST OJT	26,921
47-3012	Helpers--Carpenters	175	131	306	8	None	ST OJT	31,618
47-3013	Helpers--Electricians	386	222	608	7	None	ST OJT	30,886
47-3014	Helpers--Painters, Paperhangers, Plasterers, and	63	36	99	8	None	ST OJT	23,385
47-3016	Helpers--Roofers	75	47	122	8	None	ST OJT	27,371
47-4011	Construction and Building Inspectors	288	413	701	7	>5 years	MT OJT	82,197
47-4021	Elevator Installers and Repairers	119	76	195	7	None	APP	102,933
47-4031	Fence Erectors	116	73	189	7	None	MT OJT	35,741
47-4041	Hazardous Materials Removal Workers	244	146	390	7	None	MT OJT	38,867
47-4051	Highway Maintenance Workers	96	151	248	7	None	MT OJT	60,347
47-4061	Rail-Track Laying and Maintenance Equipment	18	16	34	7	None	MT OJT	N/A
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	141	98	239	8	None	MT OJT	34,413
47-4799	Construction and Related Workers, All Other	149	166	315	7	None	MT OJT	40,444
47-5011	Derrick Operators, Oil and Gas	(5)	16	12	8	None	ST OJT	67,226

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
47-5013	Service Unit Operators, Oil, Gas, and Mining	(4)	51	47	8	None	MT OJT	62,404
47-5071	Roustabouts, Oil and Gas	7	59	66	8	None	MT OJT	45,072
49-1011	First-Line Supervisors of Mechanics, Installers, and	1,028	1,844	2,872	7	1-5 years	None	69,999
49-2011	Computer, Automated Teller, and Office Machine	177	541	717	5	None	None	41,127
49-2021	Radio, Cellular, and Tower Equipment Installers	2	35	37	4	None	MT OJT	61,200
49-2022	Telecommunications Equipment Installers and	37	587	624	5	None	MT OJT	56,610
49-2092	Electric Motor, Power Tool, and Related Repairers	35	26	61	5	None	LT OJT	40,066
49-2093	Electrical and Electronics Installers and Repairers,	14	48	62	5	None	LT OJT	68,340
49-2094	Electrical and Electronics Repairers, Commercial	132	254	387	5	None	LT OJT	55,667
49-2095	Electrical and Electronics Repairers, Powerhouse,	39	92	131	5	None	LT OJT	87,296
49-2096	Electronic Equipment Installers and Repairers,	3	57	59	5	None	ST OJT	28,663
49-2097	Electronic Home Entertainment Equipment	43	128	171	5	None	None	30,803
49-2098	Security and Fire Alarm Systems Installers	408	230	639	7	None	MT OJT	44,581
49-3011	Aircraft Mechanics and Service Technicians	259	920	1,179	5	None	None	58,411
49-3021	Automotive Body and Related Repairers	189	561	750	7	None	MT OJT	38,806
49-3023	Automotive Service Technicians and Mechanics	738	2,472	3,210	7	None	LT OJT	36,989
49-3031	Bus and Truck Mechanics and Diesel Engine	501	802	1,303	7	None	LT OJT	51,730
49-3042	Mobile Heavy Equipment Mechanics, Except	272	478	750	7	None	LT OJT	60,630
49-3043	Rail Car Repairers	31	82	114	7	None	LT OJT	43,955
49-3052	Motorcycle Mechanics	9	59	68	7	None	LT OJT	31,416
49-3053	Outdoor Power Equipment and Other Small Engine	57	98	155	7	None	MT OJT	36,638
49-3091	Bicycle Repairers	11	44	55	7	None	MT OJT	21,746
49-3093	Tire Repairers and Changers	83	358	441	7	None	MT OJT	29,686
49-9012	Control and Valve Installers and Repairers, Except	90	116	206	7	None	MT OJT	67,109
49-9021	Heating, Air Conditioning, and Refrigeration	1,190	570	1,760	5	None	LT OJT	54,365
49-9041	Industrial Machinery Mechanics	492	916	1,408	7	None	LT OJT	55,982
49-9043	Maintenance Workers, Machinery	152	261	413	7	None	MT OJT	36,752
49-9044	Millwrights	119	103	221	7	None	LT OJT	47,758
49-9051	Electrical Power-Line Installers and Repairers	253	449	702	7	None	LT OJT	86,428
49-9052	Telecommunications Line Installers and Repairers	179	496	676	7	None	LT OJT	54,041
49-9061	Camera and Photographic Equipment Repairers	11	18	30	4	None	LT OJT	44,189
49-9062	Medical Equipment Repairers	84	178	262	4	None	MT OJT	51,974
49-9069	Precision Instrument and Equipment Repairers, All	26	54	80	4	None	LT OJT	67,051
49-9071	Maintenance and Repair Workers, General	4,470	4,087	8,557	7	None	MT OJT	38,369
49-9091	Coin, Vending, and Amusement Machine Servicers	168	137	306	7	None	ST OJT	30,193
49-9094	Locksmiths and Safe Repairers	120	59	179	7	None	LT OJT	45,923
49-9097	Signal and Track Switch Repairers	4	6	10	5	None	MT OJT	N/A
49-9098	Helpers--Installation, Maintenance, and Repair	378	994	1,372	7	None	MT OJT	25,307
49-9799	Installation, Maintenance, and Repair Workers, All	374	362	736	7	None	MT OJT	34,690
51-1011	First-Line Supervisors of Production and Operating	1,205	1,360	2,566	5	1-5 years	None	51,218
51-2021	Coil Winders, Tapers, and Finishers	28	34	62	7	None	ST OJT	19,982
51-2022	Electrical and Electronic Equipment Assemblers	511	573	1,084	7	None	ST OJT	27,392
51-2023	Electromechanical Equipment Assemblers	122	134	256	7	None	ST OJT	23,844
51-2031	Engine and Other Machine Assemblers	45	109	154	7	None	ST OJT	40,784
51-2041	Structural Metal Fabricators and Fitters	196	251	447	7	None	MT OJT	35,676
51-2091	Fiberglass Laminators and Fabricators	12	61	72	7	None	MT OJT	29,333
51-2092	Team Assemblers	2,619	3,345	5,963	7	None	MT OJT	23,507
51-2099	Assemblers and Fabricators, All Other	875	951	1,826	7	None	MT OJT	25,925
51-3011	Bakers	428	735	1,162	8	None	LT OJT	25,453

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
51-3021	Butchers and Meat Cutters	310	690	1,000	8	None	LT OJT	26,605
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	261	824	1,085	8	None	ST OJT	21,058
51-3023	Slaughterers and Meat Packers	104	384	488	8	None	MT OJT	19,636
51-3091	Food and Tobacco Roasting, Baking, and Drying	30	93	124	8	None	MT OJT	30,043
51-3092	Food Batchmakers	171	478	649	7	<1 year	ST OJT	23,435
51-3093	Food Cooking Machine Operators and Tenders	61	155	216	7	<1 year	ST OJT	20,693
51-4011	Computer-Controlled Machine Tool Operators,	266	420	687	7	None	MT OJT	33,773
51-4012	Computer Numerically Controlled Machine Tool	56	61	117	7	None	MT OJT	53,835
51-4021	Extruding and Drawing Machine Setters, Operators,	173	208	381	7	None	MT OJT	30,117
51-4022	Forging Machine Setters, Operators, and Tenders,	40	77	117	7	None	MT OJT	31,793
51-4023	Rolling Machine Setters, Operators, and Tenders,	72	95	167	7	None	MT OJT	24,997
51-4031	Cutting, Punching, and Press Machine Setters,	500	231	731	7	None	MT OJT	28,554
51-4033	Grinding, Lapping, Polishing, and Buffing Machine	152	181	333	7	None	MT OJT	26,090
51-4034	Lathe and Turning Machine Tool Setters,	102	236	338	7	None	MT OJT	37,460
51-4041	Machinists	914	1,147	2,060	7	None	LT OJT	36,099
51-4051	Metal-Refining Furnace Operators and Tenders	24	41	65	7	None	MT OJT	40,153
51-4052	Pourers and Casters, Metal	15	25	41	7	None	MT OJT	28,944
51-4072	Molding, Coremaking, and Casting Machine	299	294	593	7	None	MT OJT	23,077
51-4081	Multiple Machine Tool Setters, Operators, and	150	245	395	7	None	MT OJT	31,798
51-4111	Tool and Die Makers	110	56	166	7	None	LT OJT	47,854
51-4121	Welders, Cutters, Solderers, and Brazers	781	1,366	2,147	7	<1 year	MT OJT	34,959
51-4122	Welding, Soldering, and Brazing Machine Setters,	61	192	253	7	None	MT OJT	35,408
51-4191	Heat Treating Equipment Setters, Operators, and	41	266	308	7	None	MT OJT	30,938
51-4192	Lay-Out Workers, Metal and Plastic	3	27	30	7	None	MT OJT	30,545
51-4193	Plating and Coating Machine Setters, Operators,	90	128	218	7	None	MT OJT	29,232
51-4194	Tool Grinders, Filers, and Sharpeners	26	14	40	7	None	MT OJT	29,151
51-4199	Metal Workers and Plastic Workers, All Other	55	33	88	7	None	MT OJT	28,252
51-5111	Prepress Technicians and Workers	55	177	232	5	None	None	39,436
51-5112	Printing Press Operators	248	671	919	7	None	MT OJT	34,118
51-5113	Print Binding and Finishing Workers	61	337	398	7	None	ST OJT	25,146
51-6011	Laundry and Dry-Cleaning Workers	773	704	1,477	8	None	ST OJT	20,309
51-6021	Pressers, Textile, Garment, and Related Materials	176	113	289	8	None	ST OJT	20,456
51-6031	Sewing Machine Operators	265	677	942	8	None	ST OJT	19,274
51-6041	Shoe and Leather Workers and Repairers	143	68	211	7	None	MT OJT	19,746
51-6051	Sewers, Hand	12	46	58	8	None	MT OJT	26,705
51-6052	Tailors, Dressmakers, and Custom Sewers	85	117	202	8	None	MT OJT	24,172
51-6062	Textile Cutting Machine Setters, Operators, and	18	284	302	7	None	MT OJT	21,182
51-6063	Textile Knitting and Weaving Machine Setters,	(61)	59	(2)	7	None	MT OJT	19,304
51-6064	Textile Winding, Twisting, and Drawing Out	(74)	92	18	7	None	MT OJT	19,527
51-6091	Extruding and Forming Machine Setters, Operators,	20	42	62	7	None	MT OJT	30,035
51-6092	Fabric and Apparel Patternmakers	9	86	96	7	None	MT OJT	43,907
51-6093	Upholsterers	87	157	244	7	None	MT OJT	27,749
51-6099	Textile, Apparel, and Furnishings Workers, All	35	48	83	7	None	ST OJT	19,888
51-7011	Cabinetmakers and Bench Carpenters	357	378	735	7	None	MT OJT	27,403
51-7021	Furniture Finishers	53	73	126	7	None	ST OJT	27,475
51-7041	Sawing Machine Setters, Operators, and Tenders,	57	78	135	7	None	ST OJT	23,253
51-7042	Woodworking Machine Setters, Operators, and	115	57	173	7	None	ST OJT	23,586
51-7099	Woodworkers, All Other	13	22	36	7	None	MT OJT	19,878
51-8012	Power Distributors and Dispatchers	20	63	83	7	None	LT OJT	72,541

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Sources: Estimates by LAEDC; Education and skills requirements from BLS

## Exhibit A-8 (cont'd)

## Occupational Growth in Los Angeles County 2011-2017 with Job Requirements

SOC Code	Occupational Title	New Openings	Replacement Needs	Total Openings	Entry Level		On-the-Job Training to Attain Competency	Median Annual Wage
					Educ-ation	Work Exp		
51-8013	Power Plant Operators	78	228	306	7	None	LT OJT	89,394
51-8021	Stationary Engineers and Boiler Operators	104	125	229	7	None	LT OJT	62,298
51-8031	Water and Wastewater Treatment Plant and	226	376	602	7	None	LT OJT	74,433
51-8091	Chemical Plant and System Operators	134	200	334	7	None	LT OJT	46,282
51-8093	Petroleum Pump System Operators, Refinery	97	225	321	7	None	LT OJT	74,884
51-8099	Plant and System Operators, All Other	38	67	105	7	None	LT OJT	60,728
51-9011	Chemical Equipment Operators and Tenders	159	126	285	7	None	MT OJT	41,246
51-9012	Separating, Filtering, Clarifying, Precipitating, and	84	91	175	7	None	MT OJT	36,968
51-9021	Crushing, Grinding, and Polishing Machine Setters,	60	116	176	7	None	MT OJT	27,241
51-9022	Grinding and Polishing Workers, Hand	58	137	195	8	None	MT OJT	24,092
51-9023	Mixing and Blending Machine Setters, Operators,	310	547	856	7	None	MT OJT	30,846
51-9031	Cutters and Trimmers, Hand	40	113	153	8	None	ST OJT	22,167
51-9032	Cutting and Slicing Machine Setters, Operators,	106	202	309	7	None	ST OJT	28,408
51-9041	Extruding, Forming, Pressing, and Compacting	161	209	369	7	None	MT OJT	25,761
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators	34	57	90	7	None	MT OJT	30,225
51-9061	Inspectors, Testers, Sorters, Samplers, and	1,087	1,862	2,949	7	None	MT OJT	34,469
51-9071	Jewelers and Precious Stone and Metal Workers	64	106	170	7	None	LT OJT	27,623
51-9081	Dental Laboratory Technicians	65	221	287	7	None	MT OJT	37,886
51-9082	Medical Appliance Technicians	27	81	108	7	None	LT OJT	32,988
51-9083	Ophthalmic Laboratory Technicians	71	159	230	7	None	MT OJT	29,737
51-9111	Packaging and Filling Machine Operators and	1,098	1,005	2,103	7	None	MT OJT	22,422
51-9121	Coating, Painting, and Spraying Machine Setters,	184	278	462	7	None	MT OJT	24,110
51-9122	Painters, Transportation Equipment	33	196	229	7	None	MT OJT	35,706
51-9123	Painting, Coating, and Decorating Workers	57	76	134	7	None	MT OJT	23,283
51-9141	Semiconductor Processors	73	131	204	4	None	MT OJT	32,840
51-9151	Photographic Process Workers and Processing	195	246	441	7	None	ST OJT	28,406
51-9191	Adhesive Bonding Machine Operators and Tenders	38	33	71	7	None	MT OJT	23,279
51-9192	Cleaning, Washing, and Metal Pickling Equipment	29	64	93	8	None	MT OJT	22,390
51-9194	Etchers and Engravers	9	9	18	7	None	MT OJT	27,723
51-9195	Molders, Shapers, and Casters, Except Metal and	84	124	208	7	None	LT OJT	24,980
51-9196	Paper Goods Machine Setters, Operators, and	(52)	113	61	7	None	MT OJT	30,828
51-9197	Tire Builders	50	80	130	7	None	MT OJT	28,077
51-9198	Helpers--Production Workers	1,655	1,226	2,881	8	None	ST OJT	21,162
51-9399	Production Workers, All Other	845	1,088	1,933	7	None	MT OJT	30,887
53-1011	Aircraft Cargo Handling Supervisors	19	33	52	7	1-5 years	None	52,617
53-1021	First-Line Supervisors of Helpers, Laborers, and	373	601	975	7	1-5 years	None	45,457
53-1031	First-Line Supervisors of Transportation and	504	747	1,251	7	1-5 years	None	58,739
53-2011	Airline Pilots, Copilots, and Flight Engineers	155	567	723	3	1-5 years	MT OJT	111,593
53-2012	Commercial Pilots	102	269	372	5	None	None	81,809
53-2021	Air Traffic Controllers	6	71	77	4	None	LT OJT	N/A
53-2022	Airfield Operations Specialists	18	50	68	7	None	LT OJT	55,259
53-2031	Flight Attendants	219	402	621	7	None	MT OJT	36,021
53-3011	Ambulance Drivers and Attendants, Except	77	62	139	7	None	MT OJT	28,957
53-3021	Bus Drivers, Transit and Intercity	639	918	1,557	7	None	MT OJT	39,024
53-3022	Bus Drivers, School or Special Client	1,750	1,930	3,681	7	None	MT OJT	31,676
53-3031	Driver/Sales Workers	1,555	1,541	3,096	7	None	ST OJT	23,088
53-3032	Heavy and Tractor-Trailer Truck Drivers	3,270	4,464	7,734	7	1-5 years	ST OJT	41,482
53-3033	Light Truck or Delivery Services Drivers	1,792	2,941	4,734	7	None	ST OJT	29,793
53-3041	Taxi Drivers and Chauffeurs	555	451	1,006	8	None	ST OJT	22,159

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## Exhibit A-8 (cont'd)

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					Educ-ation	Work Exp		
53-3041	Taxi Drivers and Chauffeurs	555	451	1,006	8	None	ST OJT	22,159
53-3099	Motor Vehicle Operators, All Other	220	227	446	7	None	ST OJT	25,241
53-5021	Captains, Mates, and Pilots of Water Vessels	117	397	514	3	None	None	56,956
53-6021	Parking Lot Attendants	518	855	1,373	8	None	ST OJT	19,677
53-6031	Automotive and Watercraft Service Attendants	190	522	713	8	None	ST OJT	21,546
53-6041	Traffic Technicians	20	36	56	8	None	ST OJT	N/A
53-6051	Transportation Inspectors	33	74	107	6	None	ST OJT	66,218
53-6061	Transportation Attendants, Except Flight Attendants	93	121	214	7	None	ST OJT	24,966
53-6099	Transportation Workers, All Other	96	243	339	7	None	ST OJT	N/A
53-7011	Conveyor Operators and Tenders	72	201	274	8	None	ST OJT	32,424
53-7032	Excavating and Loading Machine and Dragline	158	134	292	8	1-5 years	MT OJT	47,954
53-7051	Industrial Truck and Tractor Operators	1,163	2,491	3,654	8	<1 year	ST OJT	35,449
53-7061	Cleaners of Vehicles and Equipment	568	1,548	2,116	8	None	ST OJT	19,515
53-7062	Laborers and Freight, Stock, and Material Movers,	6,993	12,526	19,518	8	None	ST OJT	23,147
53-7063	Machine Feeders and Offbearers	257	294	552	8	None	ST OJT	23,412
53-7064	Packers and Packagers, Hand	2,363	3,703	6,066	8	None	ST OJT	19,614
53-7081	Refuse and Recyclable Material Collectors	610	471	1,081	8	None	ST OJT	43,259

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