THE STATE OF THE INLAND EMPIRE ECONOMY

Economic Trends and Forecast: 3rd Quarter 2015 – 2nd Quarter 2016

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I. Executive Summary

The Inland Empire is forecast to continue its rapid economic growth. After emerging from its employment trough in the wake of the great recession, employment growth has advanced at a markedly accelerated rate, with the largest gains occurring in the health care and social assistance, transportation and warehousing, accommodation and food services, and construction sectors. Since 2013, the Inland Empire's economy has outperformed California in employment, wage, and retail sales growth; employment has grown at a rate more than double the average annual rate of growth for the nation.

The region has a relatively young population mix that is contributing to a favorable projection for the working age cohort through 2030. These conditions are advantageous for boosting the region's productivity and sustaining its economic growth. However, the Inland Empire faces significant demographic challenges that may hamper and/or lead to imbalanced growth—including low levels of participation in the labor force, widespread poverty, and low educational attainment. Effectively combatting these challenges places the workforce system squarely in the center of efforts to develop and implement comprehensive solutions.

The Inland Empire's real estate market is gaining strength as it continues to recover from the impacts of both the subprime mortgage crisis and recession. Mortgage loan defaults have dropped below their pre-recession levels and distressed sales have declined sharply since peaking in 2009. Housing inventory is tight and median home sale prices have been climbing steadily since 2012, although they remain below pre-recession levels.

Trends in commercial real estate have also been favorable. Total industrial square feet sold has been above pre-recession levels every year since 2013 and demand for space continues to grow. New construction in 2013 has increased industrial vacancy rates but rates remain lower than national averages. While San Bernardino County appears to have an abundance of suitable land for continued development, the vast bulk of land is zoned for resource management and agriculture, which may impede the development of land otherwise perceived as suitable.

Employment gains are expected across all 21 major sectors of the region's economy over the next 10 years. Expansions in healthcare and social assistance, retail trade, and accommodation and food services will each account for more than 10 percent of total employment demand. Relative to annual average growth rates, the most rapidly growing sectors are forecast to include healthcare and social assistance; construction; and professional, scientific, and technical services. While the Inland Empire's most concentrated sector—transportation and warehousing—has added jobs at a pace more than double that experienced by the state of California, and more than triple the rate of growth across the nation during the past five years, the growth forecast for this sector shows signs of moderating.

During the five-year period leading up to the second quarter of 2016, the manufacturing sector added more than 11,000 workers, growing at an annual average rate of 2.5 percent per year, which is more than three times the rate of growth for the state of California, and more than double the rate of growth across the nation during the same period. The largest job gains in this sector were in the beverage manufacturing (+1,377), plastics product manufacturing (+1,317), architectural and structural metals manufacturing (+1,281), machine shops (+1,150), and aerospace product and parts manufacturing (+952) industries. This recent activity, coupled with the region's relatively low location quotient (.80) for the sector, may signal emerging growth for this group of industries. Immediate proximity to major shipping and distribution routes, available land suitable for development, and favorable costs of business expansion (relative to other areas in the broader region) may bolster this emergence for the foreseeable future. Chmura forecast more than 22,000 job openings in manufacturing over the next ten years.

When ranking sectors based on a basket of indicators that includes employment growth forecast, total forecast openings, average annual wages, employment multipliers, and industry concentration (as well as historical change in concentration), the highest-ranking sectors include, in order of ranking: construction; healthcare and social assistance; wholesale trade; and professional, scientific, and technical services. Utilities and transportation and warehousing rank in the top third—sixth and seventh out of 21 sectors, respectively.

The strength of the Inland Empire economy is also evident in the across-the-board growth forecast for all occupations at the major group two-digit Standard Occupation Code (SOC) level, as well as for all job cohorts by level of training and education typically required.

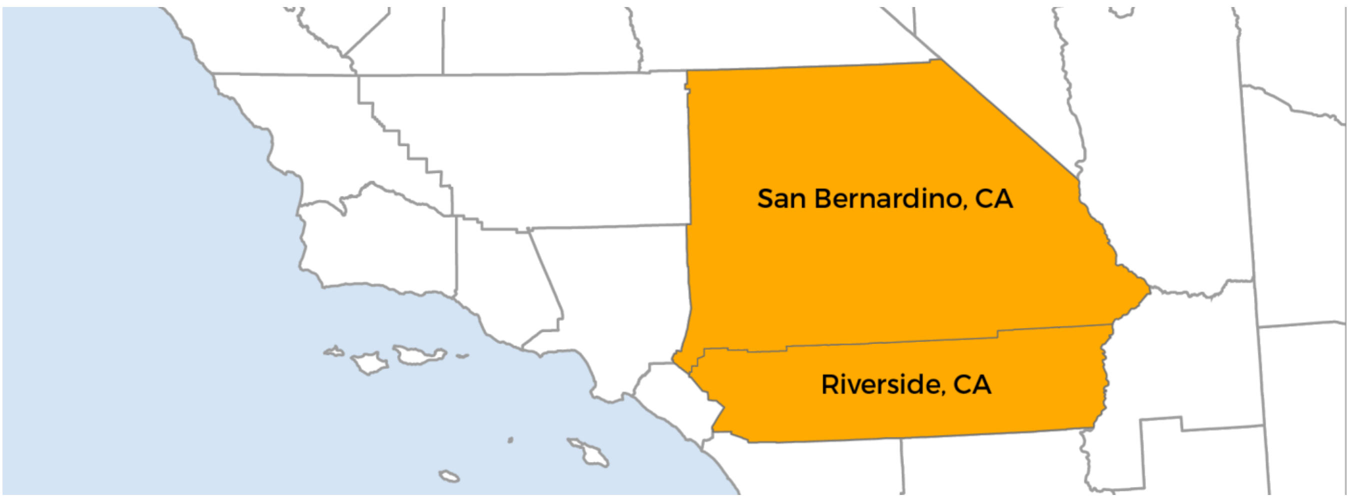
At the detailed level, health care occupations dominate the mix of fastest-growing occupations; and the largest potential supply shortfall is for registered nurses. Other notable shortfalls include management personnel and skilled trade workers. Ranking detailed occupations based on weighted indicators that include employment growth, credentials for entry, average wages, and mobility across industries, the list of top occupations reflects a need for supervisory and technical skills.

Overall, the Inland Empire is positioned for continued growth and is ripe with substantial opportunities for workforce development. As many of these opportunities will occur at the intersection of workforce, economic, postsecondary, and community development, the San Bernardino Workforce Development Board (WDB) is uniquely positioned to have a transformational impact on the region's future.

II. Background

The WDB is charged with working to advance the Inland Empire's economy by educating and training local workers and supporting local businesses. Specifically, the WDB ensures that county residents have the skills, training, and education necessary to achieve their career goals and that local businesses are able to hire, develop, and retain skilled workers.[1] While the WDB's jurisdiction covers San Bernardino County and its residents, its labor market is more porous than its county borders. It is generally recognized that its economy and natural labor shed includes neighboring Riverside County. Together, these two counties comprise the Inland Empire region, which is equivalent to the Riverside-San Bernardino-Ontario, California Metropolitan Statistical Area (MSA).

Figure 1: Riverside-San Bernardino-Ontario, California MSA



As such, the WDB collaborates and coordinates heavily with neighboring Riverside County and with multiple and diverse stakeholders across the region to effectively deliver its work.

This report provides an overview and forecast of the Inland Empire, state, and national economies. Ultimately, the findings from this report help to identify, anticipate, and proactively address issues facing the WDB, its workforce system partners, and the broader Inland Empire community. The analyses in this report can help to guide local policy formulation, inform planning and investment strategies, reinforce existing or lead to new collaborative partnerships, increase the leveraging of resources, and generally advance the Inland Empire economy.

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[1] Source: http://cms.sbcounty.gov/wib/Home.aspx

Most of the secondary data that underpins this report were gathered using JobsEQ®[2]. Primary data were gathered though focus group sessions with leaders from industry, postsecondary education, and workforce and economic development.[3] The following broad topics are emphasized in this analysis:

- Demographics: population, economic, and social characteristics
- Real estate: residential and commercial trends
- Industry: trends and forecast, indexed rankings, key occupations, and key clusters
- Workforce: trends and forecast, growth by training required, indexed rankings, key clusters, select training "ladders" and certifications by occupation

III. National & Regional Economic Outlook

The national economy[4] continues to grow at a modest pace. Real gross domestic product (GDP) increased an annualized 3.2% in the third quarter of 2016 after rising at a 1.4% annual rate in the second quarter of 2016. Nonfarm employment growth accelerated with 636,000 jobs added over the quarter compared with 439,000 in the second quarter, while the unemployment rate rose from 4.9% in the second quarter to 5.0% in the third quarter. The unemployment rate accounting for individuals working part-time who would prefer full-time work, and those who are marginally attached to the workforce, remains relatively high at 9.7% in the third quarter.[5] Home prices have continued their post-recession ascent and recently surpassed previous peak levels; declining affordability coupled with tight inventory have been holding back the national housing market recovery. However, household formation is expected to continue to increase, which should help strengthen the housing recovery.

The economies of the Inland Empire and the state of California have also continued to improve. The recent pace of growth in both the region and the state has been faster than growth in the nation.

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[2] Chmura's proprietary technology platform for labor market analytics and economic research.

[3] An email survey was designed by Chmura and administered to regional businesses, however, due to a low response rate the findings were limited. In cases where there is overlap between survey feedback and the focus groups or secondary data, the survey feedback is represented in commentary throughout this report.

[4] Chmura utilized the most recent available data to develop this report. Based on the timing of underlying data being released, national data are through the third quarter 2016 while state and regional data are through the second quarter 2016.

[5] This rate is commonly referred to as the "U-6 underemployment rate." According to the Bureau of Labor Statistics, marginally attached workers are those who currently are neither working nor looking for work but indicate that they want and are available for a job and have looked for work sometime in the past 12 months.

National Outlook, 2016 - 2017[6]

Chmura forecasts real GDP to grow at an annualized pace of 2.4% in the fourth quarter of 2016 and 1.6% for the entire year. Although the labor market remains healthy and wage growth has picked up modestly, the labor force participation rate is very low by historical standards. The real estate market continued to improve over the past year. Given the improvements in the U.S. economy, Chmura expects the Federal Reserve to resume monetary policy normalization in the fourth quarter of 2016 and across 2017.

For the third quarter of 2016, real GDP grew an annualized 3.2%, after increasing 1.4% in the second quarter. U.S. employers added jobs at a moderate pace in the third quarter of 2016. Nonfarm private payroll growth for the third quarter expanded at a 1.7% annualized pace after advancing 1.3% in the second quarter of 2016. The national unemployment rate edged up to 5.0% in September 2016, from 4.9% in June. Home sales, though above severely depressed levels, remain low by historical standards. Still, the Federal Housing Finance Agency's House Price Index for the third quarter shows prices have increased on a year-over-year basis in 49 of 50 states. The housing sector was a strong contributor to GDP growth in 2015. While housing was a drag on GDP growth in the second and third quarters of 2016, Chmura expects housing to be a net positive contributor to growth in 2016. The U.S. stock market rose modestly over the third quarter of 2016 as global markets rebounded from the Brexit selloff.

Table 1: National Macro Forecast, 2016-2017

		Forecast	
	2015	**2016**	**2017**
Real GDP	2.6%	1.6%	3.0%
Unemployment Rate	5.3%	4.9%	4.7%
Real Non-Residential Investment	2.1%	-0.4%	3.9%
Real Consumer Spending	3.2%	2.6%	3.1%
Financial Market			
Oil Prices	$49	$42	$38
Federal Funds Rate	0.1%	0.4%	1.4%
10-Year Treasury	2.1%	1.8%	3.2%

Source: Chmura Economics & Analytics

Our forecast assumptions reflect an improving economy boosted by policy changes from the incoming Trump administration. These policies, if implemented, will have widespread impact on the economy, affecting all major components of GDP, i.e., personal consumption, business investment, government spending, and net exports. The results are steady but moderate GDP growth and job creation across 2017.

[6] Chmura's national forecast is based on expected policy changes from the administration of President-elect Trump. The proposed changes include lower corporate and individual taxes, reduced regulations, and a reformed energy policy.

The forecast assumes the price of oil averages $42 per barrel in 2016 before decreasing to $38 per barrel in 2017. The labor market is expected to continue to improve; the unemployment rate is likely to average 4.9% in 2016 and fall to 4.7% in 2017. The Federal Open Market Committee (FOMC) is expected to raise the target range for the federal funds rate by 25 basis points (bps) in the 4th quarter of 2016, with additional moves totaling 100 bps anticipated for 2017.

U.S. Labor Market Continues to Strengthen

In terms of the labor market, the recovery from the 2007-2009 recession has been the slowest of all post-World War II recoveries. In May 2014, nearly five years after the recession ended, U.S. employment surpassed its previous peak reached in January 2008. Although labor market conditions have improved, labor force participation has been declining since the late 1990s and declined at an accelerated pace following the recession. There has been a slight uptick in participation since September 2015, but it is widely believed that this lower rate of participation may be the new norm. Recent wage growth has been moderate but trending in a favorable direction.

California Outlook, 2016 - 2017[7]

Employment declined at a faster pace in California and the state lost a larger share of its employment than the nation as a whole during and following the last recession. Since the beginning of 2012, however, employment in California has increased faster than U.S. employment on a year-over-year basis. In 2015, California's employment increased 3.1%, faster than the 2.1% increase in the nation. Chmura forecasts employment in California to increase by 2.8% in 2016 and by an additional 2.6% in 2017, whereas the unemployment rate will average about 5.4% in 2016 and 5.1% in 2017.

Table 2: California Employment Summary Forecasts

	California Employment Growth**			California Unemployment Rate		
	2015*	2016	2017	2015*	2016	2017
Chmura Forecast	3.1%	2.8%	2.6%	6.2%	5.4%	5.1%

Source: Chmura Economics & Analytics
Forecasts as of September 2015
*Actual
**Employment refers to nonagricultural employment.

Employment in California contracted by about 8% from its mid-2007 peak to its trough in early 2010. Since September 2010—at which point the California economy began to steadily add

[7] While the national forecast is based on assumptions about policy changes under the President-elect's administration, the state and local forecasts do not incorporate these assumptions.

employment—the state economy has averaged approximately 38,000 new jobs per month. In May 2014, employment in California surpassed its July 2007 peak. As of September 2016, employment was 6.8% above the July 2007 employment peak.

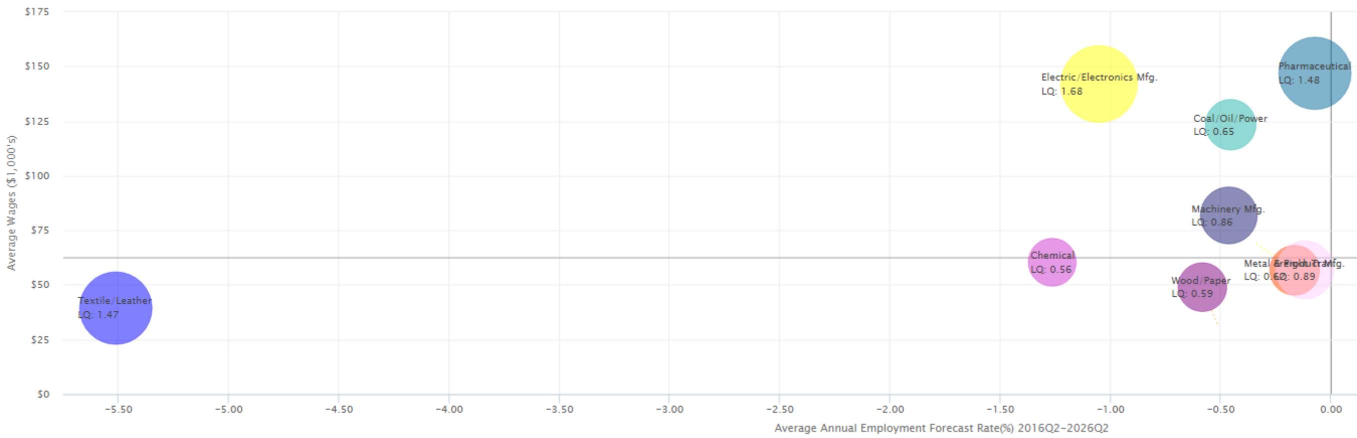
In the past three years,[8] California's economy has added approximately 1,379,000 jobs. Of these new jobs, more than four-fifths (83%) were created in only seven sectors: health care and social assistance; accommodation and food services; construction; administrative and support and waste management and remediation services; professional, scientific and technical services; educational services; and transportation and warehousing. Meanwhile, California's utilities sector has barely added jobs over this period. Employment in the finance and insurance sector has increased by only 0.5% while statewide employment grew 7.8% over the past three years. The Golden State's manufacturing sector has added a net 34,300 jobs (average annual growth of 0.9%) in the past three years, buoyed by large gains in beverage manufacturing (breweries and wineries), computer and peripheral equipment manufacturing, and motor vehicle manufacturing.

In terms of the location quotient (LQ)—a common measure of the relative size of an industry and traditional gauge of the presence of competitive clusters—California has competitive clusters in agriculture (LQ=1.70), electrical/electronic manufacturing (1.68), media (1.65), pharmaceuticals (1.48), and textiles/leather manufacturing (1.47).[9] Annual average employment growth over the next decade is expected to be slow for both the agricultural (+0.1%), and media (+0.7%) clusters. Moreover, the textile/leather manufacturing cluster is forecast to shrink by 5.5% annually and employment in the electrical/electronics manufacturing cluster is forecast to decline by 1.1% annually. Employment in the pharmaceutical cluster is expected to decline by less than 0.1% annually.

[8] This three-year period is from the second quarter of 2013 to the second quarter of 2016.

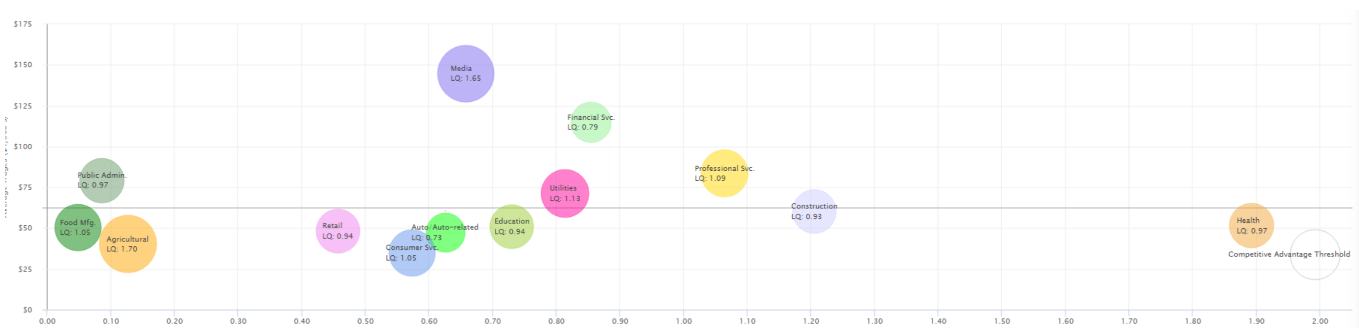
[9] The cluster location quotients are based on total employment, while in last year's report they were based on covered employment only. Covered employment reflects employment and wages data by industry as derived from the Quarterly Census of Employment and Wages (QCEW) provided by the US Bureau of Labor Statistics. Total employment includes covered employment in addition to non-covered employment and wages data, which comprise unincorporated self-employment and non-covered railroad and religious organizations. Because of this change, caution should be used when comparing this year's figures to those in last year's report.

Figure 2: California Industry Clusters with Expected Employment Declines



The state's four clusters with the fastest long-run employment growth projections are health (+1.9%), construction (+1.2%), professional services (+1.1%), and financial services (+0.9%).

Figure 3: California Industry Clusters with Expected Employment Gains



IV. Inland Empire Economy

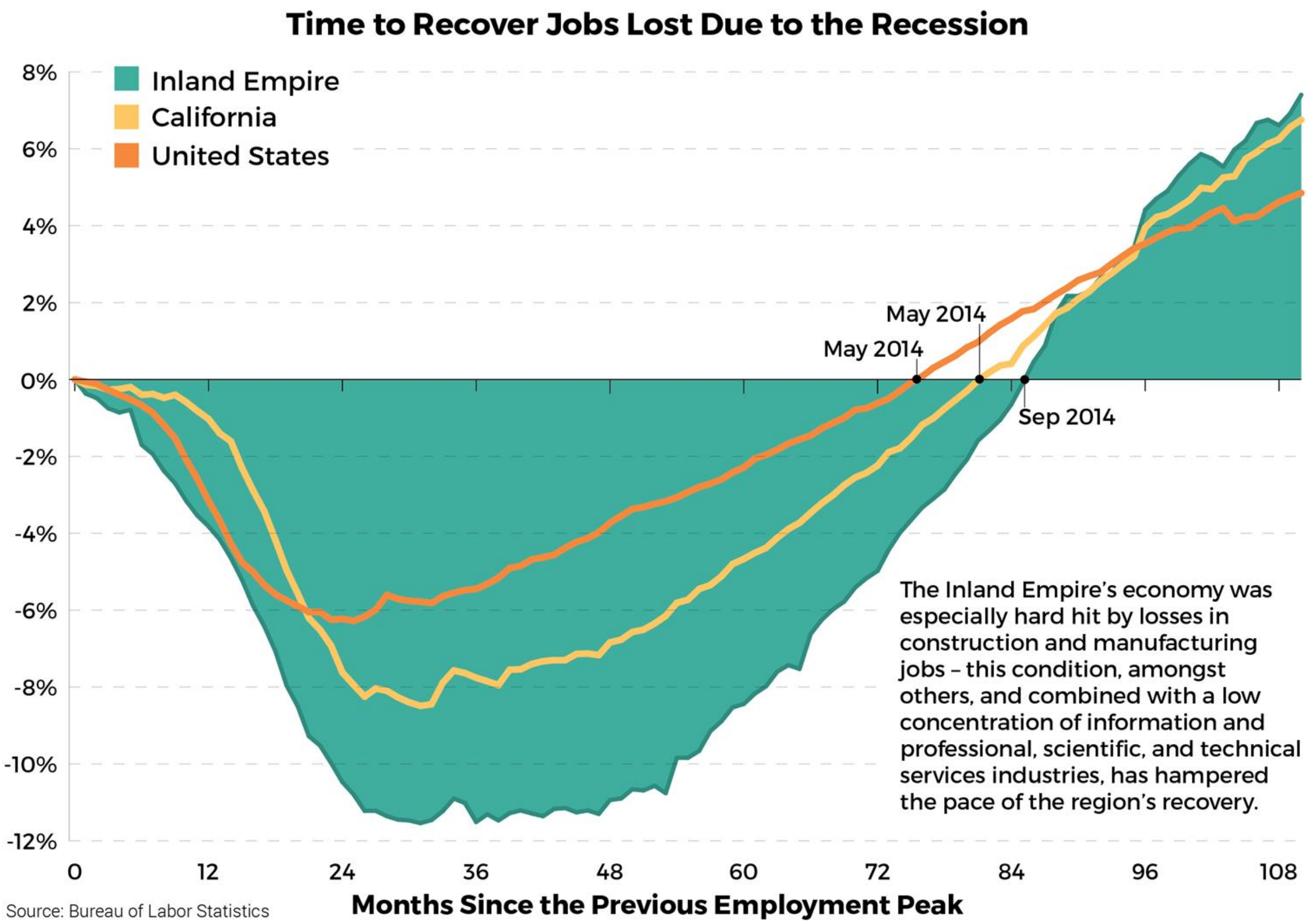
The remainder of this report focuses on the Inland Empire region and includes in-depth analyses of demographics, the real estate market, industry employment, and occupations. In some cases, comparisons are provided between the counties of Riverside and San Bernardino, which comprise the Inland Empire region.

Recent Economic Performance & Regional Outlook, 2016 - 2017

The Inland Empire spent more than two years in the wake of the recession facing elevated unemployment levels and a protracted loss of more than 10% of its jobs since employment peaked in July 2007. This peak was earlier than peak employment for the United States; jobs lost due to the recession were not recovered for more than seven years—in September 2014.

California's previous employment peak was also in July 2007; the state recovered jobs lost due to the recession in May 2014—the same time the national economy recovered. Soon after emerging from its employment trough, the Inland Empire begin to add jobs at an accelerated pace compared to both California and the nation, and has sustained this trend since surpassing peak employment levels.

Figure 4



Since 2013, the Inland Empire has outperformed the state relative to growth in employment, wages, and real retail sales. Chmura expects employment and wage growth in the Inland Empire to continue to outperform the state in 2016 and 2017. Real retail sales should remain strong in the metro area, averaging 5.2% and 5.1%, respectively, in 2016 and 2017. After declining 6.0% in 2015, building permits (a leading indicator of economic activity) are projected to increase a modest 4.3% in 2016 followed by a 3.4% increase in 2017. In California, building permits are expected to increase 3.1% in 2016 and 4.3% further in 2017.

Table 3: Recent and Forecast Economic Performance

Region/Indicators		Actual		Forecast	
San Bernardino MSA	**2013**	**2014**	**2015**	**2016**	**2017**
Employment*	3.5%	4.5%	5.0%	3.9%	3.7%
Wages and Salaries**	4.0%	6.7%	9.8%	7.7%	6.6%
Real Retail Sales	4.8%	4.1%	5.3%	5.2%	5.1%
Building Permits	45.8%	17.3%	-6.0%	4.3%	3.4%
California					
Employment*	2.8%	2.8%	3.1%	2.8%	2.6%
Wages and Salaries**	3.5%	6.2%	7.6%	6.5%	5.7%
Real Retail Sales	4.2%	2.8%	4.1%	3.3%	3.3%
Building Permits	34.9%	7.0%	11.7%	3.1%	4.3%

Source: Chmura Economics & Analytics

*Employment refers to nonagricultural employment.

**Wages and salaries include some options that were exercised.

Actual data are through the 2nd quarter of 2016.

Demographic Profile

The Inland Empire is home to more than 4.4 million people and represents about 11.5% of California's total population. Over the past ten years, the region has grown an average 1.5% per year—much faster than the state and national annual averages of 0.9% and 0.8%, respectively. Chmura projects the population of the Inland Empire will grow faster than the state population over the coming decade, which in turn will help bolster the region's long-run prospects for economic growth.

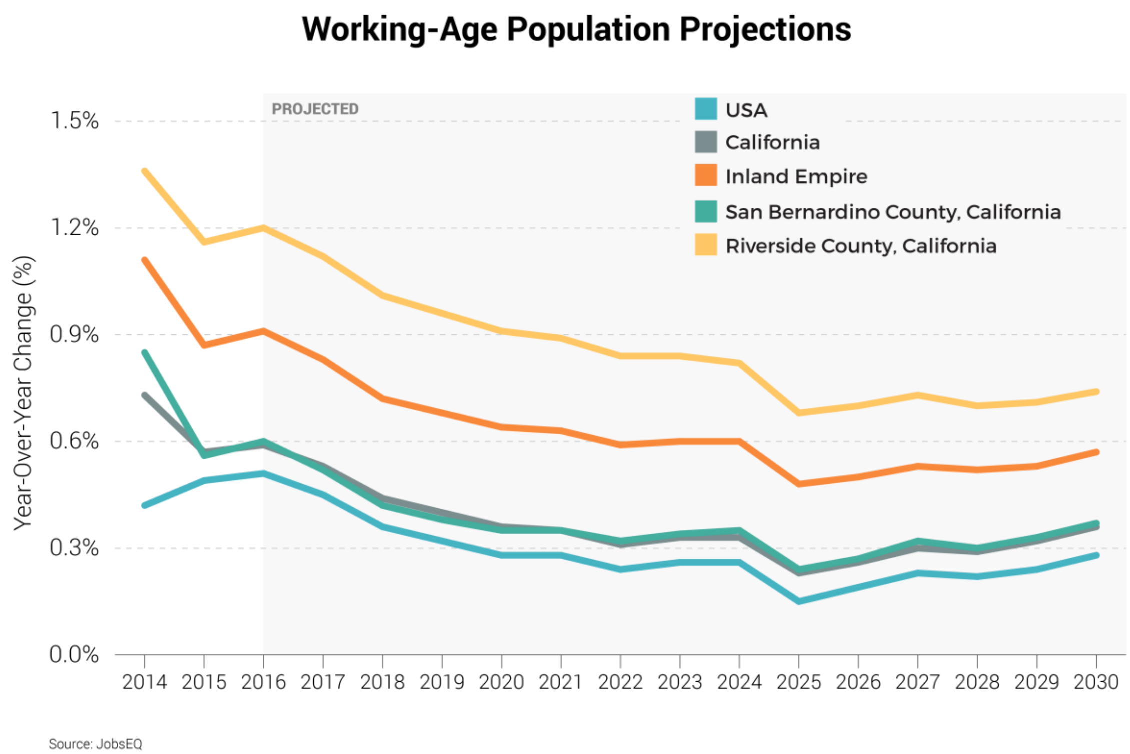
Table 4: Population Growth Statistics

Region	Average Yearly Population Growth 2005-2015	Working-Age Population Growth 2015-2025	Ratio of Working-Age Population to Retirees in 2025
San Bernardino County	0.9%	+6%	4.42
Riverside County	2.0%	+8%	3.52
Inland Empire	1.5%	+7%	3.89
California	0.9%	+4%	3.72

Source: Chmura Economics & Analytics

The working-age population in the Inland Empire grew 1.1% in 2014 followed by 0.9% growth in 2015.[10] Based on projections from Chmura, growth in the working-age population is expected to decelerate with annual growth ranging from 0.5% to 0.6% from 2020 to 2030. Growth is expected to be slower in San Bernardino County over this period compared to Riverside County, but on par with the state and above the nation. Statewide, growth in the working-age population was 0.7% in 2014 and 0.6% in 2015. From 2020 to 2030, it is expected to range from 0.2% to 0.4%. In the United States, the working-age population is expected to expand at an even slower pace over the same period.

Figure 5



The Inland Empire is a relatively young population, with a median age of 32.7 years, compared to 35.2 years and 37.2 years in the state and nation, respectively. Further, nearly 29% of the region's population is under the age of 18 years, compared to 25% statewide and 24% nationally.

Overall, the Inland Empire is nearly half Hispanic or Latino (of any race) according to the U.S. 2010 Census and about 40% non-white. African Americans account for 7.6% of the population and 6.1% of the region's population is Asian-American. This demographic profile is distinct from the rest of California—with roughly a 13% Asian-American mix—and starkly different from the

[10] For the purposes of this report, the working-age population is defined as those age 16 to 64 years old.

demographic makeup of the nation where Hispanics or Latinos account for only about 16.3% of the total population.

Table 5: Demographic Profile of Riverside-San Bernardino-Ontario, CA MSA[1]

	---------------Percent-------------			-----------------Value---------------		
	Riverside-San Bernardino-Ontario, CA MSA	**California**	**USA**	**Riverside-San Bernardino-Ontario, CA MSA**	**California**	**USA**
Population[2]	—	—	—	4,489,159	39,144,818	321,418,820
Population Annual Average Growth[2]	1.5%	0.9%	0.8%	61,345	331,688	2,590,222
Median Age[3]	—	—	—	32.7	35.2	37.2
Under 18 Years	28.8%	25.0%	24.0%	1,214,696	9,295,040	74,181,467
18 to 24 Years	10.9%	10.5%	9.9%	458,633	3,922,951	30,672,088
25 to 34 Years	13.4%	14.3%	13.3%	564,520	5,317,877	41,063,948
35 to 44 Years	13.4%	13.9%	13.3%	566,254	5,182,710	41,070,606
45 to 54 Years	13.5%	14.1%	14.6%	570,032	5,252,371	45,006,716
55 to 64 Years	9.7%	10.8%	11.8%	410,782	4,036,493	36,482,729
65 to 74 Years	5.8%	6.1%	7.0%	244,093	2,275,336	21,713,429
75 Years and Over	4.6%	5.3%	6.0%	195,841	1,971,178	18,554,555
Race: White	58.9%	57.6%	72.4%	2,488,308	21,453,934	223,553,265
Race: Black or African American	7.6%	6.2%	12.6%	322,405	2,299,072	38,929,319
Race: American Indian and Alaska Native	1.1%	1.0%	0.9%	46,399	362,801	2,932,248
Race: Asian	6.1%	13.0%	4.8%	259,071	4,861,007	14,674,252
Race: Native Hawaiian and Other Pacific Islander	0.3%	0.4%	0.2%	13,744	144,386	540,013
Race: Some Other Race	21.0%	17.0%	6.2%	887,896	6,317,372	19,107,368
Race: Two or More Races	4.9%	4.9%	2.9%	207,028	1,815,384	9,009,073
Hispanic or Latino (of any race)	47.3%	37.6%	16.3%	1,996,402	14,013,719	50,477,594

Source: JobsEQ®

1. Census 2010, unless noted otherwise

2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

4. ACS 2010-2014

In terms of age and race, the counties of San Bernardino and Riverside have a very similar mix of characteristics.

As of 2015, Riverside County had a slightly larger population (7.6%) than San Bernardino County, and its population grew at a rate more than double that of San Bernardino from 2005-2015.

Table 6: Demographic Profile of San Bernardino and Riverside Counties[1]

	---------------Percent-------------		-----------------Value----------------	
	San Bernardino County, California	**Riverside County, California**	**San Bernardino County, California**	**Riverside County, California**
Population[2]	—	—	2,035,210	2,189,641
Population Annual Average Growth[2]	0.9%	2.0%	18,421	42,924
Median Age[3]	—	—	31.7	33.7
Under 18 Years	29.2%	28.3%	594,588	620,108
18 to 24 Years	11.3%	10.4%	229,897	228,736
25 to 34 Years	13.9%	12.9%	282,091	282,429
35 to 44 Years	13.4%	13.4%	272,949	293,305
45 to 54 Years	13.6%	13.4%	277,294	292,738
55 to 64 Years	9.7%	9.8%	197,043	213,739
65 to 74 Years	5.1%	6.4%	103,495	140,598
75 Years, and Over	3.8%	5.4%	77,853	117,988
Race: White	56.7%	61.0%	1,153,161	1,335,147
Race: Black or African American	8.9%	6.4%	181,862	140,543
Race: American Indian and Alaska Native	1.1%	1.1%	22,689	23,710
Race: Asian	6.3%	6.0%	128,603	130,468
Race: Native Hawaiian and Other Pacific Islander	0.3%	0.3%	6,870	6,874
Race: Some Other Race	21.6%	20.5%	439,661	448,235
Race: Two or More Races	5.0%	4.8%	102,364	104,664
Hispanic or Latino (of any race)	49.2%	45.5%	1,001,145	995,257

Source: JobsEQ®

1. Census 2010, unless noted otherwise

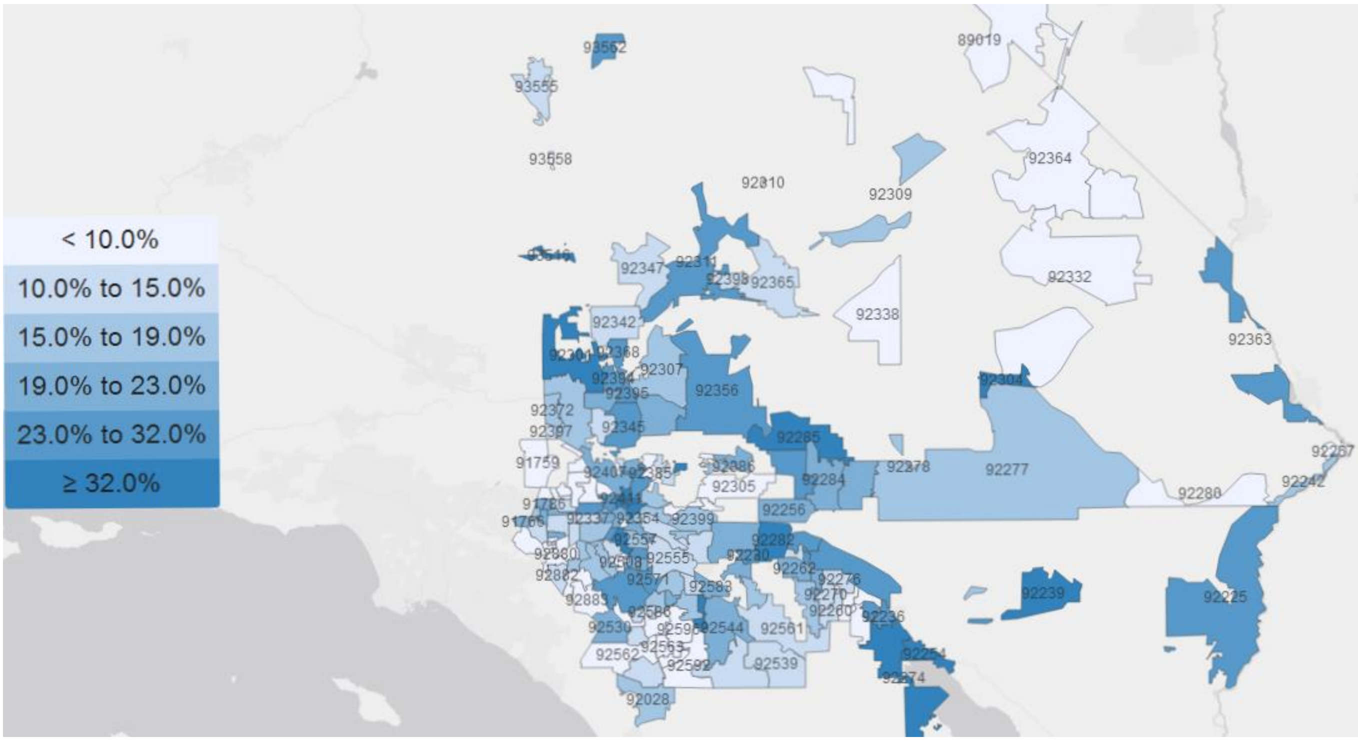
2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

4. ACS 2010-2014

The Inland Empire has a poverty rate 1.6 percentage points above California and 2.4 percentage points above the nation. The poverty rate in San Bernardino County is 2.3 percentage points higher than in Riverside County. The map below depicts where poverty is most concentrated by zip code tabulation area (ZCTA) and illustrates that poverty is widespread across the region rather than densely concentrated in a single place or amongst a few places.

Figure 6: Percentage of the Population at or Below Poverty, Inland Empire



Source: JobsEQ®, ESRI. ACS 2010-2014

Notably, the Inland Empire has a lower rate of participation in the labor force than both the state (-2.9%) and nation (-3.0%). While some of this may be accounted for by the relative youth of the Inland Empire's population and a higher percentage of would-be workers enrolled in school rather than working or looking for work, this low rate of participation may be cause for concern given the potential boon to productivity that could be achieved from the growth in the region's working- age population. Growth in the working-age population coupled with a persistently low or declining rate of participation in the labor force may become a drag on balanced economic advancement across the Inland Empire. The region's low utilization of public transportation is also notable as lack of access to reliable transportation is a well-established barrier to participating in the workforce, especially for persons living in poverty. While public transportation may be adequate within the more densely populated areas of the Inland Empire, workers without reliable transportation living in places like the High Desert experience less public transit connectivity and may be more limited to immediately local employment opportunities.

Table 7: Economic Profile of Riverside-San Bernardino-Ontario, CA MSA[1]

	---------------Percent-------------			-----------------Value---------------		
	Riverside-San Bernardino-Ontario, CA MSA	California	USA	Riverside-San Bernardino-Ontario, CA MSA	California	USA
Labor Force (civilian population 16 years & over)[4]	60.5%	63.4%	63.5%	1,988,996	18,975,006	157,940,014
Armed Forces Labor Force[4]	0.5%	0.4%	0.4%	15,954	133,870	1,025,497
Median Household Income[3,4]	—	—	—	$55,362	$61,489	$53,482
Poverty Level (of all people)[4]	18.0%	16.4%	15.6%	765,774	6,115,244	47,755,606
Mean Commute Time (minutes)[4]	—	—	—	31.2	27.6	25.7
Commute via Public Transportation[4]	1.5%	5.2%	5.1%	25,917	859,372	7,157,671

Source: JobsEQ®

1. Census 2010, unless noted otherwise

2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

4. ACS 2010-2014

Table 8: Economic Profile of San Bernardino and Riverside Counties[1]

	---------------Percent-------------		-----------------Value---------------	
	San Bernardino County, California	Riverside County, California	San Bernardino County, California	Riverside County, California
Labor Force (civilian population 16 years & over)[4]	60.3%	60.6%	944,000	1,044,996
Armed Forces Labor Force[4]	0.7%	0.2%	11,651	4,303
Median Household Income[3,4]	—	—	$54,100	$56,592
Poverty Level (of all people)[4]	19.2%	16.9%	389,037	376,737
Mean Commute Time (minutes)[4]	—	—	30.3	32.1
Commute via Public Transportation[4]	1.7%	1.4%	13,432	12,485

Source: JobsEQ®

1. Census 2010, unless noted otherwise

2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

4. ACS 2010-2014

Chmura's cost-of-living index indicates that while it is more expensive to live in the Inland Empire than in the nation, the Inland Empire is substantially more affordable than the state of California as a whole.

Table 9: Cost-of-Living Index

	Annual Average Salary	Cost-of-Living Index (Base US)	US Purchasing Power
Inland Empire	$43,205	122.3	$35,320
California	$61,798	156.3	$39,548
USA	$52,724	100.0	$52,724

Source: JobsEQ®

Data as of 2016Q3

Primary data revealed that the Inland Empire's affordability relative to the state of California is one of its greatest assets for supporting economic growth, specifically by attracting new workers and businesses to the region.

At $231,800, the median house value in the Inland Empire is well below the state average of $371,400 but above the national average.

Table 10: Housing Profile of Riverside-San Bernardino-Ontario, CA MSA[1]

	---------------Percent-------------			-----------------Value---------------		
	Riverside-San Bernardino-Ontario, CA MSA	California	USA	Riverside-San Bernardino-Ontario, CA MSA	California	USA
Total Housing Units	—	—	—	1,514,163	13,781,929	132,741,033
Median House Value (of owner-occupied units)[3,4]	—	—	—	$231,800	$371,400	$175,700
Homeowner Vacancy	2.6%	1.6%	2.1%	22,212	114,943	1,591,421
Rental Vacancy	6.9%	4.6%	6.9%	35,323	275,877	3,105,361
Renter-Occupied Housing Units (Percent of Occupied Units)	36.6%	45.2%	35.6%	474,604	5,708,355	41,423,632
Occupied Housing Units with No Vehicle Available (Percent of Occupied Units)[4]	5.4%	7.8%	9.1%	69,882	984,914	10,594,153

Source: JobsEQ®

1. Census 2010, unless noted otherwise

2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

4. ACS 2010-2014

Table 11: Housing Profile of San Bernardino and Riverside Counties[1]

	---------------Percent-------------		-----------------Value---------------	
	San Bernardino County, California	**Riverside County, California**	**San Bernardino County, California**	**Riverside County, California**
Total Housing Units	—	—	703,737	810,426
Median House Value (of owner-occupied units)[3,4]	—	—	$225,400	$236,400
Homeowner Vacancy	2.8%	2.5%	10,561	11,651
Rental Vacancy	6.6%	7.1%	16,949	18,374
Renter-Occupied Housing Units (Percent of Occupied Units)	39.1%	34.3%	237,572	237,032
Occupied Housing Units with No Vehicle Available (Percent of Occupied Units)[4]	5.8%	5.1%	34,969	34,913

Source: JobsEQ®

1. Census 2010, unless noted otherwise

2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

4. ACS 2010-2014

The average educational attainment in the Inland Empire is lower than both state and national averages. The share of population in the Inland Empire with no high school diploma is 20.5% compared with 17.7% for California and 12.0% for the nation. Similarly, the share of the Inland Empire's population with a bachelor's degree is only 12.9% compared with 20.4% in California and 19.7% in the nation. Overall postsecondary attainment—share of the population with an associate degree or higher—is about 12.0 percentage points lower than the California average of 39.7%, and 12.0 percentage points below the national norm of 39.6%.

Chmura performed a correlation analysis among several demographic variables to discover any statistically significant, strong correlations that may exist at the ZCTA level across the Inland Empire. Significant, strong positive correlations[11] were demonstrated between:

[11] Correlations with an absolute value greater than .50 and p-values less than .05 are considered strong and significant. Positive correlations indicate that higher levels of one variable are associated with higher levels of the second variable, while negative correlations indicate higher levels of one variable are associated with lower levels of the second variable.

- percentage of poverty/percentage with no high school diploma
- percentage who speak English less than very well/percentage with no high school diploma
- percentage with bachelor's degree or higher/median home value

This analysis reinforces the interconnectedness of poverty and low educational attainment.[12] It suggests boosting educational attainment, specifically high school completion, as an important way to combat poverty. To be clear, while there is a strong positive correlation between limited English language proficiency and not having a high school diploma—indicating a potential barrier to higher educational attainment—there is only a moderate positive correlation between language proficiency and poverty. This suggests that poverty is not necessarily concentrated to areas with lower English language proficiency.

Table 12: Social Profile of Riverside-San Bernardino-Ontario, CA MSA[1]

Social Profile

	----------------Percent-------------			------------------Value----------------		
	Riverside-San Bernardino-Ontario, CA MSA	California	USA	Riverside-San Bernardino-Ontario, CA MSA	California	USA
Educational Attainment: No High school Diploma[4]	20.5%	17.7%	12.0%	447,237	3,582,292	19,939,890
Educational Attainment: High School Graduate[4]	25.9%	20.3%	26.5%	565,028	4,103,854	44,000,387
Educational Attainment: Some College, No Degree[4]	26.0%	22.4%	21.9%	569,247	4,530,225	36,270,359
Educational Attainment: Associate Degree[4]	8.0%	8.0%	8.7%	175,638	1,620,584	14,487,486
Educational Attainment: Bachelor's Degree[4]	12.9%	20.4%	19.7%	282,819	4,131,150	32,646,533
Educational Attainment: Post-Graduate Degree[4]	6.7%	11.3%	11.2%	145,376	2,279,854	18,533,513
Disabled, Age 18 to 64 (Percent of Total Population)[4]	6.9%	4.6%	6.9%	35,323	275,877	3,105,361
Foreign Born[4]	36.6%	45.2%	35.6%	474,604	5,708,355	41,423,632
Speak English Less Than Very Well	5.4%	7.8%	9.1%	69,882	984,914	10,594,153

Source: JobsEQ®

1. Census 2010, unless noted otherwise

2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

[12] A worksheet detailing findings from this analysis is included in the appendix.

4. ACS 2010-2014

Table 13: Social Profile of San Bernardino and Riverside Counties[1]

	---------------Percent-------------		-----------------Value----------------	
	San Bernardino County, California	**Riverside County, California**	**San Bernardino County, California**	**Riverside County, California**
Educational Attainment: No High School Diploma[4]	20.8%	20.2%	219,396	227,841
Educational Attainment: High School Graduate[4]	26.1%	25.6%	276,450	288,578
Educational Attainment: Some College, No Degree[4]	25.9%	26.2%	273,851	295,396
Educational Attainment: Associate Degree[4]	8.2%	7.9%	86,577	89,061
Educational Attainment: Bachelor's Degree[4]	12.5%	13.4%	131,734	151,085
Educational Attainment: Post-Graduate Degree[4]	6.5%	6.8%	69,202	76,174
Disabled, Age 18 to 64 (Percent of Total Population)[4]	38.0%	39.3%	46,116	48,150
Foreign Born[4]	21.3%	22.0%	442,987	498,376
Speak English Less Than Very Well	16.2%	15.3%	311,336	323,348

Source: JobsEQ®

1. Census 2010, unless noted otherwise

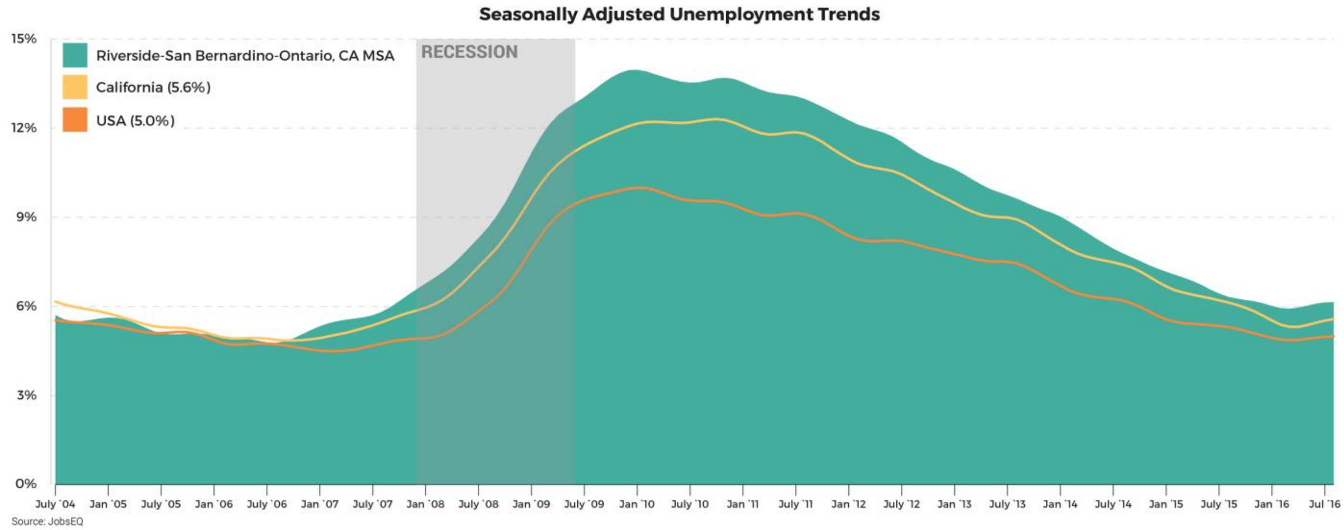
2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

4. ACS 2010-2014

The Inland Empire's unemployment rate has tracked steadily lower since the beginning of 2011 (seasonally adjusted),[13] and is currently estimated to be 6.1% as of August 2016. This rate peaked at 14.0% in late 2009 and early 2010, and while it has dropped 7.8 percentage points since then, it remains 1.1 percentage points higher than the national unemployment rate.

Figure 7

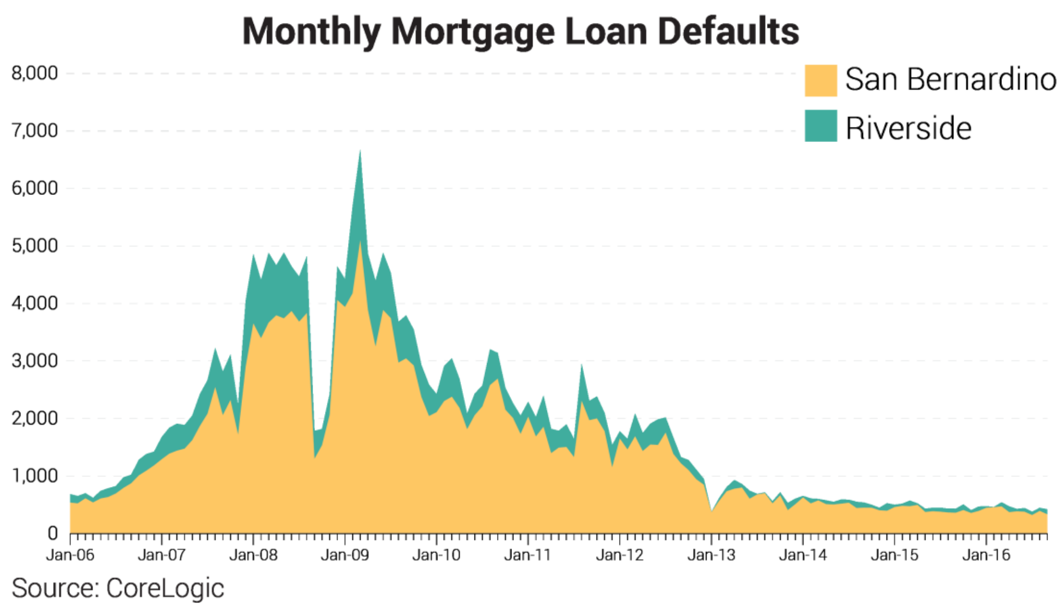


13 The seasonal adjustment calculation in JobsEQ is based on a proprietary algorithm designed for online applications. Thus, seasonally adjusted data in JobsEQ may not match exactly with seasonally adjusted data from other sources, such as the Bureau of Labor Statistics (BLS).

Real Estate Market Analysis[14]

The real estate market in the Inland Empire has displayed several positive trends through September 2016 as the recovery continues. Following the mortgage crisis and recession, distressed home sales have fallen in San Bernardino and Riverside Counties. Median home sales price continues to rise, while housing inventory is tight in the region. Industrial and commercial capacity is expanding with vacancy rates consistent with or below the national average. And the vast majority of land in the largest county by area in the United States—San Bernardino—is zoned for agricultural and resource management.

Figure 8

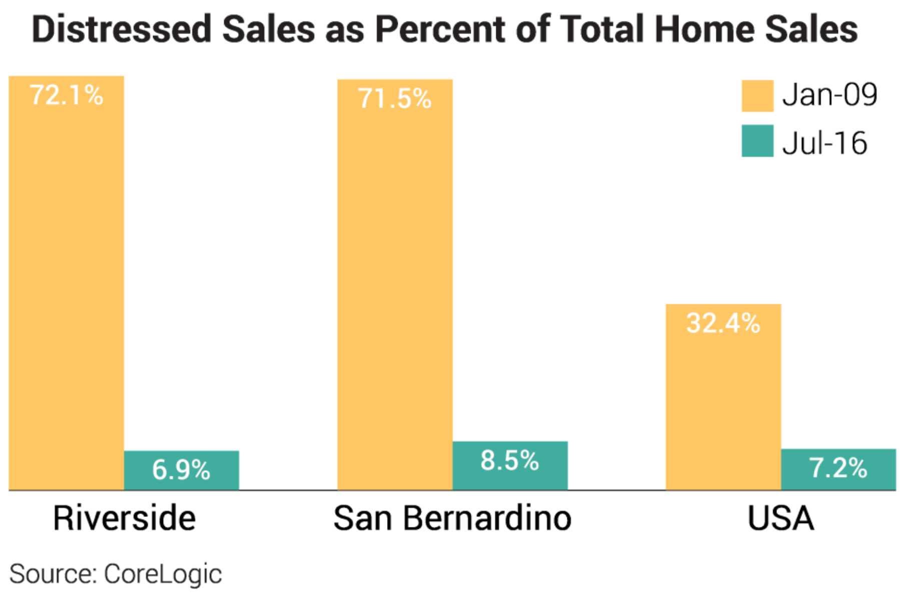


Mortgage loan defaults in San Bernardino and Riverside Counties are below pre-recession levels. Mortgages in default were tied closely to the recession of 2007-2009, and steady declines are a positive signal of recovery in the region. Over the year prior to the recession (January to December 2006), monthly defaults on mortgage loans averaged 759 in San Bernardino and 924 in Riverside. Defaults rose to a peak in March 2009 of 5,096 and 6,672 for San Bernardino and Riverside, respectively. Over the twelve months ending September 2016, mortgage loan defaults have fallen to an average of 391 per month in San Bernardino and 451 in Riverside.

[14] The construction sector as a whole, and the residential building construction industries, played a major role in the Inland Empire's experience of the Great Recession. From peak employment in 2006Q3 to its trough in 2011Q1, the sector declined by more than 70,000 jobs, or approximately 55% of its workforce; the residential building construction industries' workforce contracted by approximately 65%. For this reason, Chmura believes it is critical to assess and evaluate trends in the housing sector across the Inland Empire region as an indicator of the region's continued recovery, post-recession.

CHMURA Economics & Analytics

Figure 9



Coincident with the decline in mortgage loan defaults, distressed sales of homes have sharply declined. The lower prices of distressed home sales, which include real estate-owned (REO) sales[15] and short sales,[16] can bring down prices when they make up a high percentage of total home sales. At the height of the recession's effects in January 2009, distressed sales accounted for 72.1% of total home sales in Riverside and 71.5% in San Bernardino—more than twice as high as the national average of 32.4% at that time. As of July 2016, the share of distressed sales in Riverside (6.9%) has fallen below the national average (7.2%), while distressed sales in San Bernardino have dropped to 8.5% of total home sales.

The proportion of distressed sales as a share of overall residential sales in San Bernardino County has further fallen to 7.3% as of September 2016, with traditional sales accounting for 92.7% of total sales. San Bernardino's current REO sales rate of 4.3% is the third-lowest monthly rate since 2007, while the share of short sales has declined to 3.0% as of September 2016, the second-lowest rate since July 2007. August saw the second-highest monthly home sales since 2010, and while sales declined slightly in September, they were up 2.3% year-over-year.

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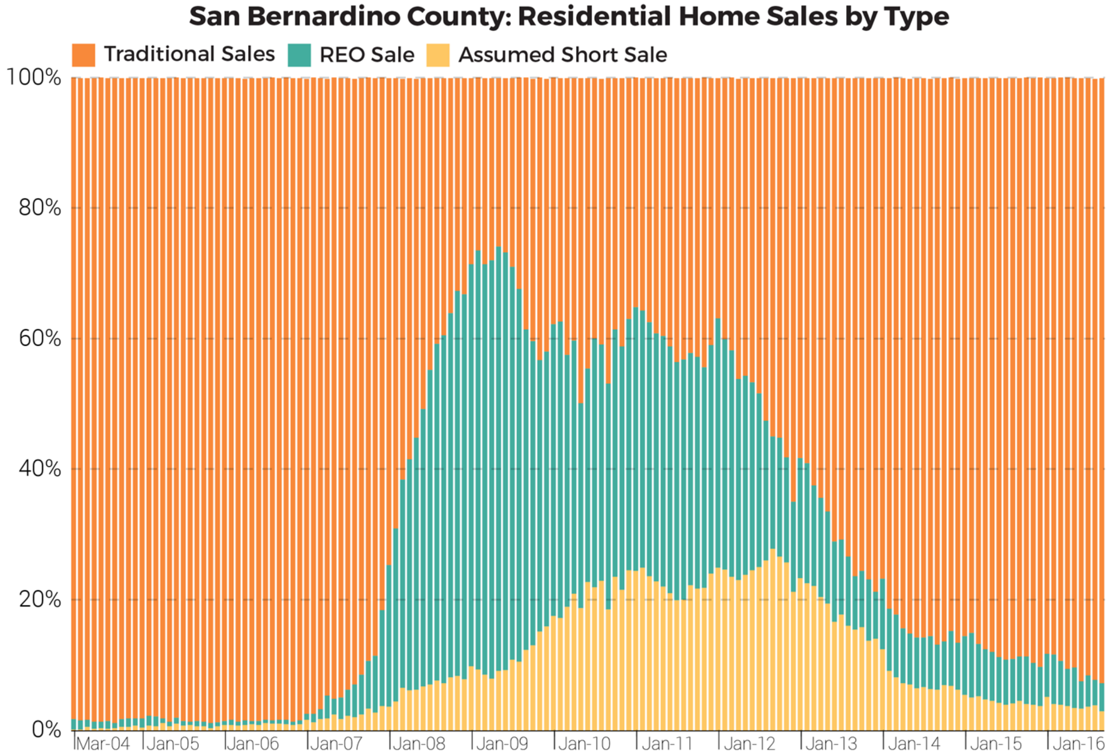
[15] REO properties describe homes where the bank has foreclosed on a home with an unpaid mortgage, but failed to sell the property at foreclosure auctions.

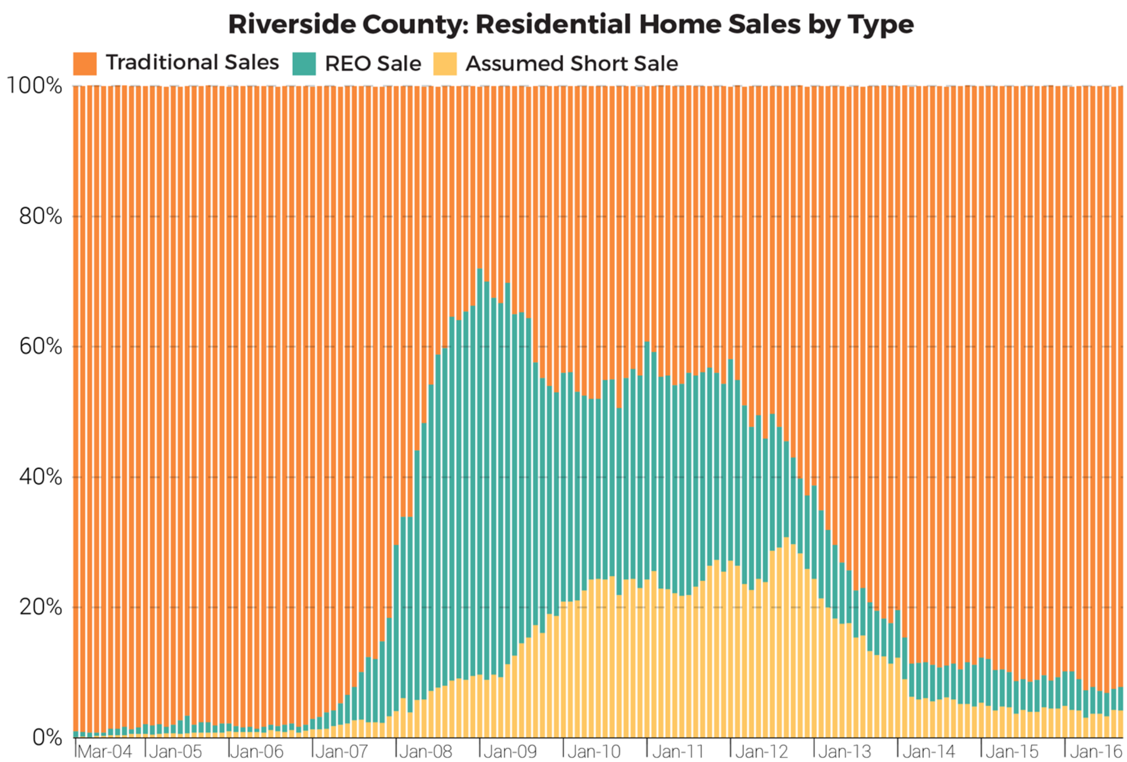
[16] Short sales in real estate occur when the sale of real estate falls short of the loans against the property, and the property owner cannot afford to repay the loan amount(s).

Figure 10a



Source: CoreLogic

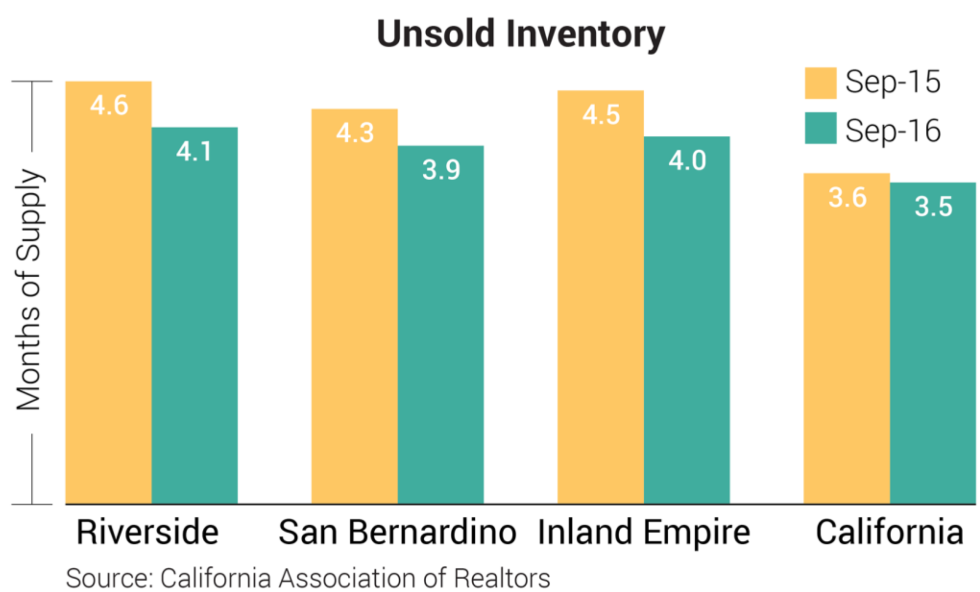
Figure 10b



Source: CoreLogic

Traditional sales as a share of total home sales in Riverside County rose above 90% in June 2015 for the first time since 2007 and have stayed above 90% for 7 consecutive months as of September 2016. The proportion of distressed sales as a share of overall residential sales in Riverside County fell to 7.8% in September 2016, with traditional sales accounting for 92.2% of total sales. Riverside's August 2016 REO sales rate of 3.2% is the lowest monthly rate since 2007, though the rate edged up to 3.6% in September. The share of short sales has declined to 4.2% in September 2016, but total home sales were down 8.5% year-over-year.

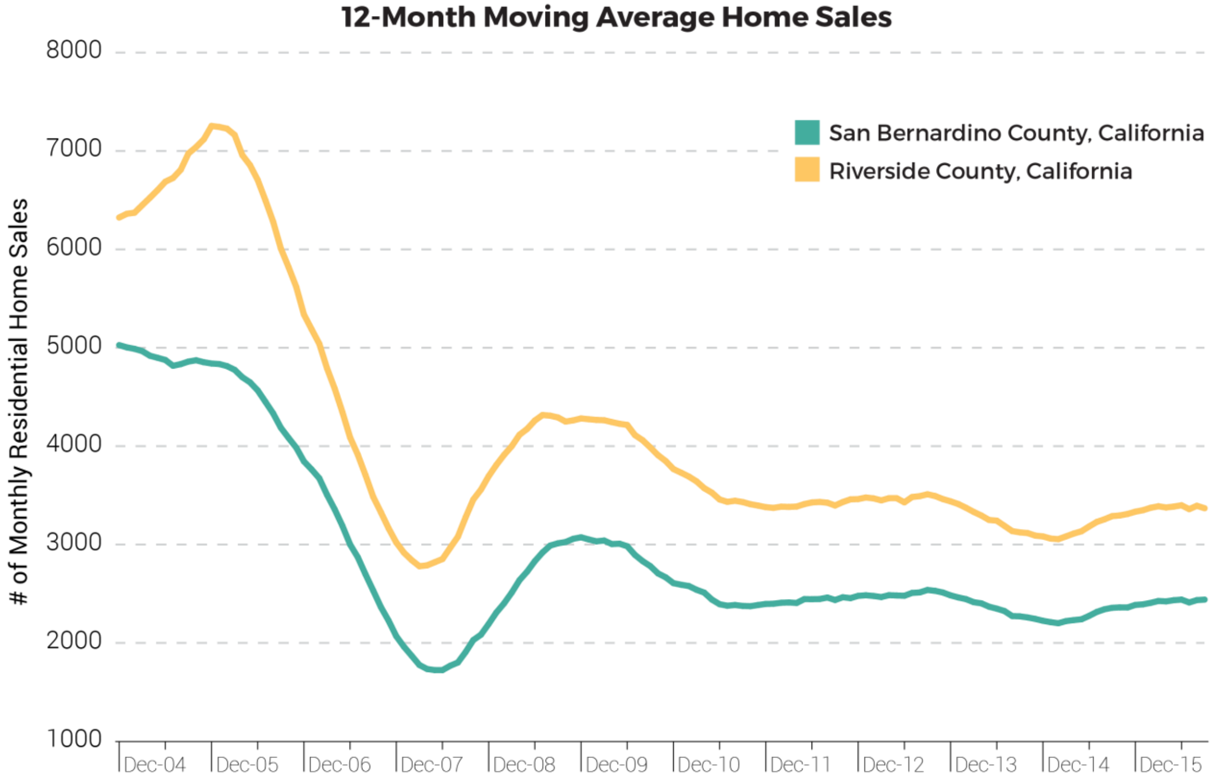
Figure 11



The available housing inventory remains tight in the Inland Empire at an estimated 4.0 months of supply in September 2016, down from 4.5 months a year ago. Six months' supply is generally considered a balance between supply and demand. Inventory is slightly tighter in San Bernardino with 3.9 months' supply than in Riverside at 4.1 months' supply. Unsold inventory in both counties has declined over the year from the supply in September 2015. In comparison, the seasonally adjusted annual rate in California was 3.5 months in September 2016.

The 12-month moving average of home sales in San Bernardino County improved 3.5% over the year ending September 2016, higher than the 2.4% increase in Riverside County over the same period. Sales were up 2.9% across the Inland Empire year-over-year. Home sales remain well below pre-recession levels, however. The twelve-month moving average of home sales was 2,442 in San Bernardino in September 2016, compared with a peak of 5,027 in December 2004. Similarly, sales in Riverside averaged 3,370 over the 12 months ending September 2016, compared with a peak of 7,253 sales in December 2005.

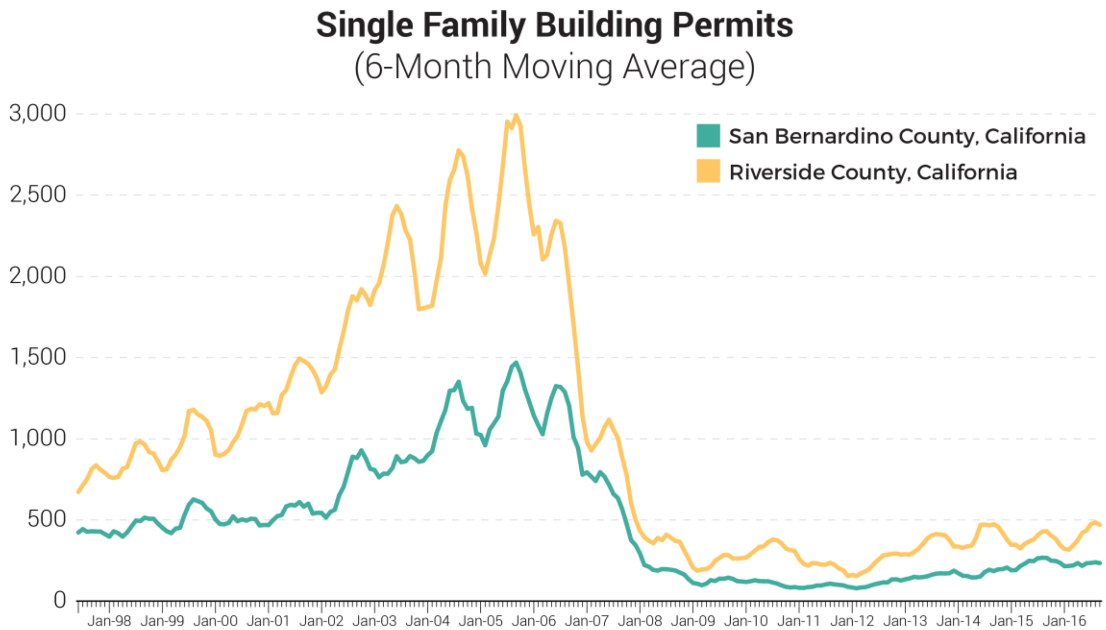
Figure 12



Source: CoreLogic

Single-family building permits rose 9.3% in Riverside County over the year ending September 2016, but declined 12.0% in San Bernardino County. While permits remain relatively low compared to highs before the recession, they continue to rise. In September, the moving average of building permits in Riverside was 470 per month, an increase of 206% from the trough in September 2011. The moving average in San Bernardino was up 196% from September 2011 to 234 permits per month.

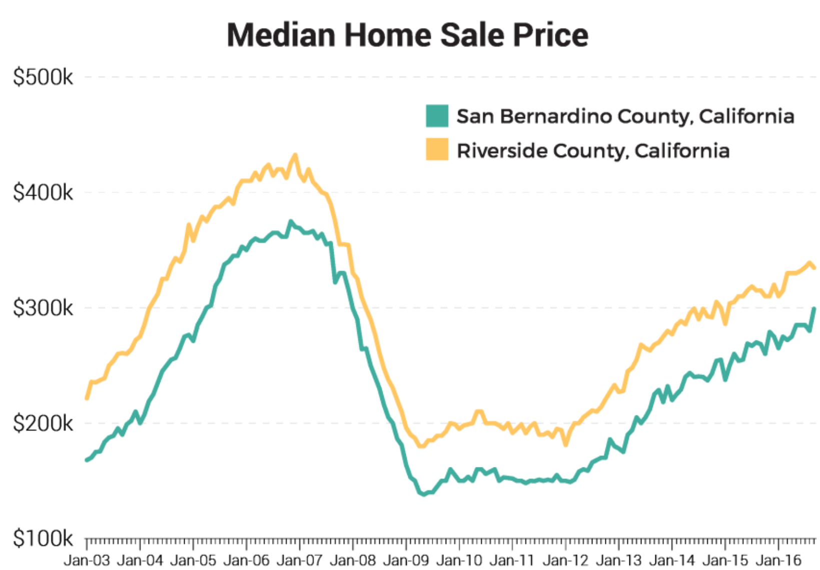
Figure 13



Source: https://socds.huduser.gov/permits

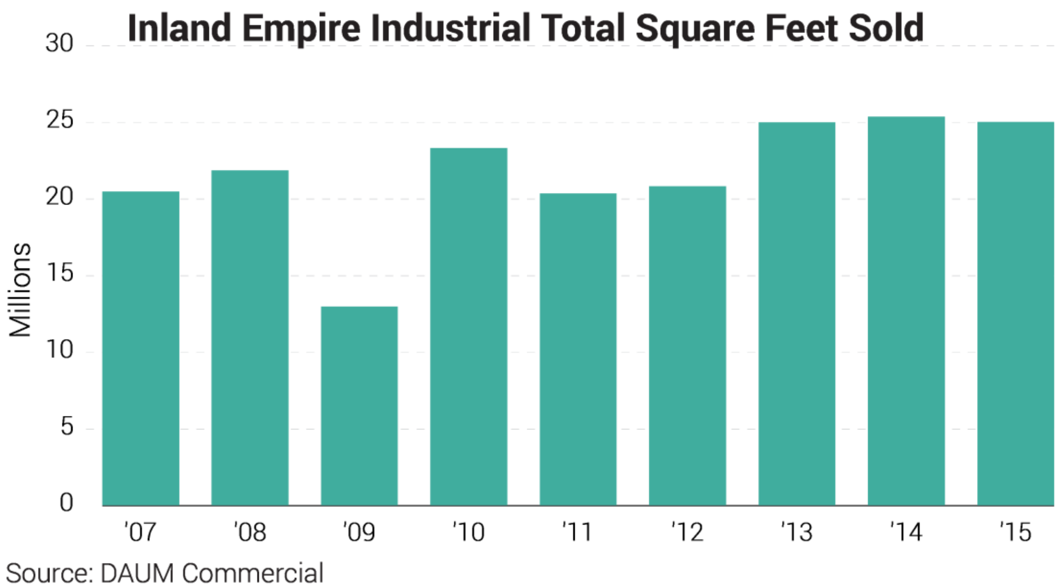
Home sales price is also regaining lost ground. Over the year ending September 2016, the median home sales price in San Bernardino rose 11.4% to $299,000. In Riverside, the median sales price was up 6.3% to $334,750. During the recession, the median home sales price in Riverside and San Bernardino bottomed out at $180,000 and $138,000, respectively. Sales price in both counties has risen on a year-over-year basis for all months since February 2012.

Figure 14



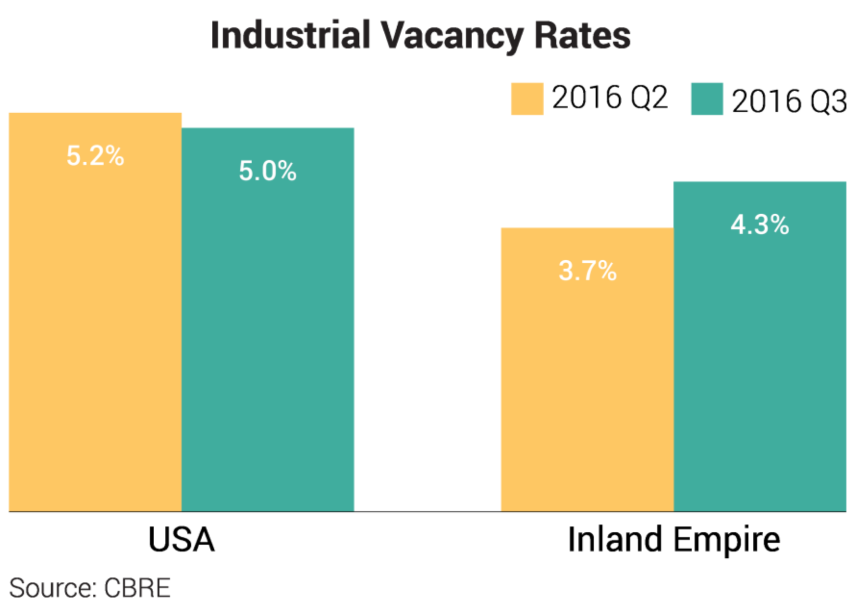
Source: CoreLogic

Figure 15



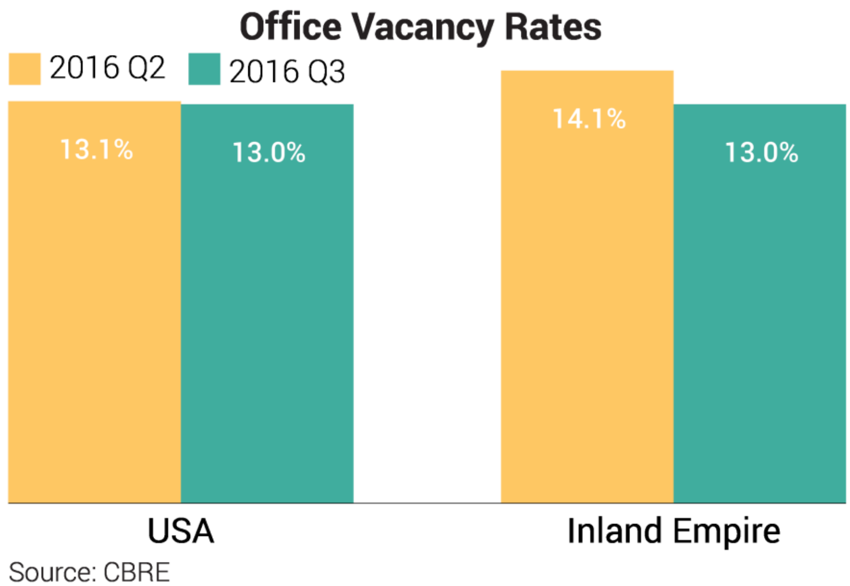
Industrial real estate trends have also been moving in a favorable direction. Through the third quarter of 2016, about 17.1 million square feet of industrial space has been sold in the Inland Empire, already surpassing total square feet sold in 2009. Following the recession, total sales rose to 25.4 million square feet in 2014 before leveling off around 25 million in 2015. Demand for space continues to grow as new construction drove an increase in industrial vacancy rates from 3.7% in the second quarter of 2016 to 4.3% in the third quarter, compared with an industrial vacancy rate of 5.0% nationwide.

Figure 16



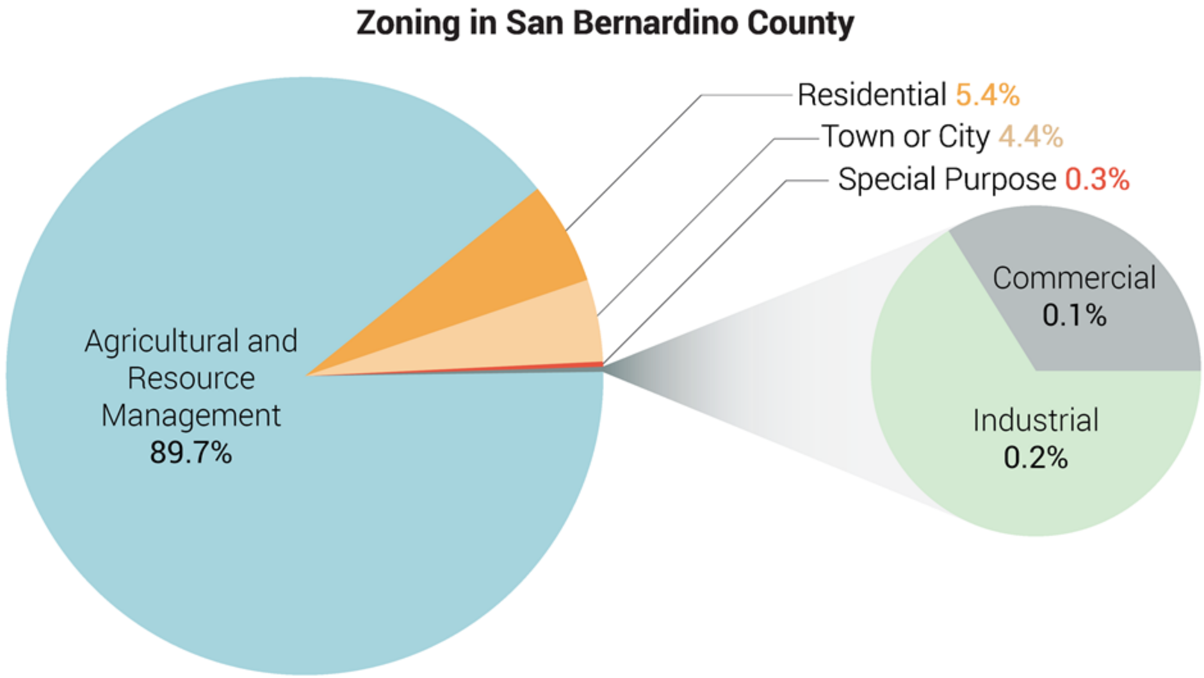
Office vacancies, meanwhile, matched the national norm at 13.0% in the third quarter of 2016. Vacancy rates in the Inland Empire declined from 14.1% in the previous quarter.

Figure 17



Zoning in San Bernardino County is dominated by agricultural and resource management, accounting for 89.7% of total land in the county. Residential zoning is the next-largest category at 5.4%, followed by individual plans for independent towns or cities. Special purpose, commercial, and industrial zoning currently each account for less than 1% of total land in the county.

Figure 18

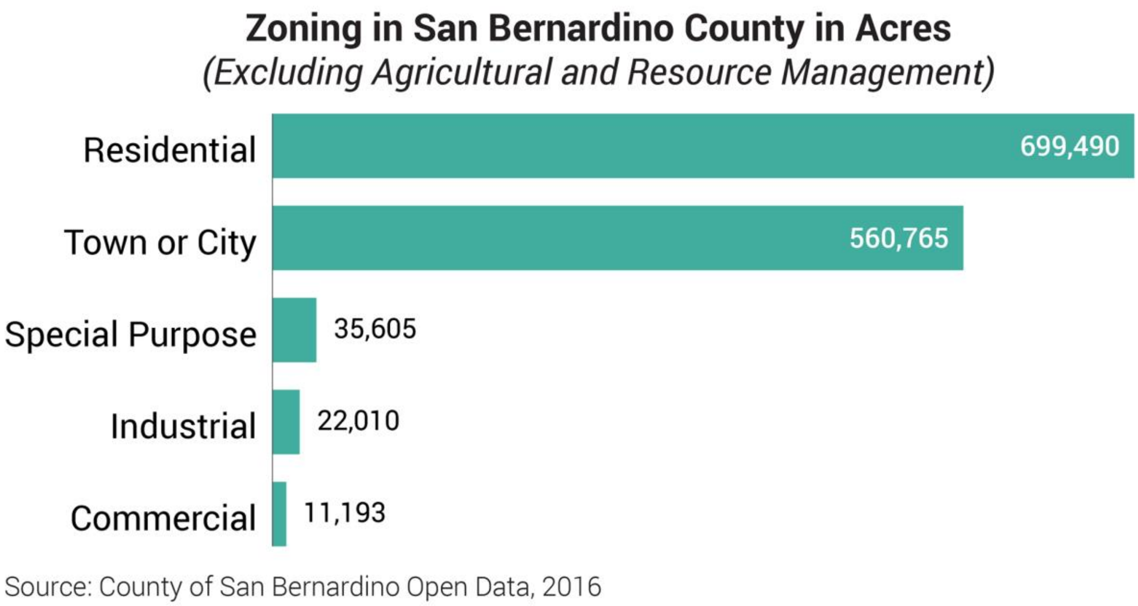


Source: County of San Bernardino Open Data, 2016

At the time of this report, San Bernardino County is updating its General Plan, which was last implemented in 2007. The General Plan is being replaced with a more comprehensive "Countywide Plan" that is slated for adoption and implementation in 2018. Chmura anticipates that the new plan will have ramifications for land use designations; however, the specific ramifications are unknown at present. In both focus group sessions and survey responses, the availability of land for commercial and industrial development was shared as one of the region's most significant assets for supporting economic growth. But, it was unclear what share of open land is zoned and available for these purposes, versus how much of this perception may be affected by the massive share of open land that is currently zoned for agricultural and resource management.

San Bernardino County is the largest county in the United States by area, covering about 12.9 million acres. Chmura's analysis of GIS files provided by the County of San Bernardino Open Data estimates agricultural and resource management zoning covers about 11.5 million acres. Residential zoning accounts for nearly 700,000 acres, while independent towns and cities cover 560,765 acres. More than 35,000 acres are zoned for special purpose, which includes institutional zoning such as schools and municipal buildings. More than 22,000 acres are zoned for industrial, while about half that, 11,000 acres, is zoned for commercial.

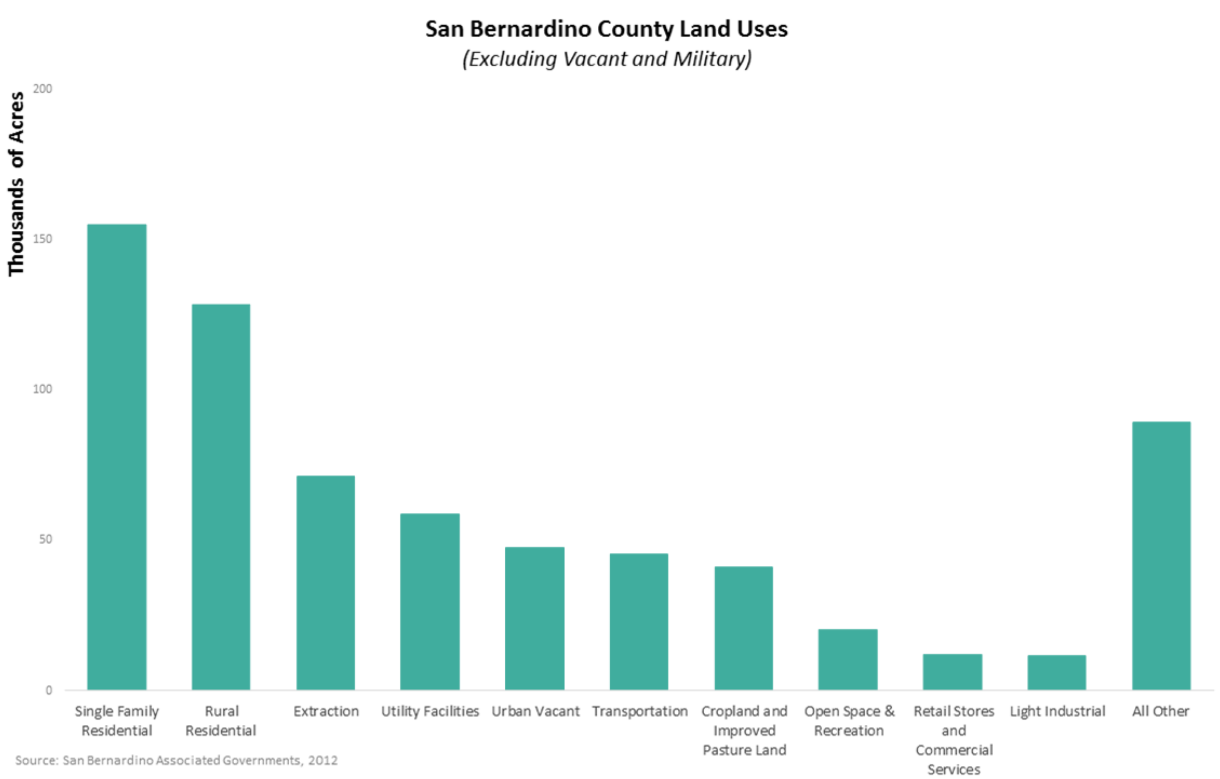
Figure 19



As of 2012, more than 10.1 million acres of land remained vacant in San Bernardino, with almost 2 million acres reserved for military installations.[17] Excluding those categories, residential developments are the single-largest categories of land use in the county, followed by extraction and utilities. Single-family residential, rural residential, multi-family residential, and mixed residential land use account for more than 291,500 acres in the county. Extraction makes up about 71,000 acres, while utility facilities cover more than 58,000 acres. About 47,400 acres were categorized as Urban Vacant, and 1,400 acres were under construction.

[17] Land-use data depicts existing land use for the modeled portions of San Bernardino County according to Anderson's Land Use Designation Codes III/IV. Designations are determined via analysis of aerial photography, field checks, and information from local agencies. Data available from San Bernardino Associated governments, http://www.sanbag.ca.gov/planning2/GIS-datasets-plans.html

Figure 20

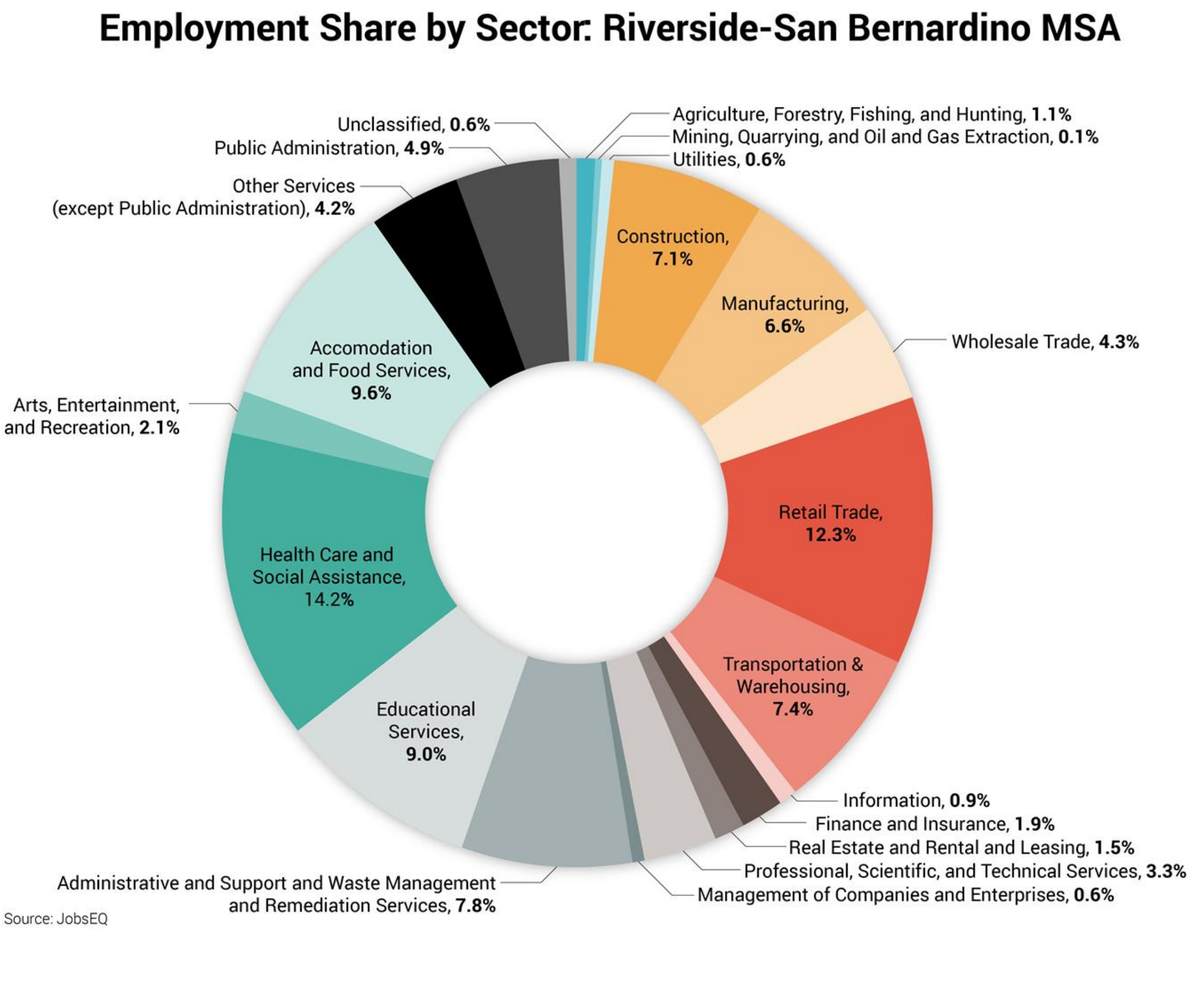

San Bernardino County Land Uses
(Excluding Vacant and Military)
Thousands of Acres
200
150
100
50
0
Single Family Residential
Rural Residential
Extraction
Utility Facilities
Urban Vacant
Transportation
Cropland and Improved Pasture Land
Open Space & Recreation
Retail Stores and Commercial Services
Light Industrial
All Other
Source: San Bernardino Associated Governments, 2012

Industry Analysis

Regional Employment Composition

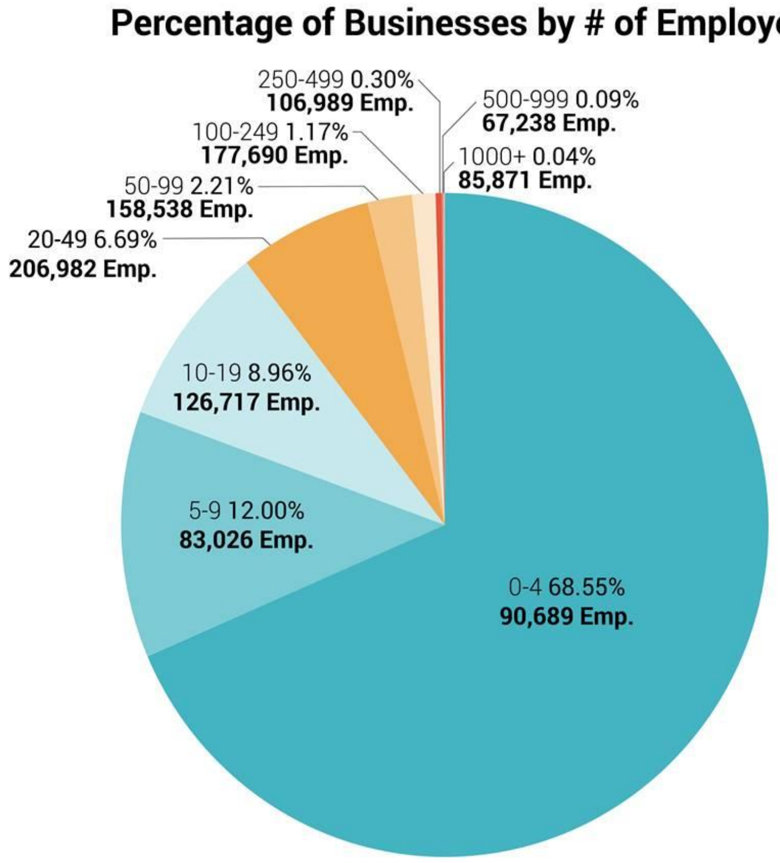
At 14.2%, the health care and social assistance sector accounted for the largest share of employment in the Inland Empire in the 2nd quarter of 2016. The sectors with the next-largest shares of employment were retail trade (12.3%), accommodation and food services (9.6%), educational services (9.0%), administrative and support and waste management and remediation services (7.8%), transportation and warehousing (7.4%), construction (7.1%), and manufacturing (6.6%). These seven sectors accounted for approximately two-thirds of all employment in the Inland Empire in the 2nd quarter of 2016.

Figure 21



More than 96% of firms in the Inland Empire have fewer than 50 employees, representing approximately 46% of covered[18] employment; 99.8% of firms have fewer than 500 employees and employ more than 86% of covered workers.

Figure 22



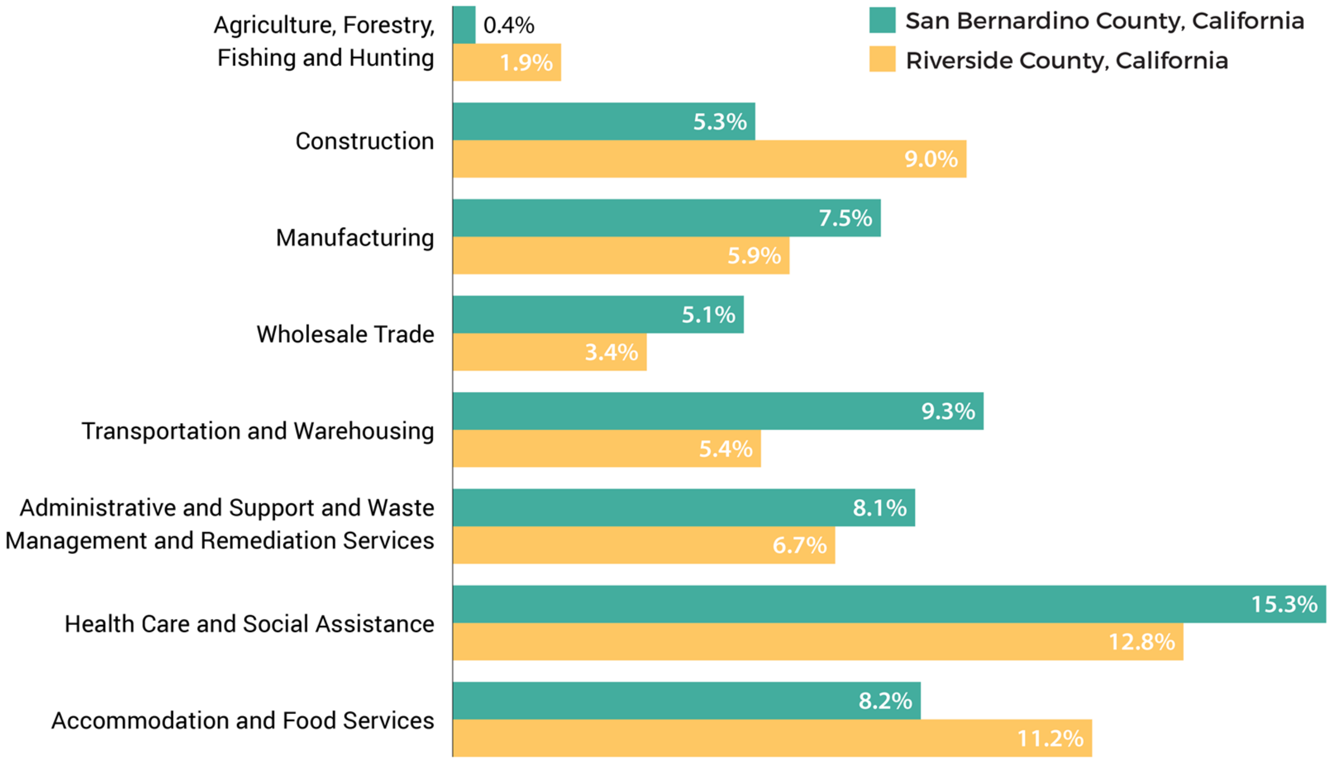
Source: State of California Employment Development Department. Note: Data as of the 3rd quarter of 2015.

Within the Inland Empire, there are noticeable differences in employment composition between the two counties. There were eight sectors in which there was at least a 1.0 percentage point difference in employment share between San Bernardino County and Riverside County. Riverside County had a much larger share of employment in construction (9.0% vs. 5.3%) and accommodation and food services (11.2% vs. 8.2%) while employment shares in San Bernardino County were much larger in transportation and warehousing (9.3% vs. 5.4%) and health care and social assistance (15.3% vs. 12.8%).

[18] Covered employment reflects employment and wages data by industry as derived from the Quarterly Census of Employment and Wages (QCEW) provided by the US Bureau of Labor Statistics.

Figure 23

Sectors with Largest Percentage Point Difference in Employment Share



Source: JobsEQ

The sector snapshot below (Table 14) gives employment details at the two-digit NAICS level for the Inland Empire. During the five-year period from the 2nd quarter of 2011 to the 2nd quarter of 2016, the largest employment gains were in health care and social assistance (+64,096), transportation and warehousing (+35,975), accommodation and food services (+29,250), and construction (+28,899). Year-over-year growth in transportation and warehousing was 125% faster in the Inland Empire than in the state, and 238% faster than in the nation. Growth in wholesale trade outpaced the state and nation by 145% and 250%, respectively, and growth in manufacturing outpaced the state and nation by 257% and 127%, respectively; employment gains in both healthcare and social assistance, and construction outpaced national rates of growth by 226% and 144%, respectively. The largest job losses were in the other services (-13,579)[19] and information (-4,186) sectors.

Typical of many economies, the health care and social assistance sector is forecast to gain the largest share of jobs, and to grow at the most rapid annual rate (2.0%) for the next 10 years. The employment growth forecast across all industries is 1.0% per year and three other sectors are forecast to grow at a faster annual rate than the average annual growth of all industries: construction (1.6%); professional, scientific, and technical services (1.5%); and administrative and support and waste management and remediation services (1.2%).[20] The only sector (of 21 total sectors) that is forecast to experience employment decline is manufacturing (-0.3%), although estimated replacement demand[21] alone in manufacturing is higher than total demand (replacement demand plus growth demand) for thirteen other sectors. However, a forecast for employment decline is not necessarily indicative of a forecast for decline in output.

Table 14: Sector Snapshot

		Current			Historical				Forecast		
		Four Quarters Ending with 2016q2			Total Change over the Last 5 Years	Average Annual % Change in Employment 2011q2-2016q2			Over the Next 10 Years		
NAICS	Industry	Empl	Avg. Annual Wages	Location Quotient	Empl	Riverside-San Bernardino-Ontario, CA MSA	CA	USA	Total Approx Repl Demand	Total Growth Demand	Avg. Annual Growth Percent
11	Agriculture, Forestry, Fishing and Hunting	16,293	$36,388	0.74	-779	-0.9%	1.3%	1.0%	5,803	490	0.3%
21	Mining, Quarrying, and Oil and Gas Extraction	1,101	$80,286	0.16	70	1.3%	-1.0%	-0.4%	269	32	0.3%
22	Utilities	9,708	$94,119	1.19	-298	-0.6%	0.2%	0.2%	2,513	313	0.3%
23	Construction	105,955	$51,819	1.29	28,899	6.6%	5.1%	2.7%	22,319	17,916	1.6%
31	Manufacturing	99,361	$53,014	0.80	11,493	2.5%	0.7%	1.1%	22,661	-3,336	-0.3%
42	Wholesale Trade	64,685	$70,684	1.08	13,811	4.9%	2.0%	1.4%	14,749	5,161	0.8%

[19] In the first quarter of 2013, many establishments that provide home care for the elderly were reclassified from NAICS 814110 (private households) to 624120 (services for the elderly). In effect, these losses in the other services sector translated into gains for the health care and social assistance sector. For more information on this topic, please visit: http://www.chmuraecon.com/blog/2014/january/27/recent-industry-reclassifications-have-major-impact-on-analysis-in-health-care-finance-sectors/?author=Greg+Chmura&page=2

[20] At the four-digit NAICS level, the major driver of growth in this sector is employment services, which at the six-digit level is primarily driven by temporary help services.

[21] Total replacement demand is the minimum demand due to separations from an occupation such as retirements and moves into different occupations.

		Current			Historical				Forecast		
		Four Quarters Ending with 2016q2			Total Change over the Last 5 Years	Average Annual % Change in Employment 2011q2-2016q2			Over the Next 10 Years		
NAICS	Industry	Empl	Avg. Annual Wages	Location Quotient	Empl	Riverside-San Bernardino-Ontario, CA MSA	CA	USA	Total Approx Repl Demand	Total Growth Demand	Avg. Annual Growth Percent
44	Retail Trade	185,581	$31,363	1.14	18,248	2.1%	1.7%	1.5%	58,995	11,939	0.6%
48	Transportation and Warehousing	111,092	$46,334	1.79	35,975	8.1%	3.6%	2.4%	29,508	5,318	0.5%
51	Information	13,027	$53,961	0.43	-4,186	-5.4%	3.0%	0.6%	3,126	-60	0.0%
52	Finance and Insurance	28,748	$64,286	0.48	600	0.4%	0.5%	0.9%	7,026	2,479	0.8%
53	Real Estate and Rental and Leasing	21,895	$46,099	0.86	1,958	1.9%	1.6%	1.7%	5,026	1,571	0.7%
54	Professional, Scientific, and Technical Services	50,279	$58,300	0.51	3,924	1.6%	2.9%	2.5%	11,109	8,156	1.5%
55	Management of Companies and Enterprises	9,727	$67,412	0.44	1,042	2.3%	3.5%	3.5%	2,122	668	0.7%
56	Administrative and Support and Waste Management and Remediation Services	116,690	$28,356	1.20	22,446	4.4%	4.0%	2.9%	27,588	14,875	1.2%
61	Educational Services	135,572	$43,859	1.09	12,139	1.9%	1.3%	0.4%	29,547	13,468	1.0%
62	Health Care and Social Assistance	213,534	$45,821	1.01	64,906	7.5%	6.6%	2.3%	44,904	47,153	2.0%
71	Arts, Entertainment, and Recreation	30,866	$28,832	1.05	-1,043	-0.7%	2.5%	2.1%	9,816	3,287	1.0%
72	Accommodation and Food Services	143,618	$20,253	1.08	29,250	4.7%	4.2%	3.1%	52,111	12,604	0.8%
81	Other Services (except Public Administration)	62,709	$30,464	0.94	-13,579	-3.8%	-5.0%	-0.1%	16,336	5,746	0.9%
92	Public Administration	73,939	$67,787	1.03	712	0.2%	0.0%	-0.4%	18,268	3,701	0.5%
99	Unclassified	8,484	$33,451	2.88	5,081	20.0%	15.0%	12.6%	2,157	878	1.0%
	Total - All Industries	**1,502,865**	**$43,871**	**1.00**	**230,670**	**3.4%**	**2.5%**	**1.7%**	**381,520**	**152,416**	**1.0%**

Source: JobsEQ®

Industry Index

Chmura developed an index tool to provide an alternative perspective from which to assess the value of the region's industries relative to workforce and economic development. The underlying rationale is that this index may be used to help inform the prioritization of certain sectors based on key criteria that are especially valuable to workforce development systems. The index rank orders industry sectors based on data compiled at the two- and four-digit NAICS level. This analysis synthesizes several different employment-related trends to identify those industries that are thriving and likely to continue to thrive in the local economy; thus driving continued job gains with a relatively high degree of quality. The index is calculated by rank ordering each individual component, assigning a weight to each component (in consultation with the SBWDB), and calculating a weighted average of the composite index.[22] The index is standardized to be between 1 and 100, with the higher number indicating a more favorable regional position based on weighted criteria.

Specifically, the index includes:

- Projected employment growth rate which prioritizes industries with the fastest expected employment growth over the next decade
- Projected job openings which shows the expected number of positions to be filled in each industry over the next decade
- Average annual wages ranked industries based on average annual pay, providing a perspective on the quality of jobs in a given industry and determining whether an industry generally provides family-sustaining wages
- Location quotient[23]
    - 2016:Q2—measures industry concentration in the region
    - Change from 2006:Q2 to 2016:Q2 shows whether a regional industry has become more or less concentrated over the past decade
- Employment multiplier which indicates the importance of an industry to regional job creation

[22] Each major category was weighed equally (20%) while the weights of factors within each major category were not necessarily equal (i.e., the location quotient received a weight of 15% and the change in location quotient over the past decade received a weight of 5%).

[23] The location quotient measures the degree to which an industry is concentrated or specialized in a region relative to the nation, by computing the ratio of the share of an industry's employment in a region to the same industry's share of employment in the nation.

Table 15a: Sectors Index

Sector	10-Year Employment Growth Forecast	10-Year Openings Forecast	Average Annual Wages	Employment Multiplier	Location Quotient 2016q2	Location Quotient Change 2006q2-2016q2	Index Score
Construction	16.9%	40,235	$51,819	0.5	1.3	-0.3	69.0
Health Care and Social Assistance	22.1%	92,057	$45,821	0.4	1.0	0.2	66.9
Wholesale Trade	8.0%	19,910	$70,684	0.5	1.1	0.1	63.8
Professional, Scientific, and Technical Services	16.2%	19,265	$58,300	0.7	0.5	-0.1	61.0
Public Administration	5.0%	21,969	$67,787	0.5	1.0	0.1	58.3
Utilities	3.2%	2,826	$94,119	0.8	1.2	0	57.9
Transportation and Warehousing	4.8%	34,826	$46,334	0.4	1.8	0.5	57.1
Administrative and Support and Waste Management and Remediation Services	12.7%	42,463	$28,356	0.3	1.2	0.1	56.0
Educational Services	9.9%	43,015	$43,859	0.2	1.1	0	56.0
Finance and Insurance	8.6%	9,505	$64,286	0.9	0.5	-0.1	55.7
Real Estate and Rental and Leasing	7.2%	6,597	$46,099	2.4	0.9	-0.2	52.6
Arts, Entertainment, and Recreation	10.6%	13,103	$28,832	0.7	1.0	-0.2	51.2
Retail Trade	6.4%	70,934	$31,363	0.3	1.1	0	50.7
Manufacturing	-3.4%	22,661	$53,014	1.0	0.8	-0.1	50.5
Accommodation and Food Services	8.8%	64,715	$20,253	0.2	1.1	0	46.2
Unclassified	10.3%	3,035	$33,451	0.0	2.9	2.8	45.7
Mining, Quarrying, and Oil and Gas Extraction	2.9%	301	$80,286	1.2	0.2	-0.1	45.2
Other Services (except Public Administration)	9.2%	22,082	$30,464	0.3	0.9	-0.2	43.1
Management of Companies and Enterprises	6.9%	2,790	$67,412	0.6	0.4	-0.3	41.7
Information	-0.5%	3,126	$53,961	1.1	0.4	-0.1	41.4
Agriculture, Forestry, Fishing and Hunting	3.0%	6,293	$36,388	0.5	0.7	-0.2	30.0

Source: JobsEQ®

Based on this analysis, the highest-ranking sectors include construction; health care and social assistance; wholesale trade; and professional, scientific, and technical services. Other sectors currently targeted by the WDB ranking in the top-third include utilities and transportation and warehousing; manufacturing appears in the bottom half of the index primarily due to a relatively weak employment growth forecast. Industry/occupation mix tables for detailed occupations currently employed by target sectors, plus professional, scientific, and technical services, is provided as an appendix to this report.

The above analysis was repeated at the more detailed 4-digit NAICS level, resulting in the table of top 25 industries shown below (Table 15b). Offices of physicians had the highest index score

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at 82.7 based on strong projected employment growth, a large number of projected number of job openings over the next ten years, and high average annual wages. The next-highest ranked industries in the Inland Empire were utility system construction, grocery and related product merchant wholesalers, and wireless telecommunication carriers (except satellite). Overall, 11 industries ranking in the top 25 belong to target sectors (highlighted in yellow) and two belong to the professional, scientific, and technical services sector (highlighted in green).

Table 15b: Industries Index

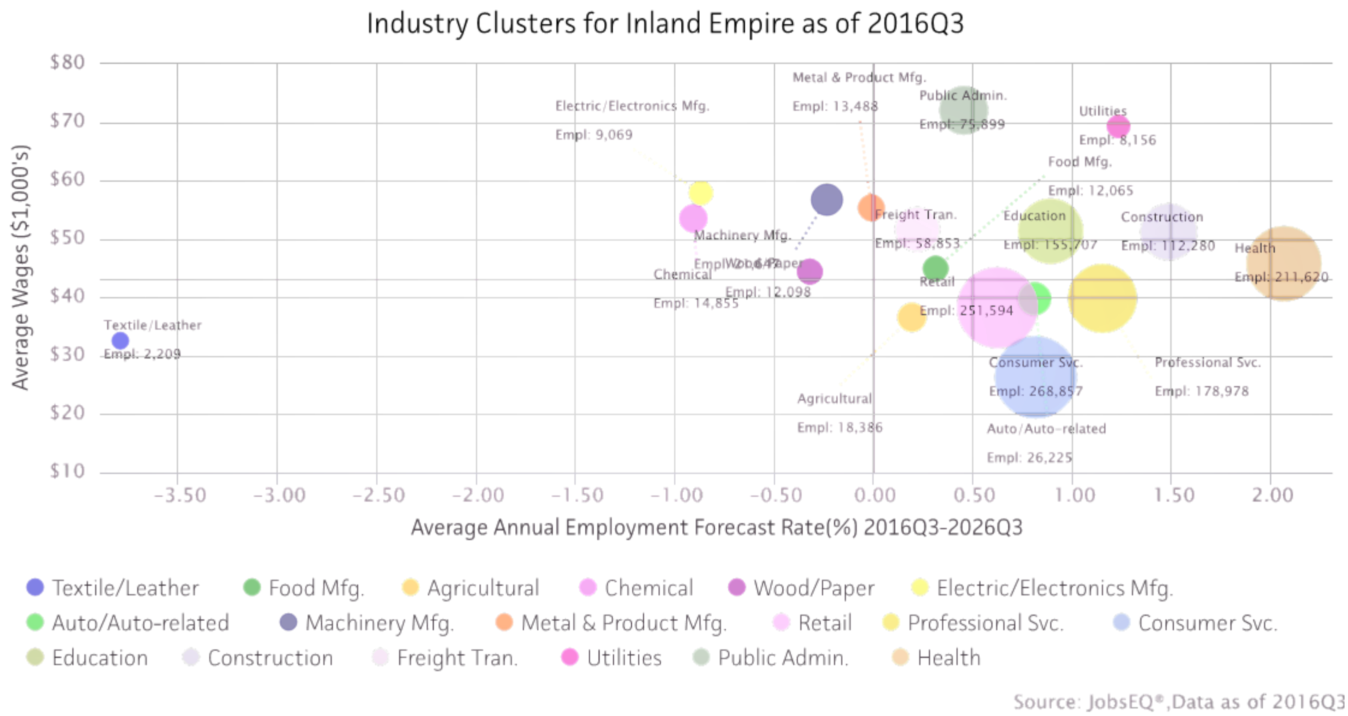
NAICS	NAICS Description	10-Year Employment Growth Forecast	10-Year Openings Forecast	Average Annual Wages	Employment Multiplier	Location Quotient 2016q2	Location Quotient Change 2006q2-2016q2	Index Score
6211	Offices of Physicians	24.3%	14,419	$83,748	0.6	1.2	0.1	82.7
2371	Utility System Construction	46.6%	5,104	$79,478	0.4	1.5	0.1	80.5
4244	Grocery and Related Product Merchant Wholesalers	6.2%	2,995	$150,348	0.6	1.4	0.5	78.0
5172	Wireless Telecommunications Carriers (except Satellite)	17.0%	594	$61,710	1.5	1.1	0.6	76.9
5223	Activities Related to Credit Intermediation	18.6%	1,189	$68,764	0.8	0.9	0.3	76.4
5621	Waste Collection	19.4%	954	$55,411	0.8	1.3	0.6	76.3
5313	Activities Related to Real Estate	29.2%	3,593	$45,804	3.3	0.8	-0.2	75.4
5174	Satellite Telecommunications	30.0%	143	$84,563	1.1	3.1	-9.1	75.2
4821	Rail Transportation	0.4%	1,194	$80,132	1.9	1.8	-0.2	74.3
5415	Computer Systems Design and Related Services	26.1%	2,858	$83,993	0.9	0.3	-0.1	73.4
6221	General Medical and Surgical Hospitals	8.5%	13,762	$69,589	0.6	0.9	0.1	73.3
2213	Water, Sewage and Other Systems	16.4%	1,919	$79,164	0.3	2.1	0.1	72.9
9231	Administration of Human Resource Programs	6.8%	4,100	$70,801	0.4	1.8	0.4	72.1
5413	Architectural, Engineering, and Related Services	12.6%	2,810	$74,299	1.0	0.5	-0.2	71.8
2373	Highway, Street, and Bridge Construction	15.7%	1,230	$82,727	0.7	0.7	-0.3	71.2
4841	General Freight Trucking	6.2%	6,071	$55,150	0.5	2.1	0.2	71.2
5612	Facilities Support Services	26.7%	988	$56,043	0.5	1.2	0.4	70.9
2382	Building Equipment Contractors	19.2%	9,302	$53,321	0.5	1.1	-0.1	70.8
9221	Justice, Public Order, and Safety Activities	5.2%	8,496	$76,898	0.5	1.4	-0.1	70.4
5239	Other Financial Investment Activities	42.9%	793	$66,112	2.5	0.2	-0.2	70.3
5222	Nondepository Credit Intermediation	11.1%	1,285	$78,419	0.9	0.7	-0.2	70.3
6214	Outpatient Care Centers	48.7%	4,858	$53,100	0.4	0.8	0.3	69.8
3121	Beverage Manufacturing	6.2%	1,165	$45,493	1.0	1.7	0.3	68.9
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	15.9%	655	$65,193	0.5	1.1	0.1	68.5
2381	Foundation, Structure, and Building Exterior Contractors	19.8%	8038	$44,987	0.4	2.0	-0.9	68.2

Source: JobsEQ®

Industry Cluster Analysis

In Chmura's long-run growth model, the Inland Empire has four industry clusters[24] that are likely to expand employment more than 1.0% per year over the next decade.[25] These industries—healthcare, construction, utilities, and professional services[26]—represent approximately one-third of the total employment in the region and are likely to expand faster than the overall pace of job growth in California.

Figure 24[27]



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[24] A cluster is a geographic concentration of interrelated industries or occupations. Clusters form and grow because of a region's competitive advantage. Types of resources that may confer an advantage include location, trained labor, and education and training providers.

[25] Last year's report showed three clusters with projected average annual employment growth exceeding 2.0% from 2015 to 2025. Ten-year average annual projected employment growth has been revised downward for all three of these clusters based on updated national employment projections from the Bureau of Labor Statistics.

[26] While construction activity in the region has been increasing and is forecast to grow at a relatively rapid rate, employment in the construction sector as of 2016Q3 was approximately 71% of its peak level in 2006Q3 (107,523 workers vs. 150,484).

[27] The bubbles in the chart are scaled by total employment.

Workforce Analysis

Employment Growth by Training and Education Required

Over the next ten years, job growth in the Inland Empire is expected to be greater than 0.6% annual expansion across job cohorts, regardless of educational requirements. The fastest growth is expected for jobs requiring a postgraduate degree (e.g. physicians and surgeons) followed by jobs requiring a 2-year degree or certificate (e.g. truck drivers) and jobs requiring long-term training, no experience, and no award (e.g. carpenters). While the relatively strong growth rates for jobs requiring a high school diploma or less is at odds with state trends—which is seeing more of an education-bias in job creation—the region's average annual wages and unemployment rates by education level mirror the norms of the state and the nation. Detailed tables listing the top 25 occupations by forecast annual demand by educational attainment are provided as an appendix to this report.

Table 16

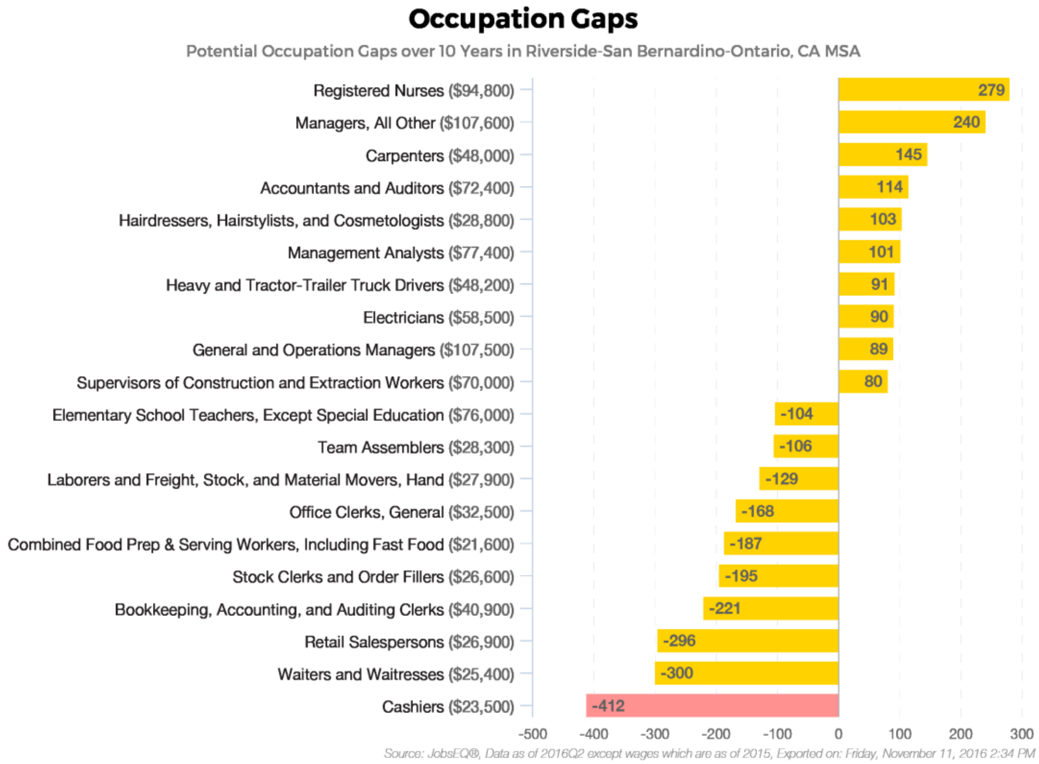
	Regional Employment Q2 2016	Average Annual Salary Q2 2015	Average Annual Growth Rate Next 10 Years
Postgraduate	52,606	$109,900	1.6%
Bachelor's degree	256,216	$81,500	1.1%
2-year degree or certificate	128,866	$45,100	1.4%
Previous work experience, no award	117,987	$50,400	0.9%
Long-term training, no exp, no award	78,836	$48,600	1.2%
Moderate-term OJT, no exp, no award	187,278	$43,900	0.6%
Short-term OJT, no exp, no award	681,077	$28,400	0.9%

Source: JobsEQ®

While estimated occupational deficits over the next ten years vary somewhat across the Inland Empire in terms of education required, the majority of occupations (at the 6-digit SOC code level) with the highest projected gaps over this period require postsecondary training or long-term training (on-the-job). Over the long run, there is a potential surplus of mainly lower-skilled service jobs, such as stock clerks and order fillers, retail sales persons, waiters and waitresses, and cashiers.

Focus group participants predicted surpluses of lower-skilled service occupations–specifically customer service representatives and food service workers.

Figure 24



Primary data indicate that the toughest jobs to fill right now include positions in skilled trades, industrial maintenance, health care, and engineering. Registered nurses, carpenters, electricians, and truck drivers were all mentioned.

At the major occupation group level (2-digit SOC), the Inland Empire has a shortfall in the number of awards (graduates) by the region’s postsecondary schools. This is not uncommon but can be particularly challenging, especially for areas with below-average postsecondary educational attainment. Given the size of the regional economy and the industry mix of the area, the Inland Empire region falls short in the number of recent postsecondary awards across several major occupational groups. For example, in the 2014-2015 academic year, 816 awards were produced by postsecondary schools in the Inland Empire region related to occupations in the business and financial operations field. Given the region’s current employment in these occupations, however, this award production fell short of the national norm relative to the number employed in the region by 1,063 awards. Likewise, award production in the Inland Empire region fell short by 481 awards related to architectural and engineering occupations and was short by 2,675 awards for education, training, and library occupations. In other words, for the region to maintain a properly trained employment base, the region would need to “import” new workers for these occupations. This import of trained individuals includes residents of the area who may move outside the region to be educated and then choose to move back for employment once their studies are completed. This challenge may prove especially severe based on primary data gathered as feedback indicated difficulties in both retaining regional graduates and recruiting new workers into the region.

Table 17: Broad-Level Educational Alignment Analysis

Occupation	2016Q2 Employment	Awards (2014-2015)	Training Concentration[1]		Short-Run Supply & Demand Analysis	Max Annual Shortfall
Management	62,433	7,669	124%	↔	Equilibrium	-
Business and Financial Operations	47,722	816	43%	⬇	Under-Supply	1,063
Computer and Mathematical	21,807	1,093	109%	↔	Equilibrium	-
Architecture and Engineering	12,793	492	51%	⬇	Under-Supply	481
Life, Physical, and Social Science	6,721	956	100%	⬇	Equilibrium	1
Community and Social Service	21,611	1,857	86%	⬇	Under-Supply	300
Legal	7,401	147	38%	⬇	Under-Supply	241
Education, Training, and Library	79,457	4,118	61%	⬇	Under-Supply	2,675
Arts, Design, Entertainment, Sports, and Media	18,801	1,917	90%	⬇	Under-Supply	213
Healthcare Practitioners and Technical	75,886	4,693	95%	⬇	Under-Supply	262

Source: JobsEQ®

[1] Training concentration is the comparison of the local rate of degree production to the national average. A 100% training concentration is equal to the average rate of degree production in the nation for a particular occupation. For example, 110% is 10% above average, 50% is half the national average, and so on.

Occupation Analysis

At the detailed occupation level, the Inland Empire's largest occupation groups are primarily lower-skilled, with two exceptions in the top 10 being registered nurses and heavy and tractor-trailer truck drivers. Of the 25 largest occupation groups, personal care aides have gained the largest share of new jobs over the past five years. Over the next ten years, the highest total demand is for retail salespersons (+25,338), combined food preparation and serving workers, including fast food (+18,643), and cashiers (+18,206); however, this forecast is disproportionately attributable to replacing workers rather than new job growth.

Based on growth demand alone, the strongest forecast is for personal care aides (+7,711), retail salespersons (+4,761), and combined food preparation and serving workers, including fast food (+4,466). Registered nurses, construction laborers, heavy and tractor-trailer truck drivers, and nursing assistants appear in the top 10 by growth forecast among the 25 largest occupation groups.

In terms of the annual growth rate, the fastest-growing occupations are forecast to include personal care aides (+2.3%), construction laborers (1.9%), nursing assistants (1.9%), and registered nurses (1.7%).

Table 18

Top 25 Occupations Based on Current Employment										
	Current			Historical				Forecast		
	Four Quarters Ending with 2016q2			Change over the Last 5 Years	Avg Annual % Change in Empl 2011q2-2016q2			Over the Next 10 Years		
Title	Empl	Avg. Annual Wages	LQ	Empl	Riverside-San Bernardino-Ontario, CA MSA	CA	USA	Total Repl Demand	Total Growth Demand	Avg. Annual Growth Percent
Retail Salespersons	55,822	$26,900	1.19	4,181	1.6%	1.1%	0.9%	20,577	4,761	0.8%
Combined Food Preparation and Serving Workers, Including Fast Food	41,956	$21,600	1.28	8,671	4.7%	4.4%	3.4%	14,177	4,466	1.0%
Laborers and Freight, Stock, and Material Movers, Hand	40,593	$27,900	1.61	13,102	8.1%	3.7%	2.7%	13,392	3,371	0.8%
Cashiers	38,043	$23,500	1.08	4,912	2.8%	2.3%	1.8%	16,828	1,378	0.4%
Personal Care Aides	30,019	$22,100	1.65	18,863	21.9%	19.8%	6.6%	3,434	7,711	2.3%
Heavy and Tractor-Trailer Truck Drivers	29,663	$48,200	1.61	5,516	4.2%	2.4%	2.2%	5,687	2,933	0.9%
Office Clerks, General	29,116	$32,500	0.96	5,288	4.1%	3.0%	2.0%	6,497	1,986	0.7%
Registered Nurses	25,052	$94,800	0.88	4,198	3.7%	2.3%	1.4%	5,988	4,458	1.7%
Stock Clerks and Order Fillers	24,514	$26,600	1.28	4,255	3.9%	2.2%	1.6%	8,449	1,413	0.6%
Waiters and Waitresses	24,205	$25,500	0.94	4,051	3.7%	4.0%	3.0%	12,208	1,474	0.6%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	22,011	$37,800	0.92	3,526	3.6%	2.6%	1.7%	2,394	1,364	0.6%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	20,966	$28,700	0.89	2,187	2.2%	2.3%	1.6%	4,345	2,058	0.9%
Customer Service Representatives	20,716	$36,900	0.79	2,571	2.7%	2.5%	2.0%	5,564	2,335	1.1%
General and Operations Managers	19,462	$107,500	0.91	3,273	3.8%	2.8%	2.1%	5,308	2,059	1.0%
First-Line Supervisors of Retail Sales Workers	18,355	$43,000	1.18	1,786	2.1%	1.5%	1.2%	5,113	1,250	0.7%
Elementary School Teachers, Except Special Education	17,440	$76,000	1.34	1,668	2.0%	1.4%	0.1%	3,806	1,767	1.0%
Bookkeeping, Accounting, and Auditing Clerks	16,197	$40,900	0.92	2,450	3.3%	2.5%	1.8%	1,512	-691	-0.4%
Landscaping and Groundskeeping Workers	15,544	$26,200	1.31	1,363	1.9%	1.6%	1.9%	3,744	1,724	1.1%
Security Guards	15,488	$24,800	1.39	2,722	3.9%	3.1%	1.9%	2,190	1,275	0.8%
Construction Laborers	15,235	$39,900	1.23	3,120	4.7%	3.8%	2.1%	4,116	3,109	1.9%
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	14,810	$66,400	1.01	2,975	4.6%	2.1%	1.7%	3,069	1,269	0.8%
Teacher Assistants	14,312	$30,100	1.21	1,596	2.4%	1.8%	0.4%	3,498	1,524	1.0%
Carpenters	13,261	$48,000	1.34	3,187	5.7%	4.1%	2.2%	2,293	1,559	1.1%
Nursing Assistants	13,153	$29,500	0.85	2,843	5.0%	3.8%	1.1%	3,062	2,675	1.9%
Maintenance and Repair Workers, General	13,147	$40,300	0.96	2,061	3.5%	2.2%	1.6%	3,622	1,314	1.0%

Source: JobsEQ®

The fastest-growing occupations in the Inland Empire, on a year-over-year basis, are wind turbine service technicians (9.7%), occupational therapy assistants (3.5%), and nurse practitioners (3.4%). Of the top 25 fastest-growing occupations, 13 belong to either the healthcare practitioners and technical occupations or healthcare support occupations major group (i.e. two-digit SOC level). A fourteenth occupation, ambulance drivers and attendants, except emergency medical technicians, is predominantly employed by health care industries.

Table 19

Top 25 Occupations Based on Average Annual Growth										
	Current			Historical				Forecast		
	Four Quarters Ending with 2016q2			Total Change over the Last 5 Years	Avg Annual % Change in Empl 2011q2-2016q2			Over the Next 10 Years		
Title	Empl	Avg. Annual Wages	LQ	Empl	Riverside-San Bernardino-Ontario, CA MSA	CA	USA	Total Repl Demand	Total Growth Demand	Avg. Annual Growth Percent
Wind Turbine Service Technicians	56	$50,900	1.20	11	4.5%	1.9%	1.6%	25	86	9.7%
Occupational Therapy Assistants	255	$63,800	0.74	65	6.0%	4.4%	2.6%	81	104	3.5%
Nurse Practitioners	1,313	$109,000	0.99	266	4.6%	2.9%	1.9%	371	513	3.4%
Physical Therapist Assistants	596	$61,400	0.72	148	5.9%	4.0%	2.9%	191	240	3.4%
Physical Therapist Aides	372	$28,700	0.71	99	6.4%	4.0%	3.1%	107	142	3.3%
Ambulance Drivers and Attendants, Except Emergency Medical Technicians	248	$22,100	1.21	22	1.9%	2.4%	2.1%	45	96	3.3%
Statisticians	134	$67,300	0.48	1	0.1%	2.5%	1.6%	28	52	3.3%
Massage Therapists	1,738	$42,800	1.02	220	2.7%	2.7%	1.8%	301	644	3.2%
Reinforcing Iron and Rebar Workers	446	$59,000	2.14	175	10.5%	8.6%	4.3%	89	159	3.1%
Physician Assistants	1,031	$107,100	1.06	219	4.9%	2.9%	1.9%	251	359	3.0%
Cartographers and Photogrammetrists	85	$72,600	0.75	6	1.6%	2.2%	1.6%	29	29	3.0%
Home Health Aides	11,908	$28,900	1.21	6,965	19.2%	19.8%	5.3%	2,652	3,891	2.9%
Emergency Medical Technicians and Paramedics	2,788	$35,600	1.19	172	1.3%	2.0%	1.4%	488	917	2.9%
Physical Therapists	1,679	$85,300	0.76	384	5.3%	3.8%	2.7%	479	559	2.9%
Operations Research Analysts	442	$81,100	0.50	27	1.3%	3.0%	2.1%	103	149	2.9%
Commercial Divers	40	$56,700	0.89	3	1.8%	2.1%	1.9%	8	13	2.9%
Therapists, All Other	234	$75,900	0.93	34	3.2%	2.5%	1.4%	45	74	2.8%
Web Developers	884	$61,700	0.57	64	1.5%	4.5%	2.8%	163	271	2.7%
Diagnostic Medical Sonographers	598	$74,200	0.93	105	3.9%	1.9%	1.5%	109	179	2.7%
Interpreters and Translators	509	$39,400	0.83	74	3.2%	1.7%	1.7%	88	157	2.7%
Forensic Science Technicians	110	$64,800	1.01	4	0.8%	0.6%	0.2%	58	34	2.7%

Top 25 Occupations Based on Average Annual Growth										
	Current			Historical				Forecast		
	Four Quarters Ending with 2016q2			Total Change over the Last 5 Years	Avg Annual % Change in Empl 2011q2-2016q2			Over the Next 10 Years		
Title	Empl	Avg. Annual Wages	LQ	Empl	Riverside-San Bernardino-Ontario, CA MSA	CA	USA	Total Repl Demand	Total Growth Demand	Avg. Annual Growth Percent
Solar Photovoltaic Installers	80	$45,000	1.27	27	8.6%	6.4%	3.4%	15	24	2.7%
Personal Financial Advisors	1,032	$106,500	0.41	-26	-0.5%	1.2%	1.4%	359	296	2.6%
Occupational Therapy Aides	70	$37,200	0.75	20	7.1%	5.2%	2.5%	21	20	2.6%
Genetic Counselors	20	$79,200	0.84	4	4.0%	2.1%	1.8%	5	6	2.6%

Source: JobsEQ®

Occupations Index

Similar to the industry index described in the previous section, Chmura developed an index tool to help identify occupations that may be particularly appealing from a workforce development perspective. The intent of this tool is to highlight occupations that pay wages above the local "target" wage ($14 per hour), have a strong employment growth forecast, require less than an associate degree for typical entry, and are employed by a broad range of industries. Data were compiled at the six-digit standard occupational classification (SOC) level and the index was calculated by rank ordering each individual component. A weight was assigned to each component, in consultation with the SB WDB, and a weighted average of the composite index was calculated.[28] The index is standardized to be between 1 and 100, with the higher number indicating a more favorable regional position. Specifically, the index includes:

- Occupations ranked based on average annual pay, providing a perspective on whether an occupation generally provides family-sustaining wages
- Occupations that were grouped into one of four categories (less than an associate's degree, associate's degree, bachelor's degree, and more than a bachelor's degree) with higher scores being given to occupations which require less education
- Projected job openings which show the expected number of positions to be filled in each occupation over the next decade
- Mobility which indicates the potential ease of switching industries based on an occupation's employment share across industries; this measure is important in the event of industry decline or a dislocation event

[28] The category weights were 15% for wages, 40% for education, 40% for projected openings, and 5% for mobility.

The top 25 occupations based on index score are shown below (Table 19). The highest ranked occupation in the Inland Empire is sales representatives, wholesale and manufacturing, except technical and scientific products. This occupation offers high average annual wages, less than an associate degree for typical entry, a large number of projected openings, and high mobility between industries. The next-highest ranked occupations are police and sheriff's patrol officers; first-line supervisors of mechanics, installers, and repairers; and first-line supervisors of office and administrative support workers. Multiple supervisory-type occupations as well as several skilled trade occupations ranked in the top 25.

Table 19: Occupation Index

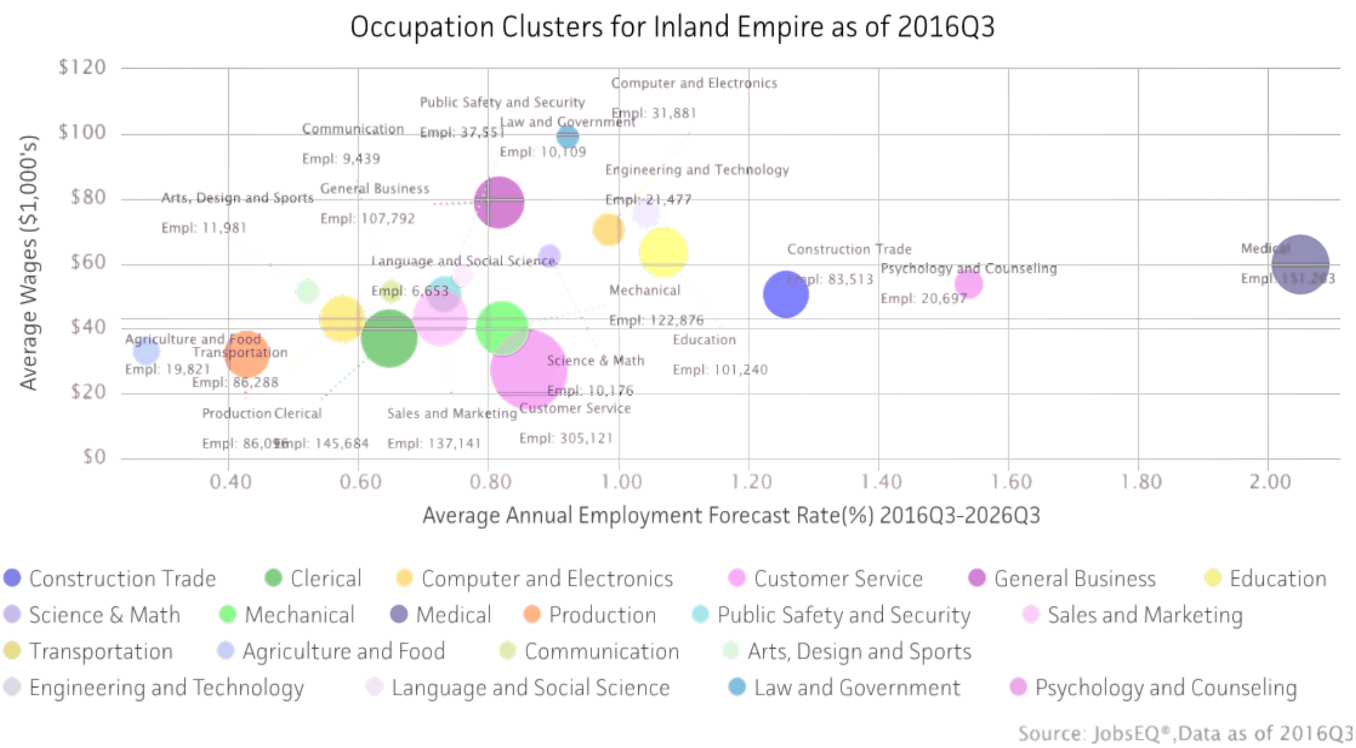
Occupation	Average Annual Wages	Typical Entry-Level Education	Total Projected Openings Over the Next 10 Years	Mobility Index	Index Score
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	$66,400	Less than an Associate Degree	4,338	25.9	69.5
Police and Sheriff's Patrol Officers	$88,100	Less than an Associate Degree	2,457	4.0	68.0
First-Line Supervisors of Mechanics, Installers, and Repairers	$71,900	Less than an Associate Degree	1,447	29.9	67.7
First-Line Supervisors of Office and Administrative Support Workers	$55,200	Less than an Associate Degree	3,488	49.0	67.5
Supervisors of Construction and Extraction Workers	$70,000	Less than an Associate Degree	1,745	10.0	67.3
Farmers, Ranchers, and Other Agricultural Managers	$65,100	Less than an Associate Degree	1,897	6.8	66.4
Sales Representatives, Services, All Other	$51,900	Less than an Associate Degree	2,711	44.2	66.3
First-Line Supervisors of Non-Retail Sales Workers	$64,800	Less than an Associate Degree	1,198	49.4	66.0
First-Line Supervisors of Retail Sales Workers	$43,000	Less than an Associate Degree	6,363	19.3	65.4
Operating Engineers and Other Construction Equipment Operators	$64,800	Less than an Associate Degree	1,399	7.0	65.0
Maintenance and Repair Workers, General	$40,300	Less than an Associate Degree	4,936	34.8	64.8
Customer Service Representatives	$36,900	Less than an Associate Degree	7,899	44.3	64.6
Industrial Machinery Mechanics	$52,600	Less than an Associate Degree	1,458	22.2	64.5
First-Line Supervisors of Production and Operating Workers	$57,900	Less than an Associate Degree	1,100	53.4	64.5
Heavy and Tractor-Trailer Truck Drivers	$48,200	Less than an Associate Degree	8,620	3.9	64.5
Correctional Officers and Jailers	$69,600	Less than an Associate Degree	1,733	1.9	64.3
Electrical Power-Line Installers and Repairers	$85,900	Less than an Associate Degree	973	3.2	64.1
Construction Laborers	$39,900	Less than an Associate Degree	7,225	8.0	63.9
Licensed Practical and Licensed Vocational Nurses	$46,700	Less than an Associate Degree	3,027	7.7	63.7
Carpenters	$48,000	Less than an Associate Degree	3,852	4.8	63.7
First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	$56,600	Less than an Associate Degree	1,112	13.6	63.6
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$37,800	Less than an Associate Degree	3,758	32.1	63.6
Office Clerks, General	$32,500	Less than an Associate Degree	8,483	45.5	63.5
General and Operations Managers	$107,500	Bachelor's Degree	7,367	90.5	63.5
Electricians	$58,500	Less than an Associate Degree	2,697	1.7	63.3

Source: JobsEQ®

Occupation Cluster Analysis

In Chmura's long-run growth model, the Inland Empire has five occupation clusters that are likely to expand employment more than 1.0% per year over the next decade. These occupation clusters—medical, psychology and counseling, construction, education, and engineering and technology—represent approximately one-quarter of the total employment in the region.

Figure 26



V. Primary Data Gathering and Findings

Chmura facilitated two focus group sessions,[29] one at the Ovitt Family Community Library in Ontario (“Focus group #1”), and the other at the Apple Valley Chamber of Commerce in Apple Valley, California (Focus group #2). The latter focus group reflected conditions generally specific to the High Desert area of the Inland Empire. A demographic profile of this region is provided as an appendix to this report. Each session included between six and eight participants representing a mix of private business, postsecondary education, and workforce and economic development professionals. Sessions were two hours in duration, and 10 intentionally broad questions were used to guide conversations with participants.

Below is a summary of key findings from the two focus groups:

What jobs take the longest to fill?

Focus group #1: Skilled trades (construction, manufacturing), industrial mechanical, engineering (both technicians and professionals), advanced manufacturing (specially jobs requiring knowledge of robotics and automation), information technology, registered nurses, physician assistants, and doctors.

Additional comments: The Inland Empire is federally recognized as a Health Professionals Shortage Area (HPSA);[30] entry-level workers are difficult to hire and retain.

Focus group #2: Diesel engine mechanics, electricians, mechanical engineers, industrial maintenance generalists, clinical lab scientists, RNs, and doctors.

What are the most difficult skills to train for?

Focus group #1: Work ethic, meeting performance expectations, and instilling a sense of “purpose” into everyday work (a skill that managers must learn).

Additional comments: There is a major gap between the mindset of younger workers/millennials and conventional American business culture. Businesses must re-invent their local cultures to match the needs of their future workforce, rather than wait for this workforce to adhere to their norms.

Focus group #2: Soft skills, accountability, emotional intelligence, critical thinking, communication, and technical skills in general.

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[29] Four focus group sessions were planned and scheduled but only two sessions were facilitated as participants were not present for two of the scheduled sessions. The cancelled sessions were planned to occur at the East Valley AJCC in San Bernardino, CA.

[30] HPSAs are designated by the U.S. Department of Health & Human Services as having shortages of primary care, dental care, and/or mental health service providers. Both Riverside and San Bernardino have multiple HPSA designations.

Additional comments: Management must be trained to adapt to millennials; community colleges are co-developing curriculum with industry partners to more directly close technical skill gaps; community colleges are integrating and emphasizing soft skills development into their programming.

Where do you predict the most severe shortages/surpluses of workers will occur in the next five years?

Focus group #1: Registered nurses, industrial machinery mechanics, jobs requiring previous experience (especially in manufacturing), assemblers, machinists, doctors, construction trades. Surpluses will occur in food services and logistics.

Additional comments: Businesses must invest in mentoring young workers, they have to recognize the value of transmitting knowledge from incumbent workers to the next generation.

Focus group #2: Registered nurses, highly-skilled production, industrial maintenance, truck drivers, STEM faculty, doctors, and logistics. Surpluses will occur in customer service and low-skilled job groups due to automation.

Does the job forecast for these industries align with your impressions of what industries are growing most rapidly?[31] Where else do you expect rapid growth?

Focus group #1: Yes. Rapid growth is also expected in hospitality and tourism, the "gig" industries, and management consulting.

Additional comments: "Gig industries" is referring to the increasing number of self-employment opportunities available to workers in transportation, hospitality, professional services, etc.

Focus group #2: Yes. Rapid growth is also expected in retail trade and industrial maintenance.

Does this list of high-demand certifications resonate?[32] What other certifications are in high demand?

Focus group #1: The list resonates; welding certifications, AutoCad; Lean Six Sigma, and ISO certifications are in high demand too.

Focus group #2: The list resonates; corrections- and healthcare information systems-related certifications are also in high demand.

What training programs are missing (or need to be expanded) in the region?

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[31] Participants were shown an employment growth forecast table for the region's fastest-growing industry sectors–the same table included in the Industry Analysis section of this report.

[32] Participants were shown a table of the top 10 most-demanded certifications in the region, per online job postings over a 30-day rolling period immediately prior to the focus group session. There were 8/10 certifications associated with health care jobs; the other two were related to truck driving.

Focus group #1: Welding, diesel engine mechanic, and forklift training all need to be expanded.

Additional comments: Basic welding is being integrated into some K-12 systems.

Focus group #2: A general program for industrial maintenance is missing, as well as a clinical lab technician program; clinical laboratory science, nursing, and physician training all need to be expanded.

Additional comments: Clinical lab science is only offered at Loma Linda, which is a significant commute from the high desert region. Further, it's a small program that confers bachelor's degrees leading to technologist positions. Technicians are needed too, which requires an associate degree.

What are the region's greatest assets, relative to economic growth?

Focus group #1: Postsecondary infrastructure, land, location (favorable for distributing goods), quality of life, and affordable housing.

Focus group #2: community colleges, land, a "community" mindset, large employment base, and affordable housing.

What are the region's greatest barriers to growth?

Focus group #1: Low educational attainment regionwide, "brain drain", high-paying jobs are elsewhere, excessive state and municipal regulation, and poor public infrastructure.

Focus group #2: Lack of a four-year postsecondary institution, inability to attract or retain young professionals, lack of a unified regional approach to economic development, conflicts between cities and counties, traversing the "pass" for commuting.

What are the region's greatest threats to its growth?

Focus group #1: Another recession as the region is especially sensitive to economic downturns and job losses to out-of-state competitors.

Focus group #2: Low educational attainment, unfavorable perceptions of the region, lack of a coherent regional identity, persistently high unemployment.

What are the region's greatest opportunities to fuel growth?

Focus group #1: Invest now to train and educate future workers; capitalize on the population's diversity; stem supply chain leakages; become a destination for millennials; develop a business culture known for making work purposeful; better sync between workforce and economic development strategies; establish satellite offices for large employers and ramp up new business recruitment.

Focus group #2: Establish a four-year postsecondary presence; establish a new medical school; become a preferred place for millennials to locate; develop live/work spaces and work to change perceptions of the region through improved marketing.

VI. Recommendations

The combination of a rapidly growing population (especially the working-age segment), strong demand from diverse sectors, and a relatively low educational attainment rate across the Inland Empire region present major opportunities for workforce development. It is vital for the Inland Empire to activate its workforce, with an emphasis on younger workers, and to launch a concerted effort across system partners to develop the right mix of talent to support the region's key industries. In the section that follows are several recommendations to consider for purposes of guiding these efforts.

As suggested in previous reports, focus groups and interviews with some of the area's larger employers, education providers, and workforce and economic development professionals should provide the basis for validating target occupations and industries, as well as crafting regionally relevant strategies and action plans. These opportunities to interact with workforce system stakeholders should also be utilized to gain insight into regionally relevant credentials and emerging trends in the workplace that are not informed by the data (e.g. project-specific welding certifications or consolidation of multiple occupational tasks into a single job title). The types of intervention needed to strengthen the talent pipeline should be informed through these discussions as well. Such discussions will yield insight as to whether supply constraints are more likely a function of insufficient enrollment in key programs, a failure to complete programs, including applying for final credentialing (e.g. sitting for an exam), and/or a lack of sufficient infrastructure for training and education.

It is likely that marketing efforts to increase enrollment in programs designed to feed select occupations may require outreach to neighborhoods with historically low-educational attainment populations. Specific and targeted support may be required to overcome social barriers that have thus far inhibited some individuals from seeking postsecondary training and education opportunities. In addition, there may be opportunities to leverage the skill sets of some unemployed workers with prior work experience into potential opportunities to earn stackable credentials within several fields.

Below is a list of specific recommendations to consider. Each is intended to support key sectors, capitalize on unique features of the Inland Empire's economy, and advance regional prosperity for all persons.

Establish a Career One-Stop for Young Adults

For young adults, having to access and coordinate workforce and supportive services across multiple locations becomes a barrier, especially in a region challenged by high poverty and with relatively low utilization of public transportation. Programs like YouthBuild and JobCorps, which promote entry into skilled trades, should be co-located with GED preparation programming, career exploration resources, and social service providers to minimize transportation barriers, encourage peer-to-peer networking and support, and promote efficiencies through streamlining the delivery of services. The region's rapidly growing segment of young adults, disproportionately low rate of participation in the labor force, and historically low rates of educational attainment elevate the importance of this type of intervention.

Develop and Implement an Industry-Themed Cohort Model to Serve Young Adults

The Inland Empire should consider developing a short-term training and education intervention that aims to discover and validate an individual's career interest and skills. This intervention would provide an actionable blueprint for the next steps; individual profiles should be used to inform enrollment into small cohorts (10-15 individuals) that align with key sectors (e.g. construction, utilities, healthcare, manufacturing, etc.). Each cohort would remain together for the duration of the intervention (up to four weeks on a part-time basis) and participate in work-based learning experiences designed to deepen their awareness of career opportunities and develop an understanding of the work environment. This effort would lean heavily on the participation of regional businesses and should include industry tours, project-based learning that mirrors the real world of work, and group access to an industry professional throughout the course of the program. Soft skills training should be integrated too. The intervention could include a blend of classroom time, field trips, and virtual modules. This short-term approach may lead to paid work experiences for some participants and/or increase motivation to enroll in relevant training programs that prepare participants to compete for key occupations in target sectors.

Continue Efforts to Expand Critical Health Care Training Programs

Chmura acknowledges that past efforts to launch a new baccalaureate program in nursing at least one local community college were rejected by the state. Nevertheless, similar to many regions, the Inland Empire's single largest potential shortfall over the long run is for registered nurses. As the supply of physicians remains tight, again, as it does in many regions, Chmura anticipates increased demand for positions like nurse practitioners and physician assistants as the mix of responsibilities historically allocated to physicians may diversify into the domain of other highly-skilled practitioners.

As noted in the report, the supply of medical and clinical lab technologists and technicians is limited. Both have a strong demand forecast (1.6% per year and 2.0% per year, respectively) and while the technologists have a relatively small program at Loma Linda University (18 awards reported in the 2014-15 academic year), an instructional program for technicians appears to be nonexistent. The typical entry-level education required to perform as a technician is an associate's degree. In a region like the Inland Empire, where the postsecondary infrastructure is perceived as robust and it's difficult to recruit young professionals into the region, a sound strategy may be to increase the supply through postsecondary program expansion while simultaneously continuing to foster relationships with employers to place graduates.

Another strategy to accelerate the preparedness of health care workers to enter the workplace would be to replicate “bridge” program models that have proven effective in other regions. Programs such as the Associate Degree in Nursing to the Bachelor of Science in Nursing collaborative program at California State University, Los Angeles, may help to alleviate employer demands for nurses with previous experience so long as the program includes an industry component where students are immersed in the actual work environments they will be expected to perform in. This approach may be suitable for several occupations.

Pilot Career Pathway Initiatives by Key Occupational Clusters

Chmura has the impression that at least one communitywide career pathways initiative (Project Slingshot) is currently underway and serving specific industry sectors in the Inland Empire. A complimentary approach would be to design pathways based on occupational clusters described in this report. For example, the occupations featured in the medical cluster primarily serve health care industries. The clusters identified by Chmura have been “clustered” based upon O*Net’s attribute descriptions and job zones.

In the appendix are five career training ladder samples that reflect the region’s fastest growing occupational clusters. Vertically, the higher an occupation within a ladder, the more job preparation (education, experience, on-the-job training) needed by a worker. Horizontally, the occupations ladders are clustered based on attribute data. Employment data for occupations should be gathered to validate and prioritize occupations for the region but the ladders may provide a foundation to work from.

An approach to preparing workers for a range of careers rather than a specific occupation might be to develop a foundational training program that more broadly prepares workers to pursue careers in health care, skilled trades, or information technology, just to name a few. For example, basic skills for multiple healthcare support occupations include conveying information effectively, active listening, critical thinking, and reading comprehension. Rather than focus on a single occupation as an endpoint, developing a broad and relevant set of critical skills may prepare a worker to consider an entire field of occupations in the early stages of their career. Likewise, many skilled trades occupations require knowledge of mathematics, design, and mechanical principles.

Design New Training to Elevate Low-Level Sales Workers into Professional Roles

The Inland Empire has a potential surplus of several occupation groups over the long run but chief among them are retail sales workers and food and beverage serving workers. These also tend to be groups with high turnover and ones in which workers may frequently change jobs but not occupations. With a potential glut of these workers, there may be more limited opportunities to simply change jobs in the future. Identify core attributes of these workers and work with training and education providers, as well as industry partners, to develop customized training that capitalizes on these core attributes while building opportunities to move into new occupations. For example, sales representative occupations and supervisory occupations have a strong employment growth forecast and do not typically require education beyond an associate degree. Lower-level sales workers have core attributes that may transfer well into these other types of occupations but require additional training intervention to prepare them to compete for these in-demand jobs.

VI. Appendix

The following section contains supplementary information relevant to this report.

High Desert Demographics

Per the request of the WDB's project team, data was compiled for a ZCTA-based region that approximates the High Desert area in San Bernardino County.

Demographic Profile[1]

	---------------Percent-------------			-----------------Value----------------		
	San Bernardino - High Desert	**San Bernardino County, California**	**Riverside-San Bernardino -Ontario, CA MSA**	**San Bernardino - High Desert**	**San Bernardino County, California**	**Riverside-San Bernardino-Ontario, CA MSA**
Population[2]	—	—	—	380,910	2,035,210	4,489,159
Population Annual Average Growth[2]	n/a	0.9%	1.5%	n/a	18,421	61,345
Median Age[3]	—	—	—	31.6	31.7	32.7
Under 18 Years	31.3%	29.2%	28.8%	119,129	594,588	1,214,696
18 to 24 Years	10.6%	11.3%	10.9%	40,270	229,897	458,633
25 to 34 Years	13.5%	13.9%	13.4%	51,531	282,091	564,520
35 to 44 Years	12.7%	13.4%	13.4%	48,549	272,949	566,254
45 to 54 Years	12.8%	13.6%	13.5%	48,674	277,294	570,032
55 to 64 Years	9.3%	9.7%	9.7%	35,285	197,043	410,782
65 to 74 Years	5.5%	5.1%	5.8%	21,128	103,495	244,093
75 Years, and Over	4.3%	3.8%	4.6%	16,344	77,853	195,841
Race: White	58.1%	56.7%	58.9%	221,465	1,153,161	2,488,308
Race: Black or African American	11.5%	8.9%	7.6%	43,730	181,862	322,405
Race: American Indian and Alaska Native	1.4%	1.1%	1.1%	5,145	22,689	46,399
Race: Asian	3.0%	6.3%	6.1%	11,359	128,603	259,071
Race: Native Hawaiian and Other Pacific Islander	0.5%	0.3%	0.3%	1,808	6,870	13,744
Race: Some Other Race	19.9%	21.6%	21.0%	75,745	439,661	887,896
Race: Two or More Races	5.7%	5.0%	4.9%	21,658	102,364	207,028
Hispanic or Latino (of any race)	42.9%	49.2%	47.3%	163,304	1,001,145	1,996,402

Source: JobsEQ®

1. Census 2010, unless noted otherwise

2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

4. ACS 2010-2014

Economic Profile[1]

	----------------Percent--------------			------------------Value----------------		
	San Bernardino - High Desert	**San Bernardino County, California**	**Riverside-San Bernardino -Ontario, CA MSA**	**San Bernardino - High Desert**	**San Bernardino County, California**	**Riverside-San Bernardino-Ontario, CA MSA**
Labor Force (civilian population 16 years & over)[4]	52.8%	60.3%	60.5%	149,360	944,000	1,988,996
Armed Forces Labor Force[4]	1.3%	0.7%	0.5%	3,544	11,651	15,954
Median Household Income[3,4]	—	—	—	$47,538	$54,100	$55,362
Poverty Level (of all people)[4]	24.3%	19.2%	18.0%	91,575	389,037	765,774
Mean Commute Time (minutes)[4]	—	—	—	32.6	30.3	31.2
Commute via Public Transportation[4]	1.1%	1.7%	1.5%	1,323	13,432	25,917

Source: JobsEQ®

1. Census 2010, unless noted otherwise

2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

4. ACS 2010-2014

Housing Profile[1]

	----------------Percent--------------			------------------Value----------------		
	San Bernardino - High Desert	**San Bernardino County, California**	**Riverside-San Bernardino-Ontario, CA MSA**	**San Bernardino - High Desert**	**San Bernardino County, California**	**Riverside-San Bernardino-Ontario, CA MSA**
Total Housing Units	—	—	—	128,391	703,737	1,514,163
Median House Value (of owner-occupied units)[3,4]	—	—	—	$147,145	$225,400	$231,800
Homeowner Vacancy	4.1%	2.8%	2.6%	2,978	10,561	22,212
Rental Vacancy	7.1%	6.6%	6.9%	3,416	16,949	35,323

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Renter-Occupied Housing Units (Percent of Occupied Units)	38.9%	39.1%	36.6%	44,039	237,572	474,604
Occupied Housing Units with No Vehicle Available (Percent of Occupied Units)[4]	6.5%	5.8%	5.4%	7,313	34,969	69,882

Source: JobsEQ®

1. Census 2010, unless noted otherwise

2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

4. ACS 2010-2014

Social Profile[1]

	----------------Percent-------------			------------------Value----------------		
	San Bernardino - High Desert	San Bernardino County, California	Riverside-San Bernardino-Ontario, CA MSA	San Bernardino - High Desert	San Bernardino County, California	Riverside-San Bernardino-Ontario, CA MSA
Educational Attainment: No High school Diploma[4]	19.1%	20.8%	20.5%	35,648	219,396	447,237
Educational Attainment: High School Graduate[4]	30.3%	26.1%	25.9%	56,692	276,450	565,028
Educational Attainment: Some College, No Degree[4]	29.1%	25.9%	26.0%	54,335	273,851	569,247
Educational Attainment: Associate Degree[4]	9.7%	8.2%	8.0%	18,048	86,577	175,638
Educational Attainment: Bachelor's Degree[4]	7.3%	12.5%	12.9%	13,621	131,734	282,819
Educational Attainment: Post Graduate Degree[4]	4.6%	6.5%	6.7%	8,561	69,202	145,376
Disabled, Age 18 to 64 (Percent of Total Population)[4]	34.3%	38.0%	38.7%	8,931	46,116	94,266
Foreign Born[4]	14.1%	21.3%	21.7%	54,770	442,987	941,363
Speak English Less Than Very Well	10.2%	16.2%	15.8%	36,378	311,336	634,684

Source: JobsEQ®

1. Census 2010, unless noted otherwise

2. Census 2015, annual average growth rate since 2005

3. Median values for certain aggregate regions (such as MSAs) may be estimated as weighted averages of median values from the composing counties.

4. ACS 2010-2014

Correlation Analysis

Chmura's correlation analysis between several demographic variables is shown below. Asterisks indicate statistical significance at a 95% confidence level. Green highlighting indicates a statistically significant, strong correlation, defined as magnitude above 0.50.

	Labor Force Participation Rate	Poverty Level	Median House Value	Disconnected Youth	Speak English Less Than Very Well	Unempl-oyed
Labor Force Participation Rate	1					
Poverty Level	0.08	1				
Median House Value	0.28*	-0.42*	1			
Disconnected Youth	-0.04	0.17	-0.10	1		
Speak English Less Than Very Well	0.25	0.38*	-0.07	0.09	1	
Unemployed	-0.06	0.38*	-0.20	0.19	0.30*	1
No High School Diploma	0.08	0.54*	-0.28*	0.25	0.82*	0.34*
High School Graduate	0.07	0.12	-0.30*	0.08	0.14	0.36*
Some College, No Degree	-0.06	-0.25	0.21	0.00	-0.36*	0.14
Associate's Degree	0.25	-0.22	0.03	-0.06	-0.18	-0.15
Bachelor's Degree	0.11	-0.40*	0.66*	-0.16	-0.29*	-0.19
Postgraduate Degree	0.18	-0.41*	0.62*	-0.12	-0.31*	-0.28*

Source: Chmura

Top Occupations by Key Sector

The tables below include the top 10 occupations by current employment by target sector, plus professional, scientific, and technical services. The top 10 certifications, where applicable, are included for each occupation. Certifications listed were retrieved from job postings data over a 30-day period from mid-September 2016 to mid-October 2016.

Utilities

Occupation	2016 Q2 Employment	Regional Average Wage[1]	Certifications
Electrical Power-Line Installers and Repairers	587	$85,900	N/A
Customer Service Representatives	455	$36,900	Certification in Cardiopulmonary Resuscitation (CPR); Commercial Drivers License (CDL); Personal Financial Specialist (PFS); Global Mobility Specialist (GMS); CompTIA A+ Certification (A+ Certification); First Aid Certification; Basic Cardiac Life Support Certification (BCLS Certification)
Power Plant Operators	308	$67,700	Commercial Drivers License (CDL)
First-Line Supervisors of Production and Operating Workers	297	$57,900	AS9100 Certification; Certified Sales Associate (CSA); ASNT Central Certification Program Level II - Liquid Penetrant Testing (ACCP-PT); Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification; Emergency Medical Technician (EMT); Certified Welding Inspector (CWI); Secret Clearance; Certified Supply Chain Professional (CSCP)
Maintenance and Repair Workers, General	280	$40,300	Commercial Drivers License (CDL); EPA Section 608 Certification (EPA 608); Industrial Electronics (IND); Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification; Certified Technology Manager (CTM); Certified Automotive Locksmith (CAL); Certified Alarm/Security Technician Level I (CAT); Class A Commercial Drivers License (CDL-A); Certified Biomedical Equipment Technician (CBET)
General and Operations Managers	265	$107,500	Certified Security Consultant (CSC); AS9100 Certification; Certified Public Accountant (CPA); Certified Manager of Community Associations (CMCA); NAMA Certified Executive (NCE); Certification in Meetings Management (CMM)
Control and Valve Installers and Repairers, Except Mechanical Door	261	$67,100	N/A
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	231	$37,800	Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification; AS9100 Certification; Accredited Management Consultant (AMC); Global Mobility Specialist (GMS)
Plumbers, Pipefitters, and Steamfitters	218	$50,600	Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification
First-Line Supervisors of Mechanics, Installers, and Repairers	194	$71,900	Commercial Drivers License (CDL); Certification in Cardiopulmonary Resuscitation (CPR); Licensed Clinical Social Worker (LCSW); Certified Maintenance & Reliability Professional (CMRP); Certified Automotive Fleet Manager (CAFM); Certified Public Fleet Professional (CPFP); Certified International Property Specialist (CIPS)

Source: JobsEQ®

1. Occupation wages are as of 2015 and represent the average for all Covered Employment

Construction

Occupation	2016 Q2 Employment	Regional Average Wage[1]	Certifications
Construction Laborers	13,185	$39,900	N/A
Carpenters	11,998	$48,000	Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification
Supervisors of Construction and Extraction Workers	5,905	$70,000	Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification
Electricians	5,830	$58,500	Certification in Cardiopulmonary Resuscitation (CPR); Class A Commercial Drivers License (CDL-A)
Plumbers, Pipefitters, and Steamfitters	4,143	$50,600	Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification
Construction Managers	3,919	$107,500	Certified Construction Manager (CCM); Project Management Professional (PMP)
Painters, Construction and Maintenance	3,836	$43,000	N/A
Operating Engineers and Other Construction Equipment Operators	2,858	$64,800	Certified Accessibility Technician (CAT); Commercial Drivers License (CDL); HAZMAT
Drywall and Ceiling Tile Installers	2,739	$55,200	N/A
Office Clerks, General	2,730	$32,500	First Aid Certification; Notary Public; Accredited Mortgage Professional (AMP); Basic Life Support (BLS); Certification in Cardiopulmonary Resuscitation (CPR)

Source: JobsEQ®

1. Occupation wages are as of 2015 and represent the average for all Covered Employment

Healthcare

Occupation	2016 Q2 Employment	Regional Average Wage[1]	Certifications
Personal Care Aides	28,832	$22,100	Certification in Cardiopulmonary Resuscitation (CPR); Certified Nursing Assistant (CNA); First Aid Certification; Crisis Prevention Intervention Certification (Crisis Prevention and Intervention Certification); Licensed Practical Nurse (LPN); Occupational Hearing Conservationist (OHC)
Registered Nurses	22,160	$94,800	Certified Registered Nurse (RN); Basic Life Support (BLS); Advanced Cardiac Life Support Certification (ACLS); Pediatric Advanced Life Support (PALS); Certification in Cardiopulmonary Resuscitation (CPR); Clinical Nurse Specialist (CNS); Certified Nephrology Nurse (CNN); Pediatric Emergency Medicine; Emergency Nursing Pediatric Course (ENPC); Certified Dialysis Nurse (CDN)
Nursing Assistants	11,849	$29,500	Certified Nursing Assistant (CNA); Basic Life Support (BLS); Certification in Cardiopulmonary Resuscitation (CPR); Certified Nurse Assistant; Emergency Medical Technician (EMT); First Aid Certification; Certified Medical Assistant (CMA); Advanced Cardiac Life Support Certification (ACLS); Pediatric Advanced Life Support (PALS); Certified Cardiology Coder (CCC)
Home Health Aides	11,351	$28,900	Certified Nursing Assistant (CNA); Certification in Cardiopulmonary Resuscitation (CPR); Licensed Practical Nurse (LPN); Basic Life Support (BLS); First Aid Certification

Occupation	2016 Q2 Employment	Regional Average Wage[1]	Certifications
Childcare Workers	8,238	$26,600	Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification; Youth Exercise Specialization (YES)
Medical Assistants	6,315	$30,300	Medical Assistant (MA); Certification in Cardiopulmonary Resuscitation (CPR); Basic Life Support (BLS); Certified Medical Assistant (CMA); Certified Nursing Assistant (CNA); Certified Provider Credentialing Specialist (CPCS); Certified Professional Medical Services Management (CPMSM); Certified Nurse Assistant; Certified Phlebotomy Technician (CPT); First Aid Certification
Licensed Practical and Licensed Vocational Nurses	5,508	$46,700	Certification in Cardiopulmonary Resuscitation (CPR); Basic Life Support (BLS); Licensed Practical Nurse (LPN); Certified Registered Nurse (RN); Advanced Cardiac Life Support Certification (ACLS); IV Therapy (IVT); Certified Hemodialysis Technologist; First Aid Certification; Emergency Medical Technician (EMT); Medical Assistant (MA)
Medical Secretaries	5,215	$32,400	Basic Life Support (BLS); Certification in Cardiopulmonary Resuscitation (CPR); Medical Assistant (MA); Emergency Medical Technician (EMT); Certified Tumor Registrar (CTR); Certified Nursing Assistant (CNA); Basic Cardiac Life Support Certification (BCLS Certification); Certified Provider Credentialing Specialist (CPCS)
Receptionists and Information Clerks	5,026	$29,300	Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification
Office Clerks, General	3,946	$32,500	First Aid Certification; Notary Public; Accredited Mortgage Professional (AMP); Basic Life Support (BLS); Certification in Cardiopulmonary Resuscitation (CPR)

Source: JobsEQ®

1. Occupation wages are as of 2015 and represent the average for all Covered Employment

Wholesale Trade

Occupation	2016 Q2 Employment	Regional Average Wage[1]	Certifications
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	10,050	$66,400	N/A
Laborers and Freight, Stock, and Material Movers, Hand	4,711	$27,900	HAZMAT; Commercial Drivers License (CDL); Class A Commercial Drivers License (CDL-A); Secret Clearance
Stock Clerks and Order Fillers	2,370	$26,600	Commercial Drivers License (CDL); Secret Clearance; HAZMAT; Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification; Certification in Control Self-Assessment (CCSA)
Heavy and Tractor-Trailer Truck Drivers	2,339	$48,200	Commercial Drivers License (CDL); Class A Commercial Drivers License (CDL-A) First Aid Certification; Basic Life Support (BLS); Class C Commercial Drivers License (CDL-C); ASE Certification (ASE Certified)
Customer Service Representatives	2,198	$36,900	Certification in Cardiopulmonary Resuscitation (CPR); Commercial Drivers License (CDL); Personal Financial Specialist (PFS); Global Mobility Specialist (GMS); CompTIA A+ Certification (A+ Certification); First Aid Certification; Basic Cardiac Life Support Certification (BCLS Certification)

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Occupation	2016 Q2 Employment	Regional Average Wage[1]	Certifications
General and Operations Managers	2,049	$107,500	Certified Security Consultant (CSC); AS9100 Certification; Certified Public Accountant (CPA); Certified Manager of Community Associations (CMCA); NAMA Certified Executive (NCE); Certification in Meetings Management (CMM)
Light Truck or Delivery Services Drivers	2,036	$40,100	Commercial Drivers License (CDL); Class A Commercial Drivers License (CDL-A)
Office Clerks, General	2,008	$32,500	First Aid Certification; Notary Public; Accredited Mortgage Professional (AMP); Basic Life Support (BLS); Certification in Cardiopulmonary Resuscitation (CPR)
Shipping, Receiving, and Traffic Clerks	1,899	$31,400	N/A
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	1,654	$72,500	N/A

Source: JobsEQ®

1. Occupation wages are as of 2015 and represent the average for all Covered Employment

Professional, Scientific, and Technical Services

Occupation	2016 Q2 Employment	Regional Average Wage[1]	Certifications
Accountants and Auditors	3,241	$72,400	Certified Public Accountant (CPA); Certified Internal Auditor (CIA); Certified Fraud Examiner (CFE); Certified Information Systems Security Professional (CISSP); Certified Information Systems Auditor (CISA); Certified Investment Management Analyst (CIMA); Certified Government Auditing Professional (CGAP); Certified Management Accountant (CMA); Certified Information Security Manager (CISM)
Lawyers	2,673	$131,600	N/A
Management Analysts	2,531	$77,400	Project Management Professional (PMP); Professional in Human Resources (PHR); Senior Professional in Human Resources (SPHR); Electronic Safety and Security Designer (ESS)
Managers, All Other	2,342	$107,600	Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification; Certified Project Manager (CPM); Project Management Professional (PMP); Board Certified Behavior Analyst (BCBA); Certified Professional in Supply Management (CPSM); Certified Public Accountant (CPA); Certified in Health Care Compliance (CHC); Registered Health Information Administrator (RHIA); Certified Manager of Community Associations (CMCA)
Office Clerks, General	1,372	$107,600	First Aid Certification; Notary Public; Accredited Mortgage Professional (AMP); Basic Life Support (BLS); Certification in Cardiopulmonary Resuscitation (CPR)
Bookkeeping, Accounting, and Auditing Clerks	1,308	$40,900	Certified Internal Auditor (CIA); Certified Public Accountant (CPA)
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	1,287	$37,800	Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification; AS9100 Certification; Accredited Management Consultant (AMC); Global Mobility Specialist (GMS)
Software Developers, Applications	1,075	$99,300	Microsoft Certified Solution Developer (MCSD)

CHMURA Economics & Analytics

Occupation	2016 Q2 Employment	Regional Average Wage[1]	Certifications
General and Operations Managers	1,031	$107,500	Certified Security Consultant (CSC); AS9100 Certification; Certified Public Accountant (CPA); Certified Manager of Community Associations (CMCA); NAMA Certified Executive (NCE); Certification in Meetings Management (CMM)
Computer Systems Analysts	849	$76,200	Project Management Professional (PMP); Emergency Medical Technician (EMT); ASNT Level III - Predictive Maintenance Basic (PdM); Medical Assistant (MA); CompTIA A+ Certification (A+ Certification); Certified Information Systems Security Professional (CISSP)

Source: JobsEQ®

1. Occupation wages are as of 2015 and represent the average for all Covered Employment

Transportation and Warehousing

Occupation	2016 Q2 Employment	Regional Average Wage[1]	Certifications
Heavy and Tractor-Trailer Truck Drivers	21,387	$48,200	Commercial Drivers License (CDL); Class A Commercial Drivers License (CDL-A) First Aid Certification; Basic Life Support (BLS); Class C Commercial Drivers License (CDL-C); ASE Certification (ASE Certified)
Laborers and Freight, Stock, and Material Movers, Hand	18,552	$27,900	HAZMAT; Commercial Drivers License (CDL); Class A Commercial Drivers License (CDL-A); Secret Clearance
Industrial Truck and Tractor Operators	6,267	$33,200	Commercial Drivers License (CDL)
Light Truck or Delivery Services Drivers	5,905	$40,100	Commercial Drivers License (CDL); Class A Commercial Drivers License (CDL-A)
Stock Clerks and Order Fillers	3,565	$26,600	Commercial Drivers License (CDL); Secret Clearance; HAZMAT; Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification; Certification in Control Self-Assessment (CCSA)
Packers and Packagers, Hand	3,082	$25,000	N/A
Bus Drivers, School or Special Client	2,680	$34,600	First Aid Certification; Certification in Cardiopulmonary Resuscitation (CPR)
Postal Service Mail Carriers	2,550	$52,400	N/A
Shipping, Receiving, and Traffic Clerks	2,537	$31,400	N/A
First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	1,919	$51,600	N/A

Source: JobsEQ®

1. Occupation wages are as of 2015 and represent the average for all Covered Employment

Manufacturing

Occupation	2016 Q2 Employment	Regional Average Wage[1]	Certifications
Team Assemblers	6,873	$28,300	N/A
First-Line Supervisors of Production and Operating Workers	3,592	$57,900	AS9100 Certification; Certified Sales Associate (CSA); ASNT Central Certification Program Level II - Liquid Penetrant Testing (ACCP-PT); Certification in Cardiopulmonary Resuscitation (CPR); First Aid Certification; Emergency Medical Technician (EMT); Certified Welding Inspector (CWI); Secret Clearance; Certified Supply Chain Professional (CSCP)
Machinists	2,500	$36,700	N/A
Inspectors, Testers, Sorters, Samplers, and Weighers	2,457	$36,700	AS9100 Certification; ASNT Central Certification Program Level II - Liquid Penetrant Testing (ACCP-PT); Certified Welding Inspector (CWI)
Laborers and Freight, Stock, and Material Movers, Hand	2,342	$27,900	HAZMAT; Commercial Drivers License (CDL); Class A Commercial Drivers License (CDL-A); Registered Waterproofing Consultant (RWC); Secret Clearance; Radio Frequency Identification Technical Specialist (RFID)
Helpers--Production Workers	2,142	$24,200	N/A
Welders, Cutters, Solderers, and Brazers	2,121	$36,600	Certified Welder
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2,115	$66,400	N/A
Packaging and Filling Machine Operators and Tenders	2,103	$27,300	N/A
Heavy and Tractor-Trailer Truck Drivers	1,875	$48,200	Commercial Drivers License (CDL); Class A Commercial Drivers License (CDL-A) First Aid Certification; Basic Life Support (BLS); Class C Commercial Drivers License (CDL-C); ASE Certification (ASE Certified)

Source: JobsEQ®

1. Occupation wages are as of 2015 and represent the average for all Covered Employment

High-Growth Cluster Career Training Ladders

The following career training ladders represent occupation pathways for workers in high growth clusters (a forecast of over 1% growth per year over the next ten years), as well as the production cluster. The numerical columns represent the 2016Q3 employment by occupation in the Inland Empire. Some clusters have several vertical columns, representing different subgroups within the cluster. Horizontal dotted lines show occupational subgrouping breaks by education and training requirements. Occupations in higher subgroups require more education and training. These vertical divisions are based on O*NET Job Zones as of July 2014. Some occupations have changed Job Zones by one level since then, but the vast majority remain the same. Here is a brief description of each Job Zone:[33]

- Job Zone One: little or no preparation needed
- Job Zone Two: some preparation needed
- Job Zone Three: medium preparation needed
- Job Zone Four: considerable preparation needed
- Job Zone Five: extensive preparation needed

Medical Career Training

Job Zone Five

Physicians and Surgeons, All Other	3,161	Dentists, General	1,505	Physical Therapists	1,692	Medical Scientists, Except Epidemiologists	442
Pharmacists	3,061	Orthodontists	94	Speech-Language Pathologists	1,394		
Family and General Practitioners	1,411	Oral and Maxillofacial Surgeons	77	Nurse Practitioners	1,263		
Physician Assistants	969	Dentists, All Other Specialists	62	Occupational Therapists	982		
Veterinarians	644	Prosthodontists	9	Dietitians and Nutritionists	629		
Internists, General	536			Chiropractors	417		
Surgeons	437			Nurse Anesthetists	368		

[33] Source: O*NET OnLine. Additional details regarding Job Zones can be found here: https://www.onetonline.org/help/online/zones.

Optometrists	433			Athletic Trainers	200		
Health Diagnosing and Treating Practitioners, All Other	374			Exercise Physiologists	153		
Pediatricians, General	340			Orthotists and Prosthetists	75		
Anesthesiologists	319			Nurse Midwives	57		
Psychiatrists	285						
Obstetricians and Gynecologists	240						
Audiologists	119						
Podiatrists	60						
Epidemiologists	36						
Genetic Counselors	20						
Job Zone Four							
Healthcare Practitioners and Technical Workers, All Other	368			Registered Nurses	25,861	Medical and Clinical Laboratory Technologists	1,374
				Therapists, All Other	237	Occupational Health and Safety Specialists	550
				Recreational Therapists	178		
Job Zone Three							
Medical Assistants	6,159	Dental Assistants	3,660	Licensed Practical and Licensed Vocational Nurses	6,422	Pharmacy Technicians	3,887
Phlebotomists	958	Dental Hygienists	2,323	Massage Therapists	1,751	Emergency Medical Technicians and Paramedics	3,018
Healthcare Support Workers, All Other	891			Respiratory Therapists	1,074	Radiologic Technologists	1,882

Veterinary Assistants and Laboratory Animal Caretakers	610		Physical Therapist Assistants	598	Medical Records and Health Information Technicians	1,699
			Occupational Therapy Assistants	257	Medical and Clinical Laboratory Technicians	1,430
			Radiation Therapists	157	Health Technologists and Technicians, All Other	1,301
			Occupational Therapy Aides	70	Surgical Technologists	1,075
					Veterinary Technologists and Technicians	827
					Opticians, Dispensing	805
					Psychiatric Technicians	798
					Medical Transcriptionists	665
					Diagnostic Medical Sonographers	570
					Cardiovascular Technologists and Technicians	475
					Ophthalmic Medical Technicians	379
					Magnetic Resonance Imaging Technologists	299
					Nuclear Medicine Technologists	190
					Occupational Health and Safety Technicians	122
					Respiratory Therapy Technicians	97

						Hearing Aid Specialists	55
Job Zone Two							
Pharmacy Aides	442			Personal Care Aides	28,783	Dental Laboratory Technicians	380
				Nursing Assistants	13,044	Dietetic Technicians	252
				Home Health Aides	11,414		
				Psychiatric Aides	903		
				Orderlies	460		
				Physical Therapist Aides	375		
				Ambulance Drivers and Attendants, Except Emergency Medical Technicians	272		

Psychology and Counseling Career Training

Job Zone Five

Educational, Guidance, School, and Vocational Counselors	2,644
Healthcare Social Workers	1,764
Clinical, Counseling, and School Psychologists	1,544
Rehabilitation Counselors	1,355
Mental Health Counselors	1,240
Mental Health and Substance Abuse Social Workers	1,126
Substance Abuse and Behavioral Disorder Counselors	909
Religious Workers, All Other	369
Marriage and Family Therapists	271
Psychologists, All Other	103
Industrial-Organizational Psychologists	15

Job Zone Four

Social and Human Service Assistants	3,914
Child, Family, and School Social Workers	2,507
Probation Officers and Correctional Treatment Specialists	669
Social Workers, All Other	536
Community Health Workers	530
Counselors, All Other	293

Job Zone Three

Community and Social Service Specialists, All Other	907

Construction Trade Career Training

Job Zone Four	
Construction Managers	4,410
Architects, Except Landscape and Naval	936

Job Zone Three	
Maintenance and Repair Workers, General	13,220
Supervisors of Construction and Extraction Workers	7,030
Cabinetmakers and Bench Carpenters	1,109
Construction and Building Inspectors	830
Stonemasons	234

Job Zone Two	
Construction Laborers	15,385
Carpenters	13,305
Painters, Construction and Maintenance	4,163
Cement Masons and Concrete Finishers	2,825
Drywall and Ceiling Tile Installers	2,634
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	2,542
Roofers	1,674
Highway Maintenance Workers	1,275
Structural Iron and Steel Workers	1,213
Brickmasons and Blockmasons	1,200
Glaziers	1,145
Tile and Marble Setters	877
Upholsterers	688
Carpet Installers	670
Insulation Workers, Floor, Ceiling, and Wall	662
Helpers—Carpenters	617
Plasterers and Stucco Masons	564
Tapers	526

Construction and Related Workers, All Other	462
Reinforcing Iron and Rebar Workers	430
Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	426
Fence Erectors	316
Grounds Maintenance Workers, All Other	292
Floor Layers, Except Carpet, Wood, and Hard Tiles	262
Rail-Track Laying and Maintenance Equipment Operators	208
Helpers—Roofers	159
Recreational Vehicle Service Technicians	156
Tank Car, Truck, and Ship Loaders	145
Foundry Mold and Coremakers	90
Solar Photovoltaic Installers	82
Terrazzo Workers and Finishers	69
Paperhangers	64
Manufactured Building and Mobile Home Installers	49
Pile-Driver Operators	44
Refractory Materials Repairers, Except Brickmasons	23
Segmental Pavers	17

Job Zone One

Helpers, Construction Trades, All Other	309
Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	173

Education Career Training

		Job Zone Five	
Postsecondary Teachers, All Other	1,329	Education Administrators, Elementary and Secondary School	2,919
Health Specialties Teachers, Postsecondary	1,003	Instructional Coordinators	1,347
Education Administrators, Postsecondary	851		
Art, Drama, and Music Teachers, Postsecondary	635		
Graduate Teaching Assistants	606		
English Language and Literature Teachers, Postsecondary	581		
Business Teachers, Postsecondary	552		
Mathematical Science Teachers, Postsecondary	435		
Nursing Instructors and Teachers, Postsecondary	418		
Biological Science Teachers, Postsecondary	355		
Education Teachers, Postsecondary	340		
Education Administrators, All Other	275		
Psychology Teachers, Postsecondary	238		
Communications Teachers, Postsecondary	212		
Foreign Language and Literature Teachers, Postsecondary	206		
Engineering Teachers, Postsecondary	202		
History Teachers, Postsecondary	150		

Recreation and Fitness Studies Teachers, Postsecondary	149		
Philosophy and Religion Teachers, Postsecondary	124		
Criminal Justice and Law Enforcement Teachers, Postsecondary	113		
Sociology Teachers, Postsecondary	113		
Social Sciences Teachers, Postsecondary, All Other	103		
Political Science Teachers, Postsecondary	98		
Law Teachers, Postsecondary	83		
Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	79		
Economics Teachers, Postsecondary	79		
Social Work Teachers, Postsecondary	61		
Agricultural Sciences Teachers, Postsecondary	57		
Area, Ethnic, and Cultural Studies Teachers, Postsecondary	50		
Architecture Teachers, Postsecondary	37		
Anthropology and Archeology Teachers, Postsecondary	36		
Environmental Science Teachers, Postsecondary	28		
Home Economics Teachers, Postsecondary	26		
Library Science Teachers, Postsecondary	26		
Geography Teachers, Postsecondary	25		

Forestry and Conservation Science Teachers, Postsecondary	11		
		Job Zone Four	
		Elementary School Teachers, Except Special Education	17,532
		Secondary School Teachers, Except Special and Career/Technical Education	12,151
		Substitute Teachers	8,212
		Middle School Teachers, Except Special and Career/Technical Education	8,138
		Teachers and Instructors, All Other	3,336
		Special Education Teachers, Kindergarten and Elementary School	2,638
		Kindergarten Teachers, Except Special Education	2,036
		Special Education Teachers, Secondary School	1,756
		Special Education Teachers, Middle School	1,248
		Career/Technical Education Teachers, Secondary School	1,075
		Directors, Religious Activities and Education	871
		Adult Basic and Secondary Education and Literacy Teachers and Instructors	757
		Special Education Teachers, All Other	512
		Education Administrators, Preschool and Childcare Center/Program	488
		Special Education Teachers, Preschool	335

Career/Technical Education Teachers, Middle School	184		
Job Zone Three			
Teacher Assistants	14,395	Fitness Trainers and Aerobics Instructors	2,827
Preschool Teachers, Except Special Education	2,995	Self-Enrichment Education Teachers	2,753
Vocational Education Teachers, Postsecondary	1,234		
		Job Zone Two	
		Animal Trainers	265

Engineering and Technology Career Training

Job Zone Five

Industrial Engineers	1,655
Architectural and Engineering Managers	1,070
Environmental Engineers	351
Materials Scientists	35

Job Zone Four

Civil Engineers	1,934
Mechanical Engineers	1,694
Electrical Engineers	1,103
Engineers, All Other	854
Electronics Engineers, Except Computer	780
Aerospace Engineers	338
Materials Engineers	156
Environmental Engineering Technicians	129
Nuclear Engineers	112
Petroleum Engineers	71
Aerospace Engineering and Operations Technicians	57
Marine Engineers and Naval Architects	31
Mining and Geological Engineers, Including Mining Safety Engineers	27
Agricultural Engineers	15

Job Zone Three

Electricians	7,371
Electrical and Electronic Engineering Technicians	841
Civil Engineering Technicians	485
Industrial Engineering Technicians	461
Engineering Technicians, Except Drafters, All Other	427
Mechanical Engineering Technicians	290
Sound Engineering Technicians	69
Model Makers, Metal and Plastic	48

Job Zone Two

Helpers—Electricians	867
Locksmiths and Safe Repairers	205

Production Career Training

Job Zone Four

Industrial Production Managers	1,391				

Job Zone Three

Molders, Shapers, and Casters, Except Metal and Plastic	648	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	3,206	Printing Press Operators	1,087
				Prepress Technician and Workers	200

Job Zone Two

First-Line Supervisors of Production and Operating Workers	5,562	Laborers and Freight, Stock, and Material Movers, Hand	39,077	Print Binding and Finishing Workers	274
Production Workers, All Other	2,517	Packers and Packagers, Hand	10,180	Photographic Process Workers and Processing Machine Operators	272
Machine Feeders and Offbearers	2,095	Packaging and Filling Machine Operators and Tenders	4,010		
Sheet Metal Workers	1,835	Hazardous Materials Removal Workers	411		
Mixing and Blending Machine Setters, Operators, and Tenders	1,149				
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	919				
Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	674				
Mail Clerks and Mail Machine Operators, Except Postal Service	628				
Conveyor Operators and Tenders	524				
Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	353				

Food Cooking Machine Operators and Tenders	318
Food Processing Workers, All Other	312
Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	274
Metal Workers and Plastic Workers, All Other	258
Chemical Plant and System Operators	196
Painting, Coating, and Decorating Workers	193
Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	165
Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	159
Sewers, Hand	154
Semiconductor Processors	144
Textile, Apparel, and Furnishings Workers, All Other	122
Tire Builders	100
Layout Workers, Metal and Plastic	77
Aircraft Cargo Handling Supervisors	60
Shoe Machine Operators and Tenders	42
Textile Bleaching and Dyeing Machine Operators and Tenders	26
Job Zone One	
Helpers--Production Workers	4,399
Sewing Machine Operators	1,248
Graders and Sorters, Agricultural Products	587
Furniture Finishers	242
Fabric Menders, Except Garment	7

Top In-Demand Occupations by Education Requirement

The following tables represent the most in-demand occupations over the next ten years at each education requirement level for the Inland Empire region. Educational requirement is the typical education needed for entry for each occupation as defined by the BLS. Total annual demand is a sum of growth demand and replacement demand. Data are as of 2016Q2.

Top 25 Occupations Requiring a Doctoral or Professional Degree	Total Annual Demand
Physicians and Surgeons, All Other	171
Lawyers	153
Physical Therapists	104
Pharmacists	85
Clinical, Counseling, and School Psychologists	80
Dentists, General	76
Family and General Practitioners	72
Health Specialties Teachers, Postsecondary	41
Postsecondary Teachers, All Other	39
Optometrists	34
Surgeons	27
Internists, General	26
Chiropractors	21
Anesthesiologists	21
Veterinarians	21
Medical Scientists, Except Epidemiologists	21
English Language and Literature Teachers, Postsecondary	19
Business Teachers, Postsecondary	17
Mathematical Science Teachers, Postsecondary	17
Pediatricians, General	16
Obstetricians and Gynecologists	15
Psychiatrists	14
Biological Science Teachers, Postsecondary	14
Education Teachers, Postsecondary	10
Psychology Teachers, Postsecondary	9

Top 25 Occupations Requiring a Master's Degree	Total Annual Demand
Education Administrators, Elementary and Secondary School	120
Nurse Practitioners	88
Educational, Guidance, School, and Vocational Counselors	88
Healthcare Social Workers	82
Speech-Language Pathologists	67
Physician Assistants	61
Mental Health Counselors	56
Rehabilitation Counselors	51
Occupational Therapists	46
Education Administrators, Postsecondary	37
Community and Social Service Specialists, All Other	29
Instructional Coordinators	27
Librarians	27
Health Diagnosing and Treating Practitioners, All Other	24
Art, Drama, and Music Teachers, Postsecondary	20
Nurse Anesthetists	20
Nursing Instructors and Teachers, Postsecondary	16
Counselors, All Other	11
Marriage and Family Therapists	10
Urban and Regional Planners	8
Statisticians	8
Economists	5
Psychologists, All Other	5
Curators	4
Nurse Midwives	3

Top 25 Occupations Requiring a Bachelor's Degree	Total Annual Demand
Registered Nurses	1,045
General and Operations Managers	737
Managers, All Other	675
Elementary School Teachers, Except Special Education	557
Accountants and Auditors	436
Secondary School Teachers, Except Special and Career/Technical Education	417
Middle School Teachers, Except Special and Career/Technical Education	264
Management Analysts	186
Human Resources Specialists	155
Medical and Health Services Managers	138
Business Operations Specialists, All Other	137
Financial Managers	135
Construction Managers	134
Market Research Analysts and Marketing Specialists	116
Cost Estimators	115
Software Developers, Applications	112
Computer Systems Analysts	111
Teachers and Instructors, All Other	109
Sales Managers	106
Coaches and Scouts	99
Child, Family, and School Social Workers	90
Kindergarten Teachers, Except Special Education	80
Special Education Teachers, Kindergarten and Elementary School	80
Civil Engineers	78
Purchasing Agents, Except Wholesale, Retail, and Farm Products	75

Top 25 Occupations Requiring an Associate's Degree	Total Annual Demand
Preschool Teachers, Except Special Education	117
Dental Hygienists	88
Medical and Clinical Laboratory Technicians	62
Radiologic Technologists	57
Paralegals and Legal Assistants	44
Web Developers	43
Physical Therapist Assistants	43
Respiratory Therapists	40
Funeral Service Managers	33
Life, Physical, and Social Science Technicians, All Other	31
Diagnostic Medical Sonographers	29
Veterinary Technologists and Technicians	28
Computer Network Support Specialists	25
Cardiovascular Technologists and Technicians	22
Electrical and Electronic Engineering Technicians	21
Occupational Therapy Assistants	19
Civil Engineering Technicians	16
Environmental Science and Protection Technicians, Including Health	15
Human Resources Assistants, Except Payroll and Timekeeping	15
Medical Equipment Repairers	14
Engineering Technicians, Except Drafters, All Other	14
Morticians, Undertakers, and Funeral Directors	13
Chemical Technicians	12
Architectural and Civil Drafters	12
Industrial Engineering Technicians	12

Top 25 Occupations Requiring a Postsecondary Non-Degree Award	Total Annual Demand
Heavy and Tractor-Trailer Truck Drivers	862
Nursing Assistants	574
Automotive Service Technicians and Mechanics	401
Hairdressers, Hairstylists, and Cosmetologists	399
Medical Assistants	312
Licensed Practical and Licensed Vocational Nurses	303
Dental Assistants	172
Emergency Medical Technicians and Paramedics	141
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	120
Firefighters	113
Massage Therapists	95
Barbers	79
Medical Records and Health Information Technicians	71
Phlebotomists	49
Library Technicians	46
Manicurists and Pedicurists	35
First-Line Supervisors of Fire Fighting and Prevention Workers	32
Cooks, Private Household	32
Aircraft Mechanics and Service Technicians	30
Surgical Technologists	26
Telecommunications Equipment Installers and Repairers, Except Line Installers	21
Audio and Video Equipment Technicians	20
Ophthalmic Medical Technicians	17
Skincare Specialists	17
Medical Transcriptionists	14

Occupations Requiring Some College, No Degree	Total Annual Demand
Teacher Assistants	502
Computer User Support Specialists	102
Bookkeeping, Accounting, and Auditing Clerks	82
Computer, Automated Teller, and Office Machine Repairers	33
Actors	16
Wind Turbine Service Technicians	11

Top 25 Occupations Requiring a High School Diploma or Equivalent	Total Annual Demand
Office Clerks, General	848
Customer Service Representatives	790
First-Line Supervisors of Retail Sales Workers	636
Childcare Workers	600
Maintenance and Repair Workers, General	494
First-Line Supervisors of Food Preparation and Serving Workers	450
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	434
Receptionists and Information Clerks	422
Carpenters	385
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	376
First-Line Supervisors of Office and Administrative Support Workers	349
Security Guards	347
Team Assemblers	326
Light Truck or Delivery Services Drivers	323
Sales Representatives, Services, All Other	271
Electricians	270
Substitute Teachers	268
Police and Sheriff's Patrol Officers	246
Shipping, Receiving, and Traffic Clerks	195
Billing and Posting Clerks	190
Packaging and Filling Machine Operators and Tenders	184
Medical Secretaries	183
Welders, Cutters, Solderers, and Brazers	176
Supervisors of Construction and Extraction Workers	175
Farmers, Ranchers, and Other Agricultural Managers	174

Top 25 Occupations Requiring No Formal Educational Credential	Total Annual Demand
Retail Salespersons	2,534
Combined Food Preparation and Serving Workers, Including Fast Food	1,864
Cashiers	1,821
Laborers and Freight, Stock, and Material Movers, Hand	1,676
Waiters and Waitresses	1,368
Personal Care Aides	1,115
Stock Clerks and Order Fillers	986
Construction Laborers	723
Home Health Aides	654
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	640
Landscaping and Groundskeeping Workers	547
Cooks, Restaurant	521
Maids and Housekeeping Cleaners	469
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	444
Food Preparation Workers	384
Industrial Truck and Tractor Operators	372
Packers and Packagers, Hand	362
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	316
Cleaners of Vehicles and Equipment	265
Bartenders	262
Dining Room and Cafeteria Attendants and Bartender Helpers	259
Dishwashers	255
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	219
Cooks, Fast Food	199
Painters, Construction and Maintenance	183